

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.
Municipality VAUGHAN (WOODBIDGE)			Postal code
Plan number/ other description			Lot/con.
B. Individual who reviews and takes responsibility for design activities			
Name MICHAEL O'ROURKE		Firm HVAC DESIGNS LTD.	
Street address 375 FINLEY AVE		Unit no. 202	Lot/con. N/A
Municipality AJAX	Postal code L1S 2E2	Province ONTARIO	E-mail info@hvacdesigns.ca
Telephone number (905) 619-2300	Fax number (905) 619-2375	Cell number ()	
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]			
☐ House ☐ Small Buildings ☐ Large Buildings ☐ Complex Buildings ☒ HVAC – House ☐ Building Services ☐ Detection, Lighting and Power ☐ Fire Protection ☐ Building Structural ☐ Plumbing – House ☐ Plumbing – All Buildings ☐ On-site Sewage Systems			
Description of designer's work HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12		Model: 5012 WILLOWCREEK - OPT 5 BED - WOB Project: PINE VALLEY PH 2	
D. Declaration of Designer			
I, <u>MICHAEL O'ROURKE</u> (print name)		declare that (choose one as appropriate):	
☐ 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 Date		 Signature of Designer	

NOTE:

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d) of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Application for a Permit Construct or Demolish – Effective January 1, 2015

SITE NAME: PINE VALLEY PH 2
BUILDER: GOLD PARK HOMES

WILLOWCREEK - OPT 5 BED - WOB
TYPE: 5012

GFA: 4461	LO# 96521	FURNACE 1
-----------	-----------	-----------

DATE: May-22

FURNACE 1

HEATING CFM	1170	COOLING CFM	1170
TOTAL HEAT LOSS	63,001	TOTAL HEAT GAIN	32,110
AIR FLOW RATE CFM	18.57	AIR FLOW RATE CFM	36.44

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	0	12	6
R/A	0	0	0	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 #							
ROOM NAME	20	21	22	23	24			
RM LOSS MBH.	GRT	GRT	GRT	DIN	DIN			
	2.80	2.80	2.80	3.71				
CFM PER RUN HEAT	52	52	52	52	69			
RM GAIN MBH.	2.40	2.40	2.40	2.76				
CFM PER RUN COOLING	87	87	87	87	101			
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.16			
ACTUAL DUCT LGH.	62	56	50	45	14			
EQUIVALENT LENGTH	100	120	130	150	120			
TOTAL EFFECTIVE LENGTH	162	176	180	195	134			
ADJUSTED PRESSURE	0.1	0.09	0.09	0.08	0.12			
ROUND DUCT SIZE	6	6	6	6	5			
HEATING VELOCITY (ft/min)	265	265	265	265	507			
COOLING VELOCITY (ft/min)	444	444	444	444	742			
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	3X10			
ROUNDING	E	E	E	E	H			

	RUN #	25	26	27	28	29	30	31	32	33	34	35	36	39
	ROOM NAME	KT/BF	KT/BF	KT/BF	OFF	OFF	FOY	MUD	BAS	BAS	BAS	BAS	BAS	BAS
	RM LOSS MBH.	2.40	2.40	2.40	2.24	2.24	2.24	3.33	5.03	5.03	5.03	5.03	5.03	5.03
	CFM PER RUN HEAT	45	45	45	42	42	62	54	93	93	93	93	93	93
	RM GAIN MBH.	2.52	2.52	2.52	2.68	2.68	1.99	0.44	0.73	0.73	0.73	0.73	0.73	0.73
	CFM PER RUN COOLING	92	92	92	98	98	72	16	27	27	27	27	27	27
	ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.16
	ACTUAL DUCT LGH.	44	47	58	62	57	38	31	44	45	73	38	48	73
	EQUIVALENT LENGTH	100	120	130	130	110	90	90	140	130	120	150	130	160
	TOTAL EFFECTIVE LENGTH	144	167	182	192	167	148	121	182	175	193	188	178	233
	ADJUSTED PRESSURE	0.11	0.1	0.09	0.08	0.1	0.12	0.14	0.09	0.09	0.08	0.09	0.09	0.07
	ROUND DUCT SIZE	6	6	6	6	6	5	4	6	6	6	6	6	6
	HEATING VELOCITY (ft/min)	229	229	229	214	214	455	620	474	474	474	474	474	474
	COOLING VELOCITY (ft/min)	469	469	469	500	500	529	184	138	138	138	138	138	138
	OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10
	TRUNK	D	N	D	G	G	G	F	E	D	E	G	G	D

SUPPLY AIR TRUNK SIZE										RETURN AIR TRUNK SIZE													
TRUNK		STATIC PRESS.	ROUND DUCT		RECT DUCT	VELOCITY (ft/min)		TRUNK		STATIC PRESS.	ROUND DUCT		RECT DUCT	VELOCITY (ft/min)		TRUNK		STATIC PRESS.	ROUND DUCT		RECT DUCT	VELOCITY (ft/min)	
TRUNK A	0	0.00	0	0	0	8	8	TRUNK G	332	0.08	9.3	10	8	598	TRUNK O	0	0.06	0	0	0	8	8	
TRUNK B	0	0.00	0	0	0	8	8	TRUNK H	1170	0.07	15.4	28	8	752	TRUNK P	0	0.06	0	0	0	8	0	
TRUNK C	0	0.00	0	0	0	8	0	TRUNK I	0	0.00	0	0	8	0	TRUNK Q	0	0.06	0	0	0	8	0	
TRUNK D	321	0.07	9.5	10	10	8	578	TRUNK J	0	0.00	0	0	8	0	TRUNK R	0	0.06	0	0	0	8	0	
TRUNK E	394	0.09	12	20	12	8	591	TRUNK K	0	0.00	0	0	8	0	TRUNK S	0	0.06	0	0	0	8	0	
TRUNK F	769	0.07	13.1	20	20	8	692	TRUNK L	0	0.00	0	0	8	0	TRUNK T	0	0.06	0	0	0	8	0	

