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:** 4005 THE EDGEBROOK **Project:** PINE VALLEY & TESTON

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.

January 23, 2018
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 & TESTON — DATE: Jan-18 — WINTER NATURAL AIR CHANGE RATE 0.351 — HEAT LOSS ΔT °F. 76 — CSA-F280-12
BUILDER: GOLD PARK HOMES — TYPE: 4005 THE EDGEBROOK — GFA: 3481 — LO# 77461 — SUMMER NATURAL AIR CHANGE RATE 0.128 — HEAT GAIN ΔT °F. 16 — SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			ENS-3/4			MEDIA			BATH		
EXP. WALL			37			28			8			13			13			13			8			32			6		
CLG. HT.			10			9			9			9			9			9			9			9			9		
	FACTORS																												
GRS.WALL AREA	LOSS	GAIN	374			255			73			118			118			118			73			291			55		
GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN
NORTH	21.3	16.8	0	0	0	0	0	0	0	0	0	19	404	319	0	0	0	0	0	0	0	0	0	16	340	269	0	0	0
EAST	21.3	42.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	1596	3179	0	0	0
SOUTH	21.3	25.7	0	0	0	16	340	412	0	0	0	0	0	0	19	404	489	19	404	489	8	170	206	0	0	0	0	0	0
WEST	21.3	42.4	34	724	1441	16	340	678	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SKYLT.	37.2	103.0	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	5.2	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	0.9	340	1516	315	223	994	207	73	325	68	99	443	92	99	443	92	99	443	92	65	289	60	200	893	186	55	244	51
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.7	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	375	481	239	192	246	123	88	113	56	208	267	133	208	267	133	208	267	133	128	164	82	295	379	188	84	108	54
NO ATTIC EXPOSED CLG	2.7	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	55	27	0	0	0
EXPOSED FLOOR	2.6	0.5	0	0	0	0	0	0	0	0	0	13	33	7	22	56	12	0	0	0	0	0	0	315	803	167	84	214	45
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				2721			1922			438			1148			1171			1114			624			4067			566	
SUB TOTAL HT GAIN					1996			1419			124			551			726			714			348			4017			149
LEVEL FACTOR / MULTIPLIER			0.20	0.36		0.20	0.36		0.20	0.36		0.20	0.36		0.20	0.36		0.20	0.36		0.20	0.36		0.20	0.36		0.20	0.36	
AIR CHANGE HEAT LOSS				974			688			157			411			419			399			223			1456			203	
AIR CHANGE HEAT GAIN					221			157			14			61			80			79			39			445			16
DUCT LOSS				0			0			0			156			159			0			0			552			77	
DUCT GAIN					0			0			0			163			182			0			0			524			94
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					776			0			0			776			776			776			0			776			776
TOTAL HT LOSS BTU/H				3695			2610			595			1714			1748			1513			847			6075			845	
TOTAL HT GAIN x 1.3 BTU/H					4515			2060			179			2328			2605			2352			502			7490			1346

