

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@hvacadesigns.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 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										DATE May-22		WINTER NATURAL AIR CHANGE RATE		HEAT LOSS AT °F. 76		CSA-F280-12	
BUILDER: GOLD PARK HOMES										LO# 96518		SUMMER NATURAL AIR CHANGE RATE		HEAT GAIN AT °F. 13		SB-12 PACKAGE A1	
TYPE: 5012 WILLOWCREEK										GFA: 4461		ENS-3		LOFT		ENS-4	
ROOM USE	EXP. WALL	EXP. WALL	EXP. WALL	EXP. WALL	EXP. WALL	EXP. WALL	EXP. WALL	EXP. WALL	EXP. WALL	ENS-2	ENS-3	LOFT	ENS-4	ENS-5	ENS-6	ENS-7	ENS-8
CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.
FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS
GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA
GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING
NORTH	21.3	16.0	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	0	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	44	936	1828	0	0	0	0	0	0	0	0	0	0	0	0
SKYL.T.	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	334	1491	251	100	446	75	108	482	81	67	299	50	262	1169	197
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
EXPOSED CLG	1.3	0.6	430	552	253	264	339	155	186	239	109	362	465	213	178	228	105
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	0	0
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB TOTAL HT LOSS	2979	2332	0.20	0.33	374	1147	654	721	190	1059	3578	5000	4355	676	253	780	553
SUB TOTAL HT GAIN	0.20	0.33	0.20	0.33	0.20	0.33	0.20	0.33	0.20	0.33	0.20	0.33	0.20	0.33	0.20	0.33	0.20
LEVEL FACTOR / MULTIPLIER	972	148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR CHANGE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR CHANGE HEAT GAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DUCT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DUCT GAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	799	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL HT LOSS BTU/H	3950	3950	0.20	0.33	374	1147	654	721	190	1059	3578	5000	4355	676	253	780	553
TOTAL HT GAIN x 1.3 BTU/H	4888	4888	0.20	0.33	374	1147	654	721	190	1059	3578	5000	4355	676	253	780	553

ROOM USE										DATE May-22		WINTER NATURAL AIR CHANGE RATE		HEAT LOSS AT °F. 76		CSA-F280-12	
BUILDER: GOLD PARK HOMES										LO# 96518		SUMMER NATURAL AIR CHANGE RATE		HEAT GAIN AT °F. 13		SB-12 PACKAGE A1	
TYPE: 5012 WILLOWCREEK										GFA: 4461		ENS-3		LOFT		ENS-4	
ROOM USE	EXP. WALL	EXP. WALL	EXP. WALL	EXP. WALL	EXP. WALL	EXP. WALL	EXP. WALL	EXP. WALL	EXP. WALL	ENS-2	ENS-3	LOFT	ENS-4	ENS-5	ENS-6	ENS-7	ENS-8
CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.	CLG. HT.
FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS	FACTORS
GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA	GRS.WALL AREA
GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING	GLAZING
NORTH	21.3	16.0	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	0	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	126	2681	5236	0	0	0	0	0	0	0	0	0	0	0	0
SKYL.T.	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	934	4168	702	357	1593	268	542	2419	407	327	1459	246	54	241	41
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	363	466	213	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	0	0
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB TOTAL HT LOSS	7315	6151	0.20	0.33	374	1147	654	721	190	1059	3578	5000	4355	676	253	780	553
SUB TOTAL HT GAIN	0.20	0.33	0.20	0.33	0.20	0.33	0.20	0.33	0.20	0.33	0.20	0.33	0.20	0.33	0.20	0.33	0.20
LEVEL FACTOR / MULTIPLIER	3252	391	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR CHANGE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR CHANGE HEAT GAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DUCT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DUCT GAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	799	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL HT LOSS BTU/H	10567	9544	0.20	0.33	374	1147	654	721	190	1059	3578	5000	4355	676	253	780	553
TOTAL HT GAIN x 1.3 BTU/H	13537	12407	0.20	0.33	374	1147	654	721	190	1059	3578	5000	4355	676	253	780	553

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

WILLOWCREEK
TYPE: 5012

DATE: May-22

GFA: 4461 LO# 96518

FURNACE 1

	985	985			
	HEATING CFM	COOLING CFM			
TOTAL HEAT LOSS	60,655	TOTAL HEAT GAIN	30,051		
AIR FLOW RATE CFM	16.24	AIR FLOW RATE CFM	32.78		
				1st	Bas
RUN COUNT	4th	3rd	2nd	0	5
S/A	0	0	0	12	3
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.

	20	21	22	23	24
RUN #	GRT	GRT	GRT	GRT	DIN
ROOM NAME					
RM LOSS MBH.	2.64	2.64	2.64	2.64	3.50
CFM PER RUN HEAT	43	43	43	43	57
RM GAIN MBH.					
CFM PER RUN COOLING	2.39	2.39	2.39	2.39	2.75
ADJUSTED PRESSURE	78	78	78	78	90
ACTUAL DUCT LGH.	0.17	0.17	0.17	0.17	0.16
EQUIVALENT LENGTH	62	56	50	45	14
TOTAL EFFECTIVE LENGTH	100	120	130	150	120
ADJUSTED PRESSURE	162	176	180	195	134
ROUND DUCT SIZE	0.11	0.1	0.1	0.09	0.12
HEATING VELOCITY (ft/min)	5	5	5	5	5
COOLING VELOCITY (ft/min)	316	316	316	316	419
OUTLET GRILL SIZE	573	573	573	573	661
TRUNK	3X10	3X10	3X10	3X10	3X10
	E	E	E	E	H

