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	**Postal code**	**Plan number/ other description**		
VAUGHAN (WOODBRIDGE)				

B. Individual who reviews and takes responsibility for design activities

Name		Firm		
MICHAEL O'ROURKE		**HVAC DESIGNS LTD.**		
Street address			Unit no.	Lot/con.
375 FINLEY AVE			**202**	**N/A**
Municipality	Postal code	Province	E-mail	
AJAX	**L1S 2E2**	**ONTARIO**	**info@hvacdesigns.ca**	
Telephone number	Fax number		Cell number	
(**905**) **619-2300**	(**905**) **619-2375**		( )	

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]

❑ House	☒ HVAC – House	❑ Building Structural
❑ Small Buildings	❑ Building Services	❑ Plumbing – House
❑ Large Buildings	❑ Detection, Lighting and Power	❑ Plumbing – All Buildings
❑ Complex Buildings	❑ Fire Protection	❑ 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 OPT 2ND **Project:** PINE VALLEY PH 2

D. Declaration of Designer

I **MICHAEL O'ROURKE** 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 Di vision C, of the Building Code.

Individual BCIN: 19669
Basis for exemption from registration and qualification: O.B.C SENTENCE 3.2.4.1 (4)

❑ 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

Michael O'Rourke
Signature of Designer

NOTE:

1. 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.
2. 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.

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SITE NAME: PINE VALLEY PH 2 | OPT 2ND | DATE Apr-22 | WINTER NATURAL AIR CHANGE RATE 0.434 | HEAT LOSS ΔT °F. 76 | CSA-F280-12
BUILDER: GOLD PARK HOMES | TYPE: 6001 - QUEENSLAND | GFA: 5653 | LO# 96136 | SUMMER NATURAL AIR CHANGE RATE 0.145 | HEAT GAIN ΔT °F. 13 | SB-12 PACKAGE A1

ROOM USE			GREAT			KIT			DIN			LIBR			FOY			MUD			PWD		
EXP. WALL			58			56			25			35			38			22			7		
CLG. HT.			11			11			11			11			21			13			11		
	FACTORS																						
GRS.WALL AREA	LOSS	GAIN	638			616			275			385			798			286			77		
GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN
NORTH	21.3	16.0	26	553	415	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	0	58	1234	2410	80	1702	3324	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
WEST	21.3	41.6	78	1660	3241	134	2852	5568	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
DOORS	25.2	4.3	0	0	0	0	0	0	0	0	0	20	505	85	50	1262	213	20	505	85	0	0	0
NET EXPOSED WALL	4.5	0.8	534	2383	401	482	2151	362	234	1044	176	307	1370	231	668	2981	502	266	1187	200	77	344	58
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
EXPOSED CLG	1.3	0.6	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	0	10	27	13	204	561	257	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
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			0			0			0	
SLAB ON GRADE HEAT LOSS				0			0			0			0			0			0			0	
SUBTOTAL HT LOSS				4624			5003			1917			3137			6507			1692			344	
SUB TOTAL HT GAIN					4070			5930			1197			2738			4296			285			58
LEVEL FACTOR / MULTIPLIER			0.30	0.63		0.30	0.63		0.30	0.63		0.30	0.63		0.30	0.63		0.30	0.63		0.30	0.63	
AIR CHANGE HEAT LOSS				2920			3159			1210			1981			4109			1069			217	
AIR CHANGE HEAT GAIN					378			551			111			254			399			26			5
DUCT LOSS				0			0			0			0			0			0			0	
DUCT GAIN					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
HEAT GAIN APPLIANCES/LIGHTS					1462			1462			1462			1462			0			0			0
TOTAL HT LOSS BTU/H				7544			8162			3127			5118			10616			2761			561	
TOTAL HT GAIN x 1.3 BTU/H					7684			10327			3601			5792			6103			405			82

