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:** 4006 - THE LILAC ELEV C - WOB **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 11, 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.

HVAC DESIGNS LTD.

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Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

SITE NAME: PINE VALLEY PH 2 | ELEV C - WOB | DATE: Apr-22 | WINTER NATURAL AIR CHANGE RATE 0.407 | HEAT LOSS ΔT °F. 76 | CSA-F280-12
BUILDER: GOLD PARK HOMES | TYPE: 4006 - THE LILAC | GFA: 3316 | LO# 96163 | SUMMER NATURAL AIR CHANGE RATE 0.137 | HEAT GAIN ΔT °F. 13 | SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			BATH				WIC-3			ENS-2				
EXP. WALL			36			28			10			43			34			17			11				5			14				
CLG. HT.			10			9			9			9			9			9			9				9			9				
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	360			252			90			387			306			153			99				45			126				
GLAZING			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN			
NORTH	21.3	14.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	8	170	117		
EAST	21.3	37.5	0	0	0	0	0	0	0	0	0	45	958	1687	68	1447	2549	0	0	0	0	0	0		0	0	0	0	0	0		
SOUTH	21.3	22.6	0	0	0	50	1064	1131	0	0	0	0	0	0	59	1256	1334	59	1256	1334	43	915	972		0	0	0	0	0	0		
WEST	21.3	37.5	40	851	1499	8	170	300	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	4	149	406	0	0	0	4	149	406	0	0	0	4	149	406	0	0	0		0	0	0	0	0	0		
DOORS	20.1	3.4	0	0	0	0	0	0	0	0	0	0	0	0	20	401	68	10	201	34	0	0	0		0	0	0	0	0	0		
NET EXPOSED WALL	4.5	0.8	320	1428	241	194	866	146	90	402	68	342	1526	257	159	710	120	84	375	63	56	250	42		45	201	34	118	527	89		
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		
EXPOSED CLG	1.3	0.6	315	404	185	159	204	93	160	205	94	303	389	178	180	231	106	255	327	150	110	141	65		40	51	24	126	162	74		
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	24	66	30	0	0	0	20	55	25	12	33	15	30	82	38	0	0	0		0	0	0	0	0	0		
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0	0	0	327	834	140	0	0	0	0	0	0	0	0	0		40	102	17	0	0	0		
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0			0			0				0			0				
SLAB ON GRADE HEAT LOSS			0			0			0			0			0			0			0				0			0				
SUBTOTAL HT LOSS			2684			2519			607			3911			4077			2390			1306				354			859				
SUB TOTAL HT GAIN				1925			2106			162			2694			4191			2025			1079			75			280			
LEVEL FACTOR / MULTIPLIER			0.20	0.28		0.20	0.28		0.20	0.28		0.20	0.28		0.20	0.28		0.20	0.28		0.20	0.28			0.20	0.28		0.20	0.28			
AIR CHANGE HEAT LOSS			756			710			171			1102			1149			674			368				100			242				
AIR CHANGE HEAT GAIN				122			133			10			170			265			128			68			5			18			
DUCT LOSS			0			0			0			501			0			0			0				45			0				
DUCT GAIN				0			0			0			361			0			0			0				59			0			
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0		0		0	0		0		
HEAT GAIN APPLIANCES/LIGHTS					508			0			508			508			508			508			0			508			0		
TOTAL HT LOSS BTU/H			3440			3229			778			5514			5226			3063			1674				499			1101				
TOTAL HT GAIN x 1.3 BTU/H				3945			2911			884			5165			6765			3771			1492			840			387			

