

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@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: 6001 - QUEENSLAND 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.			
April 14, 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 Apr-22		WINTER NATURAL AIR CHANGE RATE 0.434												HEAT LOSS ΔT °F. 76		CSA-F280-1										
BUILDER: GOLD PARK HOMES												TYPE: 6001 - QUEENSLAND						GFA: 5312		LO# 96135		SUMMER NATURAL AIR CHANGE RATE 0.145						HEAT GAIN ΔT °F. 13		SB-12 PACKAGE A								
ROOM USE			MBR			ENS			BED-2			BED-3			BED-4			BED-5			ENS-2			ENS-3			ENS-4			ENS-5								
EXP. WALL			20			32			18			28			37			16			6			19			10			6								
CLG. HT.			10			9			9			11			10			9			9			9			9			9								
FACTORS																																						
GRS.WALL AREA			LOSS GAIN			200			288			162			308			370			144			54			171			90			54					
GLAZING			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN					
NORTH			21.3	16.0	0	0	0	0	0	0	0	38	809	607	0	0	0	0	0	0	0	8	170	128	0	0	0	0	0	0	0	0	0					
EAST			21.3	41.6	0	0	0	0	0	0	0	0	0	0	56	1192	2327	45	958	1870	0	0	0	0	0	0	12	255	499	0	0	0	0					
SOUTH			21.3	24.9	0	0	0	22	468	548	0	0	0	0	0	0	0	0	0	0	19	404	473	0	0	0	0	0	0	8	170	199	8	170	199			
WEST			21.3	41.6	42	894	1745	8	170	332	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
SKYLT.			37.2	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
DOORS			25.2	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
NET EXPOSED WALL			4.5	0.8	158	705	119	258	1151	194	124	553	93	252	1125	189	325	1450	244	125	558	94	46	205	35	159	710	120	82	366	62	46	205	35				
NET EXPOSED BSMT WALL ABOVE GR			3.6	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
EXPOSED CLG			1.3	0.6	380	488	223	240	308	141	438	562	257	291	373	171	293	376	172	304	390	179	66	85	39	84	108	49	80	103	47	72	92	42				
NO ATTIC EXPOSED CLG			2.7	1.3	0	0	0	0	0	0	0	0	0	75	206	94	30	82	38	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	200	510	86	216	551	93	0	0	0	0	0	0	66	168	28	84	214	36	0	0	0	0	0				
BASEMENT/CRAWL HEAT LOSS																																						
SLAB ON GRADE HEAT LOSS																																						
SUBTOTAL HT LOSS			2087			2098			2434			3447			2866			1352			629			1287			639			468								
SUB TOTAL HT GAIN			2087			1215			1044			2874			2324			746			229			704			308			276								
LEVEL FACTOR / MULTIPLIER			0.20	0.53			0.20	0.53		0.20	0.53		0.20	0.53		0.20	0.53		0.20	0.53		0.20	0.53		0.20	0.53		0.20	0.53		0.20	0.53		0.20	0.53			
AIR CHANGE HEAT LOSS			1106			1112			1291			1827			1520			717			333			682			339			248								
AIR CHANGE HEAT GAIN						184			107			92			254			205			66			20			62			27			24					
DUCT LOSS			0			0			372			527			0			0			96			197			0			0								
DUCT GAIN			0			0			305			504			0			0			25			77			0			0								
HEAT GAIN PEOPLE			240		2	480	0	0	1	240	1	240	1	240	1	240	1	240	1	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
HEAT GAIN APPLIANCES/LIGHTS						1671			0			1671			1671			1671			1671			0			0			0			0			0		
TOTAL HT LOSS BTU/H			3193			3210			4097			5802			4386			2069			1058			2166			978			716								
TOTAL HT GAIN x 1.3 BTU/H			5749			1719			4357			7206			5772			3539			357			1095			435			391								

[illegible]

TOTAL HEAT GAIN BTU/H: 77818

TONS: 6.48

LOSS DUE TO VENTILATION LOAD BTU/H: 6156

STRUCTURAL HEAT LOSS: 107392

TOTAL COMBINED HEAT LOSS BTU/H: 113548

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

TYPE: 6001 - QUEENSLAND

DATE: Apr-22

GFA: 5312 LO# 96135

FURNACE 1

HEATING CFM 1340 COOLING CFM 1340
TOTAL HEAT LOSS 77,982 TOTAL HEAT GAIN 40,903
AIR FLOW RATE CFM 17.18 AIR FLOW RATE CFM 32.76

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
= 81060 BTUH**
**\$*LENNOX
ML196UH090XE48C 90**
FAN SPEED LOW 0
MEDLOW 1080
MEDIUM 1190
MEDIUM HIGH 1340
HIGH 1575

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

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

TEMPERATURE RISE 59 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	0	19	8
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 #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24
ROOM NAME	GREAT	GREAT	GREAT	GREAT	GREAT	KIT	KIT	KIT	KIT	DIN	DIN	LIBR	LIBR	LIBR	FOY	FOY	FOY	MUD	PWD	BAS	BAS	BAS	BAS
RM LOSS MBH.	2.50	2.50	2.50	2.50	2.50	1.94	1.94	1.94	1.94	1.49	1.49	1.62	1.62	1.62	3.36	3.36	3.36	2.62	0.53	4.58	4.58	4.58	4.58
CFM PER RUN HEAT	43	43	43	43	43	33	33	33	33	26	26	28	28	28	58	58	58	45	9	79	79	79	79
RM GAIN MBH.	2.47	2.47	2.47	2.47	2.47	2.64	2.64	2.64	2.64	1.93	1.93	2.02	2.02	2.02	2.03	2.03	2.03	0.40	0.08	0.19	0.19	0.19	0.19
CFM PER RUN COOLING	81	81	81	81	81	87	87	87	87	63	63	66	66	66	66	66	66	13	3	6	6	6	6
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.16	0.16	0.16	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
ACTUAL DUCT LGH.	74	89	83	78	72	67	59	45	46	46	10	22	27	31	40	46	37	48	55	67	56	65	71
EQUIVALENT LENGTH	140	130	150	160	130	130	140	170	110	120	150	150	110	120	140	110	100	150	130	110	120	120	140
TOTAL EFFECTIVE LENGTH	214	219	233	238	202	197	199	215	156	166	160	172	137	151	180	156	137	198	185	177	176	185	211
ADJUSTED PRESSURE	0.08	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.1	0.1	0.11	0.1	0.13	0.11	0.1	0.11	0.13	0.09	0.09	0.1	0.1	0.09	0.08
ROUND DUCT SIZE	6	6	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	4	4	5	5	6	6
HEATING VELOCITY (ft/min)	219	219	219	219	219	168	168	168	168	191	191	206	206	206	426	426	426	516	103	580	580	403	403
COOLING VELOCITY (ft/min)	413	413	413	413	413	444	444	444	444	463	463	485	485	485	485	485	485	149	34	44	44	31	31
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10
TRUNK	A	A	A	A	B	B	B	C	D	D	D	F	F	F	E	E	E	D	D	C	C	B	A

