

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 - ELEV C OPT 2ND Project: PINE VALLEY PH 2	
D. Declaration of Designer			
I, <u>MICHAEL O'ROURKE</u> (print name)		declare that (choose one as appropriate):	
☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____			
☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code. Individual BCIN: <u>19669</u> Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>			
☐ The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: _____			
I certify that:			
1. The information contained in this schedule is true to the best of my knowledge. 2. I have submitted this application with the knowledge and consent of the firm.			
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						OPT 2ND						DATE Apr-22						WINTER NATURAL AIR CHANGE RATE 0.434						HEAT LOSS AT °F. 76		CSA-F280-12									
BUILDER: GOLD PARK HOMES						TYPE: 6001 - QUEENSLAND - ELEV C						GFA: 5742						LO# 96170						SUMMER NATURAL AIR CHANGE RATE 0.145						HEAT GAIN AT °F. 13		SB-12 PACKAGE A1			
ROOM USE			GREAT			KIT			DIN			LIBR			FOY			MUD			PWD														
EXP. WALL			58			56			25			33			43			22			7														
CLG. HT.			11			11			11			11			11			13			11														
FACTORS																																			
GRS.WALL AREA			LOSS GAIN			638			616			275			363			473			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	0	0	0	0	0	0	0			
EAST			21.3	41.6	0	0	0	0	0	0	0	0	65	1383	2701	15	319	623	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
SOUTH			21.3	24.9	0	0	0	0	0	0	0	41	872	1021	18	383	448	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
WEST			21.3	41.6	78	1660	3241	119	2532	4945	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			
DOORS			25.2	4.3	0	0	0	15	379	64	0	0	0	0	0	0	40	1010	170	20	505	85	0	0	0	0	0	0	0	0	0	0	0		
NET EXPOSED WALL			4.5	0.8	534	2383	401	482	2151	362	234	1044	176	280	1250	210	418	1865	314	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	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										
BASEMENT/CRAWL HEAT LOSS																																			
SLAB ON GRADE HEAT LOSS																																			
SUBTOTAL HT LOSS					4624			5062			1917			3043			3195			1692			344												
SUB TOTAL HT GAIN						4070			5371			1197			3372			1108			285			58											
LEVEL FACTOR / MULTIPLIER			0.30	0.74			0.30	0.74		0.30	0.74		0.30	0.74		0.30	0.74		0.30	0.74		0.30	0.74												
AIR CHANGE HEAT LOSS					3405			3728			1412			2241			2353			1246			253												
AIR CHANGE HEAT GAIN						370			488			109			306			101			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											
HEAT GAIN APPLIANCES/LIGHTS						1376			1376			1376			1376			0			0			0											
TOTAL HT LOSS BTU/H					8029			8790			3328			5285			5547			2938			597												
TOTAL HT GAIN x 1.3 BTU/H						7560			9404			3485			6570			1571			404			82											

[illegible]

TOTAL HEAT GAIN BTU/H: 72507

TONS: 6.04

LOSS DUE TO VENTILATION LOAD BTU/H: 6156

STRUCTURAL HEAT LOSS: 105969

TOTAL COMBINED HEAT LOSS BTU/H: 112125

[illegible][illegible]

TOTAL HEAT GAIN BTU/H: 72507

TONS: 6.04

LOSS DUE TO VENTILATION LOAD BTU/H: 6156

STRUCTURAL HEAT LOSS: 105969

TOTAL COMBINED HEAT LOSS BTU/H: 112125

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

OPT 2ND
TYPE: 6001 - QUEENSLAND - ELEV C DATE: Apr-22

GFA: 5742 LO# 96170

FURNACE 1

HEATING CFM 1170 COOLING CFM 1170
TOTAL HEAT LOSS 71,120 TOTAL HEAT GAIN 30,611
AIR FLOW RATE CFM 16.45 AIR FLOW RATE CFM 38.22

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
= 74198 BTUH**
\$LENNOX
ML196UH090XE36C
FAN SPEED 90

LOW 0

MEDLOW 0

MEDIUM 0

MEDIUM HIGH 1170

HIGH 1300

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

DESIGN CFM = **1170**
CFM @ .6" E.S.P.