25	26	27	28	29	30	31	32	33	34	35	36
KT/BF	KT/BF	KT/BF	OFF	OFF	FOY	MUD	BAS	BAS	BAS	BAS	BAS
ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME
RM LOSS MBH.	2.26	2.26	2.11	2.11	3.14	2.73	5.94	5.94	5.94	5.94	5.94
CFM PER RUN HEAT	37	37	34	34	51	44	96	96	96	96	96
RM GAIN MBH.	2.51	2.51	2.67	2.67	1.98	0.44	0.50	0.50	0.50	0.50	0.50
CFM PER RUN COOLING	82	82	88	88	65	14	16	16	16	16	16
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.17	0.17	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	44	47	58	62	57	38	44	45	56	38	48
EQUIVALENT LENGTH	100	120	130	130	110	90	140	130	110	150	130
TOTAL EFFECTIVE LENGTH	144	167	188	192	167	148	121	184	175	166	178
ADJUSTED PRESSURE	0.11	0.1	0.09	0.08	0.1	0.12	0.14	0.09	0.09	0.1	0.09
ROUND DUCT SIZE	6	6	6	6	5	4	6	6	6	6	6
HEATING VELOCITY (ft/min)	189	189	173	173	374	505	489	489	489	489	489
COOLING VELOCITY (ft/min)	418	418	449	449	477	161	82	82	82	82	82
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10
TRUNK	D	D	G	G	F	F	F	D	F	G	G

SUPPLY AIR TRUNK SIZE										RETURN AIR TRUNK SIZE										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	0	0.00	0	0	0	0	0	8	560	TRUNK O	0	0.06	0	0	0	0	8	0			
TRUNK B	0	0.00	0	0	0	0	0	8	804	TRUNK P	0	0.06	0	0	0	0	8	0			
TRUNK C	0	0.00	0	0	0	0	0	8	0	TRUNK Q	0	0.06	0	0	0	0	8	0			
TRUNK D	207	0.09	7.5	8	466	TRUNK J	0	0	0	TRUNK R	0	0.06	0	0	0	0	8	0			
TRUNK E	364	0.09	9.3	10	855	TRUNK K	0	0	0	TRUNK S	0	0.06	0	0	0	0	8	0			
	615	0.09	11.3	16	692	TRUNK L	0	0	0	TRUNK T	0	0.06	0	0	0	0	8	0			

[illegible]

SITE NAME: PINE VALLEY PH 2
BUILDER: GOLD PARK HOMESWILLOWCREEK
TYPE: 5012

GFA: 4461 LO# 96518 FURNACE 2

DATE: May-22

HEATING CFM 1110 COOLING CFM 1110
TOTAL HEAT LOSS 26,812 TOTAL HEAT GAIN 33,487
AIR FLOW RATE CFM 41.4 AIR FLOW RATE CFM 33.15furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure 0.35
for s/a & r/aML196UH045XE36B \$LENNOX 45
FAN SPEED LOW 620
MEDIUM 685
HIGH 980
DESIGN CFM = 1110
CFM @ .5" E.S.P.AFUE = 96 %
INPUT (BTU/H) = 44,000
OUTPUT (BTU/H) = 42,800

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	20	0	0
R/A	0	0	6	0	0

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	ENS	WIC	BED-2	BED-2	BED-3	BED-3	BED-3	BED-4	BED-4	BED-4	LOFT	ENS-2	ENS-3	ENS-4	ENS-4	LND
RM LOSS MBH	1.32	1.32	0.76	0.76	0.96	1.39	1.39	1.43	1.43	1.43	1.93	1.93	1.93	1.10	0.99	1.88	1.40	1.40	0.79
CFM PER RUN HEAT	55	55	31	31	40	57	57	59	59	59	80	80	80	45	41	78	58	58	33
RM GAIN MBH	1.63	1.63	0.45	0.45	0.26	1.55	1.55	2.31	2.31	2.31	2.76	2.76	2.76	1.98	0.38	1.19	2.04	2.04	1.51
CFM PER RUN COOLING	54	54	15	15	9	51	51	77	77	77	91	91	91	66	13	39	68	68	50
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	46	35	68	75	64	59	51	79	58	55	83	63	64	64	67	22
EQUIVALENT LENGTH	150	150	140	240	150	200	210	150	140	130	170	180	150	220	190	160	140	140	140
TOTAL EFFECTIVE LENGTH	215	220	155	285	185	268	285	214	199	181	249	238	205	303	253	224	204	207	162
ADJUSTED PRESSURE	0.08	0.08	0.11	0.06	0.09	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	6	5	6	5	5	4
HEATING VELOCITY (ft/min)	404	404	356	356	459	419	419	301	301	301	408	408	408	229	301	398	426	426	379
COOLING VELOCITY (ft/min)	396	396	172	172	103	374	374	393	393	393	464	464	464	337	95	199	499	499	574
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10
TRUNK	C	C	C	B	C	B	B	B	B	B	A	A	A	B	B	B	A	A	C