RUN #	25	26	27	28
ROOM NAME	BAS	BAS	BAS	BAS
RM LOSS MBH.	4.58	4.58	4.58	4.58
CFM PER RUN HEAT	79	79	79	79
RM GAIN MBH.	0.19	0.19	0.19	0.19
CFM PER RUN COOLING	6	6	6	6
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	39	44	23	41
EQUIVALENT LENGTH	140	160	100	130
TOTAL EFFECTIVE LENGTH	179	204	123	171
ADJUSTED PRESSURE	0.1	0.08	0.14	0.1
ROUND DUCT SIZE	5	6	5	5
HEATING VELOCITY (ft/min)	580	403	580	580
COOLING VELOCITY (ft/min)	44	31	44	44
OUTLET GRILL SIZE	3X10	4X10	3X10	3X10
TRUNK	D	E	F	E

SUPPLY AIR TRUNK SIZE										RETURN AIR TRUNK SIZE													
		TRUNK	STATIC	ROUND	RECT					TRUNK	STATIC	ROUND	RECT										
		CFM	PRESS.	DUCT	DUCT					CFM	PRESS.	DUCT	DUCT										
						VELOCITY								VELOCITY									
						(ft/min)								(ft/min)									
TRUNK A	251	0.07	8.6	8	x	10	452	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.06	0	0	x	8	0
TRUNK B	439	0.07	10.7	12	x	10	527	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.06	0	0	x	8	0
TRUNK C	191	0.08	7.5	8	x	8	430	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.06	0	0	x	8	0
TRUNK D	848	0.07	13.6	16	x	12	636	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.06	0	0	x	8	0
TRUNK E	332	0.08	9.3	10	x	8	598	TRUNK K	0	0.00	0	0	x	8	0	TRUNK S	0	0.06	0	0	x	8	0
TRUNK F	495	0.08	10.8	14	x	8	636	TRUNK L	0	0.00	0	0	x	8	0	TRUNK T	0	0.06	0	0	x	8	0

RETURN AIR #	1	2	3													BR								
AIR VOLUME	275	305	450	0	0	0	0	0	0	0	0	0	0	0	0	310	TRUNK W	450	0.06	11.2	14	x	8	579
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	TRUNK X	890	0.06	14.4	16	x	12	668
ACTUAL DUCT LGH.	76	47	41	1	1	1	1	1	1	1	1	1	1	1	1	19	TRUNK Y	580	0.06	12.3	12	x	10	696
EQUIVALENT LENGTH	180	165	140	0	0	0	0	0	0	0	0	0	0	0	0	145	TRUNK Z	275	0.06	9.3	10	x	8	495
TOTAL EFFECTIVE LH	256	212	181	1	1	1	1	1	1	1	1	1	1	1	1	164	DROP	1340	0.06	16.8	24	x	12	670
ADJUSTED PRESSURE	0.06	0.07	0.08	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.09								
ROUND DUCT SIZE	9.3	9.3	10.4	0	0	0	0	0	0	0	0	0	0	0	0	8.8								
INLET GRILL SIZE	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	8								
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
INLET GRILL SIZE	30	30	30	0	0	0	0	0	0	0	0	0	0	0	0	30								

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

TYPE: 6001 - QUEENSLAND

DATE: Apr-22

GFA: 5312 LO# 96135

FURNACE 2

HEATING CFM 1110 COOLING CFM 1110
TOTAL HEAT LOSS 29,410 TOTAL HEAT GAIN 36,397
AIR FLOW RATE CFM 37.74 AIR FLOW RATE CFM 30.5

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
= 32488 BTUH**
**\$LENNOX
ML196UH045XE36B**

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

plenium pressure s/a 0.18
max s/a dif press. loss 0.03
min adjusted pressure s/a 0.15
r/a pressure 0.17
r/a grille press. Loss 0.02
adjusted pressure r/a 0.15