TEMPERATURE RISE 68 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	0	15	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	5	6	7	8	9	10	11	12	13	14	15	18	19	21	22	23	24
ROOM NAME	GREAT	GREAT	GREAT	KIT	KIT	KIT	KIT	DIN	DIN	LIBR	LIBR	LIBR	FOY	MUD	PWD	BAS	BAS	BAS	BAS
RM LOSS MBH.	2.68	2.68	2.68	2.20	2.20	2.20	2.20	1.66	1.66	1.76	1.76	1.76	5.55	2.94	0.60	4.58	4.58	4.58	4.58
CFM PER RUN HEAT	44	44	44	36	36	36	36	27	27	29	29	29	91	48	10	75	75	75	75
RM GAIN MBH.	2.52	2.52	2.52	2.35	2.35	2.35	2.35	1.74	1.74	2.19	2.19	2.19	1.57	0.40	0.08	0.19	0.19	0.19	0.19
CFM PER RUN COOLING	96	96	96	90	90	90	90	67	67	84	84	84	60	15	3	7	7	7	7
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	74	89	72	67	59	45	46	46	10	22	27	31	40	48	55	67	56	65	71
EQUIVALENT LENGTH	140	130	170	160	170	170	110	120	150	150	110	120	140	150	130	110	120	140	140
TOTAL EFFECTIVE LENGTH	214	219	242	227	229	215	156	166	160	172	137	151	180	198	185	177	176	205	211
ADJUSTED PRESSURE	0.08	0.07	0.07	0.07	0.07	0.08	0.1	0.1	0.11	0.09	0.12	0.11	0.09	0.09	0.09	0.1	0.1	0.08	0.08
ROUND DUCT SIZE	6	6	6	6	6	6	6	5	5	5	5	5	6	4	4	5	5	6	6
HEATING VELOCITY (ft/min)	224	224	224	184	184	184	184	198	198	213	213	213	464	551	115	551	551	382	382
COOLING VELOCITY (ft/min)	489	489	489	459	459	459	459	492	492	617	617	617	306	172	34	51	51	36	36
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10
TRUNK	A	A	A	A	A	B	C	C	C	D	D	D	D	C	C	B	B	A	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	75	75	75	75
RM GAIN MBH.	0.19	0.19	0.19	0.19
CFM PER RUN COOLING	7	7	7	7
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)	551	382	551	551
COOLING VELOCITY (ft/min)	51	36	51	51
OUTLET GRILL SIZE	3X10	4X10	3X10	3X10
TRUNK	C	D	D	D

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	354	0.07	9.8	12	x	8	531	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.06	0	0	x	8	0
TRUNK B	186	0.08	7.5	8	x	8	419	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.06	0	0	x	8	0
TRUNK C	763	0.07	13.1	16	x	12	572	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.06	0	0	x	8	0
TRUNK D	403	0.08	10	12	x	8	605	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.06	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	0.06	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	0.06	0	0	x	8	0

RETURN AIR #	1	2	3													BR
AIR VOLUME	275	305	330	0	0	0	0	0	0	0	0	0	0	0	0	260
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
ACTUAL DUCT LGH.	76	47	41	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	145
TOTAL EFFECTIVE LH	256	212	181	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	0.09
ROUND DUCT SIZE	9.3	9.3	9.3	0	0	0	0	0	0	0	0	0	0	0	0	8.2
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	24

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

OPT 2ND
TYPE: 6001 - QUEENSLAND - ELEV C DATE: Apr-22

GFA: 5742 LO# 96170

FURNACE 2

HEATING CFM 1270 COOLING CFM 1270
TOTAL HEAT LOSS 34,849 TOTAL HEAT GAIN 41,377
AIR FLOW RATE CFM 36.44 AIR FLOW RATE CFM 30.69

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
= 37927 BTUH**
**\$*LENNOX
ML196UH070XE48B
FAN SPEED 70**

AFUE = 96 %
INPUT (BTU/H) = 66,000
OUTPUT (BTU/H) = **63,900**

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	24	0	0
R/A	0	0	6	0	0

plenium pressure s/a 0.18 r/a pressure 0.17
max s/a dif press. loss 0.02 r/a grille press. Loss 0.02
min adjusted pressure s/a 0.16 adjusted pressure r/a 0.15

LOW 0
MEDLOW 1070
MEDIUM 1270
MEDIUM HIGH 1515
HIGH 1595

DESIGN CFM = **1270**
CFM @ .6" E.S.P.