ROOM USE			GRDN				K/M/G				LAUN			W/R			FOY							BAS		
EXP. WALL			31				76				23			8			61							198		
CLG. HT.			12				12				12			12			12							9		
	FACTORS																									
GRS.WALL AREA	LOSS	GAIN	372				912				276			96			732							1208		
GLAZING				LOSS	GAIN			LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN						LOSS	GAIN
NORTH	21.3	16.8	0	0	0		0	0	0		9	192	151	0	0	0	21	447	353					12	255	202
EAST	21.3	42.4	0	0	0		0	0	0		0	0	0	0	0	0	44	936	1865					0	0	0
SOUTH	21.3	25.7	46	979	1184		0	0	0		0	0	0	7	149	180	0	0	0					0	0	0
WEST	21.3	42.4	0	0	0		138	2937	5850		0	0	0	0	0	0	0	0	0					0	0	0
SKYLT.	37.2	103.0	0	0	0		0	0	0		0	0	0	0	0	0	0	0	0					0	0	0
DOORS	25.2	5.2	0	0	0		0	0	0		20	505	105	0	0	0	40	1010	210					20	505	105
NET EXPOSED WALL	4.5	0.9	326	1455	302		774	3454	718		247	1102	229	89	397	83	627	2798	582					0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.7	0	0	0		0	0	0		0	0	0	0	0	0	0	0	0					594	2138	444
EXPOSED CLG	1.3	0.6	0	0	0		0	0	0		0	0	0	0	0	0	172	221	110					0	0	0
NO ATTIC EXPOSED CLG	2.7	1.4	0	0	0		0	0	0		0	0	0	0	0	0	80	220	109					0	0	0
EXPOSED FLOOR	2.6	0.5	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						6784		
SLAB ON GRADE HEAT LOSS				0				0				0			0			0								
SUBTOTAL HT LOSS				2434				6391				1799			546			5632						9682		
SUB TOTAL HT GAIN					1486				6568				485			263			3229							751
LEVEL FACTOR / MULTIPLIER			0.30	0.44			0.30	0.44			0.30	0.44		0.30	0.44		0.30	0.44						0.50	1.27	
AIR CHANGE HEAT LOSS				1071				2812				792			240			2478							12323	
AIR CHANGE HEAT GAIN					165				728				54			29			358							83
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					776				776				776			0			0							776
TOTAL HT LOSS BTU/H				3505				9203				2590			786			8110						22004		
TOTAL HT GAIN x 1.3 BTU/H					3155				10494				1710			379			4663							2093

TOTAL HEAT GAIN BTU/H: 46521 — TONS: 3.88 — LOSS DUE TO VENTILATION LOAD BTU/H: 3181 — STRUCTURAL HEAT LOSS: 65841 — TOTAL COMBINED HEAT LOSS BTU/H: 69021

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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SITE NAME: PINE VALLEY & TESTON
BUILDER: GOLD PARK HOMES

TYPE: 4005 THE EDGEBROOK   DATE: Jan-18   GFA: 3481   LO# 77461

HEATING CFM	1525	COOLING CFM	1525
TOTAL HEAT LOSS	65,841	TOTAL HEAT GAIN	45,860
AIR FLOW RATE CFM	23.16	AIR FLOW RATE CFM	33.25

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
EL296UH090XE48C 90

FAN SPEED	
LOW	0
MEDLOW	0
MEDIUM	1105
MEDIUM HIGH	1255
HIGH	1525

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

DESIGN CFM = 1525
CFM @ .6 " E.S.P.

TEMPERATURE RISE 52 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	9	5
R/A	0	0	5	2	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	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-3/4	MEDIA	MEDIA	MBR	BATH	GRDN	K/M/G	K/M/G	K/M/G	LAUN	W/R	FOY	FOY	MEDIA	K/M/G	BAS	BAS
RM LOSS MBH.	1.85	2.61	0.59	1.71	1.75	1.51	0.85	2.02	2.02	1.85	0.85	3.50	2.30	2.30	2.30	2.59	0.79	4.06	4.06	2.02	2.30	4.40	4.40
CFM PER RUN HEAT	43	60	14	40	40	35	20	47	47	43	20	81	53	53	53	60	18	94	94	47	53	102	102
RM GAIN MBH.	2.26	2.05	0.18	2.33	2.61	2.35	0.50	2.50	2.50	2.26	1.35	3.16	2.62	2.62	2.62	1.71	0.38	2.33	2.33	2.50	2.62	0.42	0.42
CFM PER RUN COOLING	75	68	6	77	87	78	17	83	83	75	45	105	87	87	87	57	13	78	78	83	87	14	14
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.16	0.16	0.17	0.17	0.16	0.16	0.16	0.16	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	64	42	87	52	15	38	22	40	43	79	31	12	42	48	57	67	6	36	25	46	63	36	54
EQUIVALENT LENGTH	150	130	190	170	180	140	170	165	150	130	180	165	140	130	100	180	180	100	120	160	120	150	140
TOTAL EFFECTIVE LENGTH	214	172	277	222	195	178	192	205	193	209	211	177	182	178	157	247	186	136	145	206	183	186	194
ADJUSTED PRESSURE	0.08	0.1	0.06	0.08	0.08	0.1	0.09	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.1	0.07	0.09	0.12	0.11	0.08	0.09	0.09	0.08
ROUND DUCT SIZE	5	5	4	5	6	5	4	6	6	5	4	6	5	5	5	5	4	5	5	6	5	6	6
HEATING VELOCITY (ft/min)	316	441	161	294	204	257	229	240	240	316	229	413	389	389	389	441	207	690	690	240	389	520	520
COOLING VELOCITY (ft/min)	551	499	69	565	444	573	195	423	423	551	516	535	639	639	639	419	149	573	573	423	639	71	71
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	4X10
TRUNK	B	C	A	D	C	C	C	D	D	A	D	C	B	B	B	A	C	D	D	D	A	B	A

