

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 WOB 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										WOB					DATE Apr-22					WINTER NATURAL AIR CHANGE RATE 0.486					HEAT LOSS AT °F. 76		CSA-F280-12						
BUILDER: GOLD PARK HOMES										TYPE: 6001 - QUEENSLAND					GFA: 5312					LO# 96165					SUMMER NATURAL AIR CHANGE RATE 0.162					HEAT GAIN AT °F. 13		SB-12 PACKAGE A1	
ROOM USE			GREAT			KIT			DIN			LIBR			FOY			MUD			PWD												
EXP. WALL			50			56			25			35			38			22			7												
CLG. HT.			20			11			11			11			21			13			11												
FACTORS																																	
GRS.WALL AREA			980			594			265			371			783			277			74												
GLAZING			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN												
NORTH			21.3	16.0	46	979	735	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
EAST			21.3	41.6	0	0	0	0	0	0	0	0	68	1447	2826	105	2234	4363	0	0	0	0	0	0	0	0	0	0	0				
SOUTH			21.3	24.9	0	0	0	0	0	0	41	872	1021	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
WEST			21.3	41.6	134	2852	5568	134	2852	5568	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				
DOORS			25.2	4.3	0	0	0	0	0	0	0	0	10	252	43	25	631	106	20	505	85	0	0	0	0	0	0	0	0				
NET EXPOSED WALL			4.5	0.8	800	3570	601	460	2051	345	224	1000	168	293	1308	220	653	2913	491	257	1148	193	74	331	56								
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				
EXPOSED CLG			1.3	0.6	430	552	253	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
NO ATTIC EXPOSED CLG			2.7	1.3	10	27	13	0	0	0	0	0	10	27	13	204	561	257	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	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				
SLAB ON GRADE HEAT LOSS					0		0		0		0		0		0		0		0		0		0		0		0		0				
SUBTOTAL HT LOSS					7980		4903		1872		3035		6340		1653		331																
SUB TOTAL HT GAIN					7169		5913		1189		3101		5217		278		56																
LEVEL FACTOR / MULTIPLIER			0.30	0.61		0.30	0.61		0.30	0.61		0.30	0.61		0.30	0.61		0.30	0.61														
AIR CHANGE HEAT LOSS					4896		3008		1149		1862		3889		1014		203																
AIR CHANGE HEAT GAIN					555		458		92		240		404		22		4																
DUCT LOSS					0		0		0		0		0		0		0																
DUCT GAIN					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				
HEAT GAIN APPLIANCES/LIGHTS					1031		1031		1031		1031		1031		0		0		0		0		0		0		0		0				
TOTAL HT LOSS BTU/H					12876		7910		3021		4896		10229		2667		534																
TOTAL HT GAIN x 1.3 BTU/H					11381		9622		3005		5683		7307		390		78																

ROOM USE																					WOB		BAS	
EXP. WALL																					67		175	
CLG. HT.																					10		10	
FACTORS																								
GRS.WALL AREA	LOSS	GAIN																						
GLAZING																					643		1680	
NORTH	21.3	16.0																			LOSS		GAIN	
EAST	21.3	41.6																			LOSS		GAIN	
SOUTH	21.3	24.9																			0		0	
WEST	21.3	41.6																			0		0	
SKYLT.	37.2	101.5																			0		0	
DOORS	25.2	4.3																			0		0	
NET EXPOSED WALL	4.5	0.8																			0		0	
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6																			0		0	
EXPOSED CLG	1.3	0.6																			0		0	
NO ATTIC EXPOSED CLG	2.7	1.3																			0		0	
EXPOSED FLOOR	2.6	0.4																			0		0	
BASEMENT/CRAWL HEAT LOSS																							2855	
SLAB ON GRADE HEAT LOSS																								
SUBTOTAL HT LOSS																					1085			
SUB TOTAL HT GAIN																					7033		3424	
LEVEL FACTOR / MULTIPLIER																					7950		160	
AIR CHANGE HEAT LOSS																					0.50		2.55	
AIR CHANGE HEAT GAIN																							26701	
DUCT LOSS																							628	
DUCT GAIN																							0	
HEAT GAIN PEOPLE	240																						0	
HEAT GAIN APPLIANCES/LIGHTS																					0		0	
TOTAL HT LOSS BTU/H																					8119		30125	
TOTAL HT GAIN x 1.3 BTU/H																					10335		1024	