FAN SPEED 45
LOW 620
MEDLOW 685
MEDIUM 980
MEDIUM HIGH 1110
HIGH 0

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

TEMPERATURE RISE 36 °F

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

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

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
ROOM NAME	MBR	MBR	MBR	ENS	ENS	BED-2	BED-2	ENS-2	BED-3	BED-3	BED-3	ENS-3	BED-4	BED-4	BED-4	ENS-4	BED-5	BED-5	ENS-5	LAUN	HALL
RM LOSS MBH.	1.06	1.06	1.06	2.41	0.80	2.05	2.05	1.06	1.93	1.93	1.93	2.17	1.46	1.46	1.46	0.98	1.03	1.03	0.72	0.16	1.57
CFM PER RUN HEAT	40	40	40	91	30	77	77	40	73	73	73	82	55	55	55	37	39	39	27	6	59
RM GAIN MBH.	1.92	1.92	1.92	1.29	0.43	2.18	2.18	0.36	2.40	2.40	2.40	1.09	1.92	1.92	1.92	0.44	1.77	1.77	0.39	2.24	3.53
CFM PER RUN COOLING	58	58	58	39	13	66	66	11	73	73	73	33	59	59	59	13	54	54	12	68	108
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.15
ACTUAL DUCT LGH.	67	72	83	75	69	85	95	102	79	85	91	86	37	30	42	32	24	28	67	82	34
EQUIVALENT LENGTH	150	160	220	180	180	160	170	180	170	180	170	160	170	150	140	200	210	180	180	190	110
TOTAL EFFECTIVE LENGTH	217	232	303	255	249	245	265	282	249	265	261	246	207	180	182	232	234	208	247	272	144
ADJUSTED PRESSURE	0.08	0.07	0.06	0.06	0.07	0.07	0.06	0.06	0.07	0.06	0.07	0.07	0.08	0.1	0.09	0.07	0.07	0.08	0.07	0.06	0.11
ROUND DUCT SIZE	6	6	6	6	4	6	6	5	6	6	6	6	5	5	5	4	5	5	4	6	6
HEATING VELOCITY (ft/min)	204	204	204	464	344	393	393	294	372	372	372	418	404	404	404	424	286	286	310	31	301
COOLING VELOCITY (ft/min)	296	296	296	199	149	337	337	81	372	372	372	168	433	433	433	149	396	396	138	347	551
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	3X10	4X10	4X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10
TRUNK	B	B	A	B	B	A	A	A	C	C	C	C	D	D	D	C	C	C	B	A	D

RUN #	
ROOM NAME	
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										RETURN AIR TRUNK SIZE													
	TRUNK	STATIC	ROUND	RECT	VELOCITY				TRUNK	STATIC	ROUND	RECT	VELOCITY				TRUNK	STATIC	ROUND	RECT	VELOCITY		
	CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT			(ft/min)
TRUNK A	240	0.06	8.8	8	x	10	432	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0
TRUNK B	468	0.06	11.3	12	x	10	562	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0
TRUNK C	884	0.06	14.4	16	x	12	663	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0
TRUNK D	224	0.08	8	10	x	8	403	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.05	0	0	x	8	0
TRUNK E	0	0.00	0	0	x	8	0	TRUNK K	0	0.00	0	0	x	8	0	TRUNK S	0	0.05	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0	TRUNK T	0	0.05	0	0	x	8	0

RETURN AIR #	1	2	3	4	5	6	BR														
AIR VOLUME	230	115	260	130	115	260	0	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	0.15	0.15
ACTUAL DUCT LGH.	75	71	71	60	83	65	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	230	215	195	185	225	190	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	305	286	266	245	308	255	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.05	0.05	0.06	0.06	0.05	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	9.1	7	9.1	7	7	9.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	30	14	30	14	14	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: 6001 - QUEENSLAND
SITE NAME: PINE VALLEY PH 2

LO # 96135

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>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Kitchen & Bathrooms	<u>7</u> @ 10.6 cfm	<u>74.2</u> cfm
Other Rooms	<u>5</u> @ 10.6 cfm	<u>53.0</u> cfm
Table 9.32.3.A.	TOTAL	<u>212.0</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>95.4</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>212</u>	cfm
Less Principal Ventil. Capacity	<u>150</u>	cfm
Required Supplemental Capacity	<u>62.0</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:	April-22

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 96135	Model: 6001 - QUEENSLAND	Builder: GOLD PARK HOMES	Date: 4/14/2022																																																									
Volume Calculation		Air Change & Delta T Data																																																										
House Volume <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>2574</td> <td>10</td> <td>25740</td> </tr> <tr> <td>First</td> <td>2574</td> <td>11</td> <td>28314</td> </tr> <tr> <td>Second</td> <td>3208</td> <td>9</td> <td>28872</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="3" style="text-align: right;">Total:</td> <td>82,926.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>2348.2 m³</td> </tr> </tbody> </table>		Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2574	10	25740	First	2574	11	28314	Second	3208	9	28872	Third	0	9	0	Fourth	0	9	0	Total:			82,926.0 ft³	Total:			2348.2 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%; text-align: center;">0.434</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.145</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td style="text-align: center;">22</td> <td style="text-align: center;">-20</td> <td style="text-align: center;">42</td> <td style="text-align: center;">76</td> </tr> <tr> <td>Summer DTDc</td> <td style="text-align: center;">24</td> <td style="text-align: center;">31</td> <td style="text-align: center;">7</td> <td style="text-align: center;">13</td> </tr> </table>			WINTER NATURAL AIR CHANGE RATE	0.434	SUMMER NATURAL AIR CHANGE RATE	0.145	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	24	31	7	13
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																									
Bsmt	2574	10	25740																																																									
First	2574	11	28314																																																									
Second	3208	9	28872																																																									
Third	0	9	0																																																									
Fourth	0	9	0																																																									
Total:			82,926.0 ft³																																																									
Total:			2348.2 m³																																																									
WINTER NATURAL AIR CHANGE RATE	0.434																																																											
SUMMER NATURAL AIR CHANGE RATE	0.145																																																											
Design Temperature Difference																																																												
	Tin °C	Tout °C	ΔT °C	ΔT °F																																																								
Winter DTDh	22	-20	42	76																																																								
Summer DTDc	24	31	7	13																																																								
5.2.3.1 Heat Loss due to Air Leakage		6.2.6 Sensible Gain due to Air Leakage																																																										
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.434 x 652.28 x 42 °C x 1.2 = 14327 W = 48884 Btu/h		$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.145 x 652.28 x 7 °C x 1.2 = 808 W = 2756 Btu/h																																																										
5.2.3.2 Heat Loss due to Mechanical Ventilation		6.2.7 Sensible heat Gain due to Ventilation																																																										
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E) \times 2 \text{ HRV / ERV's}$ 300 CFM x 76 °F x 1.08 x 0.25 = 6156 Btu/h		$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 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)																																																												
$HL_{airr} = Level \ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairve 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" style="text-align: center; vertical-align: middle;">48,884</td> <td style="text-align: center;">12,207</td> <td style="text-align: center;">2.002</td> </tr> <tr> <td>2</td> <td>0.3</td> <td style="text-align: center;">26,668</td> <td style="text-align: center;">0.550</td> </tr> <tr> <td>3</td> <td>0.2</td> <td style="text-align: center;">18,440</td> <td style="text-align: center;">0.530</td> </tr> <tr> <td>4</td> <td>0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.000</td> </tr> </tbody> </table> *HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0					Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)	1	0.5	48,884	12,207	2.002	2	0.3	26,668	0.550	3	0.2	18,440	0.530	4	0	0	0.000	5	0	0	0.000																														
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																								
1	0.5	48,884	12,207	2.002																																																								
2	0.3		26,668	0.550																																																								
3	0.2		18,440	0.530																																																								
4	0		0	0.000																																																								
5	0		0	0.000																																																								
				Michael O'Rourke BCIN# 19669 																																																								

