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:** 3101 INT **Project:** PINE VALLEY DRIVE

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 29, 2021
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 DRIVE | INT | DATE: Apr-21 | WINTER NATURAL AIR CHANGE RATE 0.342 | HEAT LOSS ΔT °F. 76 | CSA-F280-12

BUILDER: GOLD PARK HOMES | TYPE: 3101 | GFA: 1832 | LO# 90614 | SUMMER NATURAL AIR CHANGE RATE 0.111 | HEAT GAIN ΔT °F. 13 | SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3				BATH			LAUN			WIC-3					
EXP. WALL			16			8			7			12			15				0			0			6					
CLG. HT.			9			9			9			9			9				9			9			9					
	FACTORS																													
GRS.WALL AREA	LOSS	GAIN	144			72			63			108			135				0			0			54					
GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN			
NORTH	21.3	14.9	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	38.4	0	0	0	0	0	0	0	0	0	28	596	1075	44	936	1689		0	0	0	0	0	0	9	192	345			
SOUTH	21.3	23.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0			
WEST	21.3	38.4	40	851	1536	16	340	614	9	192	345	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			
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			
NET EXPOSED WALL	4.5	0.8	104	464	78	56	250	42	54	241	41	80	357	60	91	406	68		0	0	0	0	0	0	45	201	34			
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			
EXPOSED CLG	1.3	0.6	256	329	150	224	287	132	112	144	66	156	200	92	156	200	92		136	175	80	104	133	61	30	39	18			
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0			
EXPOSED FLOOR	2.6	0.4	24	61	10	0	0	0	14	36	6	156	398	67	0	0	0		102	260	44	104	265	45	30	77	13			
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			0				0			0			0				
SLAB ON GRADE HEAT LOSS				0			0			0			0			0				0			0			0				
SUBTOTAL HT LOSS				1705			878			612			1551			1543				435			399			507				
SUB TOTAL HT GAIN					1774			788			458			1294			1849				124			106			410			
LEVEL FACTOR / MULTIPLIER			0.20	0.29		0.20	0.29		0.20	0.29		0.20	0.29		0.20	0.29			0.20	0.29		0.20	0.29		0.20	0.29				
AIR CHANGE HEAT LOSS				498			257			179			453			451				127			117			148				
AIR CHANGE HEAT GAIN					111			49			29			81			116				8			7			26			
DUCT LOSS				220			0			79			200			0				56			52			66				
DUCT GAIN					260			0			72			185			0				37			35			67			
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240		0		0	0		0	0		0			
HEAT GAIN APPLIANCES/LIGHTS					235			235			235			235			235				235			235			235			
TOTAL HT LOSS BTU/H				2424			1134			870			2205			1993				618			567			721				
TOTAL HT GAIN x 1.3 BTU/H					3718			1393			1031			2644			3171				524			496			958			

ROOM USE			GREAT			KIT			B-BTH			FOY			G-WIC					BAS		
EXP. WALL			14			38			8			31			6					79		
CLG. HT.			10			10			9			12			10					9		
	FACTORS																					
GRS.WALL AREA	LOSS	GAIN	140			380			48			372			60					474		
GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN				LOSS	GAIN
NORTH	21.3	14.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0
EAST	21.3	38.4	0	0	0	0	0	0	0	0	0	0	0	0	12	255	461			0	0	0
SOUTH	21.3	23.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0
WEST	21.3	38.4	60	1277	2303	61	1298	2342	4	85	154	0	0	0	0	0	0			4	85	154
SKYLT.	37.2	101.5	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	63	1591	268	0	0	0			20	505	85
NET EXPOSED WALL	4.5	0.8	80	357	60	319	1424	240	0	0	0	309	1379	232	48	214	36			0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	0	0	0	0	0	0	24	86	15	0	0	0	0	0	0			237	853	144
EXPOSED CLG	1.3	0.6	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	0	0	0	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	0	0	0	0	0	0			0	0	0
BASEMENT/CRAWL HEAT LOSS				0			0			261			0			0					2581	
SLAB ON GRADE HEAT LOSS				0			0			0			0			0						
SUBTOTAL HT LOSS				1634			2722			433			2970			470					4024	
SUB TOTAL HT GAIN					2363			2581			168			500			497					382
LEVEL FACTOR / MULTIPLIER			0.30	0.43		0.30	0.43		0.50	1.25		0.30	0.43		0.30	0.43				0.50	1.25	
AIR CHANGE HEAT LOSS				701			1168			541			1274			201					5032	
AIR CHANGE HEAT GAIN					148			161			11			31			31					24
DUCT LOSS				0			0			0			0			0					0	
DUCT GAIN					0			0			0			0			0					0
HEAT GAIN PEOPLE	240		0		0	0		0	0		0	0		0	0		0			0		0
HEAT GAIN APPLIANCES/LIGHTS					235			235			235			235			235					235
TOTAL HT LOSS BTU/H				2335			3889			974			4244			671					9056	
TOTAL HT GAIN x 1.3 BTU/H					3569			3871			537			996			991					833