RUN #	25	26	27
ROOM NAME	BAS	BAS	BAS
RM LOSS MBH.	4.40	4.40	4.40
CFM PER RUN HEAT	102	102	102
RM GAIN MBH.	0.42	0.42	0.42
CFM PER RUN COOLING	14	14	14
ADJUSTED PRESSURE	0.16	0.16	0.16
ACTUAL DUCT LGH.	44	11	39
EQUIVALENT LENGTH	110	130	160
TOTAL EFFECTIVE LENGTH	154	141	199
ADJUSTED PRESSURE	0.11	0.11	0.08
ROUND DUCT SIZE	6	6	6
HEATING VELOCITY (ft/min)	520	520	520
COOLING VELOCITY (ft/min)	71	71	71
OUTLET GRILL SIZE	4X10	4X10	4X10
TRUNK	B	C	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	272	0.06	9.3	10	x	8	490	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	678	0.06	13	20	x	8	610	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	1034	0.06	15.3	28	x	8	665	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	491	0.08	10.7	14	x	8	631	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	0	0.00	0	0	x	8	0	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0

RETURN AIR #	1	2	3	4	5	6	7									BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	135	135	130	130	130	345	275	0	0	0	0	0	0	0	0	245
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.	79	59	46	35	36	41	45	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	230	225	190	145	185	185	225	0	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	309	284	236	180	221	226	270	1	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.05	0.05	0.06	0.08	0.07	0.07	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10
ROUND DUCT SIZE	7.5	7.5	7	6.5	6.8	9.7	9.7	0	0	0	0	0	0	0	0	7.8
INLET GRILL SIZE	8	8	8	8	8	8	8	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	14	14	14	14	30	30	0	0	0	0	0	0	0	0	24

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	1265	0.05	17.2	28	x	10	651
TRUNK Y	545	0.05	12.6	18	x	8	545
TRUNK Z	890	0.05	15.1	26	x	8	616
DROP	1525	0.05	18.5	24	x	14	654

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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TYPE: 4005 THE EDGEBROOK LO # 77461
SITE NAME: PINE VALLEY & TESTON

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	4	@ 10.6 cfm	42.4	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	79.5	cfm

SUPPLEMENTAL VENTILATION CAPACITY — 9.32.3.5.

Total Ventilation Capacity	159	cfm
Less Principal Ventil. Capacity	155	cfm
Required Supplemental Capacity	4.0	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE 65H Location: BSMT

155.0 cfm 3.0 sones [✓] HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

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

SUPPLEMENTAL FANS

Location	Model	NUTONE cfm	HVI	Sones
ENS	QTXEN050C	50	✓	0.3
ENS-3/4	QTXEN050C	50	✓	0.3
BATH	QTXEN050C	50	✓	0.3
W/R	QTXEN050C	50	✓	0.3

HEAT RECOVERY VENTILATOR — 9.32.3.11.