ROOM USE			DIN				KT/GR			LIB			LAUN				FOY			MUD				WOB			BAS		
EXP. WALL			22				78			53			0				20			33				43			149		
CLG. HT.			11				11			11			11				11			13				10			10		
	FACTORS																												
GRS.WALL AREA	LOSS	GAIN	242				858			583			0				220			429				430			1043		
GLAZING			LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN	
NORTH	21.3	14.6	0	0	0		0	0	0	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	3	64	44
EAST	21.3	37.5	0	0	0		0	0	0	45	958	1687	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0
SOUTH	21.3	22.6	63	1341	1425		50	1064	1131	45	958	1018	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0
WEST	21.3	37.5	0	0	0		81	1724	3036	0	0	0	0	0	0		0	0	0	0	0	0		53	1128	1987	0	0	0
SKYLT.	37.2	101.5	0	0	0		0	0	0	0	0	0	4	149	406		0	0	0	0	0	0		0	0	0	0	0	0
DOORS	20.1	3.4	0	0	0		20	401	68	0	0	0	0	0	0		40	802	135	20	401	68		25	501	84	20	401	68
NET EXPOSED WALL	4.5	0.8	179	799	135		707	3155	531	493	2200	371	0	0	0		180	803	135	409	1825	307		352	1571	265	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	447	1609	271
EXPOSED CLG	1.3	0.6	0	0	0		0	0	0	0	0	0	171	219	100		0	0	0	0	0	0		0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0		42	115	53	20	55	25	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0		0	0	0	0	0	0	91	232	39		0	0	0	0	0	0		0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0				0			0			0				0			0							2510		
SLAB ON GRADE HEAT LOSS			0				0			0			0				0			0				552					
SUBTOTAL HT LOSS			2139				6459			4170			600				1605			2226				3752			4584		
SUB TOTAL HT GAIN				1559				4819			3100			546				270			375					2336			382
LEVEL FACTOR / MULTIPLIER			0.30	0.46			0.30	0.46		0.30	0.46		0.30	0.46			0.30	0.46		0.30	0.46						0.50	1.58	
AIR CHANGE HEAT LOSS			984				2970			1918			276				738			1024							13182		
AIR CHANGE HEAT GAIN				99				304			196			34				17			24								172
DUCT LOSS			0				0			0			88				0			0							0		
DUCT GAIN				0				0			0			109				0			0								0	
HEAT GAIN PEOPLE	240		0		0		0		0	0		0	0		0		0		0	0		0		0		0	0		0	
HEAT GAIN APPLIANCES/LIGHTS					508				508			508			508				0			508				0			508	
TOTAL HT LOSS BTU/H			3123				9429			6088			964				2344			3250				3752			17766		
TOTAL HT GAIN x 1.3 BTU/H				2816				7321			4945			1556				374			1179					3036			1381

TOTAL HEAT GAIN BTU/H: 49042 | TONS: 4.09 | LOSS DUE TO VENTILATION LOAD BTU/H: 1631 | STRUCTURAL HEAT LOSS: 71241 | TOTAL COMBINED HEAT LOSS BTU/H: 72872

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

HVAC DESIGNS LTD.

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

ELEV C - WOB
TYPE: 4006 - THE LILAC

DATE: Apr-22

GFA: 3316 LO# 96163

HEATING CFM	1575	COOLING CFM	1575
TOTAL HEAT LOSS	71,241	TOTAL HEAT GAIN	48,767
AIR FLOW RATE CFM	22.11	AIR FLOW RATE CFM	32.3

furnace pressure	0.6
furnace filter	0.05
a/c coil pressure	0.2
available pressure for s/a & r/a	0.35
plenum pressure s/a	0.18
max s/a dif press. loss	0.02
min adjusted pressure s/a	0.16
r/a pressure	0.17
r/a grille press. Loss	0.02
adjusted pressure r/a	0.15