TOTAL HEAT GAIN BTU/H: 24953 TONS: 2.08 LOSS DUE TO VENTILATION LOAD BTU/H: 1305 STRUCTURAL HEAT LOSS: 31701 TOTAL COMBINED HEAT LOSS BTU/H: 33006

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

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SITE NAME: PINE VALLEY DRIVE
BUILDER: GOLD PARK HOMES

INT
TYPE: 3101

DATE: Apr-21

GFA: 1832 LO# 90614

HEATING CFM	980	COOLING CFM	980	furnace pressure	0.6
TOTAL HEAT LOSS	31,701	TOTAL HEAT GAIN	24,734	furnace filter	0.05
AIR FLOW RATE CFM	30.91	AIR FLOW RATE CFM	39.62	a/c coil pressure	0.2
				available pressure for s/a & r/a	0.35

$LENNOX
ML196UH045XE36B 45

FAN SPEED	
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 = **980**
CFM @ .6 " E.S.P.
TEMPERATURE RISE 40 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	7	4
R/A	0	0	4	1	1

plenum 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

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	ENS	WIC	BED-2	BED-3	BED-3	BATH	LAUN	WIC-3	MBR	ENS	GREAT	GREAT	KIT	KIT	BATH	FOY	B-BTH	FOY	G-WIC	BAS	BAS	BAS
RM LOSS MBH.	1.21	0.57	0.87	2.20	1.00	1.00	0.31	0.57	0.72	1.21	0.57	1.17	1.17	1.94	1.94	0.31	2.12	0.97	2.12	0.67	3.02	3.02	3.02
CFM PER RUN HEAT	37	18	27	68	31	31	10	18	22	37	18	36	36	60	60	10	66	30	66	21	93	93	93
RM GAIN MBH.	1.86	0.70	1.03	2.64	1.59	1.59	0.26	0.50	0.96	1.86	0.70	1.78	1.78	1.94	1.94	0.26	0.50	0.54	0.50	0.99	0.28	0.28	0.28
CFM PER RUN COOLING	74	28	41	105	63	63	10	20	38	74	28	71	71	77	77	10	20	21	20	39	11	11	11
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	0.16
ACTUAL DUCT LGH.	30	41	48	58	53	50	40	42	49	41	30	13	17	22	32	37	29	12	36	43	20	33	36
EQUIVALENT LENGTH	190	190	130	150	120	150	150	120	150	120	220	140	90	140	160	150	160	100	150	110	180	150	130
TOTAL EFFECTIVE LENGTH	220	231	178	208	173	200	190	162	199	161	250	153	107	162	192	187	189	112	186	153	200	183	166
ADJUSTED PRESSURE	0.08	0.07	0.1	0.08	0.1	0.09	0.09	0.11	0.09	0.11	0.07	0.11	0.16	0.11	0.09	0.09	0.09	0.15	0.09	0.11	0.08	0.09	0.1
ROUND DUCT SIZE	5	4	4	**6**	5	5	4	4	4	5	4	5	5	5	5	4	5	4	5	4	**6**	**6**	**6**
HEATING VELOCITY (ft/min)	272	207	310	347	228	228	115	207	252	272	207	264	264	441	441	115	485	344	485	241	474	474	474
COOLING VELOCITY (ft/min)	543	321	470	535	463	463	115	229	436	543	321	521	521	565	565	115	147	241	147	447	56	56	56
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10
TRUNK	B	C	A	A	C	C	B	A	B	B	C	D	D	B	A	B	C	D	C	C	B	A	C