TEMPERATURE RISE 47 °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	22	23	24
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	HALL	DRESS	DRESS
RM LOSS MBH.	0.98	0.98	0.98	2.21	0.74	1.88	1.88	0.97	1.77	1.77	1.77	1.81	1.88	1.88	1.88	0.13	0.68	0.89	0.89	0.15	2.44	2.44	1.93	1.93
CFM PER RUN HEAT	36	36	36	81	27	69	69	35	65	65	65	66	68	68	68	5	25	32	32	6	89	89	70	70
RM GAIN MBH.	1.79	1.79	1.79	1.29	0.43	1.97	1.97	0.36	2.56	2.56	2.56	0.94	2.45	2.45	2.45	0.06	0.40	1.55	1.55	1.86	3.30	3.30	1.00	1.00
CFM PER RUN COOLING	55	55	55	40	13	60	60	11	78	78	78	29	75	75	75	2	12	48	48	57	101	101	31	31
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	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	48	91	90
EQUIVALENT LENGTH	150	160	220	180	180	160	170	180	170	180	170	160	170	150	140	200	210	180	180	190	110	140	160	170
TOTAL EFFECTIVE LENGTH	217	232	303	255	249	245	265	282	249	265	261	246	207	180	182	232	234	208	247	272	144	188	251	260
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	0.09	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	6
HEATING VELOCITY (ft/min)	184	184	184	413	310	352	352	257	331	331	331	337	499	499	499	57	287	235	235	31	454	454	357	357
COOLING VELOCITY (ft/min)	280	280	280	204	149	306	306	81	398	398	398	148	551	551	551	23	138	352	352	291	515	515	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	4X10
TRUNK	B	B	A	B	B	A	A	A	C	C	C	C	D	D	D	C	C	C	B	A	D	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
1	MBR	0.98	36	1.79	55	0.17	67	150	217	0.08	6	184	280	4X10	B
2	MBR	0.98	36	1.79	55	0.17	72	160	232	0.07	6	184	280	4X10	B
3	MBR	0.98	36	1.79	55	0.17	83	220	303	0.06	6	184	280	4X10	A
4	ENS	2.21	81	1.29	40	0.16	75	180	255	0.06	6	413	204	4X10	B
5	ENS	0.74	27	0.43	13	0.17	69	180	249	0.07	4	310	149	3X10	B
6	BED-2	1.88	69	1.97	60	0.17	85	160	245	0.07	6	352	306	4X10	A
7	BED-2	1.88	69	1.97	60	0.17	95	170	265	0.06	6	352	306	4X10	A
8	ENS-2	0.97	35	0.36	11	0.17	102	180	282	0.06	5	257	81	3X10	A
9	BED-3	1.77	65	2.56	78	0.17	79	170	249	0.07	6	331	398	4X10	C
10	BED-3	1.77	65	2.56	78	0.17	85	180	265	0.06	6	331	398	4X10	C
11	BED-3	1.77	65	2.56	78	0.17	91	170	261	0.07	6	337	398	4X10	C
12	ENS-3	1.81	66	0.94	29	0.17	86	160	246	0.07	5	499	148	3X10	D
13	BED-4	1.88	68	2.45	75	0.17	37	170	207	0.08	5	499	551	3X10	D
14	BED-4	1.88	68	2.45	75	0.17	30	140	180	0.1	5	499	551	3X10	D
15	BED-4	1.88	68	2.45	75	0.17	42	200	182	0.09	4	57	23	3X10	C
16	ENS-5	0.13	5	0.06	2	0.17	32	210	232	0.07	4	287	138	3X10	C
17	ENS-4	0.68	25	0.40	12	0.17	28	180	208	0.07	5	235	352	3X10	C
18	BED-5	0.89	32	1.55	48	0.17	67	190	247	0.07	5	235	352	3X10	B
19	BED-5	0.89	32	1.55	48	0.17	82	190	272	0.06	6	31	291	4X10	A
20	LAUN	0.15	6	1.86	57	0.16	34	110	144	0.11	6	454	515	4X10	D
21	HALL	2.44	89	3.30	101	0.16	48	140	188	0.09	6	454	515	4X10	D
22	HALL	2.44	89	3.30	101	0.16	91	160	251	0.07	6	357	158	4X10	A
23	DRESS	1.93	70	1.00	31	0.17	90	170	260	0.07	6	357	158	4X10	A
24	DRESS	1.93	70	1.00	31	0.17	90	170	260	0.07	6	357	158	4X10	A