Model: VANEE 65H

155 cfm high 64 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: January-18

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
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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 77461 Model: 4005 THE EDGEBROOK Builder: GOLD PARK HOMES Date: 1/23/2018

Volume Calculation

House Volume

Level	Floor Area (ft^2)	Floor Height (ft)	Volume (ft^3)
Bsmt	1573	9	14314.3
First	1573	12	18876
Second	2026	9	18436.6
Third	0	9	0
Fourth	0	9	0
		Total:	51,626.9 ft^3
		Total:	1461.9 m^3

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.351
SUMMER NATURAL AIR CHANGE RATE	0.128

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-20	42	76
Summer DTDc	22	31	9	16

5.2.3.1 Heat Loss due to Air Leakage

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

0.351 x 406.09 x 42 °C x 1.2 = 7223 W

= **24645 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

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

= 0.128 x 406.09 x 9 °C x 1.2 = 548 W

= **1869 Btu/h**

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

155 CFM x 76 °F x 1.08 x 0.25 = **3181 Btu/h**

6.2.7 Sensible heat Gain due to Ventilation

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

155 CFM x 16 °F x 1.08 x 0.25 = **661 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	24,645	9,682	1.273
2	0.3		16,801	0.440
3	0.2		13,769	0.358
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: 4005 THE EDGEBROOK **BUILDER:** GOLD PARK HOMES
SFQT: 3481 **LO#** 77461 **SITE:** PINE VALLEY & TESTON

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-4	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	72

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):	51626.9	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.1 ft
LENGTH: 67.0 ft	WIDTH: 32.0 ft	EXPOSED PERIMETER:	198.0 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	-

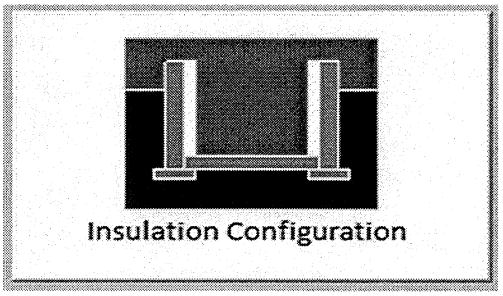
INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

Michael O'Rourke

HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
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):	**20.4**	 Insulation Configuration
Floor Width (m):	**9.8**	
Exposed Perimeter (m):	**0.0**	
Wall Height (m):	**2.8**	
Depth Below Grade (m):	**1.86**	
Window Area (m^2):	**1.1**	
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):		**1988**

TYPE: 4005 THE EDGEBROOK
LO# 77461

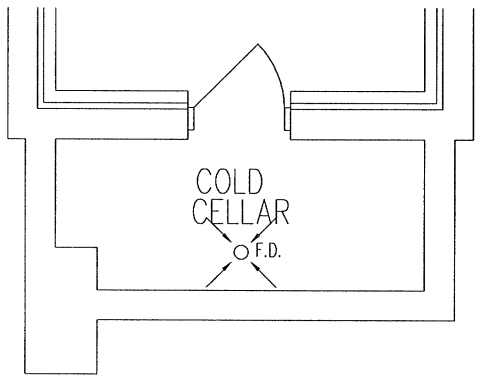
HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