ROOM USE	LAUN			HALL		
EXP. WALL	0			0		
CLG. HT.	9			9		
FACTORS						
GRS.WALL AREA	LOSS	GAIN	0	0	0	0
GLAZING			LOSS	GAIN	LOSS	GAIN
NORTH	21.3	16.0	0	0	0	0
EAST	21.3	41.6	0	0	0	0
SOUTH	21.3	24.9	0	0	0	0
WEST	21.3	41.6	0	0	0	0
SKYLT.	37.2	101.5	0	0	24	894 2437
DOORS	25.2	4.3	0	0	0	0
NET EXPOSED WALL	4.5	0.8	0	0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	0	0	0	0
EXPOSED CLG	1.3	0.6	84	108	49	103 132 61
NO ATTIC EXPOSED FLOOR	2.7	1.3	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0		
SLAB ON GRADE HEAT LOSS			0	0		
SUBTOTAL HT LOSS			108	1026		
SUB TOTAL HT GAIN			49	2498		
LEVEL FACTOR / MULTIPLIER	0.20	0.58		0.20	0.58	
AIR CHANGE HEAT LOSS			62	594		
AIR CHANGE HEAT GAIN			4	193		
DUCT LOSS			0	0		
DUCT GAIN			0	0		
HEAT GAIN PEOPLE	240	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			1031	0		
TOTAL HT LOSS BTU/H			170	1620		
TOTAL HT GAIN x 1.3 BTU/H			1409	3498		

TOTAL COMBINED HEAT LOSS BTU/H: 116884

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

WOB
TYPE: 6001 - QUEENSLAND

DATE: Apr-22

GFA: 5312 LO# 96165

FURNACE 1

HEATING CFM 1575 COOLING CFM 1575
TOTAL HEAT LOSS 80,377 TOTAL HEAT GAIN 48,825
AIR FLOW RATE CFM 19.6 AIR FLOW RATE CFM 32.26

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
= 83455 BTUH**
\$*LENNOX
ML196UH090XE48C

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 = **1575**
CFM @ .6" E.S.P.

TEMPERATURE RISE 50 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	0	19	9
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.	2.58	2.58	2.58	2.58	2.58	1.98	1.98	1.98	1.98	1.51	1.51	1.63	1.63	1.63	3.41	3.41	3.41	2.67	0.53	4.25	4.25	4.25	4.25
CFM PER RUN HEAT	50	50	50	50	50	39	39	39	39	30	30	32	32	32	67	67	67	52	10	83	83	83	83
RM GAIN MBH.	2.28	2.28	2.28	2.28	2.28	2.41	2.41	2.41	2.41	1.50	1.50	1.89	1.89	1.89	2.44	2.44	2.44	0.39	0.08	1.26	1.26	1.26	1.26
CFM PER RUN COOLING	73	73	73	73	73	78	78	78	78	48	48	61	61	61	79	79	79	13	3	41	41	41	41
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	74	89	83	78	72	67	59	45	46	46	10	22	27	31	40	46	37	48	55	82	56	65	71
EQUIVALENT LENGTH	140	130	150	160	130	130	140	170	110	120	150	150	110	120	140	110	100	150	130	130	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	212	176	185	211
ADJUSTED PRESSURE	0.08	0.08	0.07	0.07	0.09	0.09	0.09	0.08	0.11	0.1	0.11	0.1	0.13	0.11	0.1	0.11	0.13	0.09	0.09	0.08	0.09	0.09	0.08
ROUND DUCT SIZE	6	6	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	255	255	255	255	255	199	199	199	199	220	220	235	235	235	492	492	492	382	115	423	423	423	423
COOLING VELOCITY (ft/min)	372	372	372	372	372	398	398	398	398	352	352	448	448	448	580	580	580	95	34	209	209	209	209
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	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	29
ROOM NAME	BAS	BAS	BAS	BAS	BAS
RM LOSS MBH.	4.25	4.25	4.25	4.25	4.25
CFM PER RUN HEAT	83	83	83	83	83
RM GAIN MBH.	1.26	1.26	1.26	1.26	1.26
CFM PER RUN COOLING	41	41	41	41	41
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	39	44	23	41	58
EQUIVALENT LENGTH	140	160	100	130	150
TOTAL EFFECTIVE LENGTH	179	204	123	171	208
ADJUSTED PRESSURE	0.09	0.08	0.13	0.09	0.08
ROUND DUCT SIZE	5	6	6	6	6
HEATING VELOCITY (ft/min)	609	423	423	423	423
COOLING VELOCITY (ft/min)	301	209	209	209	209
OUTLET GRILL SIZE	3X10	4X10	4X10	4X10	4X10
TRUNK	D	E	F	E	B