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	266	0.08	8.5	8	x	8	599	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	535	0.08	11.1	14	x	8	688	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	344	0.07	9.7	12	x	8	516	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	981	0.07	14.4	24	x	8	736	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	0	0.05	0	0	x	8	0
TRUNK X	980	0.05	15.7	28	x	8	630
TRUNK Y	405	0.05	11.2	14	x	8	521
TRUNK Z	0	0.05	0	0	x	8	0
DROP	980	0.05	15.7	24	x	10	588

RETURN AIR #	1	2	3	4	5											BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	85	150	75	95	400	0	0	0	0	0	0	0	0	0	0	175
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.	43	48	51	57	14	1	1	1	1	1	1	1	1	1	1	22
EQUIVALENT LENGTH	205	250	245	165	135	0	0	0	0	0	0	0	0	0	0	175
TOTAL EFFECTIVE LH	248	298	296	222	149	1	1	1	1	1	1	1	1	1	1	197
ADJUSTED PRESSURE	0.06	0.05	0.05	0.07	0.10	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.08
ROUND DUCT SIZE	6	7.8	6	6	9.4	0	0	0	0	0	0	0	0	0	0	7.3
INLET GRILL SIZE	8	8	8	8	8	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	14	24	14	14	30	0	0	0	0	0	0	0	0	0	0	14

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: 3101 LO # 90614
SITE NAME: PINE VALLEY DRIVE INT

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	2	@ 10.6 cfm	21.2	cfm
Kitchen & Bathrooms	5	@ 10.6 cfm	53	cfm
Other Rooms	4	@ 10.6 cfm	42.4	cfm
Table 9.32.3.A.		TOTAL	159.0	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	**63.6**	**cfm**

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	159	cfm
Less Principal Ventil. Capacity	63.6	cfm
Required Supplemental Capacity	95.4	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE V150H Location: BSMT

63.6 cfm [✓] HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		FACTOR		% LOSS
63.6 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
B-BTH	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-21

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.

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 90614 Model: 3101 Builder: GOLD PARK HOMES Date: 4/29/2021

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	714	9	6426
First	714	10	7140
Second	1159	9	10431
Third	0	9	0
Fourth	0	9	0
		Total:	23,997.0 ft³
		Total:	679.5 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.342
SUMMER NATURAL AIR CHANGE RATE	0.111

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

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

0.342 x 188.76 x 42 °C x 1.2 = 3267 W

= **11147 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

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

= 0.111 x 188.76 x 7 °C x 1.2 = 179 W

= **611 Btu/h**

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

64 CFM x 76 °F x 1.08 x 0.25 = **1305 Btu/h**

6.2.7 Sensible heat Gain due to Ventilation

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

64 CFM x 13 °F x 1.08 x 0.25 = **220 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	11,147	4,456	1.251
2	0.3		7,795	0.429
3	0.2		7,629	0.292
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

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 3101 INT **BUILDER:** GOLD PARK HOMES
SFQT: 1832 **LO#** 90614 **SITE:** PINE VALLEY DRIVE

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

BUILDING DATA

ATTACHMENT:	ATTACHED	# 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):	23997.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft^2):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 39.0 ft	WIDTH: 31.0 ft	EXPOSED PERIMETER:	87.0 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 Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

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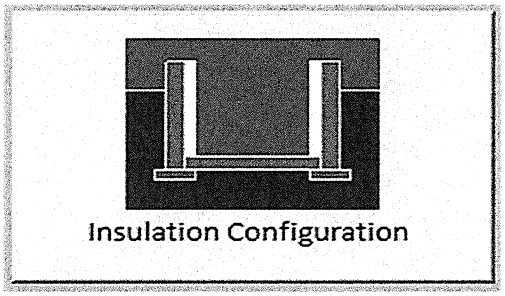
Residential Foundation Thermal Load Calculator

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):	**11.9**	
Floor Width (m):	**9.4**	
Exposed Perimeter (m):	**26.5**	
Wall Height (m):	**2.7**	
Depth Below Grade (m):	**1.83**	
Window Area (m^2):	**0.7**	
Door Area (m^2):	**1.9**	


Insulation Configuration

Radiant Slab		
Heated Fraction of the Slab:	**0**	
Fluid Temperature (°C):	**33**	
Design Months		
Heating Month	**1**	
Foundation Loads		
Heating Load (Watts):	**833**	