SUPPLY AIR TRUNK SIZE													RETURN 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	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)							
TRUNK A	355	0.06	10.2	10	x	10	511	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0		
TRUNK B	567	0.06	12.2	14	x	10	583	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0		
TRUNK C	890	0.06	14.4	18	x	12	593	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0		
TRUNK D	382	0.08	9.8	12	x	8	573	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	185	115	365	0
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	75	71	71	60	83	65	1
EQUIVALENT LENGTH	230	215	195	185	225	190	0
TOTAL EFFECTIVE LH	305	286	266	245	308	255	1
ADJUSTED PRESSURE	0.05	0.05	0.06	0.06	0.05	0.06	14.80
ROUND DUCT SIZE	9.1	7	9.1	8	7	10.3	0
INLET GRILL SIZE	8	8	8	8	8	8	0
INLET GRILL SIZE	X	X	X	X	X	X	X
INLET GRILL SIZE	30	14	30	24	14	30	0

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

LO # 96170
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	<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#: 96170	Model: 6001 - QUEENSLAND - ELEV C	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>2581</td><td>10</td><td>25810</td></tr> <tr><td>First</td><td>2581</td><td>11</td><td>28391</td></tr> <tr><td>Second</td><td>3175</td><td>9</td><td>28575</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>82,776.0 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>2344.0 m³</td></tr> </tbody> </table>		Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2581	10	25810	First	2581	11	28391	Second	3175	9	28575	Third	0	9	0	Fourth	0	9	0	Total:			82,776.0 ft³	Total:			2344.0 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%;">0.434</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>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>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	0.434	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
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5.2.3.1 Heat Loss due to Air Leakage		6.2.6 Sensible Gain due to Air Leakage																																																										
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.434 x 651.10 x 42 °C x 1.2 = 14301 W = 48795 Btu/h		$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.145 x 651.10 x 7 °C x 1.2 = 806 W = 2751 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 / HLlevel)																																																								
1	0.5	48,795	12,207	1.999																																																								
2	0.3		19,876	0.736																																																								
3	0.2		24,012	0.406																																																								
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 - ELEV C	OPT 2ND	BUILDER: GOLD PARK HOMES
SFQT: 5742	LO# 96170	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):	82776.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.65	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

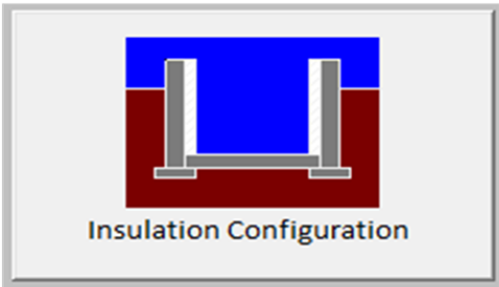
2012 OBC - COMPLIANCE PACKAGE		Compliance Package A1	
Component		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.65
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		22	17.03
Basement 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):	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 - ELEV C OPT 2ND
LO# 96170