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

AFUE = 96 %
INPUT (BTU/H) = 88,000
OUTPUT (BTU/H) = 85,600
DESIGN CFM = 1575
CFM @ .6 " E.S.P.
TEMPERATURE RISE 50 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	15	10	6
R/A	0	0	5	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	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	BED-2	BED-3	MBR	ENS-2	BED-3	DIN	KT/GR	KT/GR	KT/GR	LAUN	KT/GR	FOY	ENS	BED-4	MUD	LIB	LIB
RM LOSS MBH.	1.72	1.61	0.78	2.76	1.74	1.53	1.67	2.76	1.74	1.72	1.10	1.74	3.12	2.36	2.36	2.36	0.96	2.36	2.34	1.61	1.53	3.25	3.04	3.04
CFM PER RUN HEAT	38	36	17	61	39	34	37	61	39	38	24	39	69	52	52	52	21	52	52	36	34	72	67	67
RM GAIN MBH.	1.97	1.46	0.88	2.58	2.26	1.89	1.49	2.58	2.26	1.97	0.39	2.26	2.82	1.83	1.83	1.83	1.56	1.83	0.37	1.46	1.89	1.18	2.47	2.47
CFM PER RUN COOLING	64	47	29	83	73	61	48	83	73	64	12	73	91	59	59	59	50	59	12	47	61	38	80	80
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	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	0.17	0.17	0.17
ACTUAL DUCT LGH.	36	45	21	75	77	38	62	81	71	44	74	77	31	26	33	31	62	38	37	38	49	47	54	58
EQUIVALENT LENGTH	120	220	190	130	170	180	140	160	140	140	170	190	150	110	90	90	150	110	150	190	190	180	120	120
TOTAL EFFECTIVE LENGTH	156	265	211	205	247	218	202	241	211	184	244	267	181	136	123	121	212	148	187	228	239	227	174	178
ADJUSTED PRESSURE	0.11	0.06	0.08	0.08	0.07	0.08	0.09	0.07	0.08	0.09	0.07	0.06	0.09	0.13	0.14	0.14	0.08	0.12	0.09	0.08	0.07	0.08	0.1	0.1
ROUND DUCT SIZE	5	5	4	**6**	**6**	5	5	**6**	**6**	5	4	**6**	**6**	5	5	5	5	5	5	5	5	5	**6**	**6**
HEATING VELOCITY (ft/min)	279	264	195	311	199	250	272	311	199	279	275	199	352	382	382	382	154	382	382	264	250	529	342	342
COOLING VELOCITY (ft/min)	470	345	333	423	372	448	352	423	372	470	138	372	464	433	433	433	367	433	88	345	448	279	408	408
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10
TRUNK	D	C	E	B	A	C	B	B	A	D	B	A	C	F	F	D	B	D	B	C	B	C	A	A

RUN #	25	26	27	28	29	30	31
ROOM NAME	BAS	BAS	BAS	BAS	BAS	WIC-3	BAS
RM LOSS MBH.	3.59	3.59	3.59	3.59	3.59	0.50	3.59
CFM PER RUN HEAT	79	79	79	79	79	11	79
RM GAIN MBH.	0.74	0.74	0.74	0.74	0.74	0.84	0.74
CFM PER RUN COOLING	24	24	24	24	24	27	24
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	43	23	23	32	52	65	46
EQUIVALENT LENGTH	180	100	120	130	130	200	170
TOTAL EFFECTIVE LENGTH	223	123	143	162	182	265	216
ADJUSTED PRESSURE	0.08	0.14	0.12	0.11	0.09	0.06	0.08
ROUND DUCT SIZE	**6**	5	5	5	**6**	4	**6**
HEATING VELOCITY (ft/min)	403	580	580	580	403	126	403
COOLING VELOCITY (ft/min)	122	176	176	176	122	310	122
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	4X10	3X10	4X10
TRUNK	D	F	C	C	A	A	D

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	341	0.06	10.1	12	x	8	512	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	631	0.06	12.7	18	x	8	631	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	1036	0.06	15.3	28	x	8	666	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	338	0.08	9.3	10	x	8	608	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	1574	0.06	17.9	30	x	10	756	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	521	0.08	11	14	x	8	670	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	0	0.05	0	0	x	8	0
TRUNK X	1575	0.05	18.7	34	x	10	667
TRUNK Y	690	0.05	13.7	22	x	8	565
TRUNK Z	380	0.05	11	14	x	8	489
DROP	1575	0.05	18.7	24	x	14	675

RETURN AIR #	1	2	3	4	5	6	7	8								BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	155	135	115	130	350	135	145	175	0	0	0	0	0	0	0	235
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.	46	65	85	84	35	63	71	33	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	145	225	225	185	185	230	145	185	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	191	290	310	269	220	293	216	218	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.08	0.05	0.05	0.06	0.07	0.05	0.07	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10
ROUND DUCT SIZE	7	7.5	7	7	9.8	7.5	7	7.5	0	0	0	0	0	0	0	7.7
INLET GRILL SIZE	8	8	8	8	8	8	8	8	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	14	14	14	14	30	14	14	14	0	0	0	0	0	0	0	24

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

HVAC DESIGNS LTD.