SUPPLY AIR TRUNK SIZE										RETURN AIR TRUNK SIZE									
TRUNK	STATIC	ROUND	RECT	VELOCITY						TRUNK	STATIC	ROUND	RECT	VELOCITY					
CFM	PRESS.	DUCT	DUCT	(ft/min)						CFM	PRESS.	DUCT	DUCT	(ft/min)					
TRUNK A	283	0.07	9	8	x	10	509			TRUNK G	0	0.00	0	0	x	8	0		
TRUNK B	577	0.07	11.8	14	x	10	593			TRUNK H	0	0.00	0	0	x	8	0		
TRUNK C	205	0.08	7.7	8	x	8	461			TRUNK I	0	0.00	0	0	x	8	0		
TRUNK D	1026	0.07	14.6	18	x	12	684			TRUNK J	0	0.00	0	0	x	8	0		
TRUNK E	367	0.08	9.6	10	x	8	661			TRUNK K	0	0.00	0	0	x	8	0		
TRUNK F	546	0.08	11.2	14	x	8	702			TRUNK L	0	0.00	0	0	x	8	0		

RETURN AIR #	1	2	3	BR															
AIR VOLUME	350	390	460	0	0	0	0	0	0	0	0	0	0	0	0	0	0	375	
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		
ACTUAL DUCT LGH.	76	47	41	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	
EQUIVALENT LENGTH	180	165	140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	145	
TOTAL EFFECTIVE LH	256	212	181	1	1	1	1	1	1	1	1	1	1	1	1	1	1	164	
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	14.80	0.09		
ROUND DUCT SIZE	10.2	10.2	10.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.4	
INLET GRILL SIZE	8	8	8	0	0	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	X		
INLET GRILL SIZE	30	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	

TRUNK	STATIC	ROUND	RECT	VELOCITY					
CFM	PRESS.	DUCT	DUCT	(ft/min)					
TRUNK O	0	0.06	0	0	x	8	0		
TRUNK P	0	0.06	0	0	x	8	0		
TRUNK Q	0	0.06	0	0	x	8	0		
TRUNK R	0	0.06	0	0	x	8	0		
TRUNK S	0	0.06	0	0	x	8	0		
TRUNK T	0	0.06	0	0	x	8	0		
TRUNK U	0	0.06	0	0	x	8	0		
TRUNK V	0	0.06	0	0	x	8	0		
TRUNK W	460	0.06	11.3	14	x	8	591		
TRUNK X	1115	0.06	15.7	18	x	14	637		
TRUNK Y	740	0.06	13.5	14	x	12	634		
TRUNK Z	350	0.06	10.2	12	x	8	525		
DROP	1575	0.06	17.9	24	x	14	675		

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

WOB
TYPE: 6001 - QUEENSLAND

DATE: Apr-22

GFA: 5312 LO# 96165

FURNACE 2

HEATING CFM 1110 COOLING CFM 1110
TOTAL HEAT LOSS 30,352 TOTAL HEAT GAIN 36,652
AIR FLOW RATE CFM 36.57 AIR FLOW RATE CFM 30.28

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
= 33430 BTUH**
\$LENNOX
ML196UH045XE36B
FAN SPEED 45

LOW 620

MEDLOW 685

MEDIUM 980

MEDIUM HIGH 1110

HIGH 0

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

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

TEMPERATURE RISE 36 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	21	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	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.	1.10	1.10	1.10	2.48	0.83	2.11	2.11	1.09	2.00	2.00	2.00	2.24	1.51	1.51	1.51	1.01	1.07	1.07	0.74	0.17	1.62
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.	1.63	1.63	1.63	1.28	0.43	1.71	1.71	1.83	2.08	2.08	2.08	2.56	1.64	1.64	1.64	1.77	1.35	1.35	1.73	1.41	3.50
CFM PER RUN COOLING	49	49	49	39	13	52	52	55	63	63	63	77	50	50	50	54	41	41	52	43	106
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	0.16
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	5	4	5	5	6	6
HEATING VELOCITY (ft/min)	204	204	204	464	344	393	393	294	372	372	372	418	404	404	404	272	447	286	198	31	301
COOLING VELOCITY (ft/min)	250	250	250	199	149	265	265	404	321	321	321	393	367	367	367	396	470	301	382	219	540
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					
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 B	468	0.06	11.3	12	x	10	562			TRUNK H	0	0.00	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 D	224	0.08	8	10	x	8	403			TRUNK J	0	0.00	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 F	0	0.00	0	0	x	8	0			TRUNK L	0	0.00	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
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
ACTUAL DUCT LGH.	75	71	71	60	83	65	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
TOTAL EFFECTIVE LH	305	286	266	245	308	255	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
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
INLET GRILL SIZE	8	8	8	8	8	8	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
INLET GRILL SIZE	30	14	30	14	14	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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

LO # 96165
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	<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 @ 32 deg F (0 deg C)	☒ HVI Approved

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

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

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

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	<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* MICHAEL O'ROURKE