[illegible]

SITE NAME: PINE VALLEY PH 2
BUILDER: GOLD PARK HOMES

WILLOWCREEK - OPT 5 BED - WOB

FURNACE 2

HEATING CFM 1110 COOLING CFM 1110
TOTAL HEAT LOSS 28,526 TOTAL HEAT GAIN 34,626
AIR FLOW RATE CFM 38.91 AIR FLOW RATE CFM 32.06

TYPE: 5012
furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure
for s/a & r/a 0.35

FURNACE HEAT LOSS +
HRV / ERV HEAT LOSS
= 31604 BTUH

ML196UH045XE36B \$LENNOX 45

AFUE = 96 %
INPUT (BTU/H) = 44,000
OUTPUT (BTU/H) = 42,800

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	21	0	0
R/A	0	0	6	0	0

FAN SPEED
LOW 620
MEDIUM 980
HIGH 1110

DESIGN CFM = 1110
CFM @ 6" E.S.P.

plenum pressure s/a 0.18
max s/a diff press. loss 0.02
min adjusted pressure s/a 0.16
r/a grille press. loss 0.02
adjusted pressure r/a 0.15

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
ROOM NAME	PBR	PBR	ENS-5	ENS	ENS	BED-2	BED-2	BED-3	BED-3	BED-3	BED-4	BED-4	BED-4	WIC	ENS-2	ENS-3	ENS-4	ENS-4	BED-5
RM LOSS MBH	1.37	1.37	0.71	0.79	0.79	1.45	1.45	1.49	1.49	1.49	2.01	2.01	2.01	1.37	1.03	1.96	1.45	1.45	1.33
CFM PER RUN HEAT	53	53	28	31	31	56	56	58	58	58	78	78	78	53	40	76	57	57	52
RM GAIN MBH	1.64	1.64	0.43	0.45	0.45	1.55	1.55	2.32	2.32	2.32	2.77	2.77	2.77	1.06	0.39	1.19	2.05	2.05	2.17
CFM PER RUN COOLING	52	52	14	15	15	50	50	74	74	74	89	89	89	34	12	38	66	66	70
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH	65	70	15	29	27	68	75	64	59	51	79	58	55	83	63	64	64	67	22
EQUIVALENT LENGTH	150	150	140	160	150	200	210	150	140	130	170	180	150	220	190	160	140	140	140
TOTAL EFFECTIVE LENGTH	215	220	155	189	177	268	285	214	199	181	249	238	205	303	253	224	204	207	162
ADJUSTED PRESSURE	0.08	0.08	0.11	0.09	0.1	0.06	0.06	0.08	0.09	0.1	0.07	0.07	0.08	0.06	0.07	0.08	0.08	0.08	0.11
ROUND DUCT SIZE	5	5	4	4	4	5	5	6	6	6	6	6	6	5	5	6	5	5	6
HEATING VELOCITY (ft/min)	389	389	321	356	356	411	411	296	296	296	398	398	398	294	388	419	419	419	265
COOLING VELOCITY (ft/min)	382	382	161	172	172	367	367	377	377	377	454	454	454	250	88	194	485	485	357
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	4X10
TRUNK	C	C	C	C	C	B	B	B	B	B	A	A	A	B	B	B	A	A	C

ROOM NAME	37	38
RM LOSS MBH	PBR	LND
CFM PER RUN HEAT	1.37	0.13
RM GAIN MBH	53	5
CFM PER RUN COOLING	1.64	1.10
ADJUSTED PRESSURE	52	35
ACTUAL DUCT LGH	75	34
EQUIVALENT LENGTH	190	200
TOTAL EFFECTIVE LENGTH	265	234
ADJUSTED PRESSURE	0.06	0.07
ROUND DUCT SIZE	5	4
HEATING VELOCITY (ft/min)	389	57
COOLING VELOCITY (ft/min)	382	402
OUTLET GRILL SIZE	3X10	3X10
TRUNK	C	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	348	0.07	9.8	12	8	0	0.00	0	0	8
TRUNK B	808	0.06	13.9	24	8	0	0.00	0	0	8
TRUNK C	301	0.06	9.6	10	8	0	0.00	0	0	8
TRUNK D	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK E	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK F	0	0.00	0	0	8	0	0.00	0	0	8

RETURN AIR #	1	2	3	4	5	6
AIR VOLUME	280	130	115	115	335	135
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH	64	77	62	69	64	60
EQUIVALENT LENGTH	180	185	235	235	220	195
TOTAL EFFECTIVE LENGTH	244	262	297	304	284	255
ADJUSTED PRESSURE	0.06	0.06	0.05	0.05	0.05	0.06
ROUND DUCT SIZE	9.4	7	7	7	10.5	7.1
INLET GRILL SIZE	X	X	X	X	X	X
INLET GRILL SIZE	30	14	14	14	30	14

TYPE: 5012
SITE NAME: PINE VALLEY PH 2

LO # 96521
WILLOWCREEK - OPT 5 BED - WOB

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	7 @ 10.6 cfm	74.2 cfm
Other Rooms	4 @ 10.6 cfm	42.4 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	150	cfm
Required Supplemental Capacity	51.4	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE V150H	Location: BSMT
150.0 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	
150 cfm high	35 cfm low	
75 % 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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	May-22