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** 6001 - QUEENSLAND**BUILDER:** GOLD PARK HOMES**SFQT:** 5312**LO#** 96135**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):	82926.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	2.00	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 66.0 ft	WIDTH: 55.0 ft	EXPOSED PERIMETER:	242.0 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	-

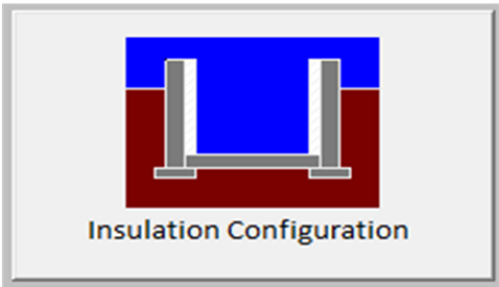
INDIVIDUAL BCIN: 19669

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):	20.1	 Insulation Configuration
Floor Width (m):	16.8	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.2	
Door Area (m ²):	3.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		2466

TYPE: 6001 - QUEENSLAND
LO# 96135

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):	10.06			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	2348.2			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	3130.2 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):	0.434			
Cooling Air Leakage Rate (ACH/H):	0.145			

TYPE: 6001 - QUEENSLAND
LO# 96135

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.

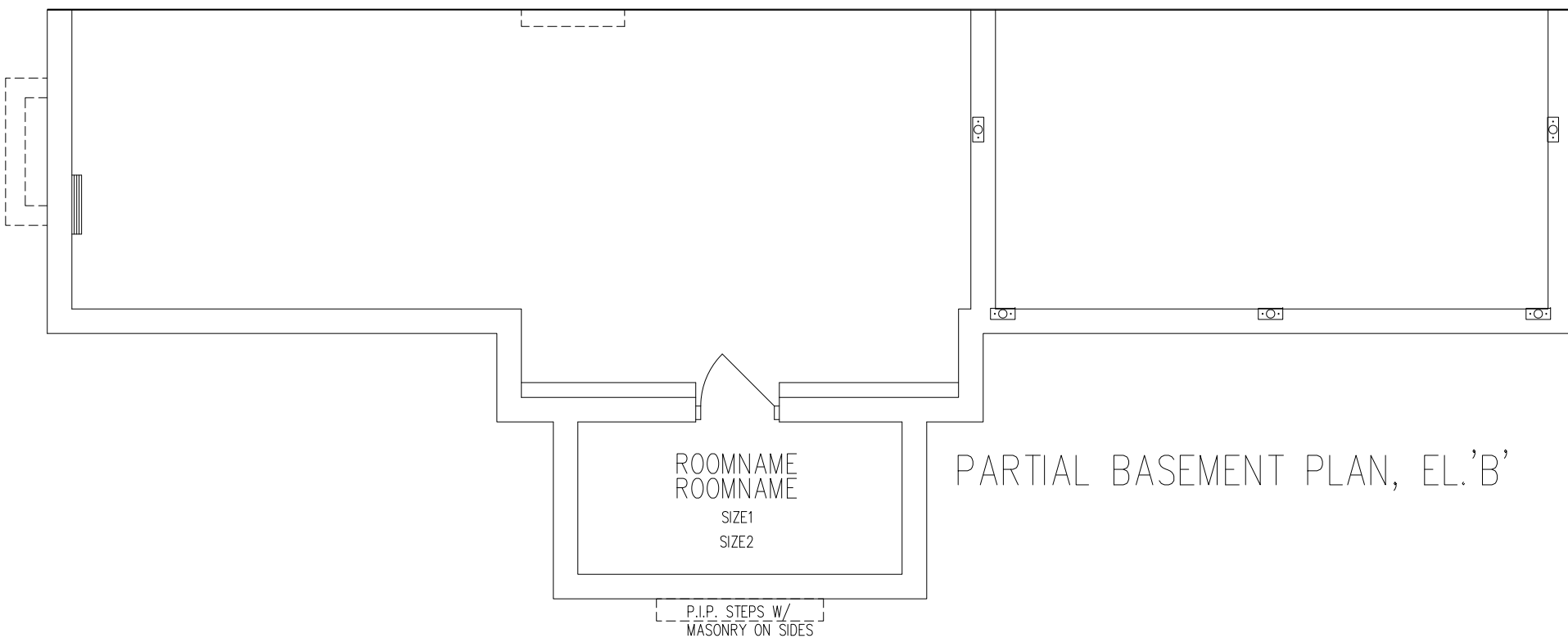
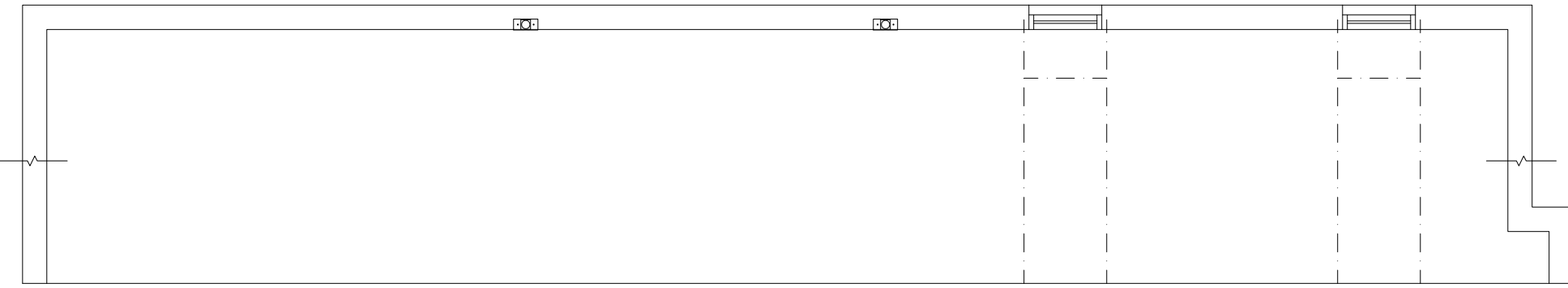
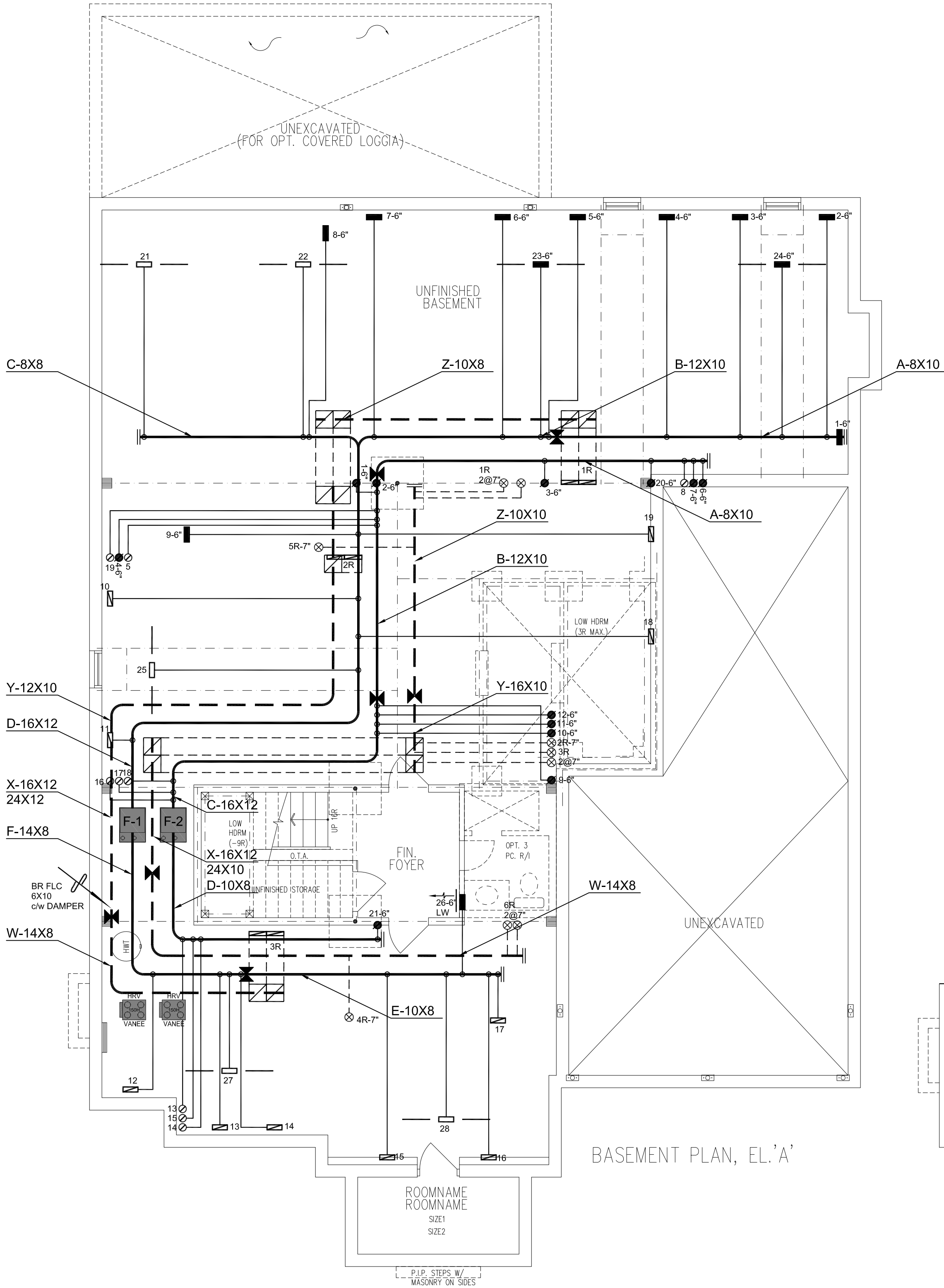
INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE. ALL SUPPLY BRANCH OUTLETS SHALL BE EQUIPPED WITH MANUAL BALANCING DAMPER. DUCTWORK WHICH PASSES THROUGH THE GARAGE OR UNHEATED SPACES SHALL BE ADEQUATELY INSULATED AND GAS-PROOFED

ALL S/A DIFFUSERS "4x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

FURNACE 1 (F-1)
LENNOX ML196UH090XE48C
85600 BTU/H OUTPUT
3.5 TONS A/C @ 1340 cfm

FURNACE 2 (F-2)
LENNOX ML196UH045XE36B
42800 BTU/H OUTPUT
3.0 TONS A/C @ 1110 cfm

	S/A	R/A	FANS
2ND	21	6	7
1ST	19	3	2
BAS	8	1	0



HVAC LEGEND	
	4X10 SUPPLY GRILLE
	14X8 RETURN GRILLE
	4X10 SUPPLY GRILLE 6\"/>
	30X8 RETURN GRILLE
	SUPPLY DUCTWORK
	RETURN DUCTWORK
	EXHAUST FAN
LW	LOW WALL
HW	HIGH WALL

UNLESS OTHERWISE NOTED, THE DESIGNER SHALL BE RESPONSIBLE FOR THE DESIGN WORK AND ANY NECESSARY PERMITS. THE DESIGNER SHALL BE RESPONSIBLE FOR THE DESIGN WORK AND ANY NECESSARY PERMITS. THE DESIGNER SHALL BE RESPONSIBLE FOR THE DESIGN WORK AND ANY NECESSARY PERMITS.