TYPE: 3101 INT
LO# 90614

HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
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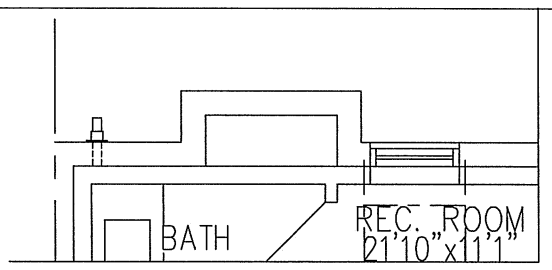
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

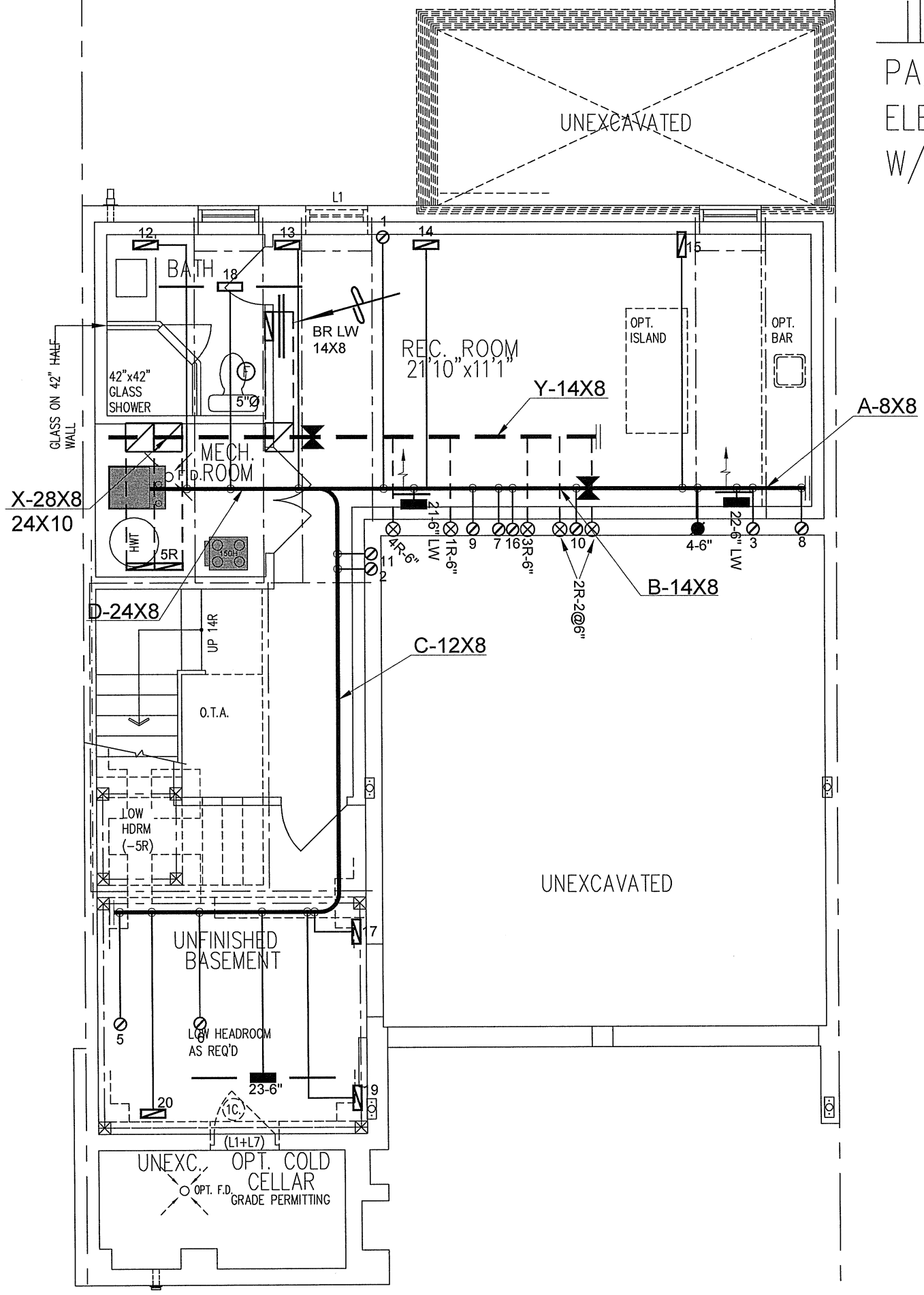
Weather Station Description	
Province:	Ontario
Region:	Vaughan (Woodbridge)
Weather Station Location:	Open flat terrain, grass
Anemometer height (m):	10
Local Shielding	
Building Site:	Suburban, forest
Walls:	Heavy
Flue:	Heavy
Highest Ceiling Height (m):	6.71
Building Configuration	
Type:	Semi
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	679.5
Air Leakage/Ventilation	
Air Tightness Type:	Present (1961-) (3.57 ACH)
Custom BDT Data:	ELA @ 10 Pa. 905.8 cm^2
	3.57 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply 30.0 / Total Exhaust 30.0
Flue Size	
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural Infiltration Rates	
Heating Air Leakage Rate (ACH/H):	**0.342**
Cooling Air Leakage Rate (ACH/H):	**0.111**