ROOM USE			WOD			BAS		
EXP. WALL			66			242		
CLG. HT.			10			10		
	FACTORS							
GRS.WALL AREA	LOSS	GAIN	660			2090		
GLAZING				LOSS	GAIN		LOSS	GAIN
NORTH	21.3	16.0	0	0	0	0	0	0
EAST	21.3	41.6	0	0	0	0	0	0
SOUTH	21.3	24.9	0	0	0	3	64	75
WEST	21.3	41.6	10	213	416	0	0	0
SKYLT.	37.2	101.5	0	0	0	0	0	0
DOORS	25.2	4.3	20	505	85	20	505	85
NET EXPOSED WALL	4.5	0.8	0	0	0	0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	366	1317	222	330	1188	200
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS							8416	
SLAB ON GRADE HEAT LOSS				0				
SUBTOTAL HT LOSS				2035			10173	
SUB TOTAL HT GAIN					722			360
LEVEL FACTOR / MULTIPLIER						0.50	2.00	
AIR CHANGE HEAT LOSS							24442	
AIR CHANGE HEAT GAIN								101
DUCT LOSS							0	
DUCT GAIN								0
HEAT GAIN PEOPLE	240		0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS								
TOTAL HT LOSS BTU/H				2035			34615	
TOTAL HT GAIN x 1.3 BTU/H					939			598

TOTAL HEAT GAIN BTU/H: 72603 TONS: 6.05 LOSS DUE TO VENTILATION LOAD BTU/H: 6156 STRUCTURAL HEAT LOSS: 106551 TOTAL COMBINED HEAT LOSS BTU/H: 112707

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.

Michael O'Rourke

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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BUILDER: GOLD PARK HOMES | TYPE: 6001 - QUEENSLAND | GFA: 5653 | LO# 96136 | SUMMER NATURAL AIR CHANGE RATE 0.145 | HEAT GAIN ΔT °F. 13 | SB-12 PACKAGE A1

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			47			16			6			19			6			0		
CLG. HT.			10			9			9			11			10			9			9			9			9			9		
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	200			288			162			308			470			144			54			171			54			0		
GLAZING			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	38	809	607	0	0	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	56	1192	2327	45	958	1870	0	0	0	0	0	0	12	255	499	0	0	0	0	0	0
SOUTH	21.3	24.9	0	0	0	22	468	548	0	0	0	0	0	0	0	0	0	19	404	473	0	0	0	0	0	0	8	170	199	0	0	0
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	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	0
NET EXPOSED WALL	4.5	0.8	158	705	119	258	1151	194	124	553	93	252	1125	189	425	1897	319	125	558	94	46	205	35	159	710	120	46	205	35	0	0	0
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	373	479	219	232	298	136	66	85	39	84	108	49	84	108	49	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	200	510	86	216	551	93	0	0	0	0	0	0	66	168	28	84	214	36	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS				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	
SUBTOTAL HT LOSS				2087			2098			2434			3447			3415			1260			629			1287			483			92	
SUB TOTAL HT GAIN					2087			1215			1044			2874			2446			703			229			704			283			42
LEVEL FACTOR / MULTIPLIER			0.20	0.46		0.20	0.46		0.20	0.46		0.20	0.46		0.20	0.46		0.20	0.46		0.20	0.46		0.20	0.46		0.20	0.46		0.20	0.46	
AIR CHANGE HEAT LOSS				967			972			1128			1597			1583			584			291			596			224			43	
AIR CHANGE HEAT GAIN					194			113			97			267			227			65			21			65			26			4
DUCT LOSS				0			0			356			504			0			0			92			188			0			0	
DUCT GAIN					0			0			284			484			0			0			25			77			0			0
HEAT GAIN PEOPLE	240		2		480	0		0	1		240	1		240	1		240	1		240	0		0	0		0	0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					1462			0			1462			1462			1462			1462			0			0			0			0
TOTAL HT LOSS BTU/H				3053			3070			3918			5548			4998			1844			1012			2072			707			135	
TOTAL HT GAIN x 1.3 BTU/H					5491			1726			4065			6927			5689			3212			359			1100			402			60