1. ISSUED FOR PERMIT APRIL 2022 EG

SB-12 PACKAGE

A1

HVACDESIGNS LTD.

375 Finley Ave - Unit 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

Client: GOLDPARK HOMES

Project Name: PINE VALLEY PH2

VAUGHAN, ONTARIO

6001 - QUEENSLAND

5312 SQFT

Copyright & Copy © 2022 HVAC Designs Ltd.

Sheet Title: BASEMENT HVAC LAYOUT

Drawn By: EG Checked By: MO

Scale: 3/16"=1'-0"

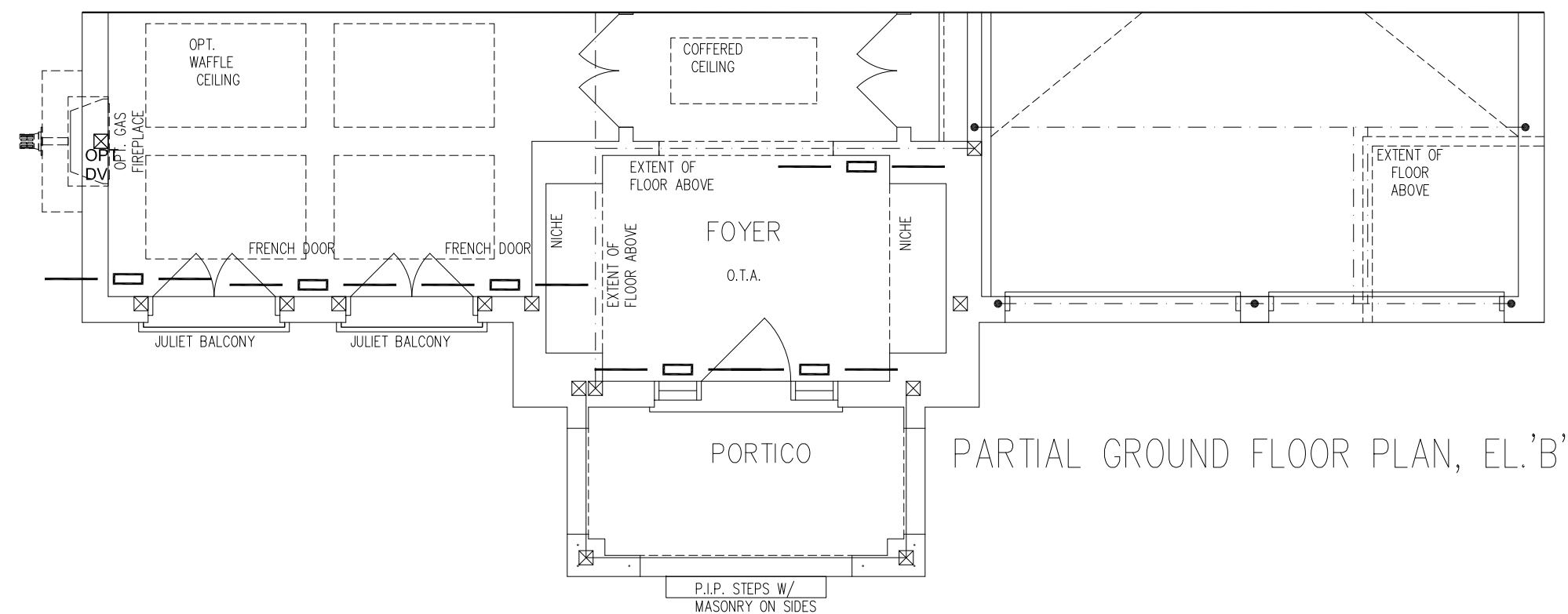
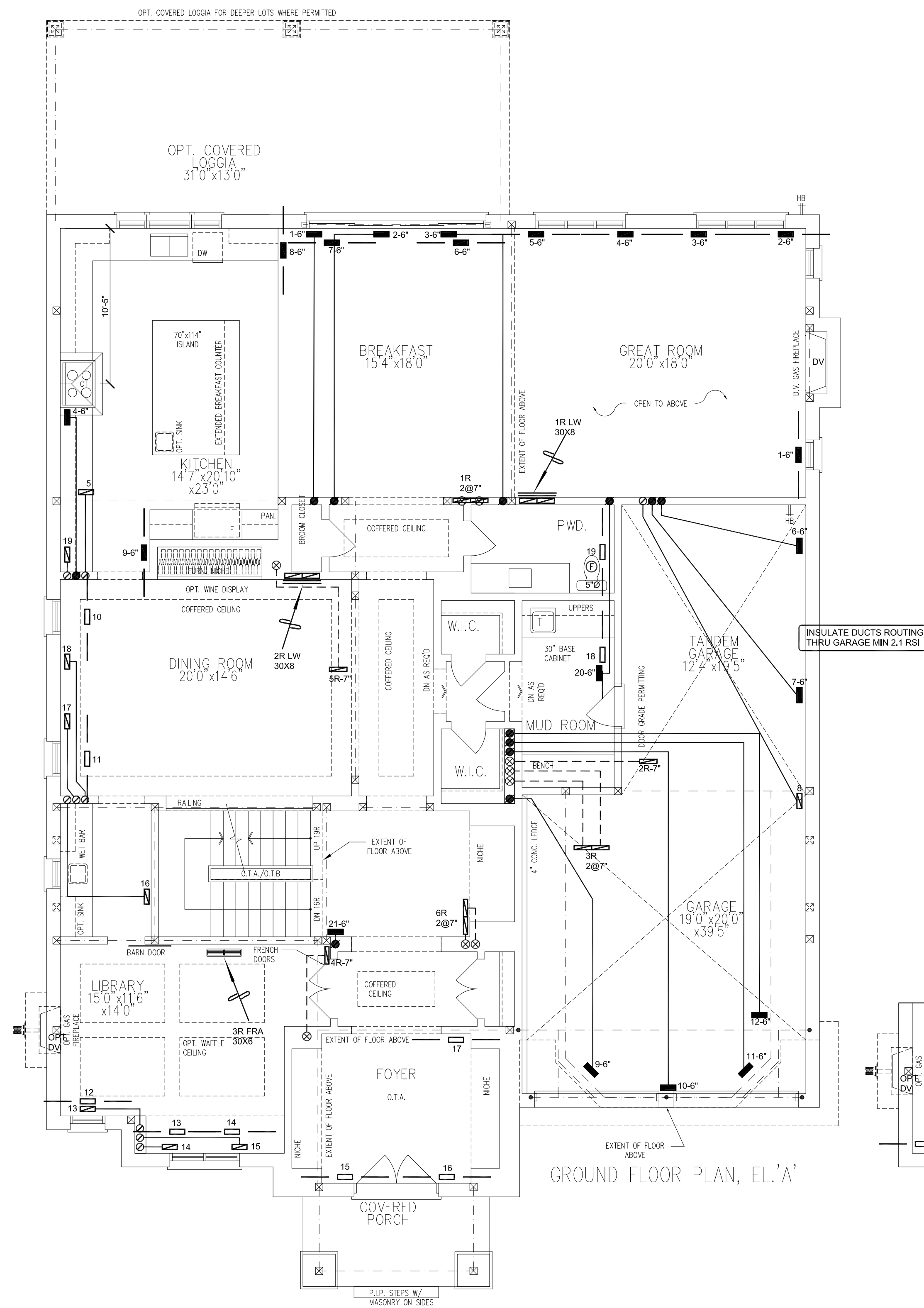
Date: APRIL 2022