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																	
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																	
LO#: 96521		Model: 5012		Builder: GOLD PARK HOMES		Date: 2022-05-04																																																											
Volume Calculation					Air Change & Delta T Data																																																												
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>House Volume Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>2112</td> <td>10</td> <td>21120</td> </tr> <tr> <td>First</td> <td>2112</td> <td>11</td> <td>23232</td> </tr> <tr> <td>Second</td> <td>2700</td> <td>9</td> <td>24300</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>68,652.0 ft³</td> </tr> <tr> <td colspan="2">Total:</td> <td></td> <td>1944.0 m³</td> </tr> </tbody> </table>					House Volume Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2112	10	21120	First	2112	11	23232	Second	2700	9	24300	Third	0	9	0	Fourth	0	9	0	Total:			68,652.0 ft³	Total:			1944.0 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th>Winter DTDh</th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> </tr> </thead> <tbody> <tr> <td></td> <td>22</td> <td>-20</td> <td>42</td> </tr> <tr> <th>Summer DTDc</th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °F</th> </tr> <tr> <td></td> <td>24</td> <td>31</td> <td>7</td> </tr> <tr> <td></td> <td></td> <td></td> <td>13</td> </tr> </tbody> </table>					Design Temperature Difference				Winter DTDh	Tin °C	Tout °C	ΔT °C		22	-20	42	Summer DTDc	Tin °C	Tout °C	ΔT °F		24	31	7				13
House Volume Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																														
Bsmt	2112	10	21120																																																														
First	2112	11	23232																																																														
Second	2700	9	24300																																																														
Third	0	9	0																																																														
Fourth	0	9	0																																																														
Total:			68,652.0 ft³																																																														
Total:			1944.0 m³																																																														
Design Temperature Difference																																																																	
Winter DTDh	Tin °C	Tout °C	ΔT °C																																																														
	22	-20	42																																																														
Summer DTDc	Tin °C	Tout °C	ΔT °F																																																														
	24	31	7																																																														
			13																																																														
5.2.3.1 Heat Loss due to Air Leakage					6.2.6 Sensible Gain due to Air Leakage																																																												
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$					$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																																												
0.407 x 540.00 x 42 °C x 1.2 = 11132 W					= 0.137 x 540.00 x 7 °C x 1.2 = 629 W																																																												
= 37983 Btu/h					= 2146 Btu/h																																																												
5.2.3.2 Heat Loss due to Mechanical Ventilation					6.2.7 Sensible heat Gain due to Ventilation																																																												
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E) \times 2 \text{ HRV / ERV's}$					$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																												
300 CFM x 76 °F x 1.08 x 0.25 = 6156 Btu/h					300 CFM x 13 °F x 1.08 x 0.25 = 1,037 Btu/h																																																												
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																																	
$HL_{airrr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>Hlaive Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{level})</th> <th>Air Leakage Heat Loss Multiplier (LF x Hlaiveb / HLlevel)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="4">37,983</td> <td>10,427</td> <td>1.821</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>21,425</td> <td>0.532</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>19,864</td> <td>0.382</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></td> <td>0</td> <td>0.000</td> </tr> </tbody> </table>					Level	Level Factor (LF)	Hlaive Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x Hlaiveb / HLlevel)	1	0.5	37,983	10,427	1.821	2	0.3	21,425	0.532	3	0.2	19,864	0.382	4	0	0	0.000	5	0		0	0.000																																		
Level	Level Factor (LF)	Hlaive Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x Hlaiveb / HLlevel)																																																													
1	0.5	37,983	10,427	1.821																																																													
2	0.3		21,425	0.532																																																													
3	0.2		19,864	0.382																																																													
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: 5012	WILLOWCREEK - OPT 5 BED - WOE	BUILDER: GOLD PARK HOMES
SFQT: 4461	LO# 96521	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):	68652.0	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: 72.0 ft	WIDTH: 43.0 ft	EXPOSED PERIMETER:	177.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	53.0 ft

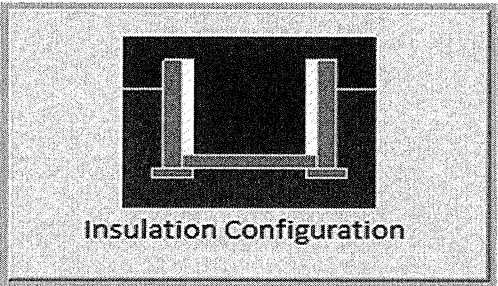
2012 OBC - COMPLIANCE PACKAGE		Compliance Package A1	
Component		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.65
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		22	17.03
Basement 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

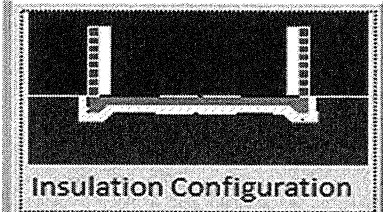
Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	13.1	
Exposed Perimeter (m):	53.9	
Wall Height (m):	3.0	
Depth Below Grade (m):	1.84	
Window Area (m ²):	0.0	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		890

TYPE: 5012
LO# 96521

WILLOWCREEK - OPT 5 BED - WOB

Residential Slab on Grade 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		
Length (m):	1.5	 Insulation Configuration
Width (m):	13.1	
Exposed Perimeter (m):	16.2	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		224