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ROOM NAME	PBR	1.32	55	1.63	54	0.17	75	190	265	0.06	5	404	396	3X10	C
RM LOSS MBH															
CFM PER RUN HEAT															
RM GAIN MBH															
CFM PER RUN COOLING															
ADJUSTED PRESSURE															
ACTUAL DUCT LGH.															
EQUIVALENT LENGTH															
TOTAL EFFECTIVE LENGTH															
ADJUSTED PRESSURE															
ROUND DUCT SIZE															
HEATING VELOCITY (ft/min)															
COOLING VELOCITY (ft/min)															
OUTLET GRILL SIZE															
TRUNK															

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)	RETURN AIR TRUNK SIZE	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	356	0.07	9.8	12	534	TRUNK G	0	0.00	0	0	TRUNK O	0	0.05	0	0	8
TRUNK B	842	0.06	14.1	24	632	TRUNK H	0	0.00	0	0	TRUNK P	0	0.05	0	0	8
TRUNK C	269	0.06	9.2	10	484	TRUNK I	0	0.00	0	0	TRUNK Q	0	0.05	0	0	8
TRUNK D	0	0.00	0	0	0	TRUNK J	0	0.00	0	0	TRUNK R	0	0.05	0	0	8
TRUNK E	0	0.00	0	0	0	TRUNK K	0	0.00	0	0	TRUNK S	0	0.05	0	0	8
TRUNK F	0	0.00	0	0	0	TRUNK L	0	0.00	0	0	TRUNK T	0	0.05	0	0	8
											TRUNK U	0	0.05	0	0	8
											TRUNK V	0	0.05	0	0	8
											TRUNK W	0	0.05	0	0	8
											TRUNK X	1110	0.05	16.4	32	8
											TRUNK Y	575	0.05	12.8	20	8
											TRUNK Z	0	0.05	0	0	8
											DROP	1110	0.05	16.4	24	10

RETURN AIR

AIR VOLUME	280	120	120	3	4	5	6	BR
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0
ACTUAL DUCT LGH.	64	82	62	69	64	60	1	0
EQUIVALENT LENGTH	180	195	235	235	220	195	0	0
TOTAL EFFECTIVE LH	244	277	297	304	284	255	1	1
ADJUSTED PRESSURE	0.06	0.05	0.05	0.05	0.05	0.06	0.06	0
ROUND DUCT SIZE	9.4	7.1	7.1	7.1	10.5	7.1	0	0
INLET GRILL SIZE	X	X	X	X	X	X	X	X
	30	14	14	14	30	14	0	0

TYPE: 5012
SITE NAME: PINE VALLEY PH 2

LO # 96518
WILLOWCREEK

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>5</u> @ 10.6 cfm	<u>53.0</u> cfm
Table 9.32.3.A.	TOTAL	<u>190.8</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	79.5	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>190.8</u>	cfm
Less Principal Ventil. Capacity	<u>150</u>	cfm
Required Supplemental Capacity	<u>40.8</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:	<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#: 96518	Model: 5012																																
Builder: GOLD PARK HOMES																																	
Date: 2022-05-04																																	
Air Change & Delta T Data																																	
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 50%;">0.340</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.114</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.340	SUMMER NATURAL AIR CHANGE RATE	0.114																												
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Design Temperature Difference																																	
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Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																														
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Fourth	0	0	0																														
Total:			68,652.0 ft³																														
Total:			1944.0 m³																														
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	$\times 540.00 \times 42^\circ\text{C} \times 1.2 = 9304 \text{ W}$ $= 31745 \text{ Btu/h}$																																
5.2.3.2 Heat Loss due to Mechanical Ventilation																																	
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E) \times 2 \text{ HRV / ERV's}$																																	
300 CFM	$\times 76^\circ\text{F} \times 1.08 \times 0.25 = 6156 \text{ Btu/h}$																																
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;"> <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-level)</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)</th> </tr> <tr> <td>1</td> <td>0.5</td> <td rowspan="5">31,745</td> <td>13,834</td> <td>1.147</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>21,425</td> <td>0.445</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>19,461</td> <td>0.326</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> </table>		Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL-level)	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)	1	0.5	31,745	13,834	1.147	2	0.3	21,425	0.445	3	0.2	19,461	0.326	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-level)	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																													
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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	BUILDER: GOLD PARK HOMES
SFQT: 4461	LO# 96518	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):	68652.0	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: 72.0 ft	WIDTH: 43.0 ft	EXPOSED PERIMETER:	230.0 ft

2012 OBC - COMPLIANCE PACKAGE**Component****Compliance Package
A1****Nominal Min. Eff.**

Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

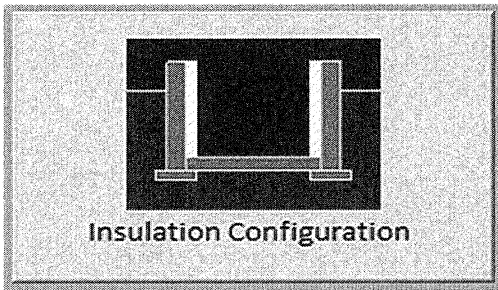
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



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):	21.9	 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):	2.1	
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):		2372

