

Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information					
Building number, street name				Unit no.	Lot/con.
Municipality VAUGHAN (WOODBIDGE)	Postal code	Plan number/ other description			
B. Individual who reviews and takes responsibility for design activities					
Name MICHAEL O'ROURKE		Firm HVAC DESIGNS LTD.			
Street address 375 FINLEY AVE			Unit no. 202	Lot/con. N/A	
Municipality AJAX	Postal code L1S 2E2	Province ONTARIO	E-mail info@hvacdsgns.ca		
Telephone number (905) 619-2300	Fax number (905) 619-2375	Cell number ()			
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]					
☐ 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: 5013 - RIVERVIEW WO/ LOFT Project: PINE VALLEY PH 2		
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.					
May 4, 2022			 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.

SITE NAME: PINE VALLEY PH 2										DATE May-22		WINTER NATURAL AIR CHANGE RATE 0.340		HEAT LOSS AT °F. 76		CSA-F280-12	
BUILDER: GOLD PARK HOMES										LO# 96223		SUMMER NATURAL AIR CHANGE RATE 0.114		HEAT GAIN AT °F. 13		SB-12 PACKAGE A1	
TYPE: 5013 - RIVERVIEW										WIC		ENS-3		ENS-4		WIC-E	
WIC										10		17		7		8	
9										9		9		9		9	
GRS:WALL AREA										333		153		63		72	
FACTORS										LOSS		LOSS		LOSS		LOSS	
GAIN										GAIN		GAIN		GAIN		GAIN	
NORTH	21.3	16.0	0	0	0	0	0	0	0	20	426	319	0	0	0	0	0
EAST	21.3	41.6	0	0	0	0	0	0	0	57	1213	2368	0	0	0	0	0
SOUTH	21.3	24.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST	21.3	41.6	46	979	1911	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
DOORS	25.2	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5	0.8	287	1281	216	114	509	86	84	375	63	142	634	107	204	910	153
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
NO ATTIC EXPOSED CLG	2.7	1.3	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
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			2696	2327			1476	983		617		1947			537		572
SUB TOTAL HT GAIN																	
LEVEL FACTOR / MULTIPLIER			0.20	0.35			0.20	0.35		265		0.20	0.35		0.20	0.35	268
AIR CHANGE HEAT LOSS			935				512			214		675			204		199
AIR CHANGE HEAT GAIN										18		45			23		18
DUCT LOSS			0				0			0		262			0		0
DUCT GAIN							0			0		186			0		0
HEAT GAIN PEOPLE			2	480	0	0	0	0	0	1	240	1	240	1	240	0	0
HEAT GAIN APPLIANCES/LIGHTS				890	0	0	0	0	0	0	890	0	890	0	0	0	0
TOTAL HT LOSS BTU/H			3631				1988			831		2884			790		771
TOTAL HT GAIN x 1.3 BTU/H			5006				1363			367		2656			487		371

TYPE: 5013 - RIVERVIEW										WIC		ENS-3		ENS-4		WIC-E	
WIC										10		17		7		8	
9										9		9		9		9	
GRS:WALL AREA										333		153		63		72	
FACTORS										LOSS		LOSS		LOSS		LOSS	
GAIN										GAIN		GAIN		GAIN		GAIN	
NORTH	21.3	16.0	0	0	0	0	0	0	0	20	426	319	0	0	0	0	0
EAST	21.3	41.6	0	0	0	0	0	0	0	57	1213	2368	0	0	0	0	0
SOUTH	21.3	24.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST	21.3	41.6	46	979	1911	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
DOORS	25.2	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5	0.8	287	1281	216	114	509	86	84	375	63	142	634	107	204	910	153
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
NO ATTIC EXPOSED CLG	2.7	1.3	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
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			2696	2327			1476	983		617		1947			537		572
SUB TOTAL HT GAIN																	
LEVEL FACTOR / MULTIPLIER			0.20	0.35			0.20	0.35		265		0.20	0.35		0.20	0.35	268
AIR CHANGE HEAT LOSS			935				512			214		675			204		199
AIR CHANGE HEAT GAIN										18		45			23		18
DUCT LOSS			0				0			0		262			0		0
DUCT GAIN							0			0		186			0		0
HEAT GAIN PEOPLE			2	480	0	0	0	0	0	1	240	1	240	1	240	0	0
HEAT GAIN APPLIANCES/LIGHTS				890	0	0	0	0	0	0	890	0	890	0	0	0	0
TOTAL HT LOSS BTU/H			3631				1988			831		2884			790		771
TOTAL HT GAIN x 1.3 BTU/H			5006				1363			367		2656			487		371