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Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

TYPE: 4006 - THE LILAC
SITE NAME: PINE VALLEY PH 2

LO # 96163
ELEV C - 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	2	@ 21.2 cfm	42.4	cfm
Other Bedrooms	3	@ 10.6 cfm	31.8	cfm
Kitchen & Bathrooms	5	@ 10.6 cfm	53	cfm
Other Rooms	6	@ 10.6 cfm	63.6	cfm
Table 9.32.3.A.		TOTAL	190.8	cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED — 9.32.3.4.(1)

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

SUPPLEMENTAL VENTILATION CAPACITY — 9.32.3.5.

Total Ventilation Capacity	190.8	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	111.3	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE V150H Location: BSMT

79.5 cfm [ ] [✓] HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		FACTOR		% LOSS
79.5 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
BATH	BY INSTALLING CONTRACTOR	50	✓	3.5
ENS-2	BY INSTALLING CONTRACTOR	50	✓	3.5

HEAT RECOVERY VENTILATOR — 9.32.3.11.

Model: VANEE V150H

150 cfm high 35 cfm low

75 % 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: 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

HVAC DESIGNS LTD.

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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 96163 Model: 4006 - THE LILAC Builder: GOLD PARK HOMES Date: 2022-04-11

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1484	10	14840
First	1484	11	16324
Second	1832	9	16488
Third	0	9	0
Fourth	0	9	0
		Total:	47,652.0 ft³
		Total:	1349.4 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.407
SUMMER NATURAL AIR CHANGE RATE	0.137

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

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

0.407 x 374.82 x 42 °C x 1.2 = 7727 W

= 26364 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.137 x 374.82 x 7 °C x 1.2 = 437 W

= 1490 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

80 CFM x 76 °F x 1.08 x 0.25 = 1631 Btu/h

6.2.7 Sensible heat Gain due to Ventilation

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

80 CFM x 13 °F x 1.08 x 0.25 = 275 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	26,364	8,335	1.581
2	0.3		17,201	0.460
3	0.2		18,706	0.282
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
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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 4006 - THE LILAC ELEV C - WOB **BUILDER:** GOLD PARK HOMES
SFQT: 3316 **LO#** 96163 **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):	47652.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 63.0 ft WIDTH:	33.0 ft	EXPOSED PERIMETER:	149.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	43.0 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	96%	-
HRV/ERV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

Michael O'Rourke

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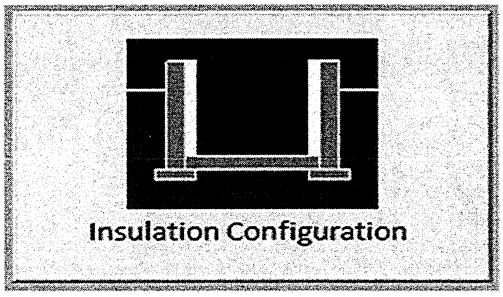
905-619-2300

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):	**4.6**	 Insulation Configuration
Floor Width (m):	**10.1**	
Exposed Perimeter (m):	**45.4**	
Wall Height (m):	**3.0**	
Depth Below Grade (m):	**1.79**	
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):	**736**	