TYPE: 5012
LO# 96521

WILLOWCREEK - OPT 5 BED - WOB

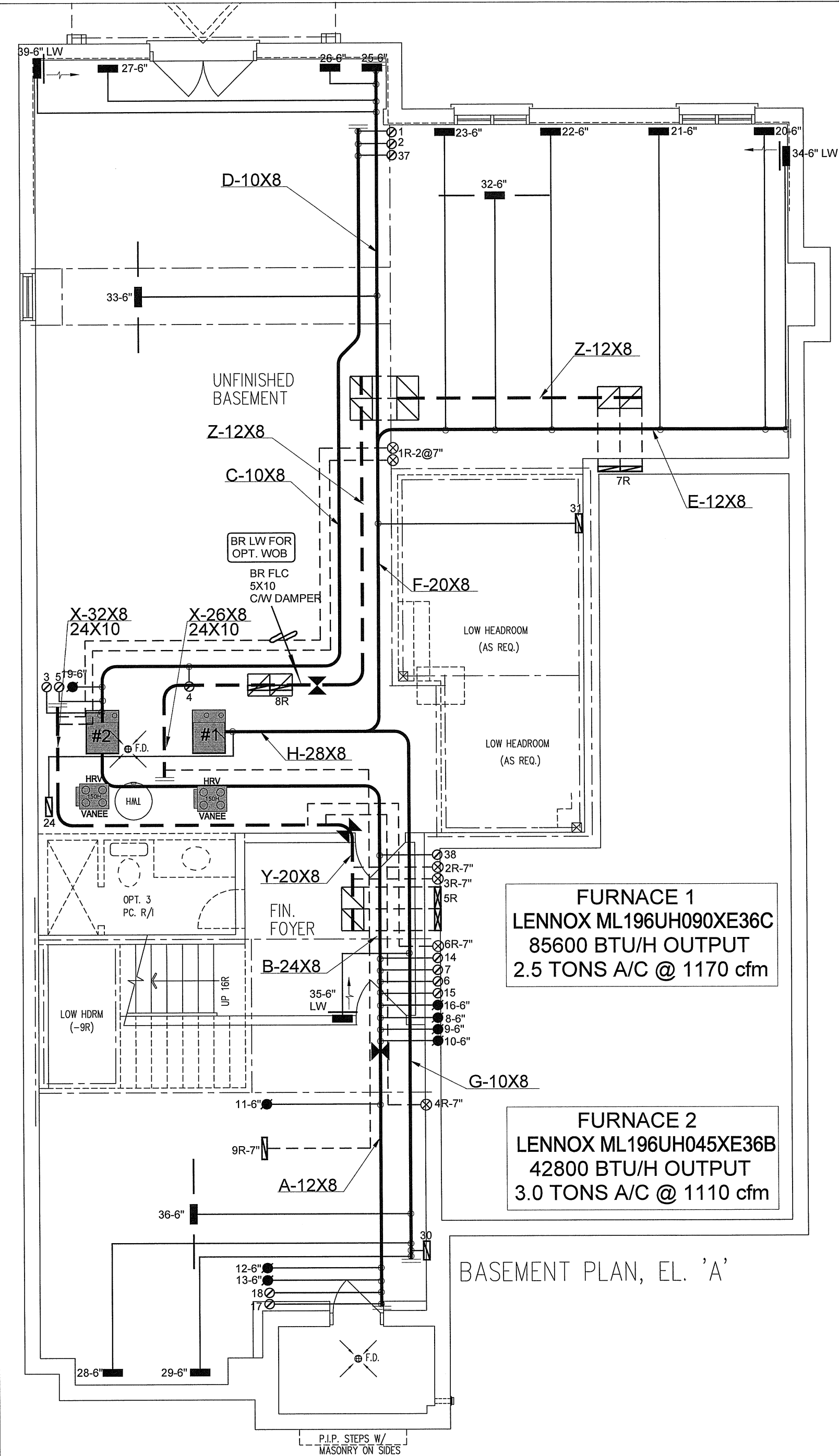
Air Infiltration Residential Load Calculator

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):	9.14			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1944.0			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa. 3.57	2591.4 cm ² ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply 70.8	Total Exhaust 70.8		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):		0.407		
Cooling Air Leakage Rate (ACH/H):		0.137		

TYPE: 5012
LO# 96521

WILLOWCREEK - OPT 5 BED - WOB



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.

WOB

CSA-F280-12

PACKAGE A1

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

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD. AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE 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.

Client
GOLD PARK HOMES

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

**WILLOWCREEK - OPT 5 BED
5012 - WOB 4238 sqft**

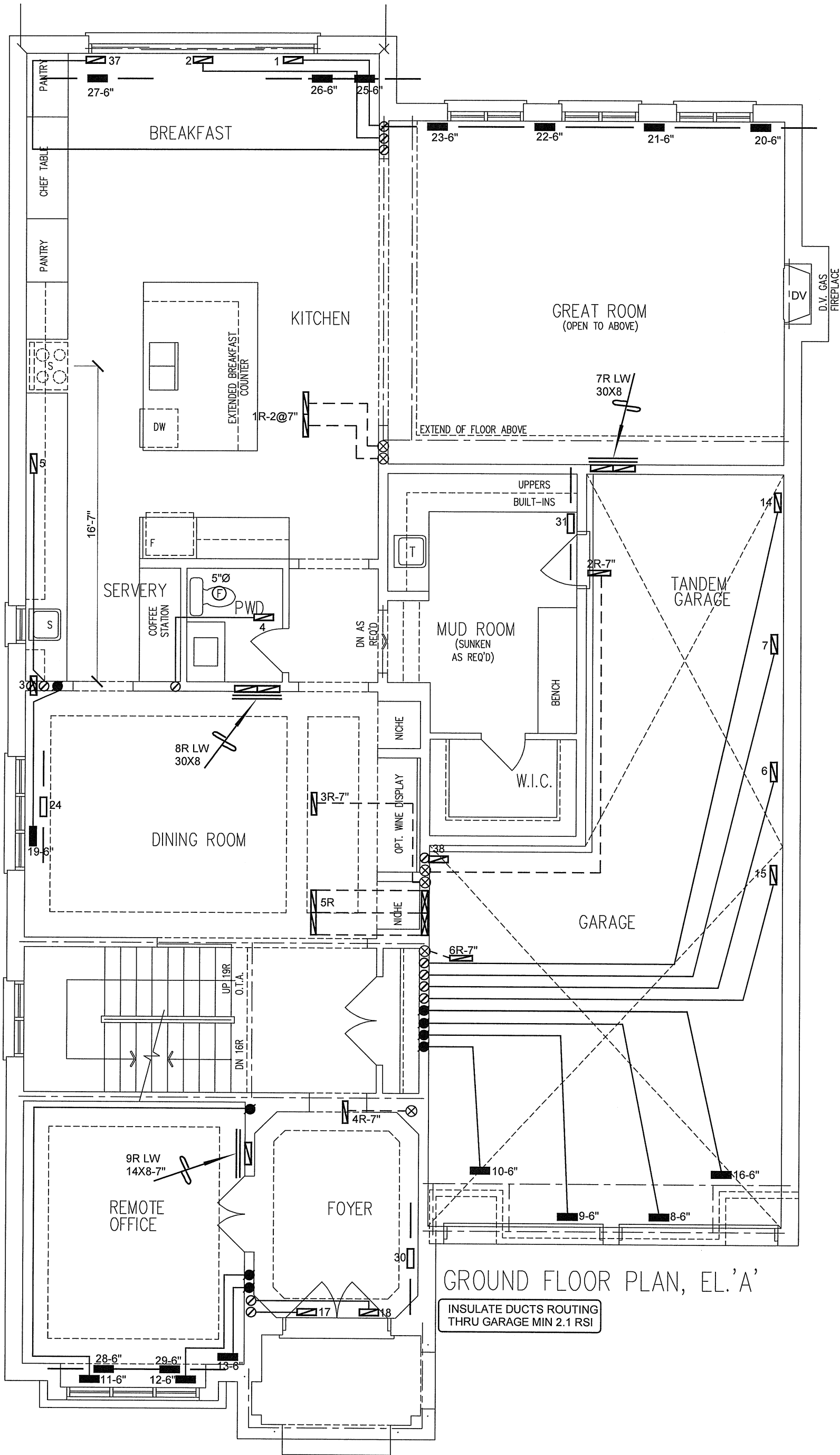
HVACDESIGNS LTD.