TYPE: 5013 - RIVERVIEW										WIC		ENS-3		ENS-4		WIC-E	
WIC										10		17		7		8	
9										9		9		9		9	
GRS:WALL AREA										333		153		63		72	
FACTORS										LOSS		LOSS		LOSS		LOSS	
GAIN										GAIN		GAIN		GAIN		GAIN	
NORTH	21.3	16.0	0	0	0	0	0	0	0	20	426	319	0	0	0	0	0
EAST	21.3	41.6	0	0	0	0	0	0	0	57	1213	2368	0	0	0	0	0
SOUTH	21.3	24.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST	21.3	41.6	46	979	1911	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
DOORS	25.2	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5	0.8	287	1281	216	114	509	86	84	375	63	142	634	107	204	910	153
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
NO ATTIC EXPOSED CLG	2.7	1.3	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
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			2696	2327			1476	983		617		1947			537		572
SUB TOTAL HT GAIN																	
LEVEL FACTOR / MULTIPLIER			0.20	0.35			0.20	0.35		265		0.20	0.35		0.20	0.35	268
AIR CHANGE HEAT LOSS			935				512			214		675			204		199
AIR CHANGE HEAT GAIN										18		45			23		18
DUCT LOSS			0				0			0		262			0		0
DUCT GAIN							0			0		186			0		0
HEAT GAIN PEOPLE			2	480	0	0	0	0	0	1	240	1	240	1	240	0	0
HEAT GAIN APPLIANCES/LIGHTS				890	0	0	0	0	0	0	890	0	890	0	0	0	0
TOTAL HT LOSS BTU/H			3631				1988			831		2884			790		771
TOTAL HT GAIN x 1.3 BTU/H			5006				1363			367		2656			487		371

SITE NAME: PINE VALLEY PH 2
BUILDER: GOLD PARK HOMESWO/LOFT
TYPE: 5013 - RIVERVIEW

GFA: 4502 LO# 96523 DATE: May-22 FURNACE 1

HEATING CFM 1110 COOLING CFM 1110
TOTAL HEAT LOSS 59,222 TOTAL HEAT GAIN 33,583
AIR FLOW RATE CFM 18.74 AIR FLOW RATE CFM 33.05FURNACE HEAT LOSS +
HRV / ERV HEAT LOSS
= 62300 BTUH

\$LENNOX

AFUE = 96 %
INPUT (BTU/H) = 66,000
OUTPUT (BTU/H) = 63,900ML196UH070XE36B
FAN SPEED 70furnace pressure 0.6
a/c coil pressure 0.2
available pressure for s/a & r/a 0.35

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	0	0	6
R/A	0	0	0	0	1

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

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

RUN #	ROOM NAME	19	20	21	22	23	24
	ROOM NAME						
	RM LOSS MBH.						
	CFM PER RUN HEAT	FOY	GRT	GRT	GRT	GRT	DIN
	RM GAIN MBH.	3.09	2.37	2.37	2.37	2.37	3.01
	CFM PER RUN COOLING	58	45	45	45	45	56
	ADJUSTED PRESSURE	1.86	3.24	3.24	3.24	3.24	2.46
	EQUIVALENT LENGTH	61	107	107	107	107	81
	TOTAL EFFECTIVE LENGTH	0.17	0.15	0.15	0.15	0.15	0.16
	ADJUSTED PRESSURE	47	56	49	45	38	27
	ROUND DUCT SIZE	100	110	150	130	150	140
	HEATING VELOCITY (ft/min)	147	166	199	175	188	167
	COOLING VELOCITY (ft/min)	0.12	0.09	0.08	0.09	0.08	0.1
	OUTLET GRILL SIZE	5	6	6	6	6	5
	TRUNK	F	D	D	D	D	F

SITE NAME: PINE VALLEY PH 2
BUILDER: GOLD PARK HOMESWO/L OFT
TYPE: 5013 - RIVERVIEW

GFA: 4502 LO# 96523 FURNACE 2

DATE: May-22

HEATING CFM	980	COOLING CFM	980
TOTAL HEAT LOSS	25,961	TOTAL HEAT GAIN	28,363
AIR FLOW RATE CFM	37.75	AIR FLOW RATE CFM	34.55

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

FURNACE HEAT LOSS +
HRV / ERV HEAT LOSS
= 29039 BTUHAFUE = 96 %
INPUT (BTUH) = 44,000
OUTPUT (BTUH) = 42,800ML196UH045XE36B
FAN SPEED
LOW 620
MEDIUM 685
HIGH 980

RUN COUNT	4th	3rd	2nd	1st	Bas
SIA	0	0	19	0	0
R/A	0	0	5	0	0

plenum pressure s/a 0.18
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.16r/a grille press. loss 0.17
adjusted pressure r/a 0.15DESIGN CFM = 980
CFM @ 8" E.S.P.

All SIA diffusers 4"x10" unless noted otherwise on layout.

All SIA runs 5"Ø unless noted otherwise on layout.