TYPE: 4006 - THE LILAC ELEV C - WOB
LO# 96163

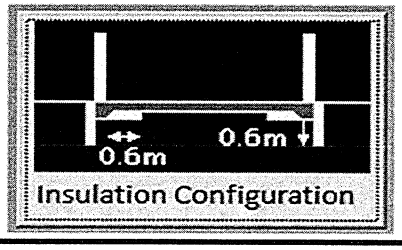
Michael O'Rourke BCIN #19669

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

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):	1.5
Width (m):	10.1
Exposed Perimeter (m):	13.1
Radiant Slab	
Heated Fraction of the Slab:	0
Fluid Temperature (°C):	33
Design Months	
Heating Month	1
Results	
Heating Load (Watts):	**162**



TYPE: 4006 - THE LILAC
LO# 96163

ELEV C - WOB

Michael O'Rourke BCIN# 19669

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

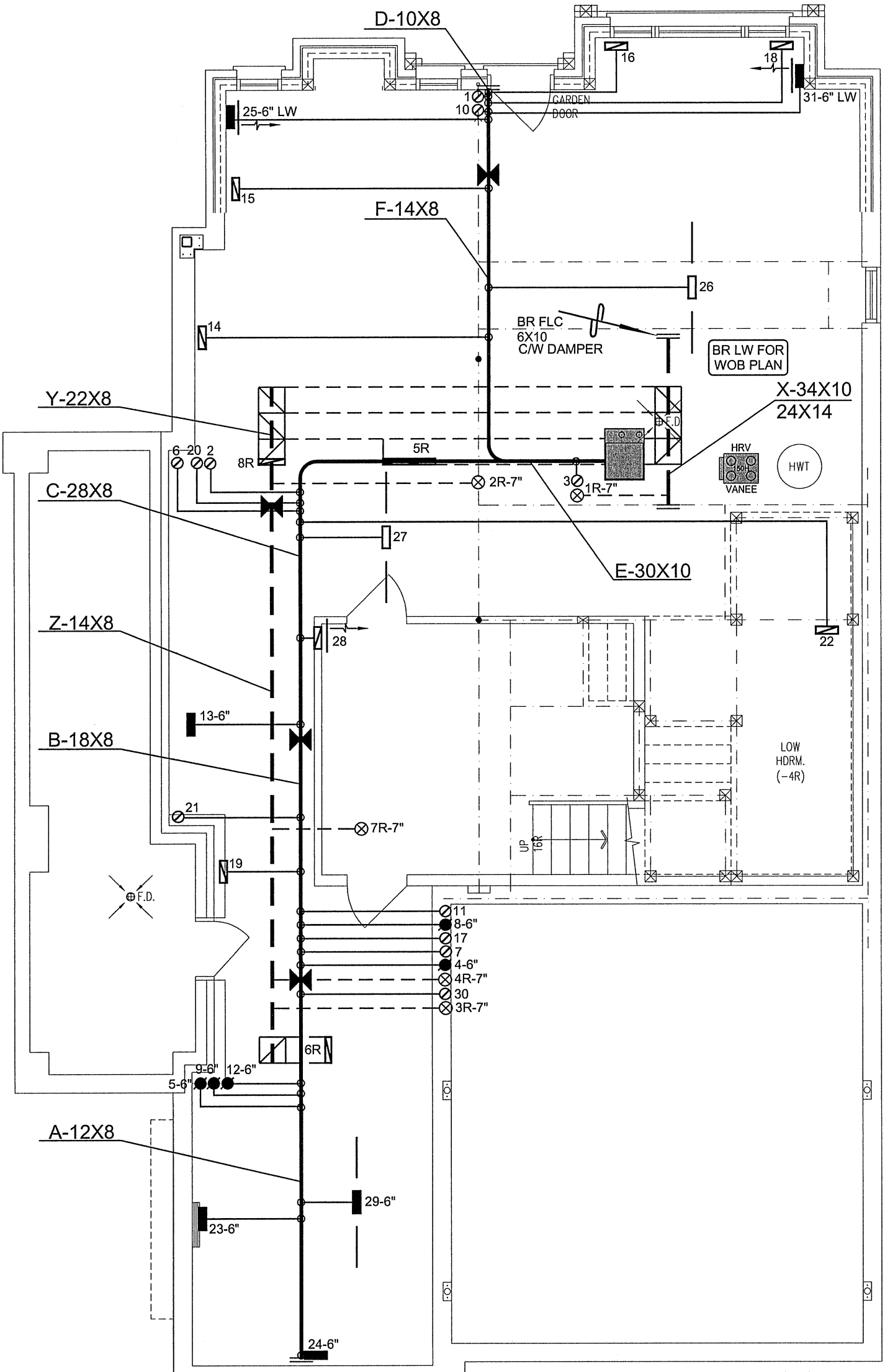
Air Infiltration Residential Load Calculator