TYPE: 5012
LO# 96518

WILLOWCREEK

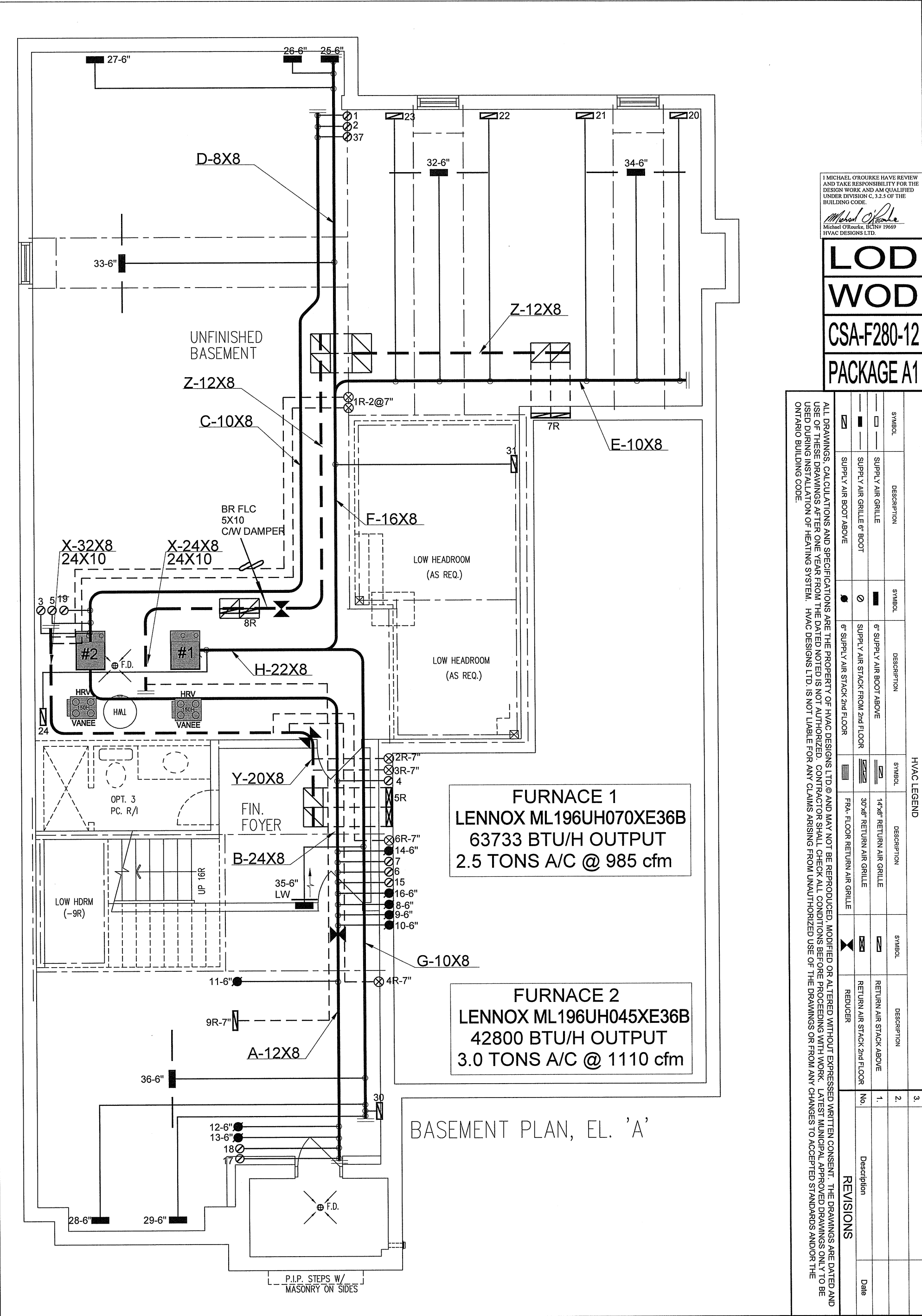
Air Infiltration Residential Load Calculator

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):	1944.0			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2591.4 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: 5012
LO# 96518

WILLOWCREEK



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	2.
	SUPPLY AIR GRILLE		1.
	SUPPLY AIR BOOT		No.
	SUPPLY AIR BOOT ABOVE		Date
	SUPPLY AIR STACK		
	SUPPLY AIR STACK 2nd FLOOR		
	FRA-FLOOR RETURN AIR GRILLE		
	RETURN AIR STACK		
	RETURN AIR STACK 2nd FLOOR		
	REDUCER		

Client
GOLD PARK HOMES

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

**WILLOWCREEK
5012**

4238 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@hvacadesigns.ca
Web: www.hvacadesigns.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	20	6	5
1ST	12	3	2
BAS	5	1	0