All airflows are addressed unless otherwise indicated																		
RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
PBR	PBR	PBR	ENS	ENS	WIC	WIC-E	BED-2	BED-2	BED-3	BED-3	BED-4	BED-4	BED-4	ENS-2	ENS-3	ENS-4	LND	
RM NAME	ROOM NAME	ROOM NAME																
RM LOSS MBH	1.82	1.82	0.99	0.99	0.83	0.77	1.44	1.44	1.54	1.54	1.63	1.63	1.63	1.90	1.79	0.79	0.24	
CFM PER RUN HEAT	69	69	38	38	31	29	54	54	58	58	61	61	61	72	68	30	9	
RM GAIN MBH	2.50	2.50	0.68	0.68	0.37	0.37	1.33	1.33	1.96	1.96	2.22	2.22	2.22	2.66	1.33	0.49	1.36	
CFM PER RUN COOLING	86	86	24	24	13	13	46	46	68	68	77	77	77	23	46	17	47	
ADJUSTED PRESSURE	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	
ACTUAL DUCT LGH	52	63	48	16	51	19	72	77	78	69	69	66	73	84	64	75	46	
EQUIVALENT LENGTH	210	190	255	130	245	120	170	180	200	190	180	190	170	190	180	160	130	
TOTAL EFFECTIVE LENGTH	262	253	303	146	296	139	242	257	278	259	249	256	243	274	244	235	176	
ADJUSTED PRESSURE	0.06	0.06	0.06	0.12	0.06	0.12	0.07	0.07	0.06	0.07	0.07	0.07	0.07	0.06	0.07	0.07	0.1	
ROUND DUCT SIZE	6	6	5	4	4	4	5	5	6	6	6	6	6	6	6	4	4	
HEATING VELOCITY (ft/min)	352	352	279	436	356	333	396	396	296	296	311	311	311	367	347	344	103	
COOLING VELOCITY (ft/min)	438	438	176	275	149	149	338	338	347	347	393	393	393	117	235	195	539	
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10
TRUNK	C	C	C	C	C	C	B	B	A	A	A	A	A	B	A	A	B	

RUN #	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
ROOM NAME	BED-3	BED-4	BED-4	BED-4	BED-4	BED-4	BED-4	BED-4	BED-4	BED-4	BED-4	BED-4	BED-4	BED-4	BED-4	BED-4	BED-4	BED-4	BED-4
RM LOSS MBH	1.54	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63
CFM PER RUN HEAT	58	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
RM GAIN MBH	1.96	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22
CFM PER RUN COOLING	68	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
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	0.17	0.17	0.17
ACTUAL DUCT LGH	67	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
EQUIVALENT LENGTH	190	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
TOTAL EFFECTIVE LENGTH	257	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241
ADJUSTED PRESSURE	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
ROUND DUCT SIZE	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
HEATING VELOCITY (ft/min)	296	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311
COOLING VELOCITY (ft/min)	347	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10
TRUNK	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

SUPPLY AIR TRUNK SIZE	TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	516	0.06	11.8	18	516	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK B	705	0.06	13.2	22	577	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK C	979	0.06	15	26	678	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK D	0	0.00	0	0	0	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK E	0	0.00	0	0	0	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK F	0	0.00	0	0	0	0	0.00	0	0	8	0	0.00	0	0	8

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
AIR VOLUME	155	260	115	115	335	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH	62	93	79	75	69	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	170	195	195	245	230	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LENGTH	232	288	274	320	299	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
ROUND DUCT SIZE	7.5	9.5	7	7	10.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	30	14	14	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Michael O'Rourke

TYPE: 5013 - RIVERVIEW
SITE NAME: PINE VALLEY PH 2

LO # 96523
WO/ LOFT

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>3</u> @ 10.6 cfm	<u>31.8</u> cfm
Kitchen & Bathrooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Other Rooms	<u>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Table 9.32.3.A.	TOTAL	<u>180.2</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		<u>79.5</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>180.2</u>	cfm
Less Principal Ventil. Capacity	<u>150</u>	cfm
Required Supplemental Capacity	<u>30.2</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model: VANEE V150H	Location: BSMT		
<u>150.0</u> cfm	☒ HVI Approved		
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
150.0 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	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-3	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-4	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE V150H	INSTALL 2 HRV / ERV's	
<u>150</u> cfm high	<u>35</u> cfm low	
<u>75</u> % Sensible Efficiency	☒ HVI Approved	
@ 32 deg F (0 deg C)		

LOCATION OF INSTALLATION	
Lot:	Concession
Township	Plan:
Address	
Roll #	Building Permit #

BUILDER: GOLD PARK HOMES	
Name:	
Address:	
City:	
Telephone #:	Fax #:

INSTALLING CONTRACTOR	
Name:	
Address:	
City:	
Telephone #:	Fax #:

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	
HRAI #	001820
Date:	May-22