TYPE: 3101 INT

LO# 90614



PARTIAL OPT. BASEMENT PLAN, ELEV. 'A' & 'B' W/ GAS FIREPLACE ABOVE



BASEMENT PLAN, ELEV. 'A' & 'B'

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HVAC DESIGNS LTD.

CSA-F280-12

PACKAGE A1

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 DRIVE
VAUGHAN, ONTARIO

3101 - INT 1832 sqft

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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.

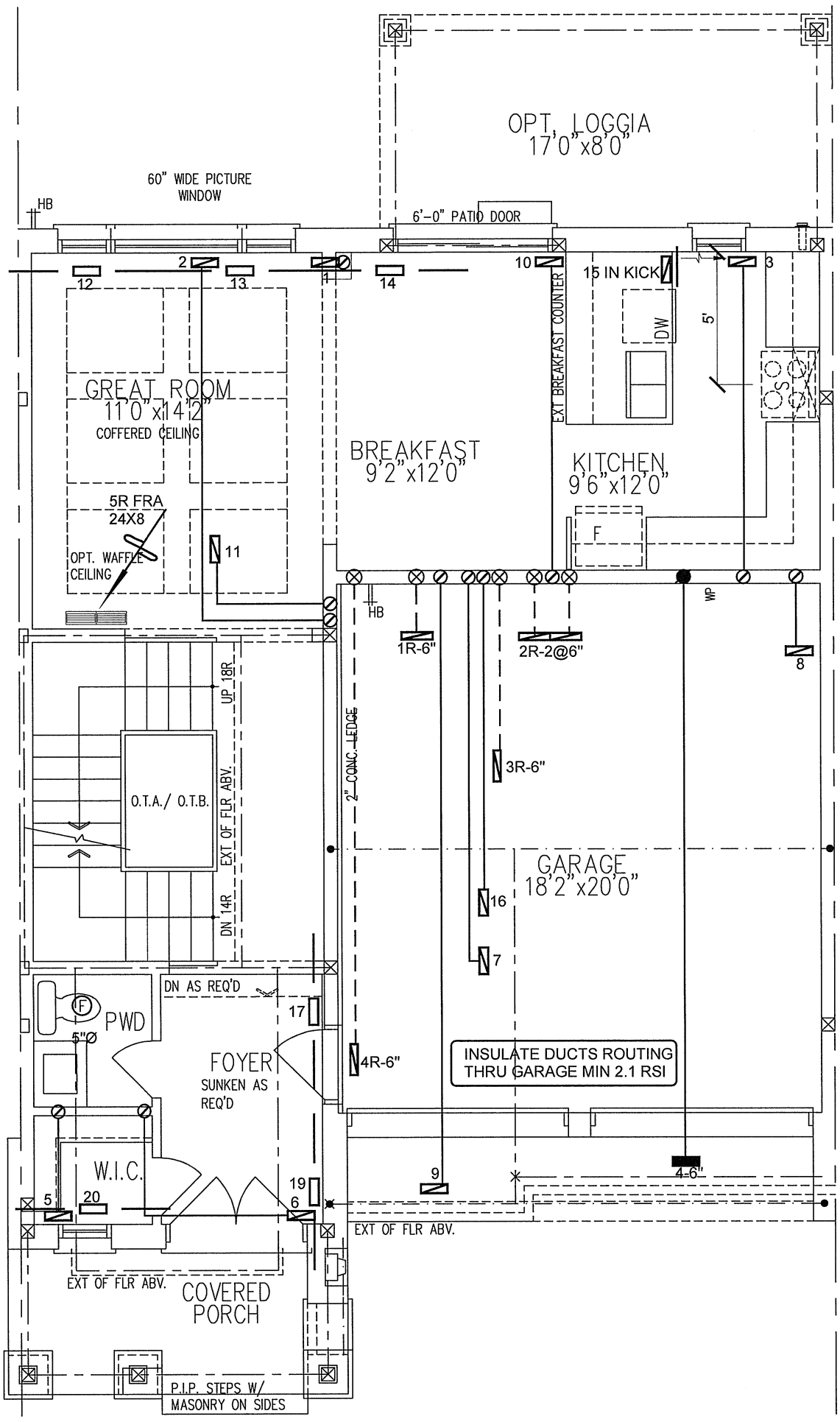
HEAT LOSS 33006 BTU/H	
UNIT DATA	
MAKE	LENNOX
MODEL	ML196UH045XE24B
INPUT	44 MBTU/H
OUTPUT	42.8 MBTU/H
COOLING	2.0 TONS
FAN SPEED	980 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	12	4	4
1ST FLOOR	7	1	2
BASEMENT	4	1	1