ROOM USE			LAUN			HALL			DRESS		
EXP. WALL			0			0			38		
CLG. HT.			9			9			9		
	FACTORS										
GRS.WALL AREA	LOSS	GAIN	0			0			342		
GLAZING			LOSS		GAIN	LOSS		GAIN	LOSS		GAIN
NORTH	21.3	16.0	0	0	0	0	0	0	27	575	431
EAST	21.3	41.6	0	0	0	0	0	0	0	0	0
SOUTH	21.3	24.9	0	0	0	0	0	0	0	0	0
WEST	21.3	41.6	0	0	0	0	0	0	12	255	499
SKYLT.	37.2	101.5	0	0	0	24	894	2437	0	0	0
DOORS	25.2	4.3	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5	0.8	0	0	0	0	0	0	303	1352	228
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	84	108	49	91	117	53	440	565	259
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS				0			0			0	
SLAB ON GRADE HEAT LOSS				0			0			0	
SUBTOTAL HT LOSS				108			1011			2747	
SUB TOTAL HT GAIN					49			2491			1416
LEVEL FACTOR / MULTIPLIER			0.20	0.46		0.20	0.46		0.20	0.46	
AIR CHANGE HEAT LOSS				50			468			1273	
AIR CHANGE HEAT GAIN					5			231			132
DUCT LOSS				0			0			0	
DUCT GAIN					0			0			0
HEAT GAIN PEOPLE	240		0		0	0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					1462			0			0
TOTAL HT LOSS BTU/H				158			1479			4020	
TOTAL HT GAIN x 1.3 BTU/H					1971			3539			2012

TOTAL HEAT GAIN BTU/H: 72603 TONS: 6.05 LOSS DUE TO VENTILATION LOAD BTU/H: 6156 STRUCTURAL HEAT LOSS: 106551 TOTAL COMBINED HEAT LOSS BTU/H: 112707

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SITE NAME: PINE VALLEY PH 2 — OPT 2ND
BUILDER: GOLD PARK HOMES — TYPE: 6001 - QUEENSLAND — DATE: Apr-22 — GFA: 5653 — LO# 96136 — **FURNACE 1**

| | | |

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SITE NAME: PINE VALLEY PH 2 | OPT 2ND
BUILDER: GOLD PARK HOMES | TYPE: 6001 - QUEENSLAND | DATE: Apr-22 | GFA: 5653 | LO# 96136 | **FURNACE 2**

HEATING CFM	1110	COOLING CFM	1110	furnace pressure	0.6	FURNACE HEAT LOSS +			**$LENNOX**	AFUE =	96 %
TOTAL HEAT LOSS	32,015	TOTAL HEAT GAIN	36,553	furnace filter	0.05	HRV / ERV HEAT LOSS			**ML196UH045XE36B**	**45**	INPUT (BTU/H) =	44,000
AIR FLOW RATE CFM	34.67	AIR FLOW RATE CFM	30.37	a/c coil pressure	0.2	= 35093 BTUH			FAN SPEED		OUTPUT (BTU/H) =	**42,800**
				available pressure for s/a & r/a	0.35				LOW	620		
									MEDLOW	685	DESIGN CFM =	**1110**
				plenum pressure s/a	0.18	r/a pressure	0.17		MEDIUM	980	CFM @ .6 " E.S.P.	
				max s/a dif press. loss	0.03	r/a grille press. Loss	0.02		MEDIUM HIGH	1110		
				min adjusted pressure s/a	0.15	adjusted pressure r/a	0.15		HIGH	0	TEMPERATURE RISE	36 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	23	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	22	23
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-5	ENS-4	BED-5	BED-5	LAUN	HALL	DRESS	DRESS
RM LOSS MBH.	1.02	1.02	1.02	2.30	0.77	1.96	1.96	1.01	1.85	1.85	1.85	2.07	1.67	1.67	1.67	0.14	0.71	0.92	0.92	0.16	1.48	2.01	2.01
CFM PER RUN HEAT	35	35	35	80	27	68	68	35	64	64	64	72	58	58	58	5	25	32	32	5	51	70	70
RM GAIN MBH.	1.83	1.83	1.83	1.29	0.43	2.03	2.03	0.36	2.31	2.31	2.31	1.10	1.90	1.90	1.90	0.06	0.40	1.61	1.61	1.97	3.54	1.01	1.01
CFM PER RUN COOLING	56	56	56	39	13	62	62	11	70	70	70	33	58	58	58	2	12	49	49	60	107	31	31
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	0.17	0.15	0.17	0.17
ACTUAL DUCT LGH.	67	72	83	75	69	85	95	102	79	85	91	86	37	30	42	32	24	28	67	82	34	91	90
EQUIVALENT LENGTH	150	160	240	180	180	180	190	200	170	180	170	160	170	150	140	200	210	180	180	210	110	160	170
TOTAL EFFECTIVE LENGTH	217	232	323	255	249	265	285	302	249	265	261	246	207	180	182	232	234	208	247	292	144	251	260
ADJUSTED PRESSURE	0.08	0.07	0.05	0.07	0.07	0.06	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	0.07	0.07
ROUND DUCT SIZE	**6**	**6**	**6**	**6**	4	**6**	**6**	5	**6**	**6**	**6**	**6**	5	5	5	4	4	5	5	**6**	**6**	**6**	**6**
HEATING VELOCITY (ft/min)	178	178	178	408	310	347	347	257	326	326	326	367	426	426	426	57	287	235	235	25	260	357	357
COOLING VELOCITY (ft/min)	286	286	286	199	149	316	316	81	357	357	357	168	426	426	426	23	138	360	360	306	546	158	158
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	3X10	4X10	4X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	B	B	A	B	B	A	A	A	C	C	C	C	D	D	D	C	C	C	B	A	D	A	A