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

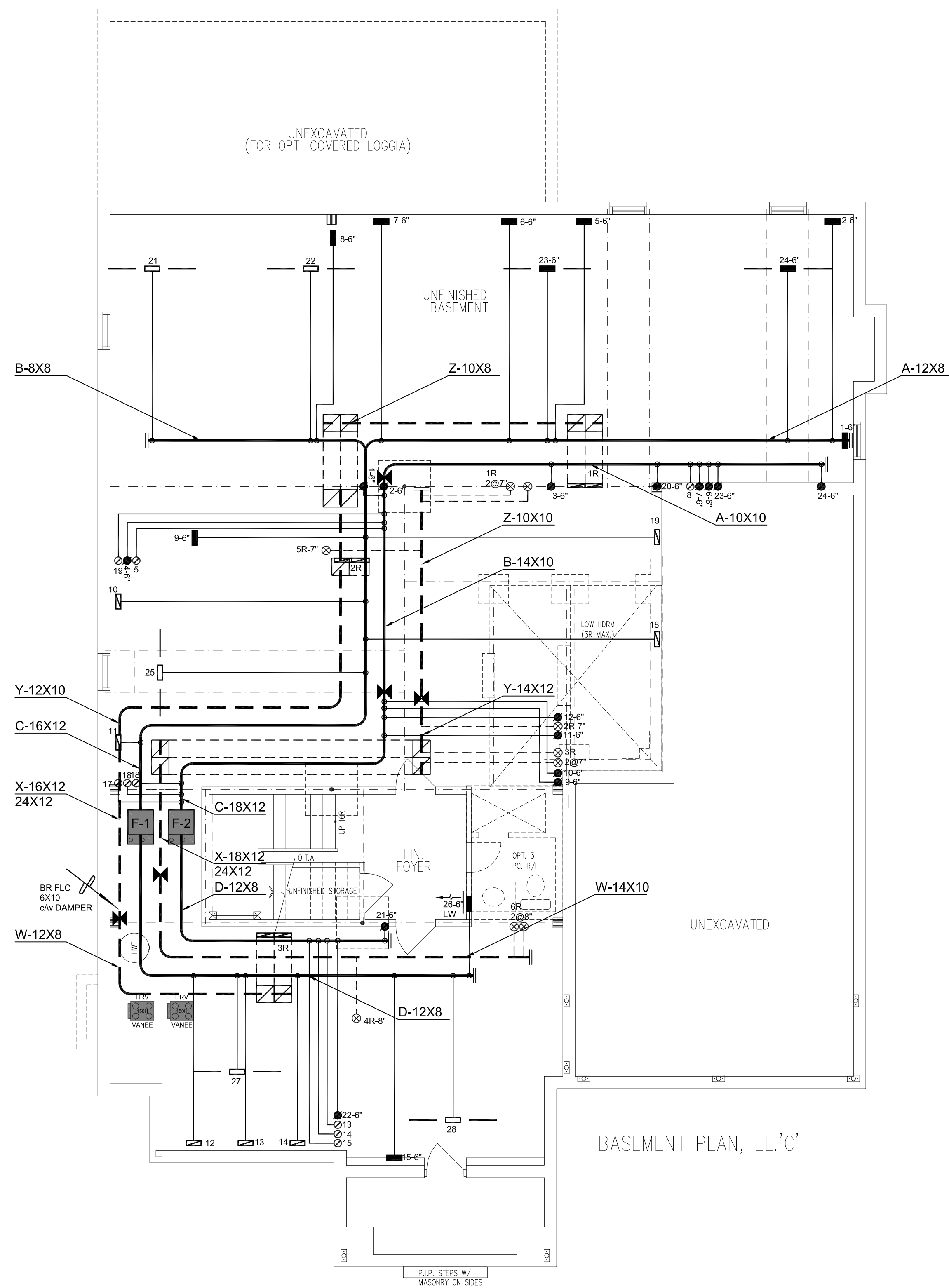
Weather Station Description				
Province:	Ontario			
Region:	Vaughan (Woodbridge)			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	10.06			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	2344.0			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	3124.6 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 - ELEV C OPT 2ND
LO# 96170

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 2 (F-2)
LENNOX ML196UH070XE48B
63900 BTU/H OUTPUT
3.5 TONS A/C @ 1270 cfm

	S/A	R/A	FANS
2ND	22	6	7
1ST	15	3	2
BAS	8	1	0



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

HVAC LEGEND	
	4X10 SUPPLY GRILLE
	14X5 RETURN GRILLE
	4X10 SUPPLY GRILLE 6\"
	30X8 RETURN GRILLE
	SUPPLY DUCTWORK
	RETURN DUCTWORK
	EXHAUST FAN
LW	LOW WALL
HV	HIGH WALL

I MICHAEL O'BRIEN 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'Brien, BCIN# 19609
HVAC DESIGNS LTD.



1	ISSUED FOR PERMIT	APRIL 2022	E
No.	Revision	Date	B

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

6001 - QUEENSLAND - FLEV G

OPT 2ND
5742 SOFT

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Sheet **BASEMENT HVAC LAYOUT**

Title		BASEMENT HVAC EXHAUST	
Drawn By	EG	Checked By	MO

Scale	3/16"=1'-0"	Sheet No.
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Date	APRIL 2022
Page	