LO # 96135

1

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE. ALL SUPPLY BRANCH OUTLETS SHALL BE EQUIPPED WITH MANUAL BALANCING DAMPER. DUCTWORK WHICH PASSES THROUGH THE GARAGE OR UNHEATED SPACES SHALL BE ADEQUATELY INSULATED AND GAS-PROOFED

ALL S/A DIFFUSERS "4x10"
UNLESS NOTED OTHERWISE
ON LAYOUT. ALL S/A RUNS 5"Ø
UNLESS NOTED OTHERWISE
ON LAYOUT. UNDERCUT
DOORS 1" min. FOR R/A



	S/A	R/A	FANS
2ND	21	6	7
1ST	19	3	2
BAS	8	1	0

HVAC LEGEND	
	4X10 SUPPLY GRILLE
	14X9 RETURN GRILLE
	4X10 SUPPLY GRILLE 8"0 BOOT
	30X9 RETURN GRILLE
	SUPPLY DUCTWORK
	RETURN DUCTWORK
	EXHAUST FAN
LW	LOW WALL
HW	HIGH WALL

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

Michael O'Brourke, BCTN# 19609
HVAC DESIGNER LTD.



1	ISSUED FOR PERMIT	APRIL 2022
No.	Revision	Date

SB-12 PACKAGE

A1

HVAC DESIGNS LTD.