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	21	6	7
1ST	12	3	2
BAS	6	1	0

Sheet Title	
BASEMENT HEATING LAYOUT	
Date	MAY/2022
Scale	3/16" = 1'-0"
BCIN# 19669	
LO#	96521



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.

WOB

CSA-F280-12

PACKAGE A1

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD. AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND
USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE
ONTARIO BUILDING CODE. 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

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

Client

GOLD PARK HOMES

Project Name

**PINE VALLEY PH 2
VAUGHAN, ONTARIO**

**WILLOWCREEK - OPT 5 BED
5012 - WOB 4238 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@hvacdsgns.ca
Web: www.hvacdsgns.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

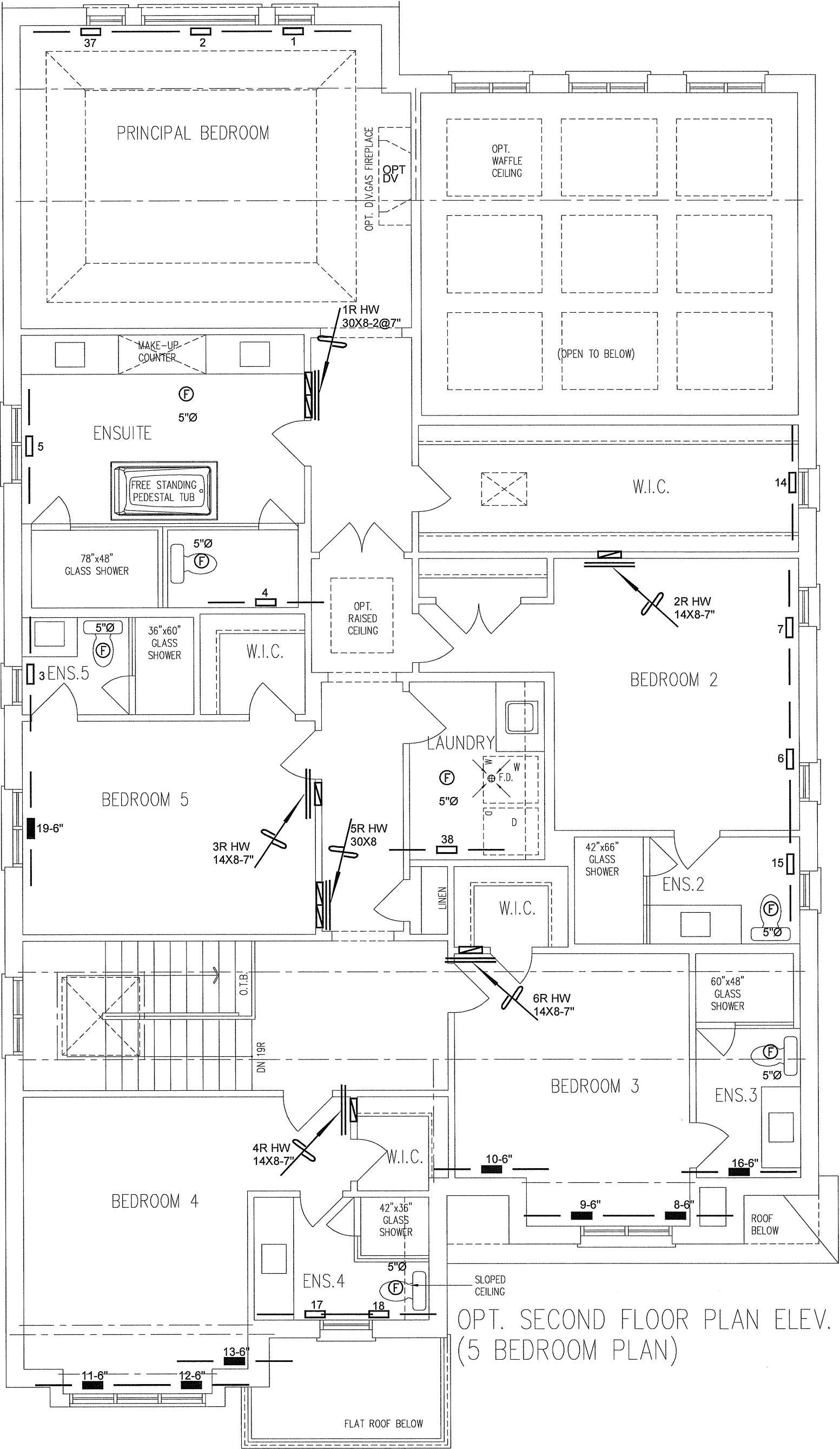
MAY/2022

Scale

3/16" = 1'-0"

BCIN# 19669

LO# 96521



OPT. SECOND FLOOR PLAN ELEV. 'A'
(5 BEDROOM PLAN)

1 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.