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):	9.14				
Building Configuration					
Type:	Detached				
Number of Stories:	Two				
Foundation:	Full				
House Volume (m^3):	1349.4				
Air Leakage/Ventilation					
Air Tightness Type:	Present (1961-) (3.57 ACH)				
Custom BDT Data:	ELA @ 10 Pa.				1798.7 cm^2
	3.57				ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply				Total Exhaust
	37.5				37.5
Flue Size					
Flue #:	#1	#2	#3	#4	
Diameter (mm):	0	0	0	0	
Natural Infiltration Rates					
Heating Air Leakage Rate (ACH/H):	**0.407**				
Cooling Air Leakage Rate (ACH/H):	**0.137**				

TYPE: 4006 - THE LILAC ELEV C - WOB
LO# 96163

Michael O'Rourke BCIN# 19669



BASEMENT PLAN, EL. 'C'

WOB

CSA-F280-12

PACKAGE A1

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.

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client
GOLD PARK HOMES

Project Name
PINE VALLEY PH 2
VAUGHAN, ONTARIO

THE LILAC - WOB - ELEV C
4006 CNR 3316 sqft

HVAC DESIGNS LTD.
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Email: info@hvacdesigns.ca
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Specializing in Residential Mechanical Design Services

Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

HEAT LOSS 73577 BTU/H

UNIT DATA

MAKE	LENNOX	
MODEL	ML196UH090XE48C	
INPUT	88	MBTU/H
OUTPUT	85.6	MBTU/H
COOLING	4.0	TONS
FAN SPEED	1575	cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	15	5	5
1ST FLOOR	10	3	2
BASEMENT	6	1	0