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																									
Formula Sheet (For Air Leakage / Ventilation Calculation)																																									
LO#: 96523		Model: 5013 - RIVERVIEW		Builder: GOLD PARK HOMES		Date: 2022-05-04																																			
Volume Calculation																																									
<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>2108</td> <td>10</td> <td>21080</td> </tr> <tr> <td>First</td> <td>2108</td> <td>11</td> <td>23188</td> </tr> <tr> <td>Second</td> <td>2793</td> <td>9</td> <td>25137</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td colspan="2">Total:</td> <td></td> <td>69,405.0 ft³</td> </tr> <tr> <td colspan="2">Total:</td> <td></td> <td>1965.3 m³</td> </tr> </tbody> </table>										Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2108	10	21080	First	2108	11	23188	Second	2793	9	25137	Third	0	9	0	Fourth	0	9	0	Total:			69,405.0 ft³	Total:			1965.3 m³
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																						
Bsmt	2108	10	21080																																						
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Third	0	9	0																																						
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Total:			69,405.0 ft³																																						
Total:			1965.3 m³																																						
Air Change & Delta T Data																																									
		WINTER NATURAL AIR CHANGE RATE		0.340																																					
		SUMMER NATURAL AIR CHANGE RATE		0.114																																					
Design Temperature Difference																																									
		Tin °C	Tout °C	ΔT °C		ΔT °F																																			
Winter DTDh		22	-20	42		76																																			
Summer DTDc		24	31	7		13																																			
6.2.6 Sensible Gain due to Air Leakage																																									
$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																									
0.340	x	545.93	x	42 °C	x	1.2	=	9406 W																																	
								=	32093 Btu/h																																
5.2.3.1 Heat Loss due to Air Leakage																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$																																									
0.340	x	545.93	x	42 °C	x	1.2	=	9406 W																																	
								=	32093 Btu/h																																
5.2.3.2 Heat Loss due to Mechanical Ventilation																																									
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E) \times 2 \text{ HRV / ERV's}$																																									
300 CFM	x	76 °F	x	1.08	x	0.25	=	6156 Btu/h																																	
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																									
$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																									
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{clevel})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5">32,093</td> <td>13,293</td> <td>1.207</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>20,255</td> <td>0.475</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>18,502</td> <td>0.347</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </tbody> </table>										Level	Level Factor (LF)	HLairbv 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	32,093	13,293	1.207	2	0.3	20,255	0.475	3	0.2	18,502	0.347	4	0	0	0.000	5	0	0	0.000						
Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																					
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2	0.3		20,255	0.475																																					
3	0.2		18,502	0.347																																					
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 																																	

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 5013 - RIVERVIEW	WO/ LOFT	BUILDER: GOLD PARK HOMES
SFQT: 4502	LO# 96523	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 (ft³):	69405.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 70.0 ft	WIDTH: 43.0 ft	EXPOSED PERIMETER:	226.0 ft

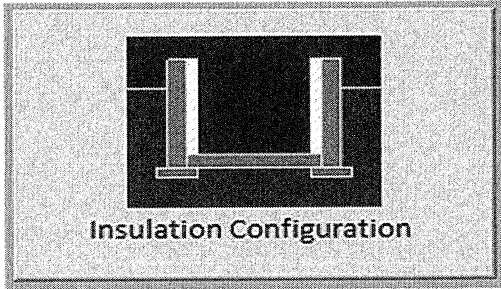
2012 OBC - COMPLIANCE PACKAGE		Compliance Package A1	
Component		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.65
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		22	17.03
Basement 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):	21.3	 Insulation Configuration
Floor Width (m):	13.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	2.5	
Door Area (m ²):	0.0	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		2345