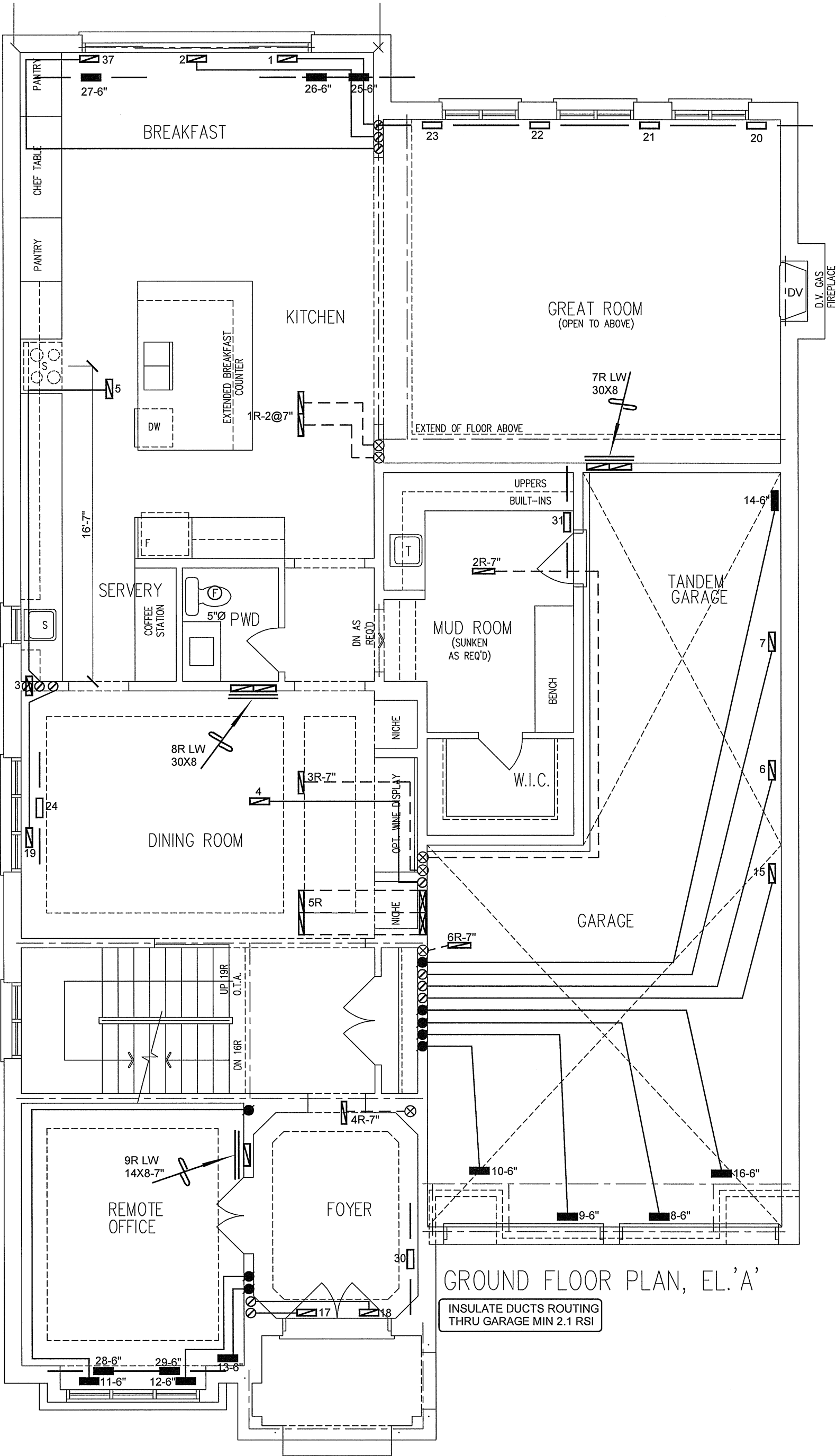
Sheet Title
**BASEMENT
HEATING
LAYOUT**

Date
MAY/2022

Scale
3/16" = 1'-0"