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

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK A	351	0.05	10.7	10	x	10	505	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	560	0.05	12.7	14	x	10	576	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	886	0.05	15.1	18	x	12	591	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	225	0.08	8	10	x	8	405	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 TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK O	0	0.05	0	0	x	8	0
TRUNK P	0	0.05	0	0	x	8	0
TRUNK Q	0	0.05	0	0	x	8	0
TRUNK R	0	0.05	0	0	x	8	0
TRUNK S	0	0.05	0	0	x	8	0
TRUNK T	0	0.05	0	0	x	8	0
TRUNK U	0	0.05	0	0	x	8	0
TRUNK V	0	0.05	0	0	x	8	0
TRUNK W	390	0.05	11.1	14	x	8	501
TRUNK X	765	0.05	14.3	16	x	12	574
TRUNK Y	720	0.05	13.9	16	x	10	648
TRUNK Z	345	0.05	10.6	10	x	10	497
DROP	1110	0.05	16.4	24	x	10	666

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
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.	75	71	71	60	83	65	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
TOTAL EFFECTIVE LH	305	286	266	245	308	255	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	
ROUND DUCT SIZE	9.1	7	9.1	7	7	9.1	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	
	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	

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.

Michael O'Rourke - INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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TYPE: 6001 - QUEENSLAND LO # 96136
SITE NAME: PINE VALLEY PH 2 OPT 2ND

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES 9.32.3.1(1)

- a) [✓] Direct vent (sealed combustion) only
- b) [ ] Positive venting induced draft (except fireplaces)
- c) [ ] Natural draft, B-vent or induced draft gas fireplace
- d) [ ] Solid Fuel (including fireplaces)
- e) [ ] No Combustion Appliances

HEATING SYSTEM

[✓] Forced Air [ ] Non Forced Air

[ ] Electric Space Heat

HOUSE TYPE 9.32.1(2)

[✓]	I	Type a) or b) appliance only, no solid fuel
[ ]	II	Type I except with solid fuel (including fireplaces)
[ ]	III	Any Type c) appliance
[ ]	IV	Type I, or II with electric space heat
[ ]	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS O.N.H.W.P.

[ ]	1	Exhaust only/Forced Air System
[ ]	2	HRV with Ducting/Forced Air System
[✓]	3	HRV Simplified/connected to forced air system
[ ]	4	HRV with Ducting/non forced air system
[ ]		Part 6 Design

TOTAL VENTILATION CAPACITY 9.32.3.3(1)

Basement + Master Bedroom	2	@ 21.2 cfm	42.4	cfm
Other Bedrooms	4	@ 10.6 cfm	42.4	cfm
Kitchen & Bathrooms	7	@ 10.6 cfm	74.2	cfm
Other Rooms	5	@ 10.6 cfm	53.0	cfm
Table 9.32.3.A.		TOTAL	212.0	cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED 9.32.3.4.(1)

1	Bedroom	31.8	cfm
2	Bedroom	47.7	cfm
3	Bedroom	63.6	cfm
4	Bedroom	79.5	cfm
5	Bedroom	95.4	cfm
	TOTAL	**95.4**	**cfm**

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	212	cfm
Less Principal Ventil. Capacity	150	cfm
Required Supplemental Capacity	62.0	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE V150H Location: BSMT