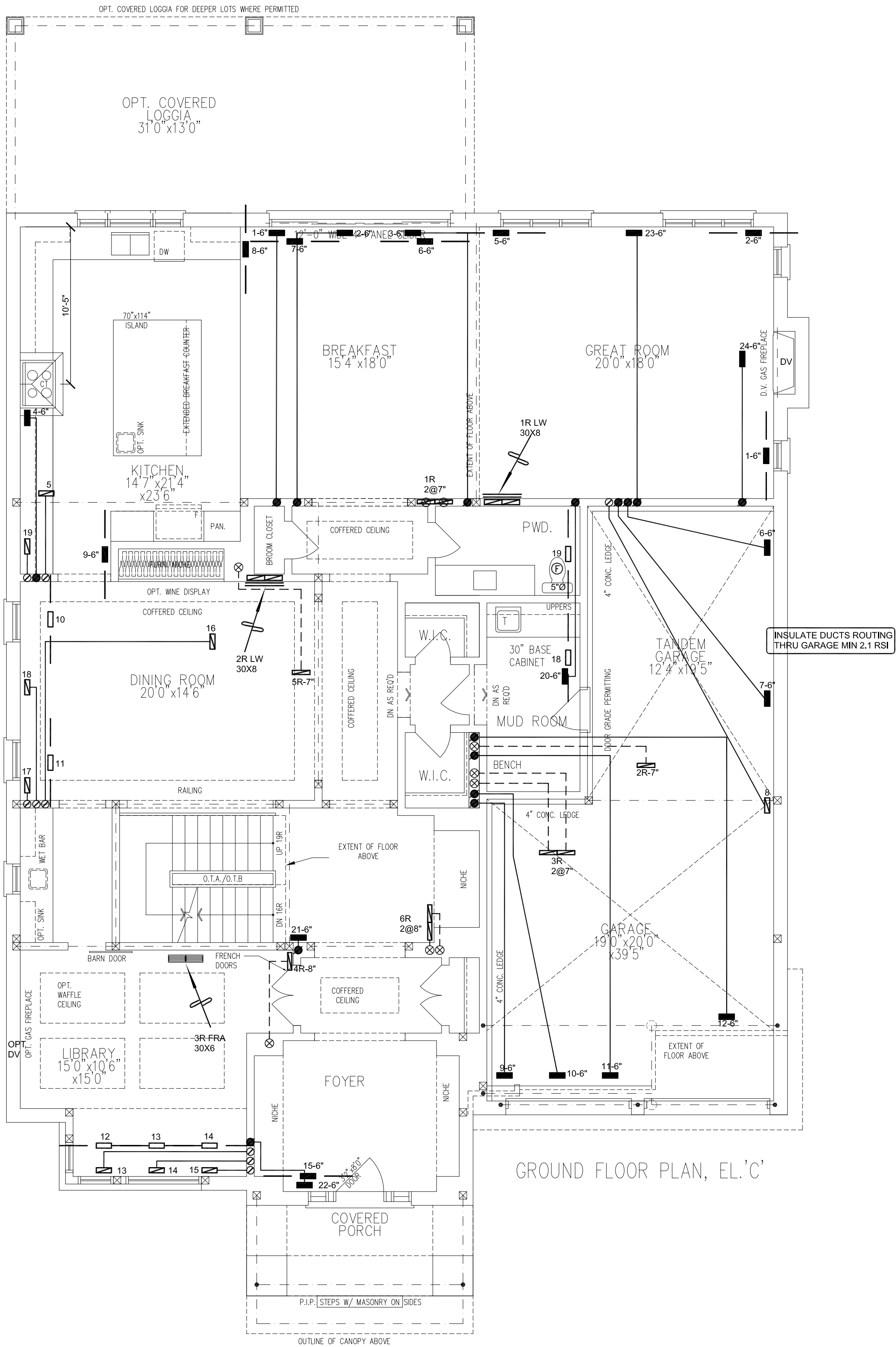
LO#	96170	
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ALL S/A DIFFUSERS "4x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

	S/A	R/A	FANS
2ND	22	6	7
1ST	15	3	2
BAS	8	1	0



GROUND FLOOR PLAN, EL.'C'

HVAC LEGEND	
	4X10 SUPPLY GRILLE
	14X8 RETURN GRILLE
	4X10 SUPPLY GRILLE F'D BOOT
	30X8 RETURN GRILLE
	SUPPLY DUCTWORK
	RETURN DUCTWORK
	EXHAUST FAN
LW	LOW WALL
HW	HIGH WALL

I WARRANT THAT I HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED TO BE PROVIDING SUCH SERVICES. I, JAMES W. HARRIS, P.Eng. 1969
HARRIS ENGINEERING LTD.

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

SB-12 PACKAGE

A1

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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 - ELEV C

OPT 2ND

5742 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 Sheet No.

LO # 96170 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	22	6	7
1ST	15	3	2
BAS	8	1	0

HVAC LEGEND	
	4X10 SUPPLY GRILLE
	14X8 RETURN GRILLE
	4X10 SUPPLY GRILLE 6'X0 BOOT
	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 A QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

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



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No.	Revision	Date

SB-12 PACKAGE

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5742 SQFT
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Sheet Title		SECOND FLOOR HVAC LAYOUT	
Drawn By	EG	Checked By	MO
Scale	3/16"=1'-0"		Sheet No.
Date	APRIL 2022		3
LO #	96170		