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

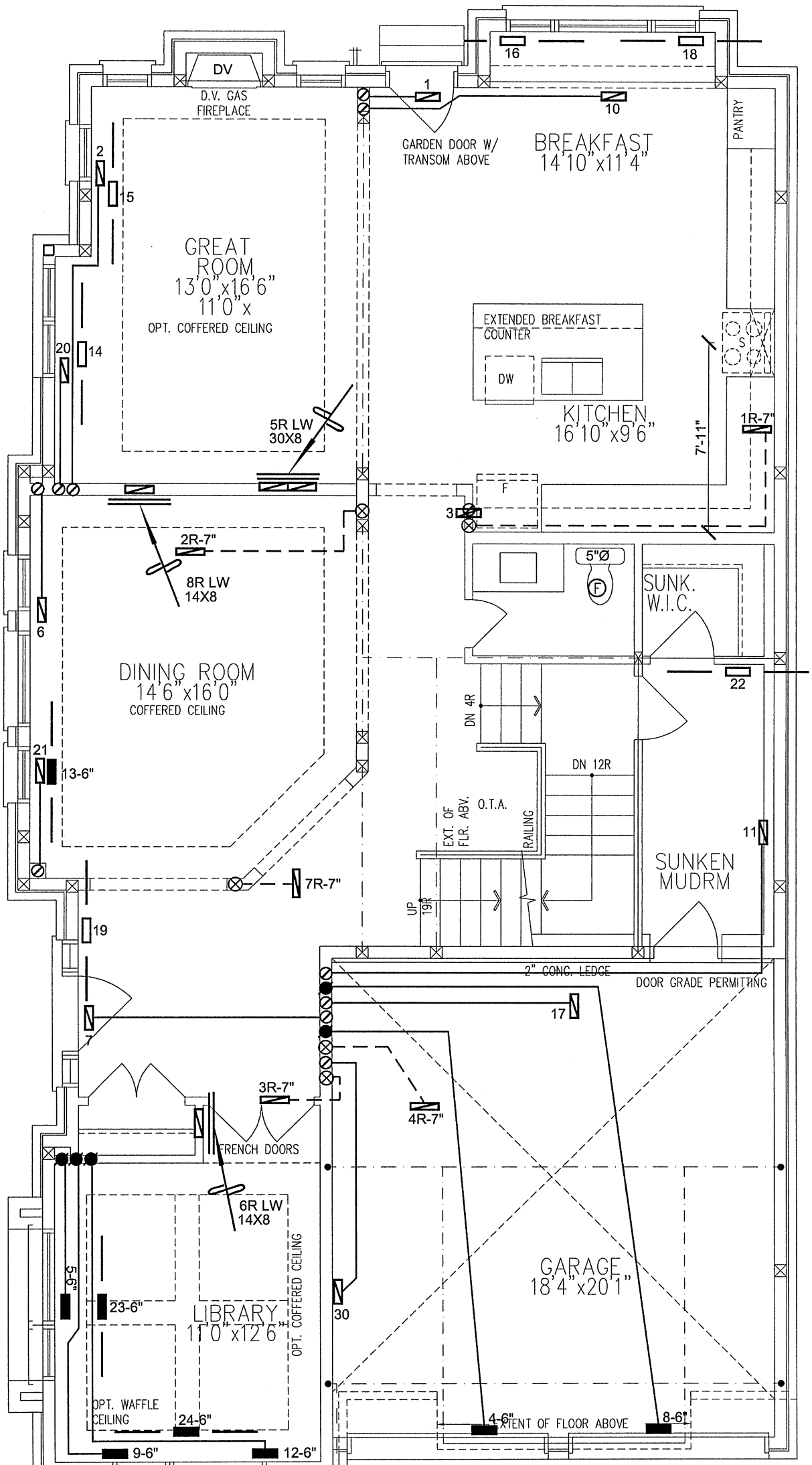
Sheet Title
BASEMENT HEATING LAYOUT

Date APR/2022

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 96164



GROUND FLOOR PLAN, EL. 'C'

WOB

CSA-F280-12

PACKAGE A1

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.

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HVAC DESIGNS LTD.

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
— ▭ —	SUPPLY AIR GRILLE	▬	6" SUPPLY AIR BOOT ABOVE	▭	14"x8" RETURN AIR GRILLE	▭	RETURN AIR STACK ABOVE
— ▬ —	SUPPLY AIR GRILLE 6" BOOT	⊘	SUPPLY AIR STACK FROM 2nd FLOOR	▭▭	30"x8" RETURN AIR GRILLE	⊠	RETURN AIR STACK 2nd FLOOR
▭	SUPPLY AIR BOOT ABOVE	●	6" SUPPLY AIR STACK 2nd FLOOR	▬	FRA- FLOOR RETURN AIR GRILLE	⧗	REDUCER