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 96165	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>24710.4</td></tr> <tr><td>First</td><td>2574</td><td>11</td><td>27284.4</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>80,866.8 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>2289.9 m³</td></tr> </tbody> </table>		Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2574	10	24710.4	First	2574	11	27284.4	Second	3208	9	28872	Third	0	9	0	Fourth	0	9	0	Total:			80,866.8 ft³	Total:			2289.9 m³	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 30%;">0.486</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.162</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>22</td> <td>-20</td> <td>42</td> <td>76</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>31</td> <td>7</td> <td>13</td> </tr> </table>			WINTER NATURAL AIR CHANGE RATE	0.486	SUMMER NATURAL AIR CHANGE RATE	0.162	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	24	31	7	13
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5.2.3.1 Heat Loss due to Air Leakage		6.2.6 Sensible Gain due to Air Leakage																																																										
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.486 x 636.08 x 42 °C x 1.2 = 15651 W = 53402 Btu/h		$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.162 x 636.08 x 7 °C x 1.2 = 878 W = 2995 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)																																																												
$HL_{airr} = Level \ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
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 / HL _{clevel})																																																								
1	0.5	53,402	10,457	2.553																																																								
2	0.3		26,113	0.614																																																								
3	0.2		18,440	0.579																																																								
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: 6001 - QUEENSLAND	WOB	BUILDER: GOLD PARK HOMES
SFQT: 5312	LO# 96165	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):	80866.8	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.85	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	8.1 ft
LENGTH: 66.0 ft	WIDTH: 55.0 ft	EXPOSED PERIMETER:	175.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	67.0 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	-

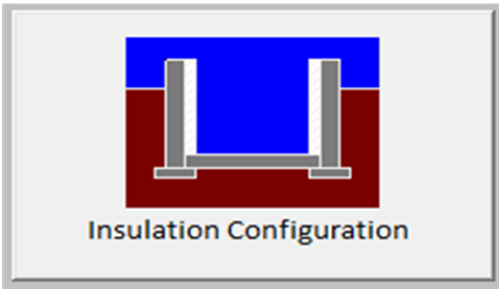
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

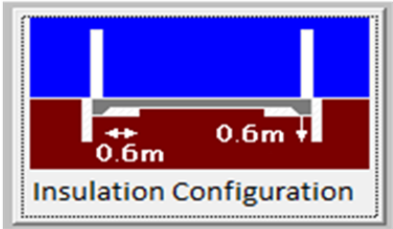
Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.9	 Insulation Configuration
Floor Width (m):	16.8	
Exposed Perimeter (m):	53.3	
Wall Height (m):	2.9	
Depth Below Grade (m):	2.19	
Window Area (m ²):	0.3	
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):		836

TYPE: 6001 - QUEENSLAND
LO# 96165

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):	1.8	
Width (m):	16.8	
Exposed Perimeter (m):	20.4	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		318

TYPE: 6001 - QUEENSLAND
LO# 96165

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):	11.95			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	2289.9			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	3052.5 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):	0.486			
Cooling Air Leakage Rate (ACH/H):	0.162			