Air Infiltration Residential Load Calculator

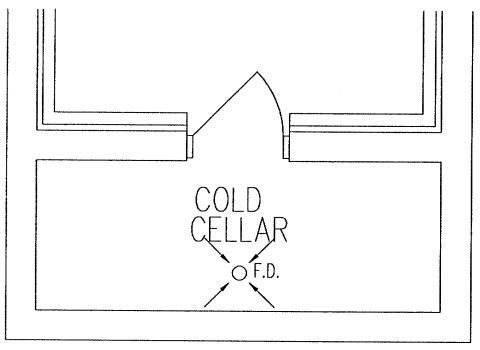
Supplemental tool for CAN/CSA-F280

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):	7.35				
Building Configuration					
Type:	Detached				
Number of Stories:	Two				
Foundation:	Full				
House Volume (m^3):	1461.9				
Air Leakage/Ventilation					
Air Tightness Type:	Present (1961-) (3.57 ACH)				
Custom BDT Data:	ELA @ 10 Pa.				1948.8 cm^2
	3.57				ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply			Total Exhaust	
	73.2			73.2	
Flue Size					
Flue #:	#1	#2	#3	#4	
Diameter (mm):	0	0	0	0	
Natural Infiltration Rates					
Heating Air Leakage Rate (ACH/H):	**0.351**				
Cooling Air Leakage Rate (ACH/H):	**0.128**				