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client
GOLD PARK HOMES

Project Name
PINE VALLEY PH 2
VAUGHAN, ONTARIO

THE LILAC - WOB - ELEV C
4006 CNR 3316 sqft

HVAC DESIGNS LTD.
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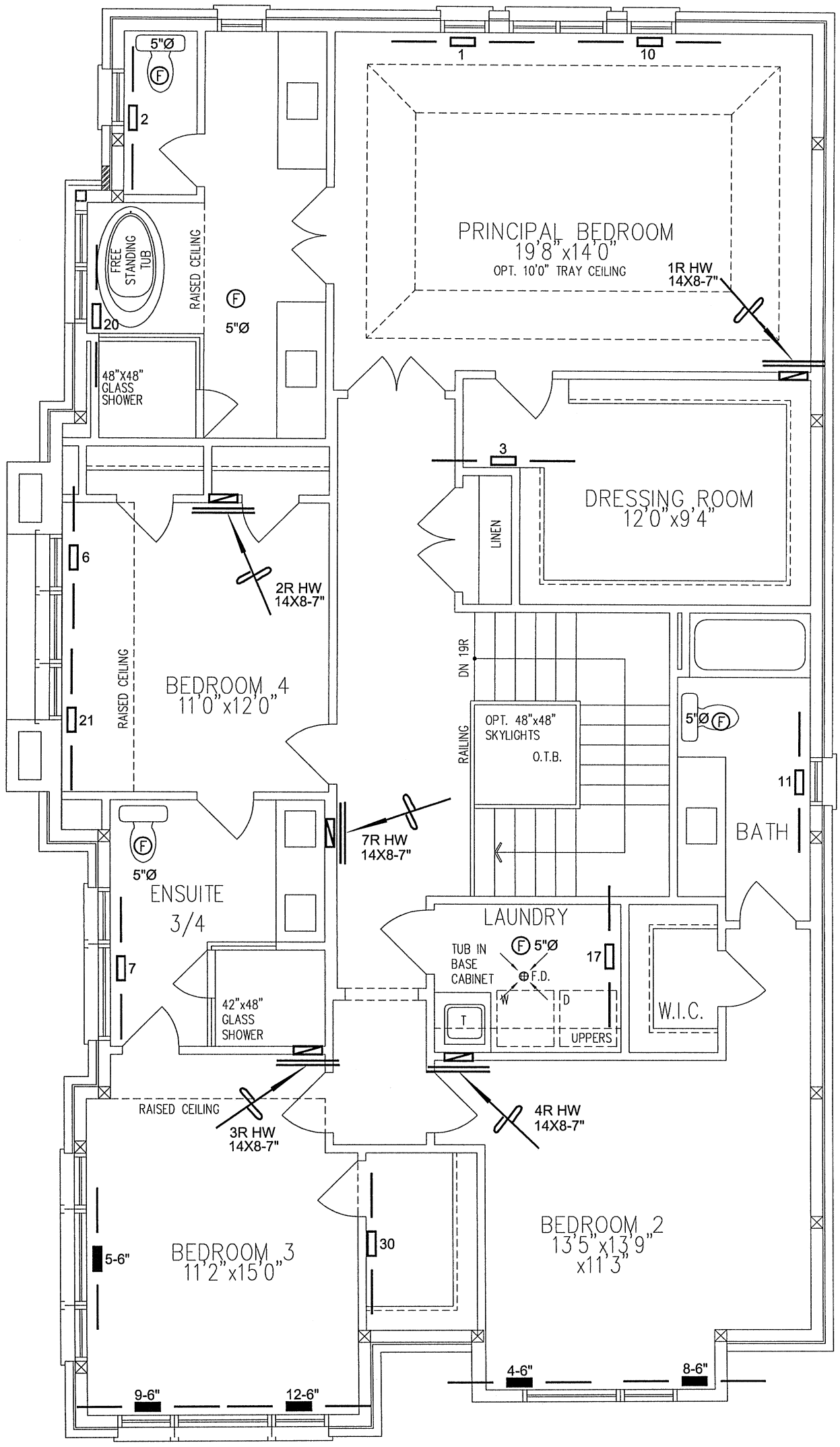
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title
FIRST FLOOR HEATING LAYOUT

Date APR/2022
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 96164



SECOND FLOOR PLAN, EL. 'C'

WOB

CSA-F280-12

PACKAGE A1

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HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
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— ▬ —	SUPPLY AIR GRILLE 6" BOOT	⊘	SUPPLY AIR STACK FROM 2nd FLOOR	▱	30"x8" RETURN AIR GRILLE	⊠	RETURN AIR STACK 2nd FLOOR
▱	SUPPLY AIR BOOT ABOVE	●	6" SUPPLY AIR STACK 2nd FLOOR	▬	FRA- FLOOR RETURN AIR GRILLE	⧗	REDUCER

No.	Description	Date
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REVISIONS

Client
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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date APR/2022
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 96164