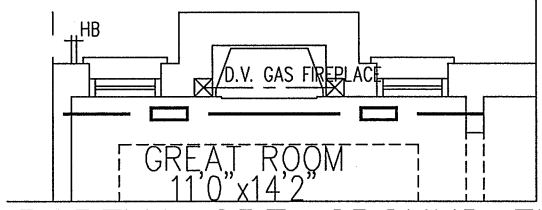
ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

Sheet Title
BASEMENT HEATING LAYOUT

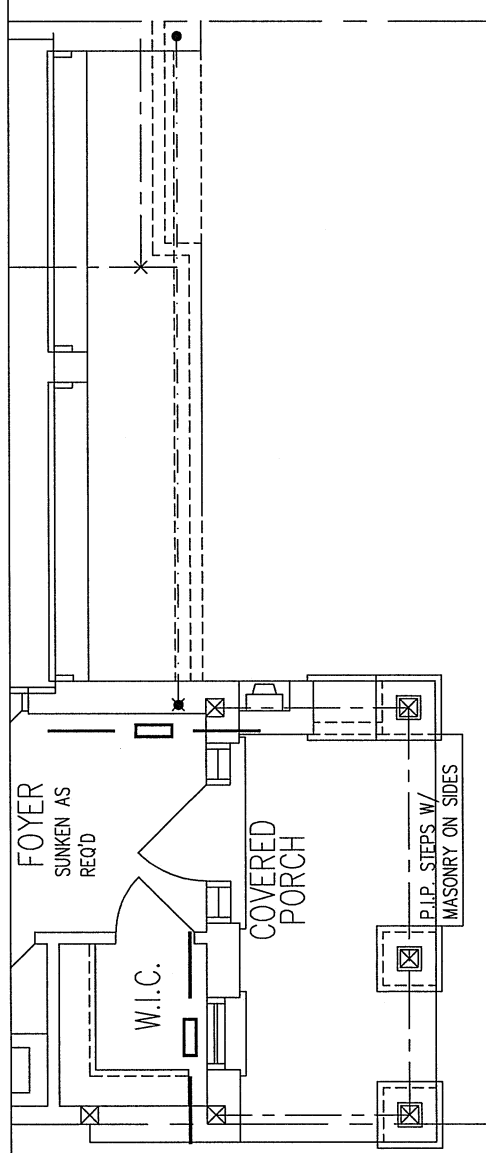
Date APR/2021
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 90614



GROUND FLOOR PLAN, ELEV. 'A'



PARTIAL OPT. GROUND FLOOR PLAN, ELEV. 'A' & 'B' W/ GAS FIREPLACE



PARTIAL GROUND FLOOR PLAN, ELEV. 'B'

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CSA-F280-12

PACKAGE A1

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.		
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REVISIONS