150.0 cfm [✓] HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		FACTOR		% LOSS
150.0 CFM	X	76 F	X	1.08	X	0.25

SUPPLEMENTAL FANS BY INSTALLING CONTRACTOR

Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	✓	3.5
ENS-2	BY INSTALLING CONTRACTOR	50	✓	3.5
ENS-3	BY INSTALLING CONTRACTOR	50	✓	3.5
ENS-4	BY INSTALLING CONTRACTOR	50	✓	3.5

HEAT RECOVERY VENTILATOR 9.32.3.11.

Model: VANEE V150H INSTALL 2 HRV / ERV's

150 cfm high 35 cfm low

75 % Sensible Efficiency [✓] HVI Approved
@ 32 deg F (0 deg C)

LOCATION OF INSTALLATION

Lot: Concession

Township Plan:

Address

Roll # Building Permit #

BUILDER: GOLD PARK HOMES

Name:

Address:

City:

Telephone #: Fax #:

INSTALLING CONTRACTOR

Name:

Address:

City:

Telephone #: Fax #:

DESIGNER CERTIFICATION

I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.

Name: HVAC Designs Ltd.

Signature: Michael O'Rourke.

HRAI # 001820

Date: April-22

I REVIEW AND TAKE RESPONIBILITY 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

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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 96136 Model: 6001 - QUEENSLAND Builder: GOLD PARK HOMES Date: 4/14/2022

Volume Calculation

House Volume

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

Air Change & Delta T Data

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

$$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

0.434 x 652.28 x 42 °C x 1.2 = 14327 W

= **48884 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

= 0.145 x 652.28 x 7 °C x 1.2 = 808 W

= **2756 Btu/h**

5.2.3.2 Heat Loss due to Mechanical Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

x 2 HRV / ERV's

300 CFM x 76 °F x 1.08 x 0.25 = **6156 Btu/h**

6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

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 / HLlevel)
1	0.5	48,884	12,207	2.002
2	0.3		23,222	0.632
3	0.2		21,097	0.463
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

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 6001 - QUEENSLAND OPT 2ND **BUILDER:** GOLD PARK HOMES
SFQT: 5653 **LO#** 96136 **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):	1.75	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

Michael O'Rourke

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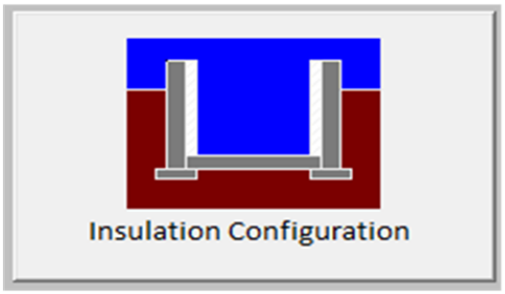
Residential Foundation Thermal Load Calculator

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 OPT 2ND
LO# 96136

HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

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 70.8 / Total Exhaust 70.8
Flue Size	
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural Infiltration Rates	
Heating Air Leakage Rate (ACH/H):	**0.434**
Cooling Air Leakage Rate (ACH/H):	**0.145**