WOB
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.	Description
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		Date
	6" SUPPLY AIR STACK 2nd FLOOR		FRA-FLOOR RETURN AIR GRILLE	REVISIONS	
	RETURN AIR STACK ABOVE		RETURN AIR STACK 2nd FLOOR		
	REDUCER				

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.® AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE 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.

Client
GOLD PARK HOMES

Project Name
PINE VALLEY PH 2
VAUGHAN, ONTARIO

WILLOWCREEK - OPT 5 BED
5012 - WOB 4238 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.

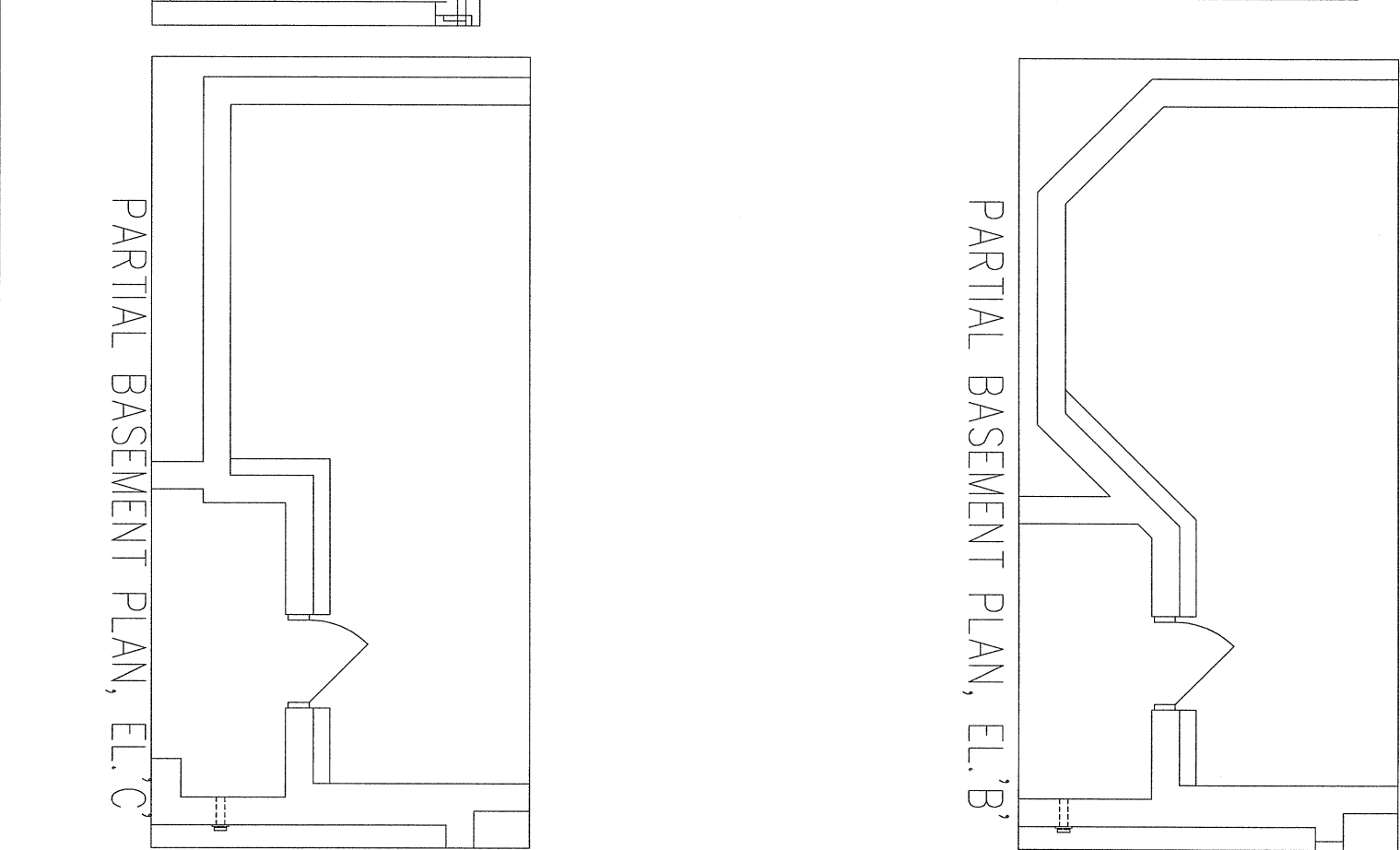
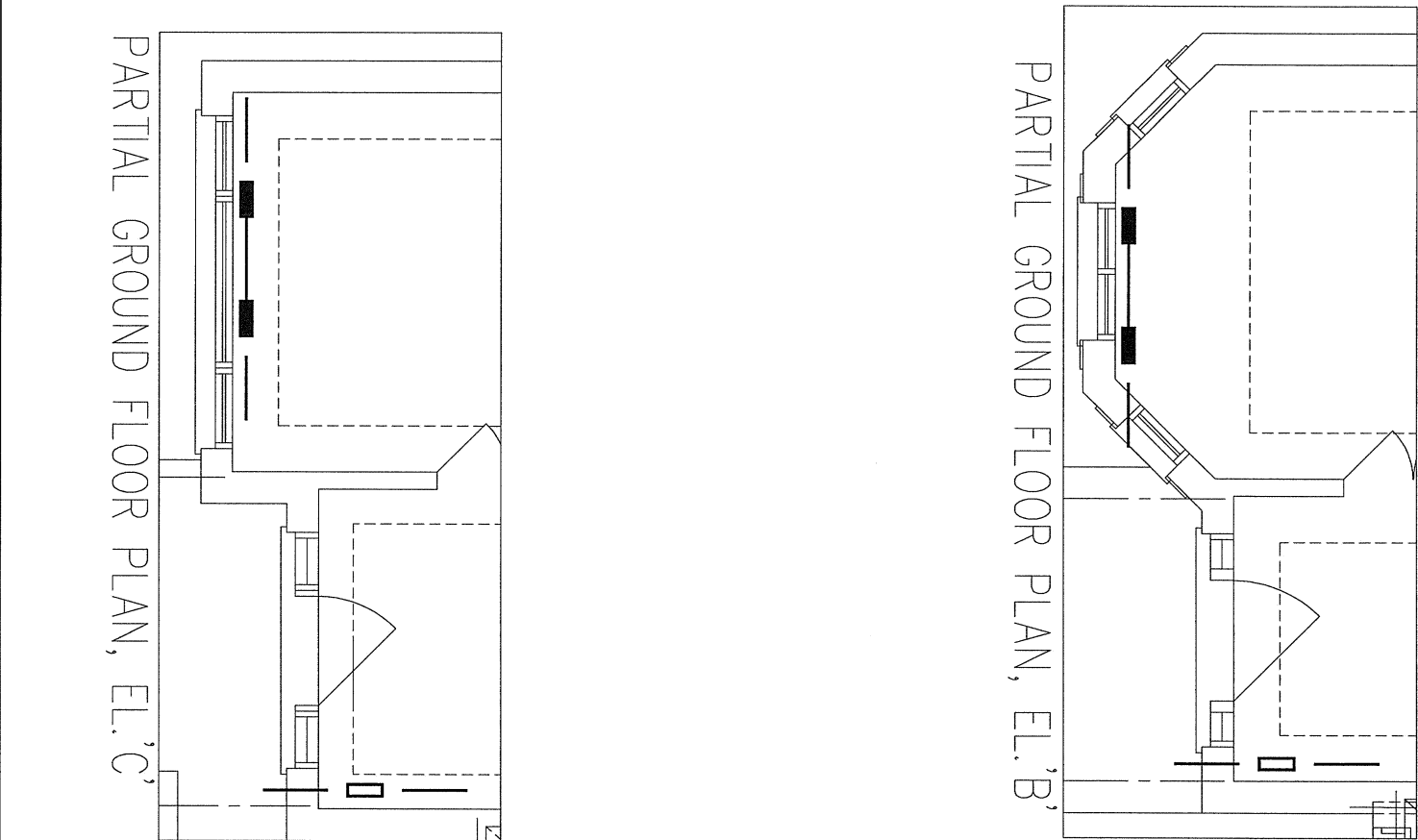
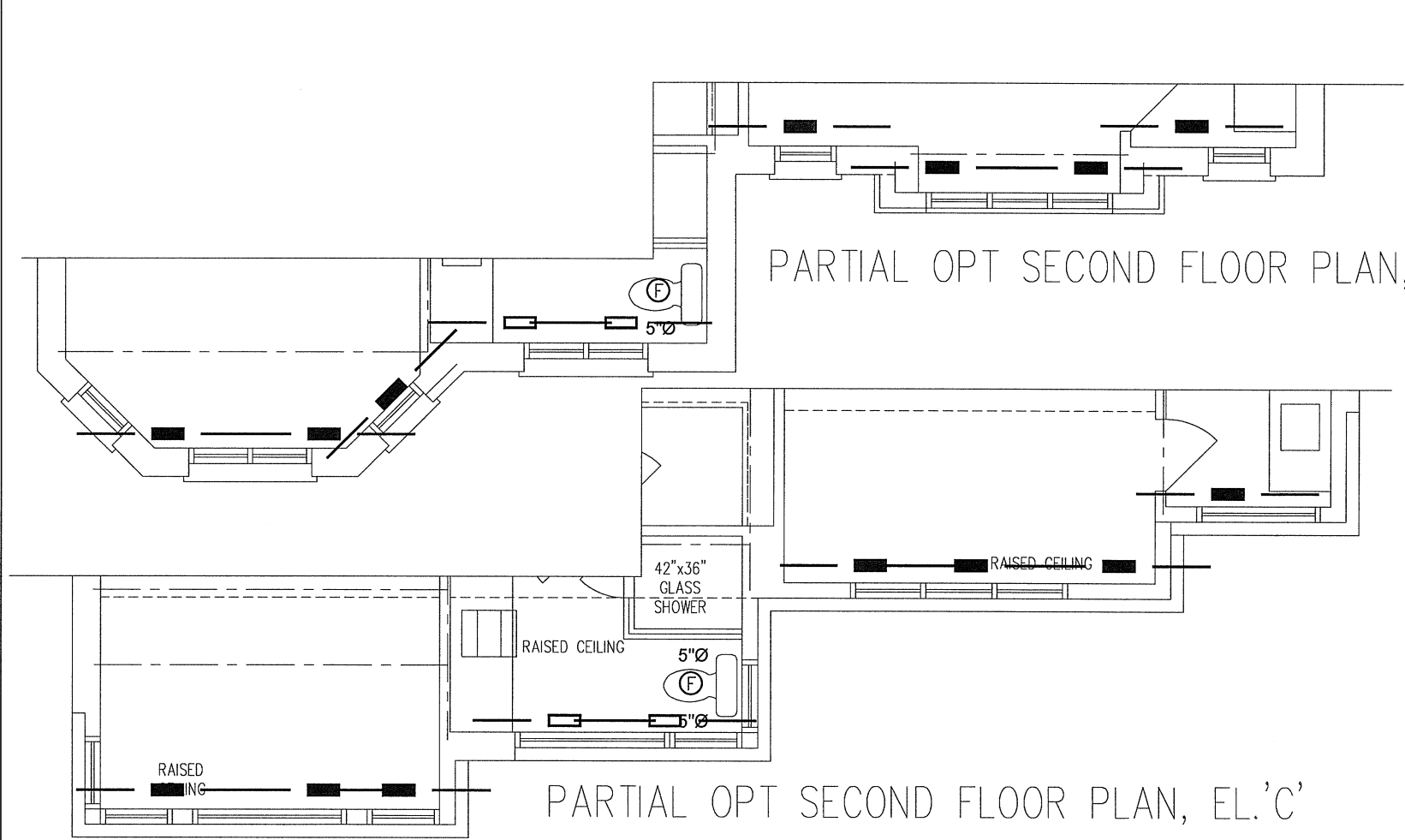
Sheet Title
SECOND FLOOR
HEATING
LAYOUT

Date MAY/2022

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 96521



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.