Client
GOLD PARK HOMES

Project Name
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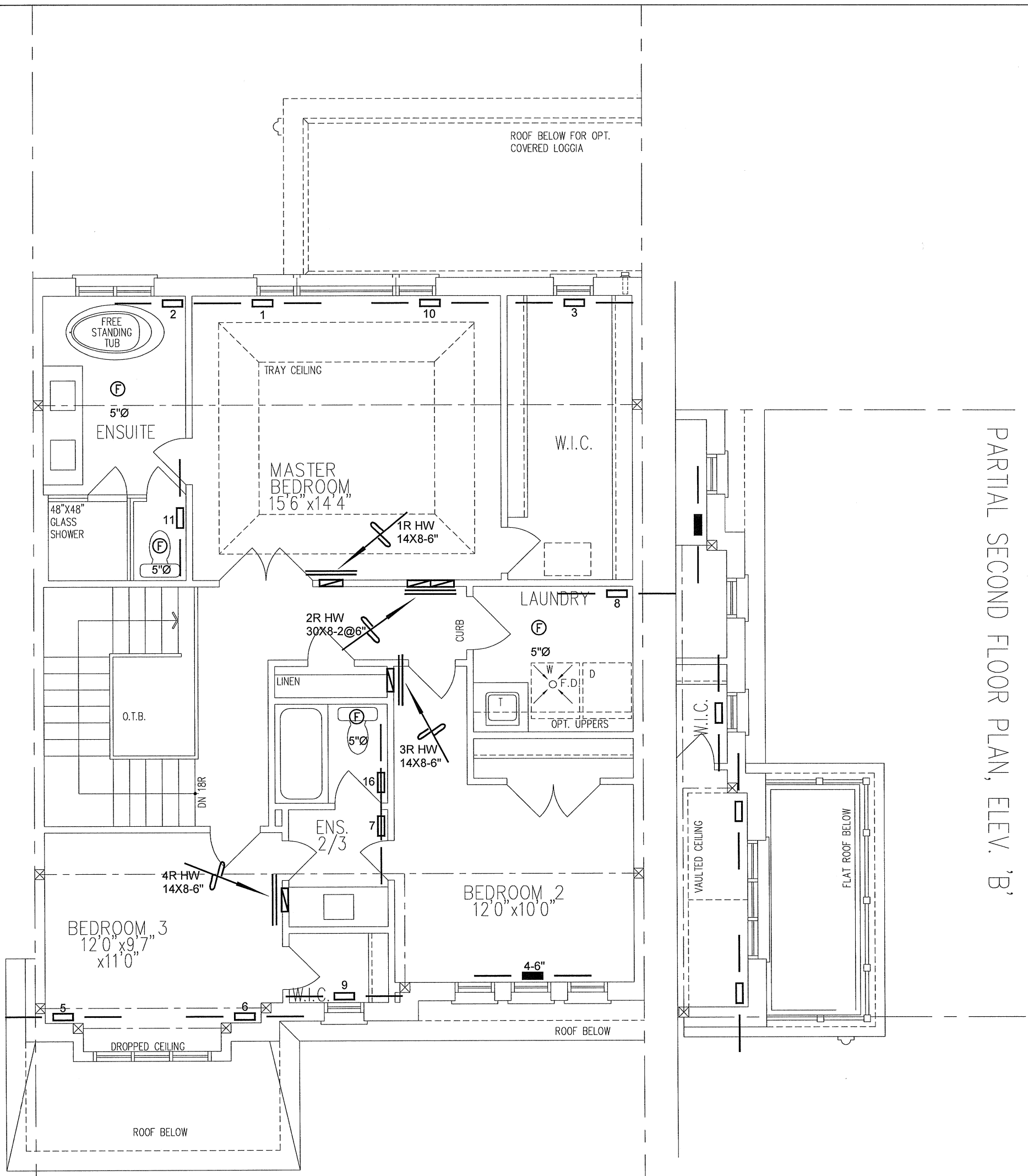
Sheet Title
FIRST FLOOR HEATING LAYOUT

Date APR/2021
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 90614



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CSA-F280-12

PACKAGE A1

HVAC LEGEND

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	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

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REVISIONS

Client

GOLD PARK HOMES

Project Name

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VAUGHAN, ONTARIO

3101 - INT 1832 sqft

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Sheet Title

SECOND FLOOR HEATING LAYOUT

Date APR/2021

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 90614