TYPE: 5013 - RIVERVIEW
LO# 96523

WO/ LOFT

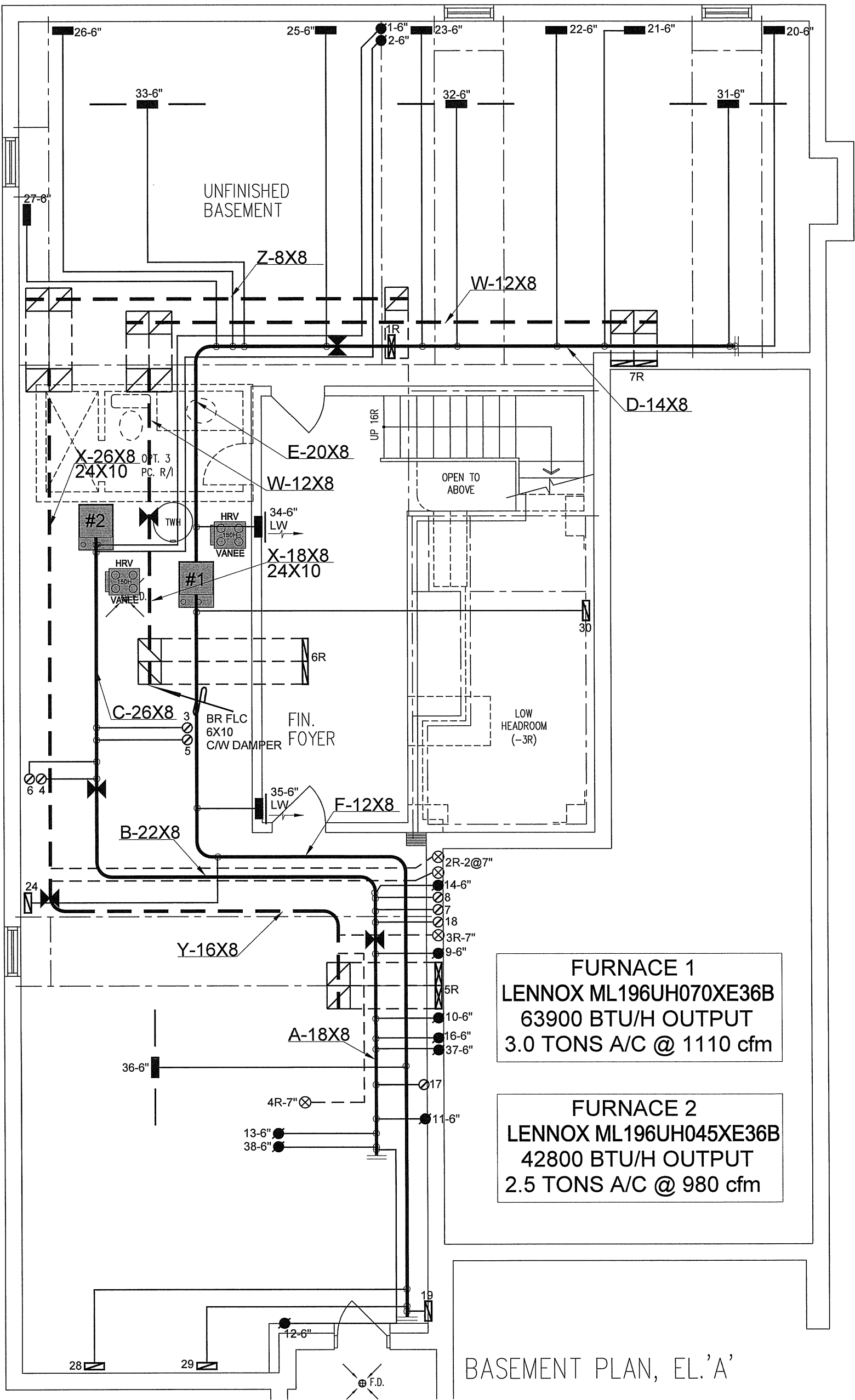
Air Infiltration Residential Load Calculator

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):	1965.3			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2619.8 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	70.8	70.8		
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):	0.114			

TYPE: 5013 - RIVERVIEW
LO# 96523

WO/ LOFT



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.

LOD
WOD
CSA-F280-12
PACKAGE A1

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HVAC LEGEND			3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE	1.
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR	No.
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR	Date
	6" SUPPLY AIR STACK 2nd FLOOR		FRA-FLOOR RETURN AIR GRILLE	
	RETURN AIR STACK ABOVE		REDUCER	
REVISIONS				

FURNACE 1
LENNOX ML196UH070XE36B
63900 BTU/H OUTPUT
3.0 TONS A/C @ 1110 cfm

FURNACE 2
LENNOX ML196UH045XE36B
42800 BTU/H OUTPUT
2.5 TONS A/C @ 980 cfm

BASEMENT PLAN, EL. 'A'