BCIN# 19669

LO# **96518**



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

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Client
GOLD PARK HOMES

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

**WILLOWCREEK
5012**

4238 sqft

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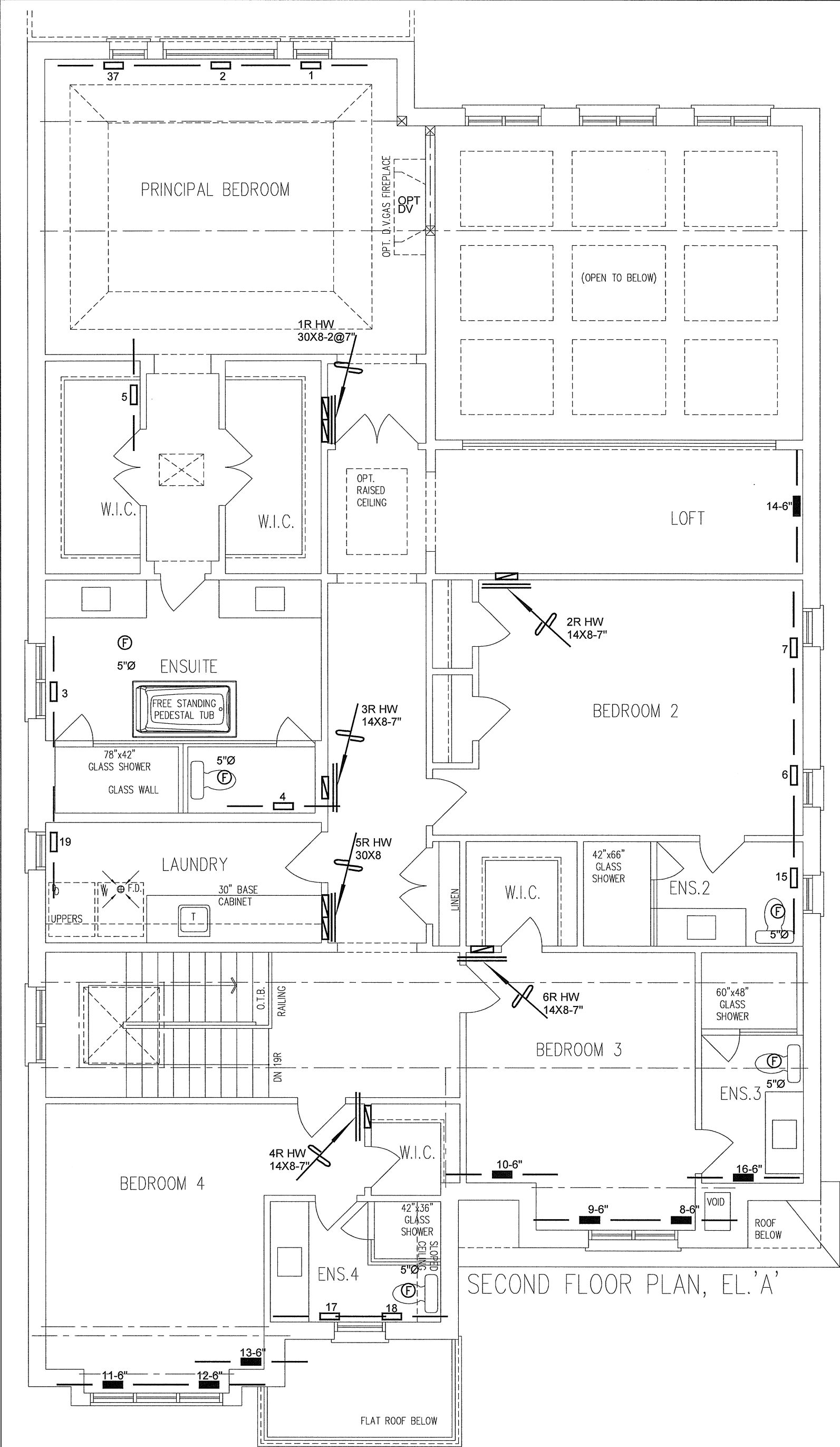
Sheet Title
**FIRST FLOOR
HEATING
LAYOUT**

Date
MAY/2022

Scale
3/16" = 1'-0"

BCIN# 19669

LO# 96518



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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"x6" RETURN AIR GRILLE	
	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**

**WILLOWCREEK
5012**

4238 sqft

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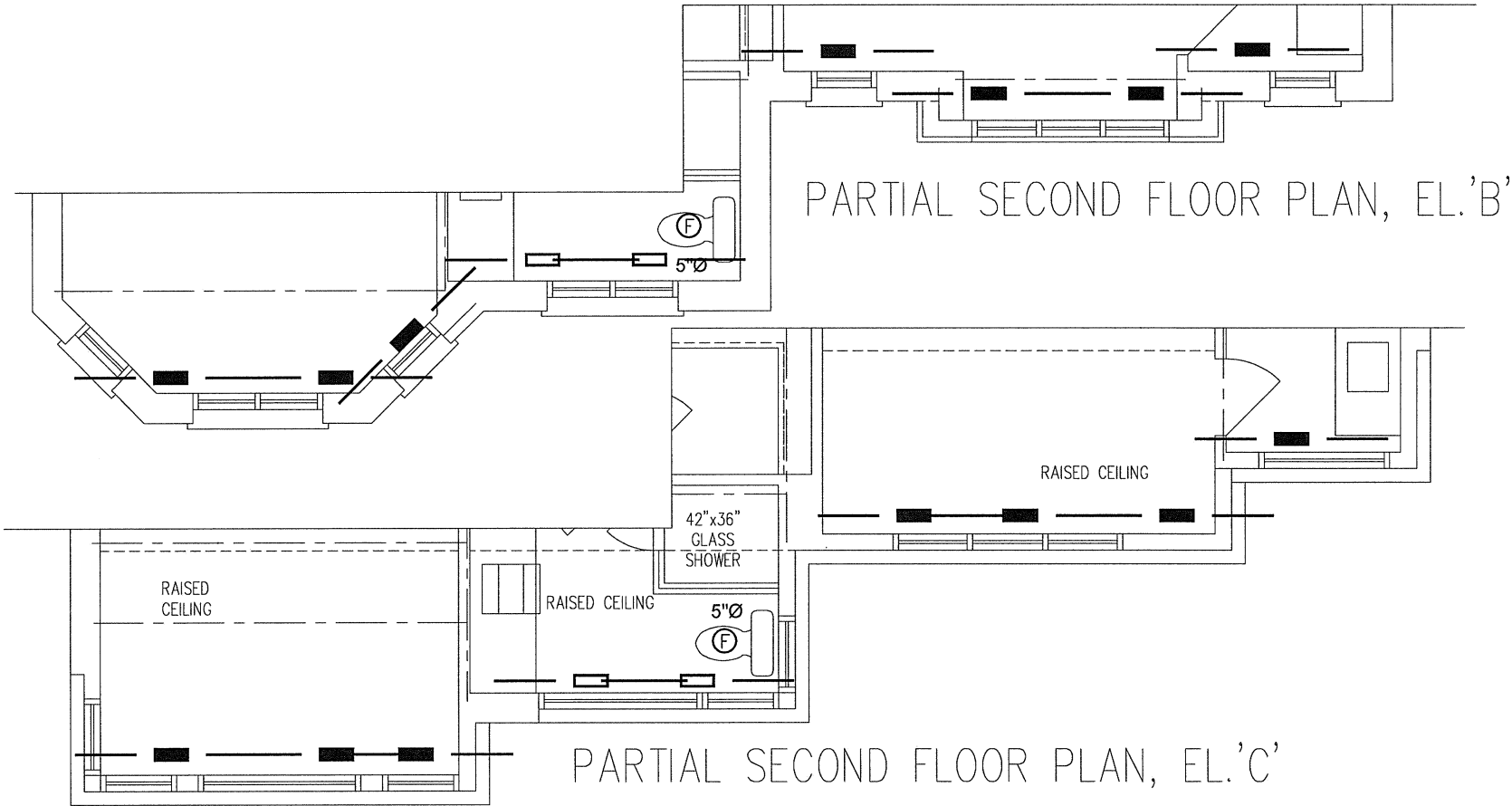
Sheet Title
**SECOND FLOOR
HEATING
LAYOUT**