TYPE: 6001 - QUEENSLAND
LO# 96165

WOB

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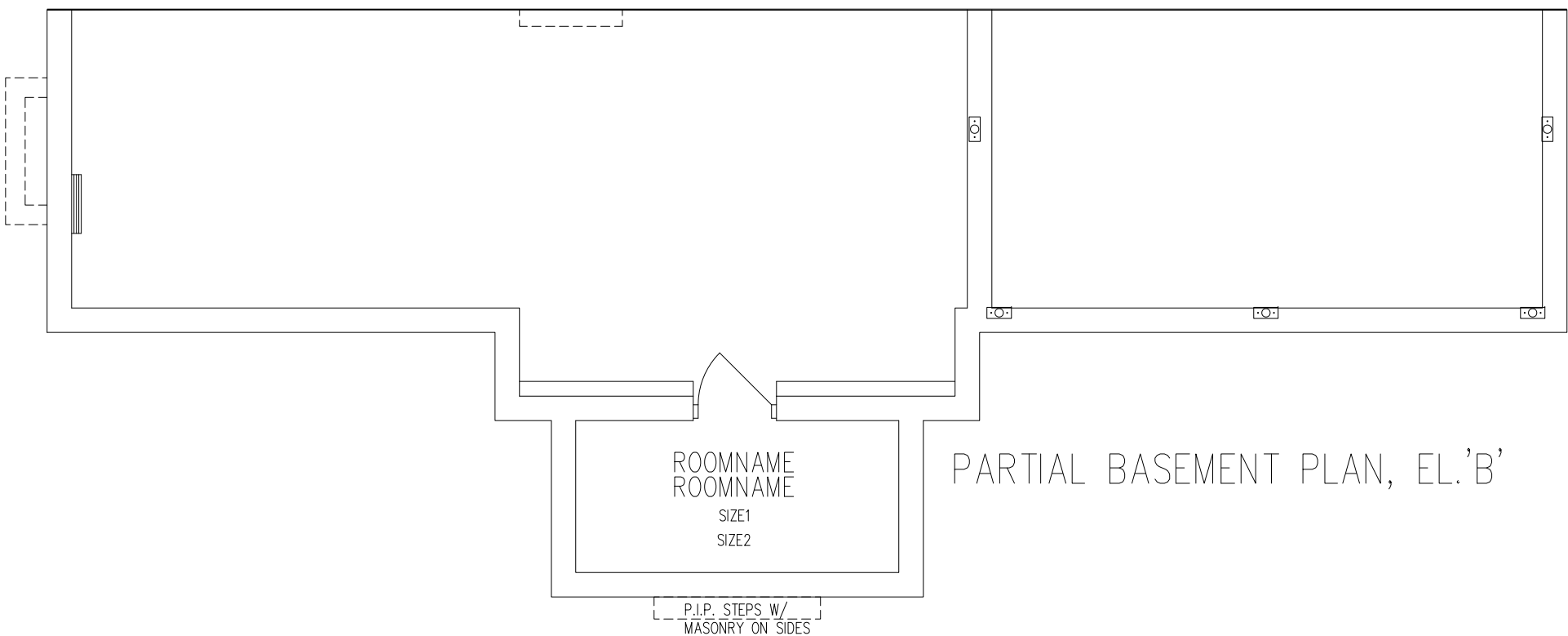
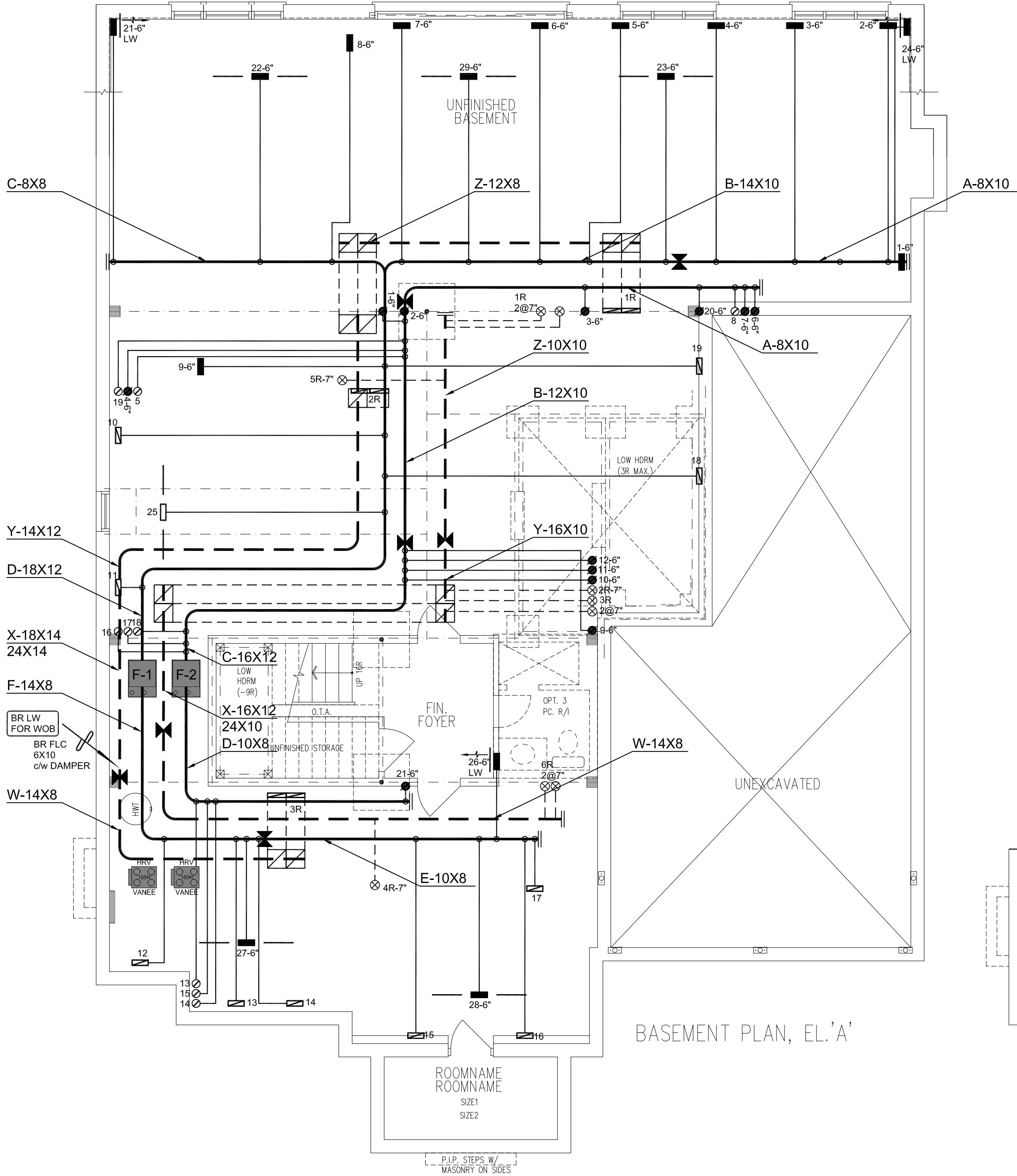
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ALL S/A DIFFUSERS "4x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5'Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