TYPE: 6001 - QUEENSLAND OPT 2ND

LO# 96136

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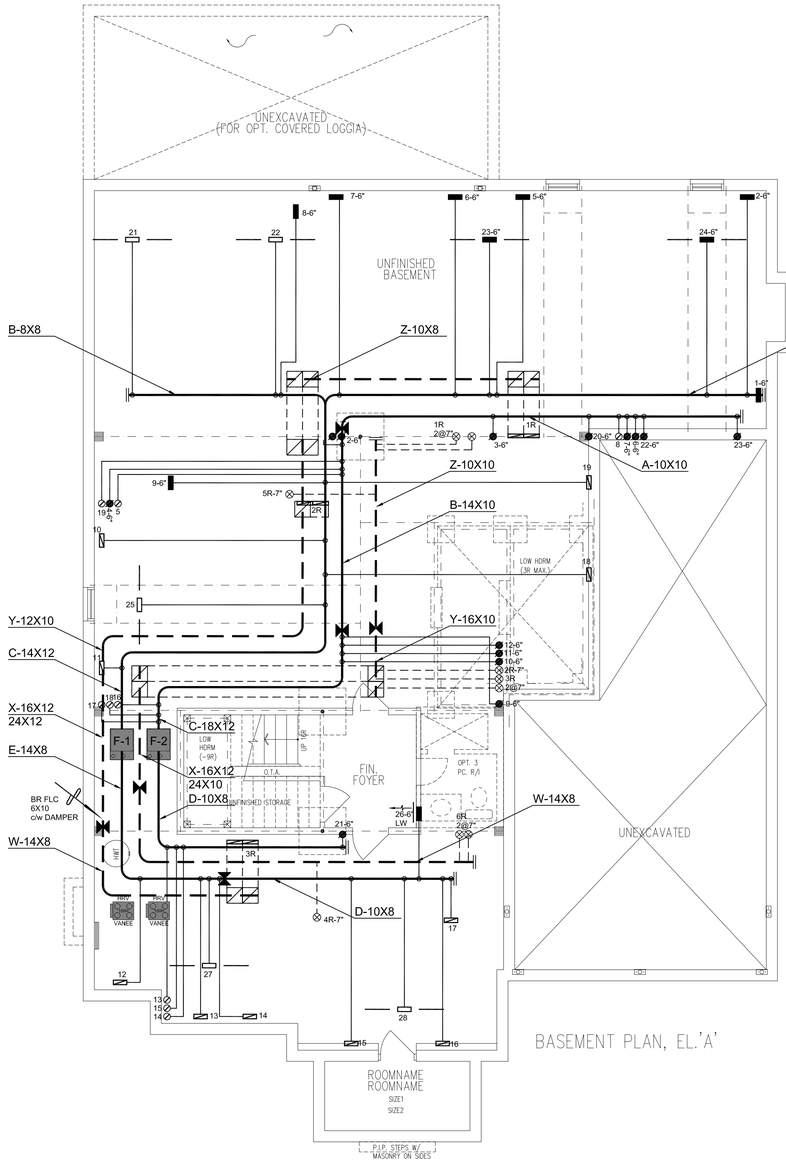
ALL S/A DIFFUSERS "4x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

FURNACE 1 (F-1)
LENNOX ML196UH090XE36C
85600 BTU/H OUTPUT
3.0 TONS A/C @ 1170 cfm

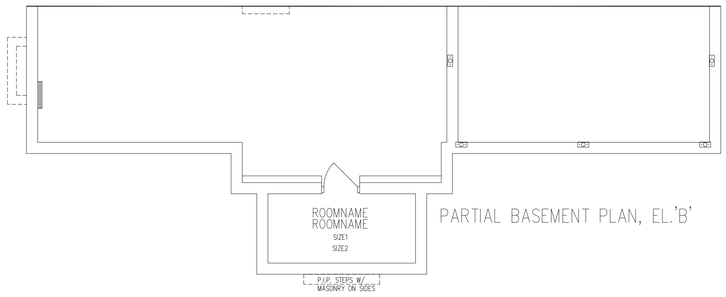
FURNACE 2 (F-2)
LENNOX ML196UH045XE36B
42800 BTU/H OUTPUT
3.0 TONS A/C @ 1110 cfm

	S/A	R/A	FANS
2ND	23	6	7
1ST	17	3	2
BAS	8	1	0



BASEMENT PLAN, EL.'A'

PART. BASEMENT PLAN ELEV. 'A', 'B' & 'C' - W.O.D. COND.



PARTIAL BASEMENT PLAN, EL.'B'

HVAC LEGEND

	4X10 SUPPLY GRILLE
	14X8 RETURN GRILLE
	4X10 SUPPLY GRILLE 6"Ø BOOT
	30X8 RETURN GRILLE
	SUPPLY DUCTWORK
	RETURN DUCTWORK
F	EXHAUST FAN
LW	LOW WALL
HW	HIGH WALL

I MICHAEL O'ROURKE HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
Michael O'Rourke, BCXO 19649
HVAC DESIGNS LTD.