WOB

CSA-F280-12

PACKAGE A1

HVAC LEGEND						3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6\"/>		14\"/>	1.	
	SUPPLY AIR BOOT ABOVE		6\"/>		30\"/>	No.	Description
	SUPPLY AIR BOOT ABOVE		6\"/>		FRA-FLOOR RETURN AIR GRILLE		Date
	SUPPLY AIR BOOT ABOVE		6\"/>		REDUCER	REVISIONS	

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD. AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE 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.

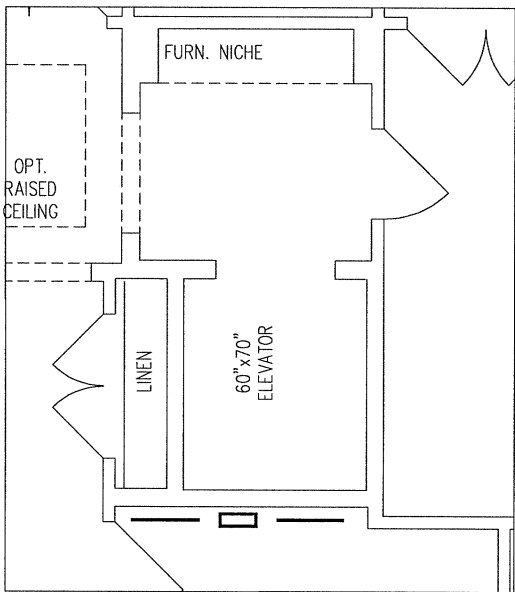
Client	GOLD PARK HOMES
Project Name	PINE VALLEY PH 2 VAUGHAN, ONTARIO
WILLOWCREEK - OPT 5 BED	5012 - WOB 4238 sqft

HVACDESIGNS LTD.

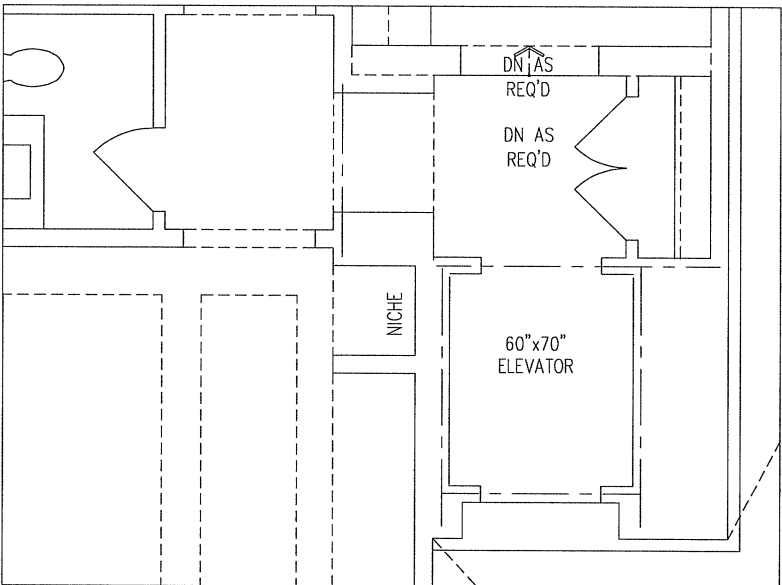
375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdesigns.ca
Web: www.hvacdesigns.ca
Specializing in Residential Mechanical Design Services

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.

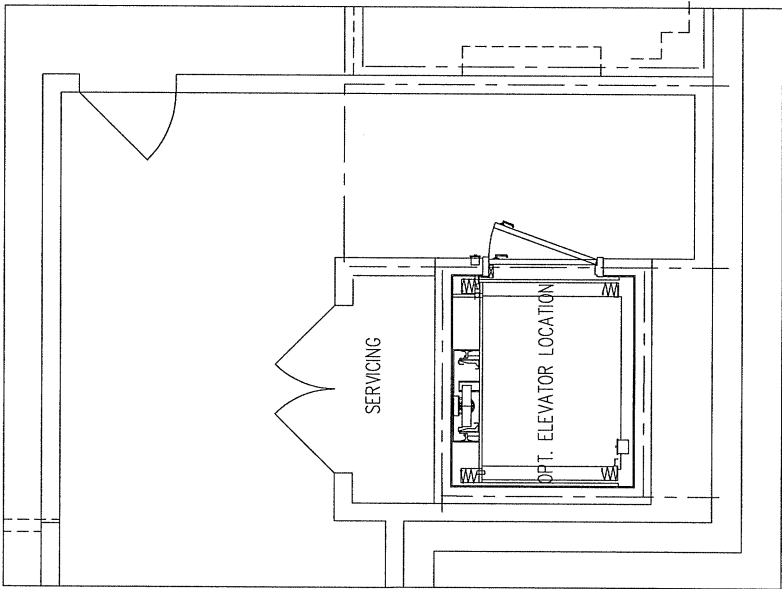
Sheet Title	ELEVATIONS HEATING LAYOUT
Date	MAY/2022
Scale	3/16" = 1'-0"
	BCIN# 19669
LO#	96521



PARTIAL OPT 5 BEDROOM SECOND FLOOR PLAN,
(W/ ELEVATOR) ELEV. 'A', 'B'&'C'



PARTIAL GROUND FLOOR PLAN
(W/ ELEVATOR) ELEV. 'A', 'B'&'C'



PARTIAL BASEMENT PLAN
(W/ ELEVATOR) ELEV. 'A', 'B'&'C'

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, ECH# 19669
HVAC DESIGNS LTD.

WOB

CSA-F280-12

PACKAGE A1

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

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.® AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE 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.

Client
GOLD PARK HOMES

Project Name
PINE VALLEY PH 2
VAUGHAN, ONTARIO

WILLOWCREEK - OPT 5 BED
5012 - WOB 4238 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.

Sheet Title
STRIP PLAN
HEATING
LAYOUT

Date MAY/2022

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 96521