FURNACE 1 (F-1)
LENNOX ML196UH090XE48C
85600 BTU/H OUTPUT
4.0 TONS A/C @ 1575 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	9	1	0



HVAC LEGEND	
	4X10 SUPPLY GRILLE
	14X8 RETURN GRILLE
	4X10 SUPPLY GRILLE FTD BOOT
	30X8 RETURN GRILLE
	SUPPLY DUCTWORK
	RETURN DUCTWORK
	EXHAUST FAN
	LOW WALL
	HIGH WALL

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

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
WOB
5312 SQFT

Sheet Title: BASEMENT HVAC LAYOUT
Drawn By: EG
Scale: 3/16"=1'-0"
Date: APRIL 2022
LO # 96165

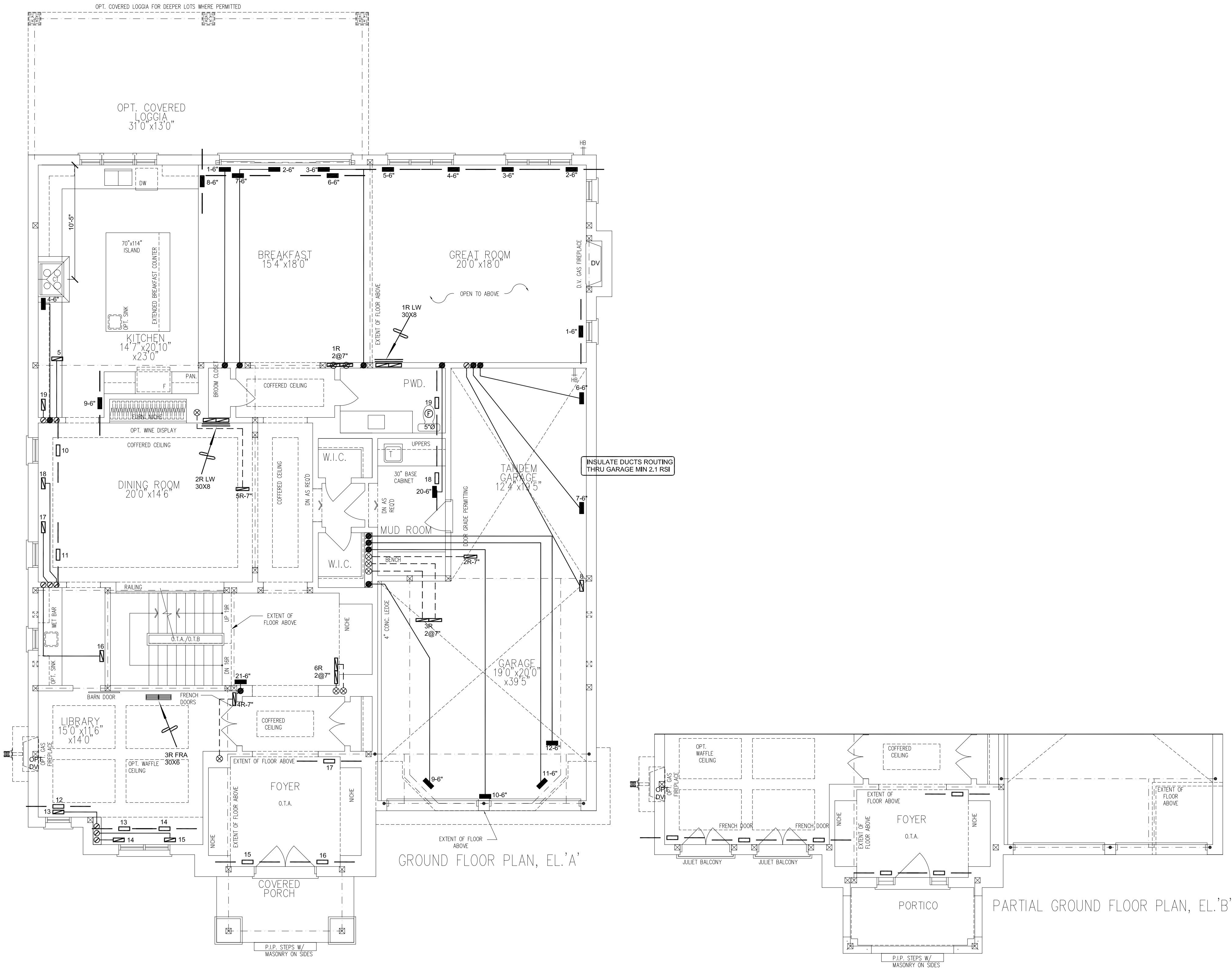
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Sheet No. 1