Client
GOLD PARK HOMES

Project Name
PINE VALLEY PH 2
VAUGHAN, ONTARIO

RIVERVIEW - WO/ LOFT
5013 4502 sqft

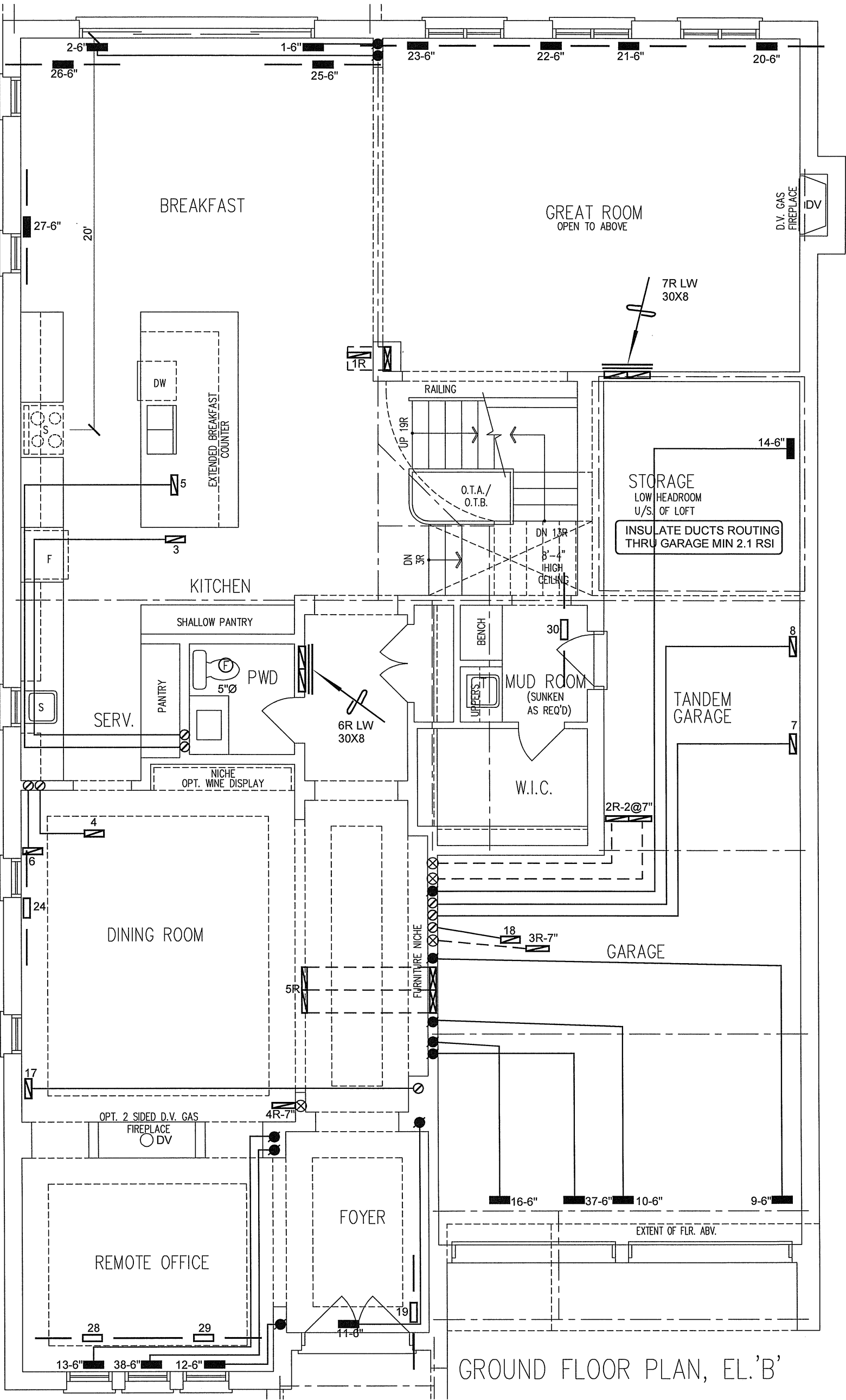
HVACDESIGNS LTD.

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.

	S/A	R/A	FANS
2ND	19	5	6
1ST	12	2	2
BAS	6	1	0

Sheet Title	
BASEMENT HEATING LAYOUT	
Date	MAY/2022
Scale	3/16" = 1'-0"
BCIN# 19669	
LO#	96523



GROUND FLOOR PLAN, EL.'B'

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

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

LOD
WOD
CSA-F280-12
PACKAGE A1

HVAC LEGEND			3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE	1.
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR	No.
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR	
	FRA- FLOOR RETURN AIR GRILLE		RETURN AIR STACK ABOVE	
	RETURN AIR STACK 2nd FLOOR		REDUCER	
REVISIONS			Description	Date