Date
MAY/2022

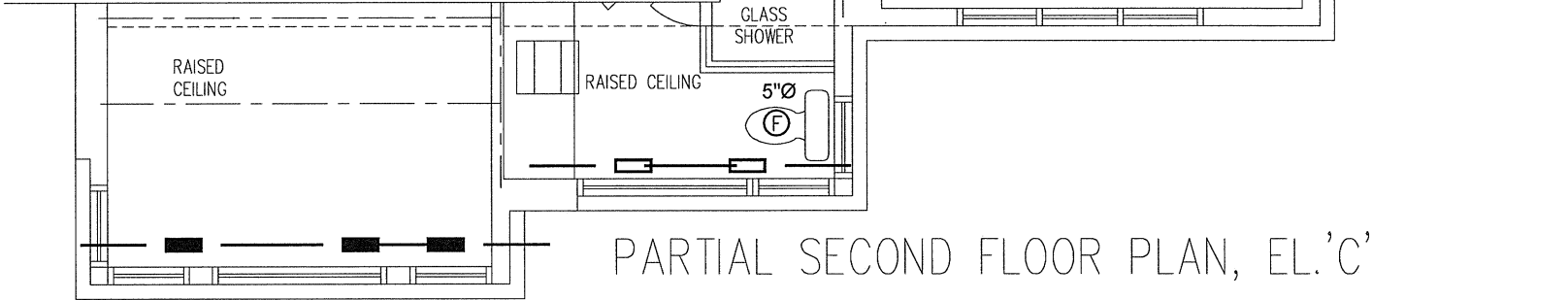
Scale
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BCIN# 19669

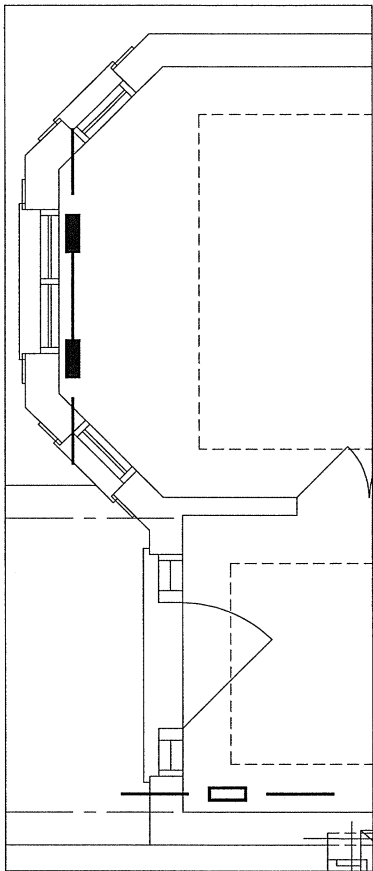
LO# 96518



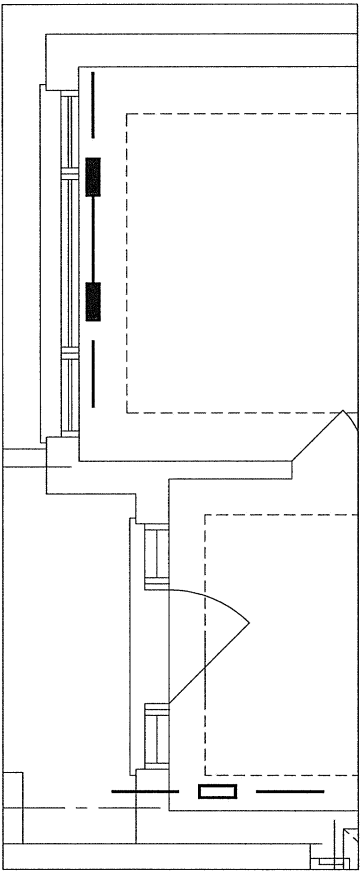
PARTIAL SECOND FLOOR PLAN, EL.'B'