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	S/A	R/A	FANS
2ND	21	6	7
1ST	19	3	2
BAS	9	1	0



HVAC LEGEND	
	4X10 SUPPLY GRILLE
	14X8 RETURN GRILLE
	4X10 SUPPLY GRILLE FTD BOOT
	30X8 RETURN GRILLE
	SUPPLY DUCTWORK
	RETURN DUCTWORK
	EXHAUST FAN
	LOW WALL
	HIGH WALL

UNLESS OTHERWISE NOTED, I HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED TO SIGN DRAWINGS TO THE BEST OF MY KNOWLEDGE.
Hvac Designs Ltd. 2022
Hvac Designs Ltd.

1. ISSUED FOR PERMIT APRIL 2022 EG
No. Revision Date By

SB-12 PACKAGE A1

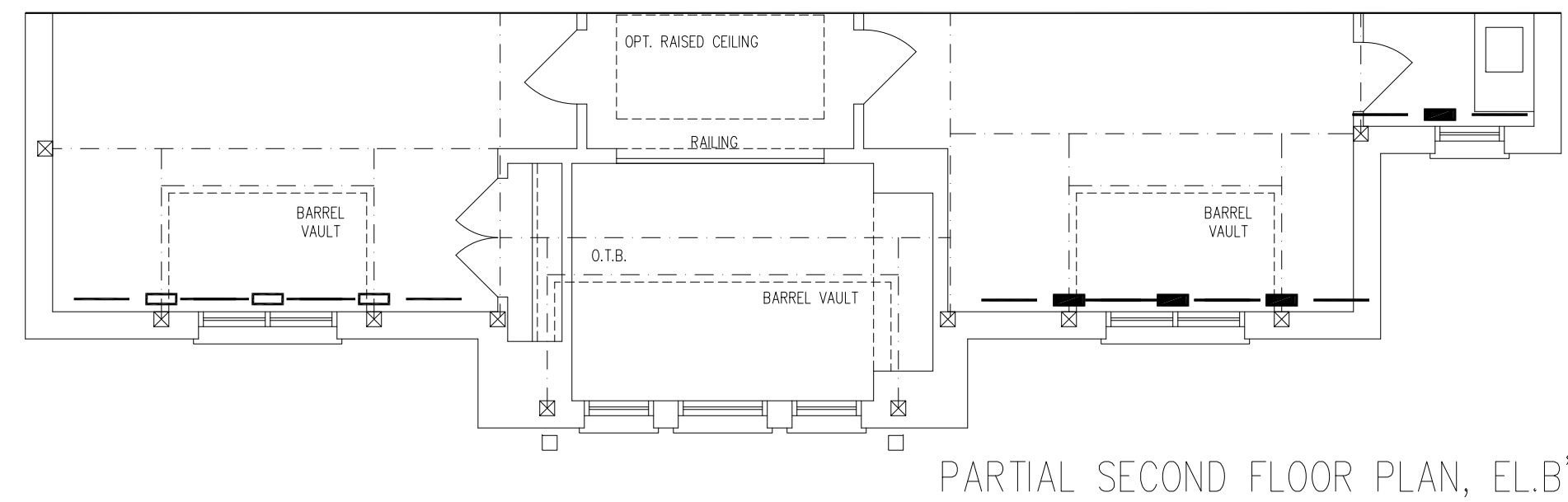
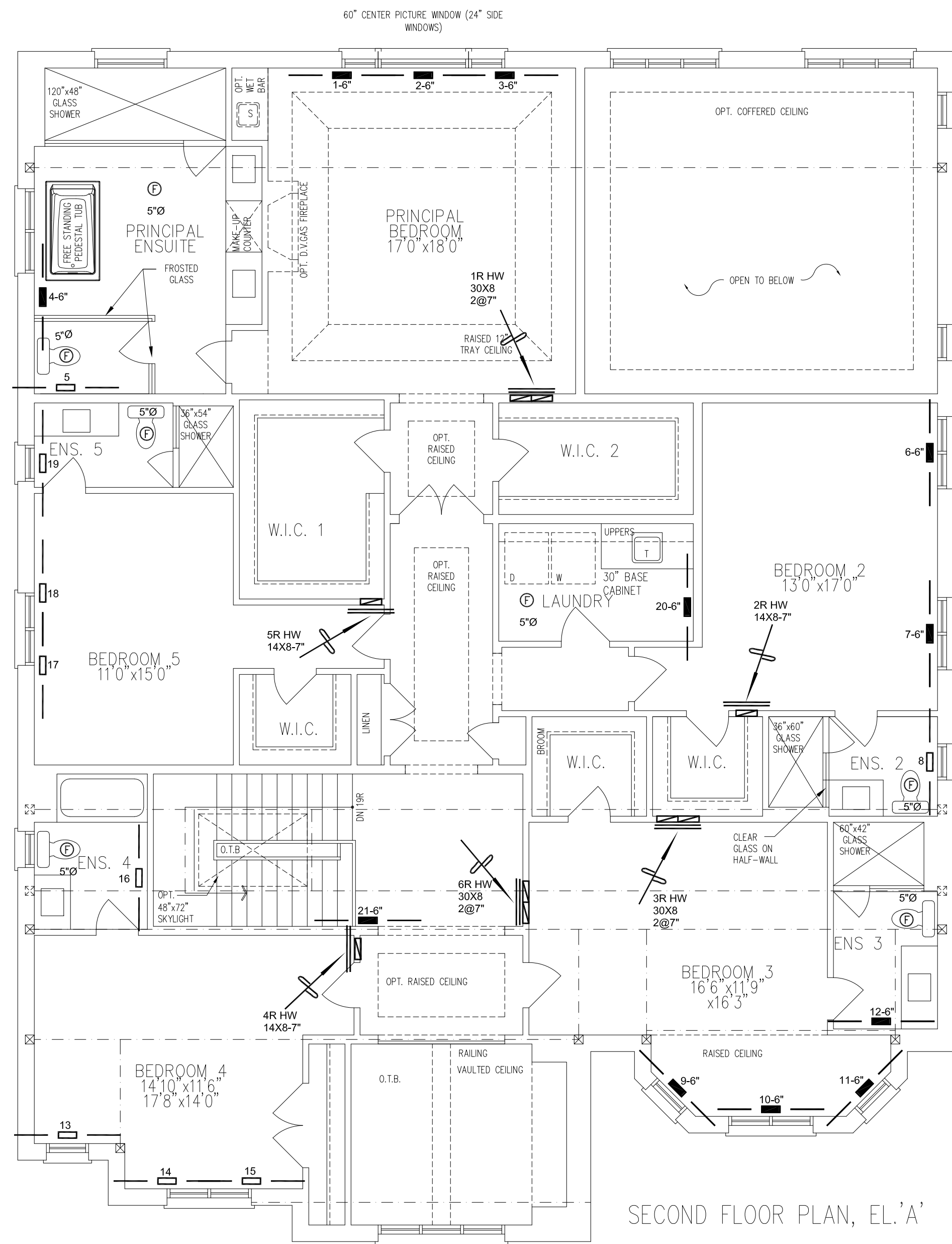
HVACDESIGNS LTD.
375 Finley Ave - Unit 202 - Ajax, Ontario L1S 2E2
Tel: 905.619.2300 - 905.420.5300 Fax: 905.619.2375
Email: info@hvacadesigns.ca
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Specializing in Residential Mechanical Design Services

Client: GOLDPARK HOMES
Project Name: PINE VALLEY PH2
VAUGHAN, ONTARIO
6001 - QUEENSLAND
WOB
5312 SQFT

Sheet Title: FIRST FLOOR HVAC LAYOUT
Drawn By: EG
Scale: 3/16"=1'-0"
Date: APRIL 2022
LO #: 96165
Checked By: MO
Sheet No.: 2

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	9	1	0



HVAC LEGEND	
	4X10 SUPPLY GRILLE
	14X9 RETURN GRILLE
	4X10 SUPPLY GRILLE 6'10" 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 QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Brourke, BCTN# 19669
HVAC DESIGNER LTD.



1	ISSUED FOR PERMIT	APRIL 2022
No.	Revision	Date

SB-12 PACKAGE

A1

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Client **GOLDPARK HOMES**

Project Name **PINE VALLEY PH2
VAUGHAN, ONTARIO**

6001 - QUEENSLAND
WOB

5312 SQFT
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Sheet Title		SECOND FLOOR HVAC LAYOUT	
Drawn By		EG	Checked By MO
Scale			Sheet No.
3/16"=1'-0"			3
Date			
APRIL 2022			
LO #			
96165			