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Client
GOLD PARK HOMES

Project Name
**PINE VALLEY PH 2
VAUGHAN, ONTARIO**

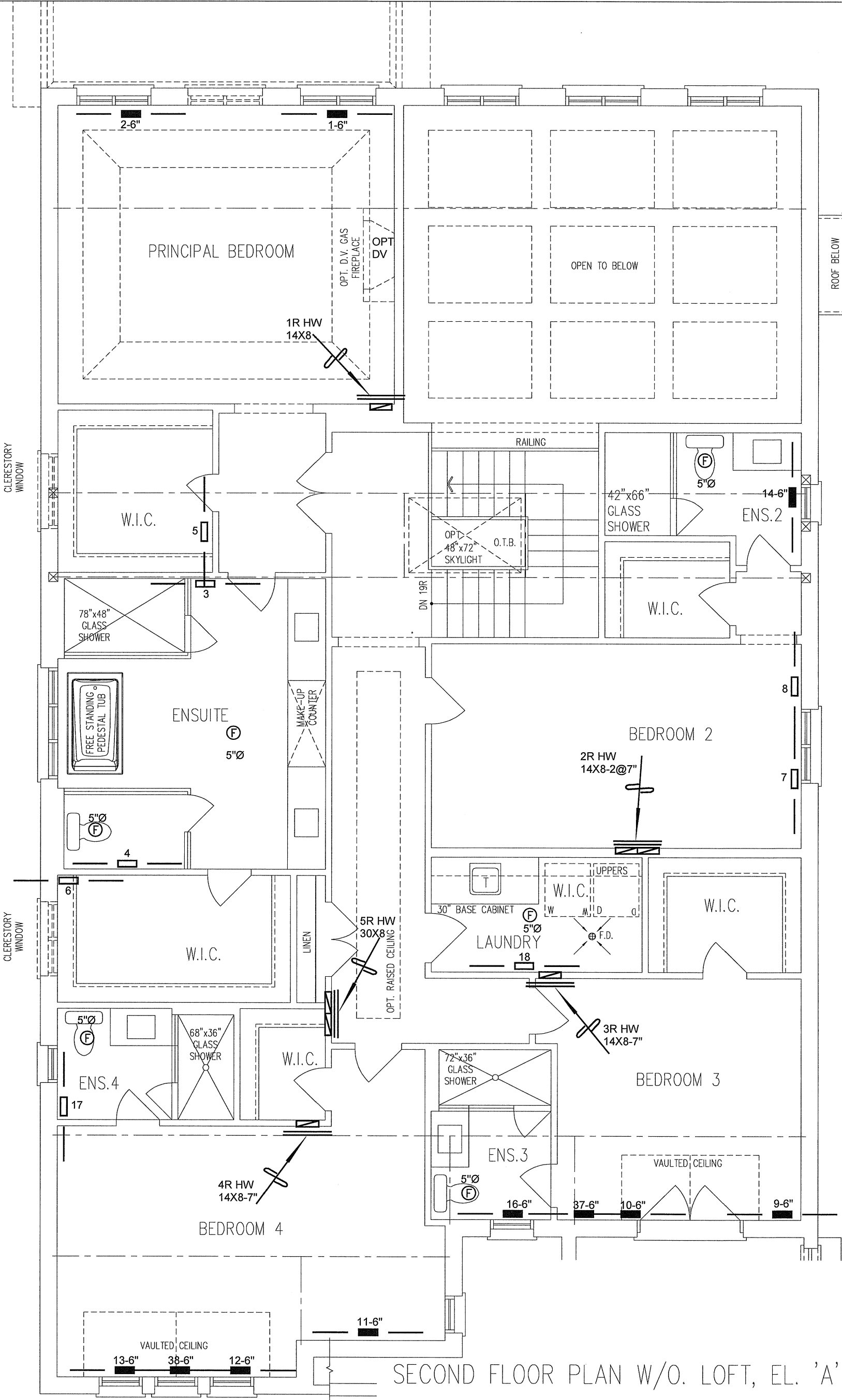
RIVERVIEW - WO/ LOFT
5013 4502 sqft

375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdesigns.ca
Web: www.hvacdesigns.ca

Specializing in Residential Mechanical Design Services

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

Sheet Title	
FIRST FLOOR HEATING LAYOUT	
Date	MAY/2022
Scale	3/16" = 1'-0"
BCIN# 19669	
LO#	96523



SECOND FLOOR PLAN W/O. LOFT, EL. 'A'

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.

LOD

WOD

CSA-F280-12

PACKAGE A1

HVAC LEGEND						3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		No.	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FFA- FLOOR RETURN AIR GRILLE		REDUCER	
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							Description	Date

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Client
GOLD PARK HOMES

Project Name
**PINE VALLEY PH 2
VAUGHAN, ONTARIO**

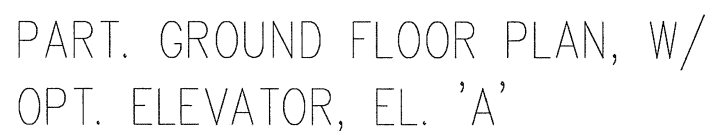
RIVERVIEW - WO/ LOFT
5013

4502 sqft

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Sheet Title		SECOND FLOOR HEATING LAYOUT	
Date	MAY/2022		
Scale	3/16" = 1'-0"		
		BCIN# 19669	
LO#	96523		



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CSA-F280-12
PACKAGE A1

HVAC LEGEND						3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		RETURN AIR STACK ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		RETURN AIR STACK 2nd FLOOR	No.	Description
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		REDUCER	REVISIONS	
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Sheet Title	
STRIP PLAN HEATING LAYOUT	
Date	MAY/2022
Scale	3/16" = 1'-0"
BCIN# 19669	
LO#	96523