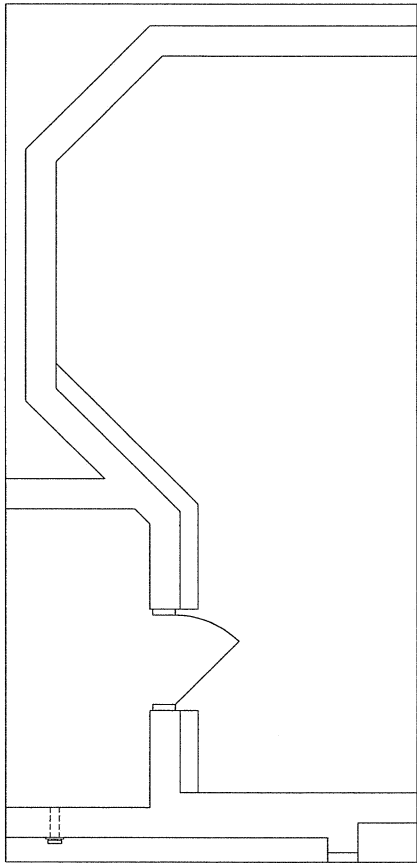
PARTIAL SECOND FLOOR PLAN, EL.'C'



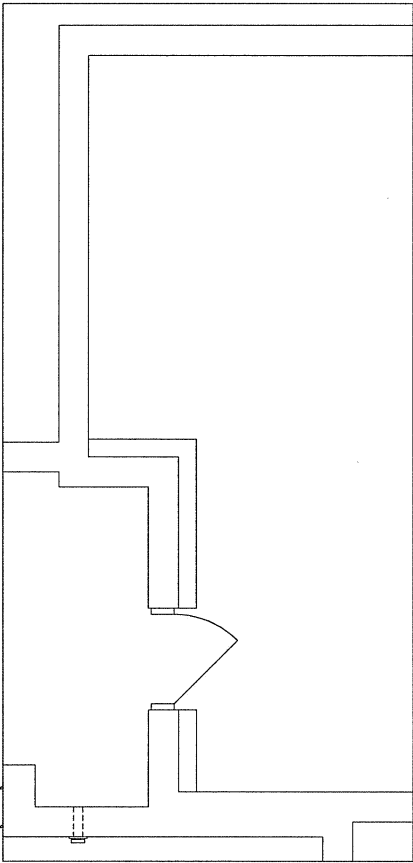
PARTIAL GROUND FLOOR PLAN, EL.'B'



PARTIAL GROUND FLOOR PLAN, EL.'C'



PARTIAL BASEMENT PLAN, EL.'B'



PARTIAL BASEMENT PLAN, EL.'C'

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

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Client
GOLD PARK HOMES

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

**WILLOWCREEK
5012**

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.

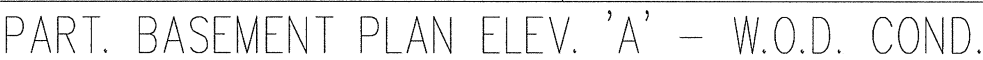
Sheet Title
**ELEVATIONS
HEATING
LAYOUT**

Date
MAY/2022

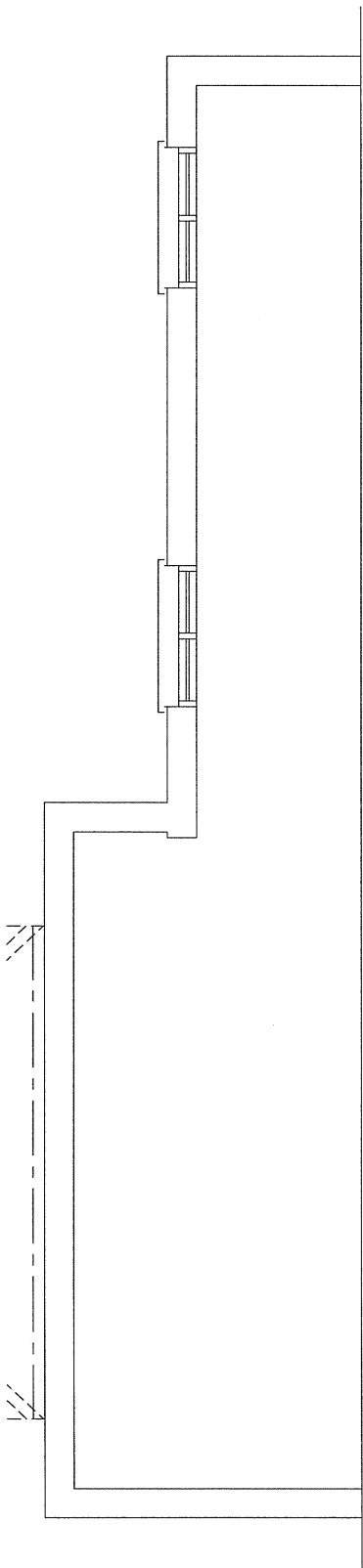
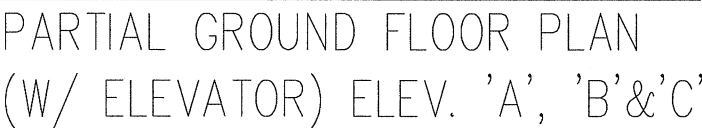
Scale
3/16" = 1'-0"

BCIN# 19669

LO# 96518



LOD
WOD
CSA-F280-12
PACKAGE A1



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

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Client		 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	
GOLD PARK HOMES			STRIP PLAN HEATING LAYOUT	
Project Name PINE VALLEY PH 2 VAUGHAN, ONTARIO			Date	MAY/2022
WILLOWCREEK 5012			Scale	3/16" = 1'-0"
4238 sqft		BCIN# 19669		
		LO# 96518		