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

SB-12 PACKAGE

A1

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Web: www.hvacdesigns.ca
Specializing in Residential Mechanical Design Services

Client: GOLDPARK HOMES

Project Name: PINE VALLEY PH2
VAUGHAN, ONTARIO
6001 - QUEENSLAND
OPT 2ND
5653 SQFT

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Sheet Title: BASEMENT HVAC LAYOUT

Drawn By	EG	Checked By	MO
Scale	3/16"=1'-0"	Sheet No.	1
Date	APRIL 2022		
LO #	96136		

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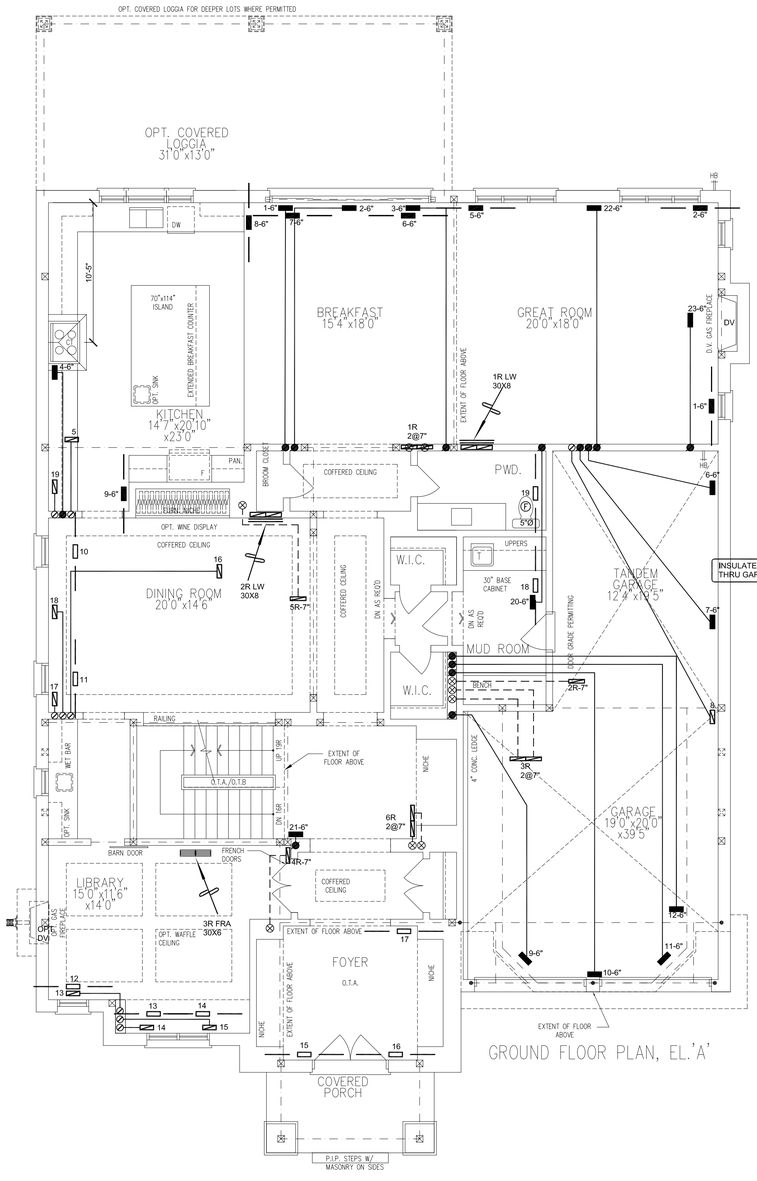
	S/A	R/A	FANS
2ND	23	6	7
1ST	17	3	2
BAS	8	1	0



HVAC LEGEND

	4X10 SUPPLY GRILLE
	14X8 RETURN GRILLE
	4X10 SUPPLY GRILLE 6"Ø BOOT
	30X8 RETURN GRILLE
	SUPPLY DUCTWORK
	RETURN DUCTWORK
Ⓕ	EXHAUST FAN
LW	LOW WALL
HW	HIGH WALL

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

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

SB-12 PACKAGE

A1

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Specializing In Residential Mechanical Design Services