375 Finley Ave - Unit 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

Client **GOLDPARK HOMES**

Project Name PINE VALLEY PH2
VAUGHAN, ONTARIO

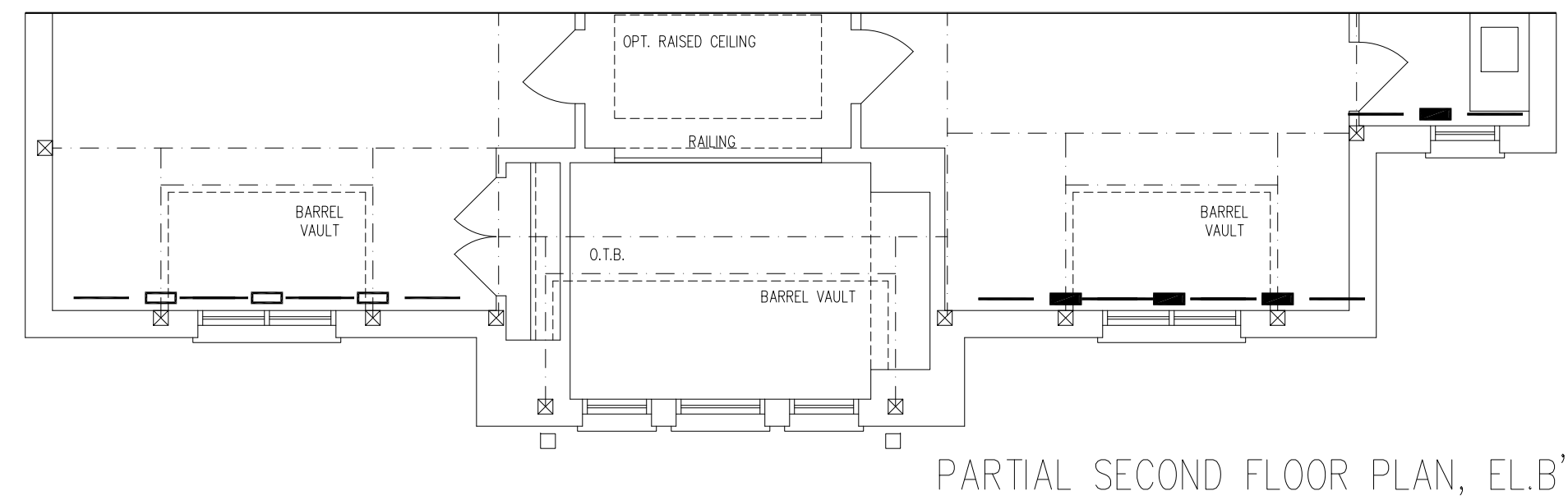
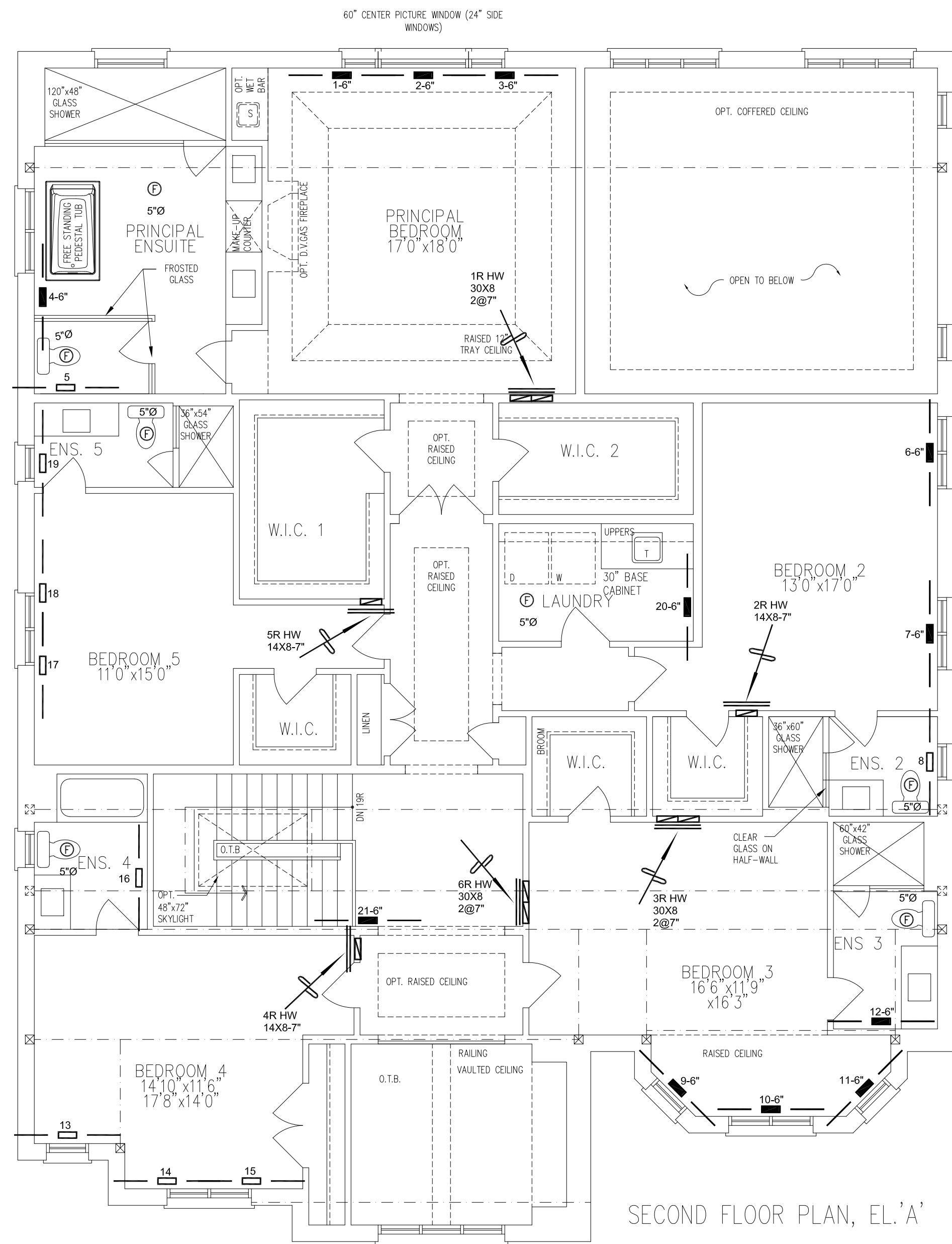
6001 - QUEENSLAND
5312 SQFT

Copyright & Copy: © 2022 HVAC Designs Ltd.

Sheet Title	FIRST FLOOR HVAC LAYOUT		
Drawn By	EG	Checked By	MO
Scale	3/16"=1'-0"		Sheet No.
Date	APRIL 2022		2
LO #	96135		

ALL S/A DIFFUSERS "4x10"
UNLESS NOTED OTHERWISE
ON LAYOUT. ALL S/A RUNS 5"Ø
UNLESS NOTED OTHERWISE
ON LAYOUT. UNDERCUT
DOORS 1" min. FOR R/A

	S/A	R/A	FANS
2ND	21	6	7
1ST	19	3	2
BAS	8	1	0



HVAC LEGEND	
	4X10 SUPPLY GRILLE
	14X8 RETURN GRILLE
	4X10 SUPPLY GRILLE 6\"/>
	30X8 RETURN GRILLE
	SUPPLY DUCTWORK
	RETURN DUCTWORK
	EXHAUST FAN
LW	LOW WALL
HW	HIGH WALL

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

Michael O'Brourke, BCTN# 19609
HVAC DESIGNS LTD.

1	ISSUED FOR PERMIT	APRIL 2022
No.	Revision	Date

SB-12 PACKAGE

A1

HVAC DESIGNS LTD.

375 Finley Ave - Unit 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

Client **GOLDPARK HOMES**

Project Name PINE VALLEY PH2
VAUGHAN, ONTARIO

6001 - QUEENSLAND
5312 SQFT

Copyright & Copy: © 2022 HVAC Designs Ltd.

Sheet Title		SECOND FLOOR HVAC LAYOUT	
Drawn By		EG	Checked By MO
Scale			Sheet No.
3/16"=1'-0"			3
Date			
APRIL 2022			
LO #			
96135			