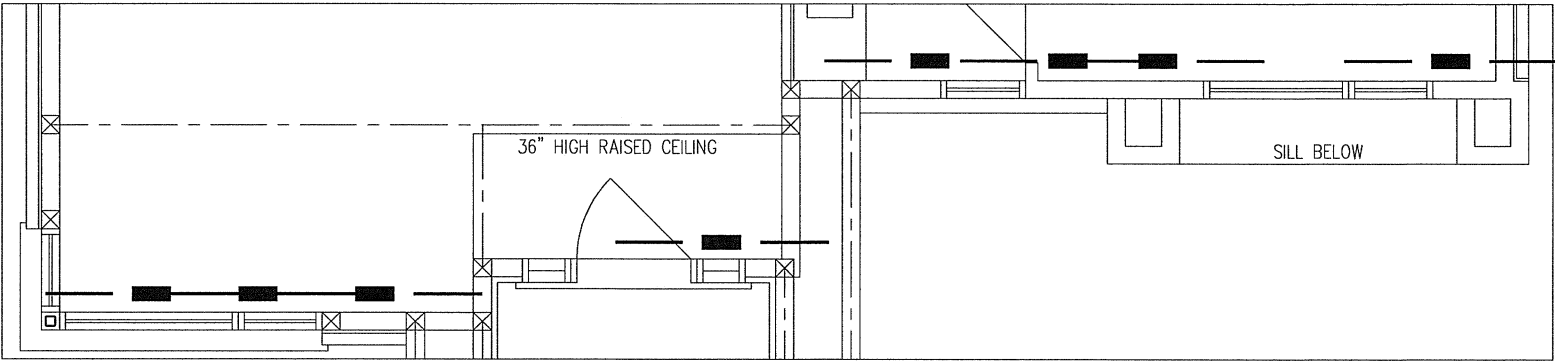
I MICHAEL O'ROURKE HAVE REVIEW
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
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BUILDING CODE.

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

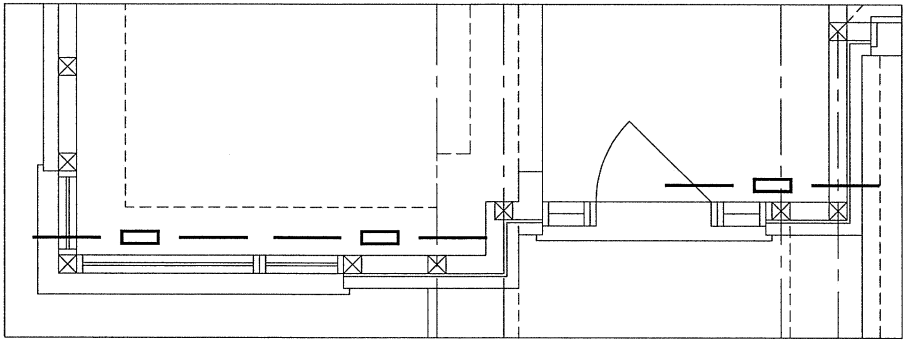
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USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE
ONTARIO BUILDING CODE.

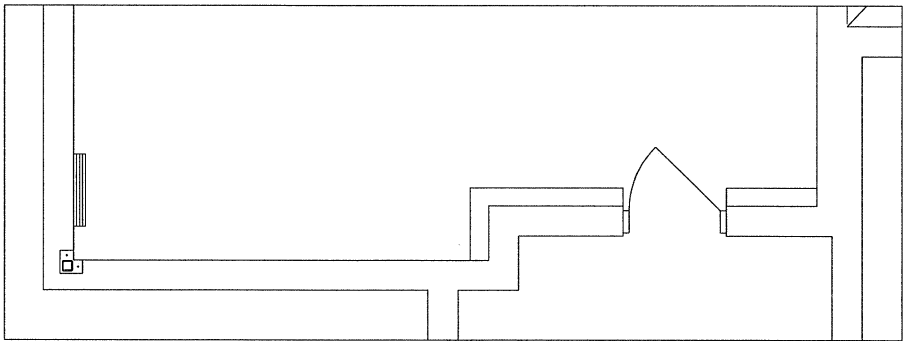
HVAC LEGEND				3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR	No.	Description
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		Date
			FRA-FLOOR RETURN AIR GRILLE		
			RETURN AIR STACK ABOVE		
			REDUCER		



PARTIAL SECOND FLOOR PLAN, EL.'C'



PARTIAL GROUND FLOOR PLAN, EL.'C'



PARTIAL BASEMENT PLAN, EL.'C'

Client
GOLD PARK HOMES

Project Name
PINE VALLEY PH 2
VAUGHAN, ONTARIO

RIVERVIEW - WO/ LOFT
5013 4502 sqft

HVACDESIGNS LTD.
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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.

Sheet Title
ELEVATION
HEATING
LAYOUT

Date
MAY/2022

Scale
3/16" = 1'-0"

BCIN# 19669

LO# 96523