Client: GOLDPARK HOMES

Project Name: PINE VALLEY PH2
VAUGHAN, ONTARIO
6001 - QUEENSLAND
OPT 2ND
5653 SQFT

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Sheet Title: FIRST FLOOR HVAC LAYOUT
Drawn By: EG
Checked By: MO
Scale: 3/16"=1'-0"
Date: APRIL 2022
LO.# 96136
Sheet No. 2

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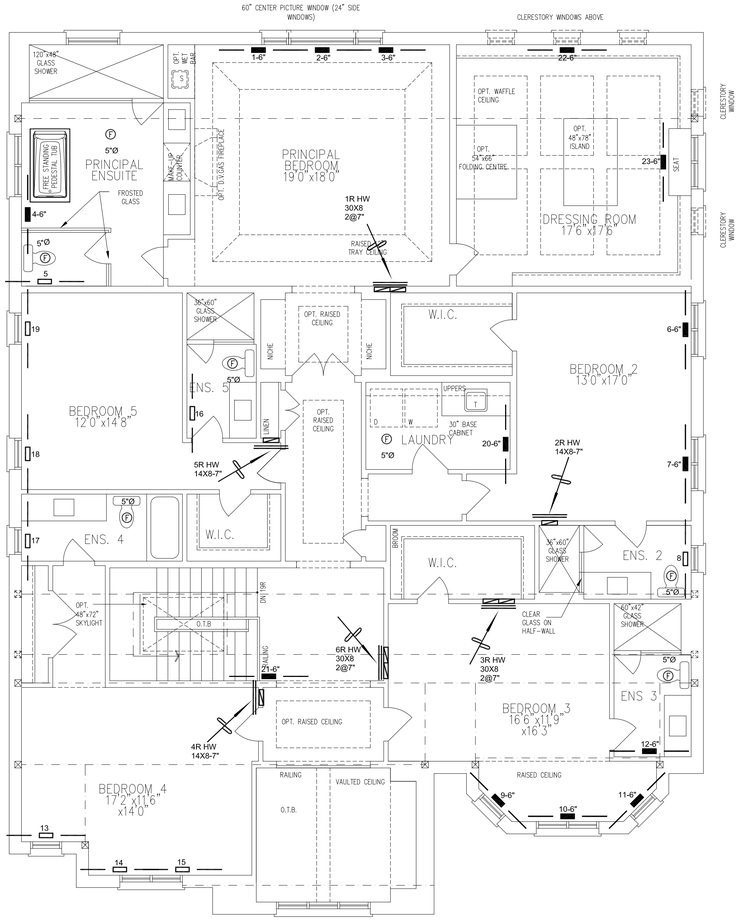
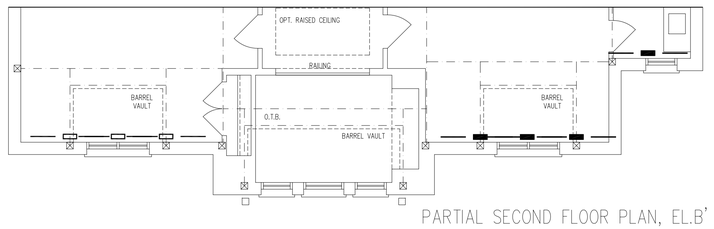
	S/A	R/A	FANS
2ND	23	6	7
1ST	17	3	2
BAS	8	1	0



OPT. SECOND FLOOR PLAN, EL.'A'



PARTIAL SECOND FLOOR PLAN, EL.B'

HVAC LEGEND

	4X10 SUPPLY GRILLE
	14X8 RETURN GRILLE
	4X10 SUPPLY GRILLE 6"Ø BOOT
	30X8 RETURN GRILLE
	SUPPLY DUCTWORK
	RETURN DUCTWORK
Ⓕ	EXHAUST FAN
LW	LOW WALL
HW	HIGH WALL

I MICHAEL O'ROURKE HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

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

SB-12 PACKAGE

A1

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Specializing in Residential Mechanical Design Services

Client	GOLDPARK HOMES
Project Name	PINE VALLEY PH2 VAUGHAN, ONTARIO **6001 - QUEENSLAND** OPT 2ND 5653 SQFT
Sheet Title	SECOND FLOOR HVAC LAYOUT
Drawn By	EG
Checked By	MO
Scale	3/16"=1'-0"
Sheet No.	3
Date	APRIL 2022
LO #	96136

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