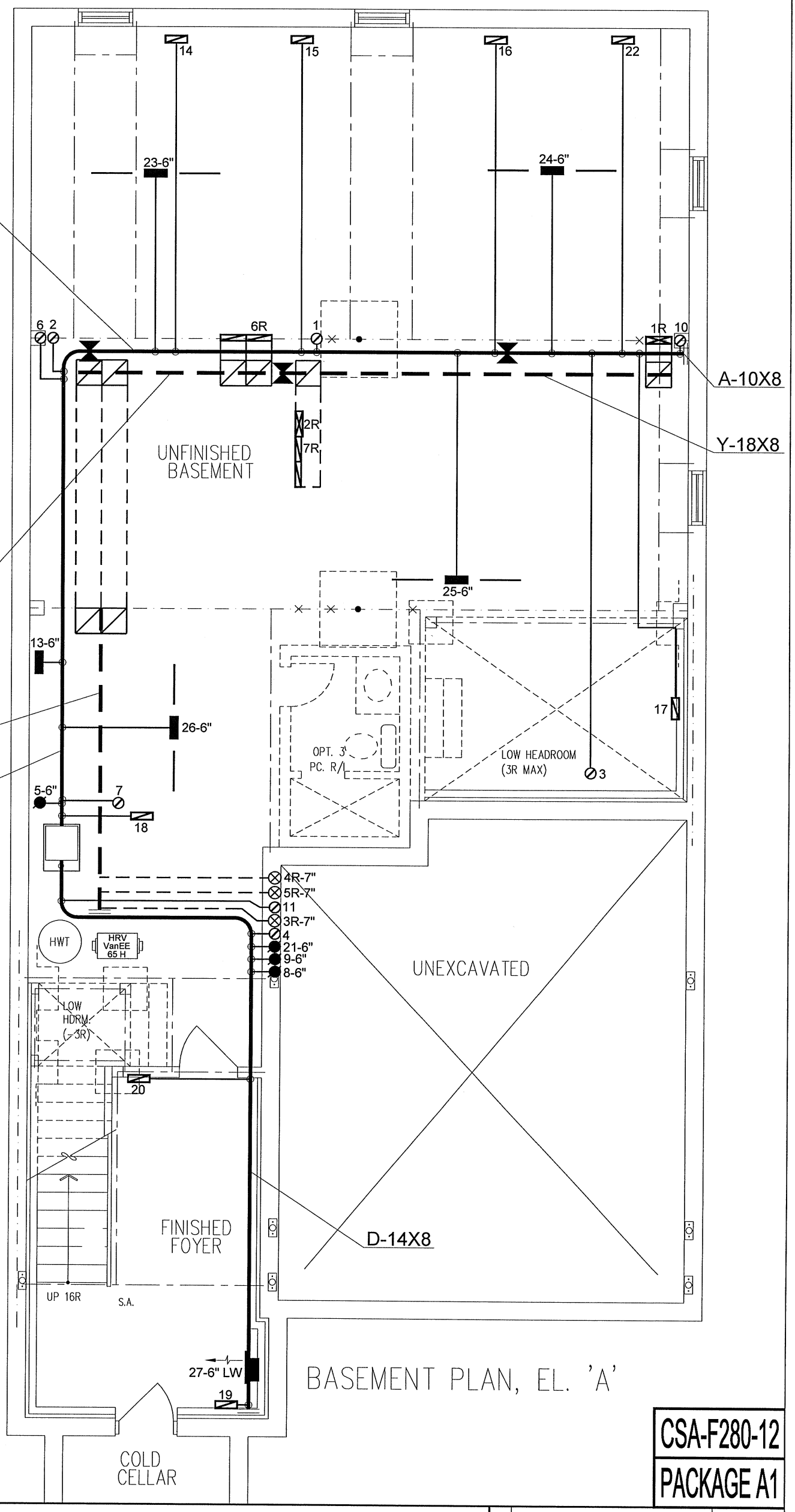
TYPE: 4005 THE EDGEBROOK
LO# 77461



BASEMENT PLAN, EL. 'C'



BASEMENT PLAN, EL. 'B'



BASEMENT PLAN, EL. 'A'

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.

CSA-F280-12

PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
— ▭ —	FLOOR SUPPLY AIR GRILLE	▬	6" SUPPLY AIR BOOT ABOVE	▱	14"x8" RETURN AIR GRILLE	▱	RETURN AIR STACK ABOVE
— ▬ —	FLOOR 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 & TESTON
VAUGHAN, ONTARIO

THE EDGEBROOK
4005 3481 sqft

HVAC DESIGNS LTD.
375 Finley Ave - Suite 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

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 69021 BTU/H	
UNIT DATA	
MAKE	LENNOX
MODEL	EL296UH090XE48C
INPUT	88 MBTU/H
OUTPUT	85 MBTU/H
COOLING	4.0 TONS
FAN SPEED	1525 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	12	5	3
1ST FLOOR	9	2	2
BASEMENT	5	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

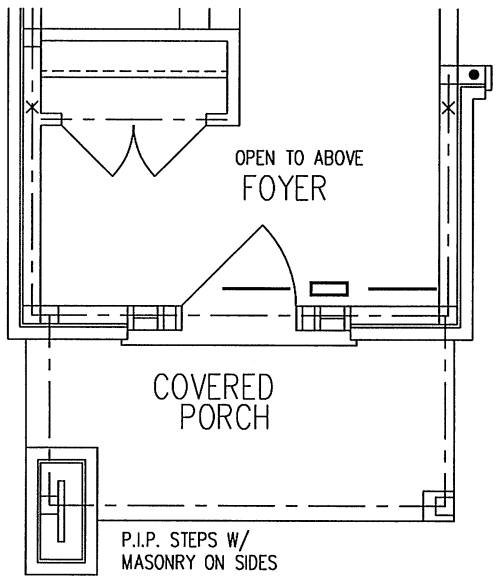
BASEMENT HEATING LAYOUT

Date JAN/2018

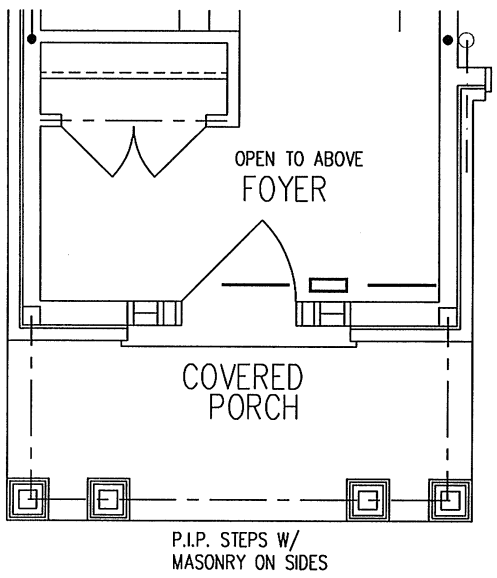
Scale 3/16" = 1'-0"

BCIN# 19669

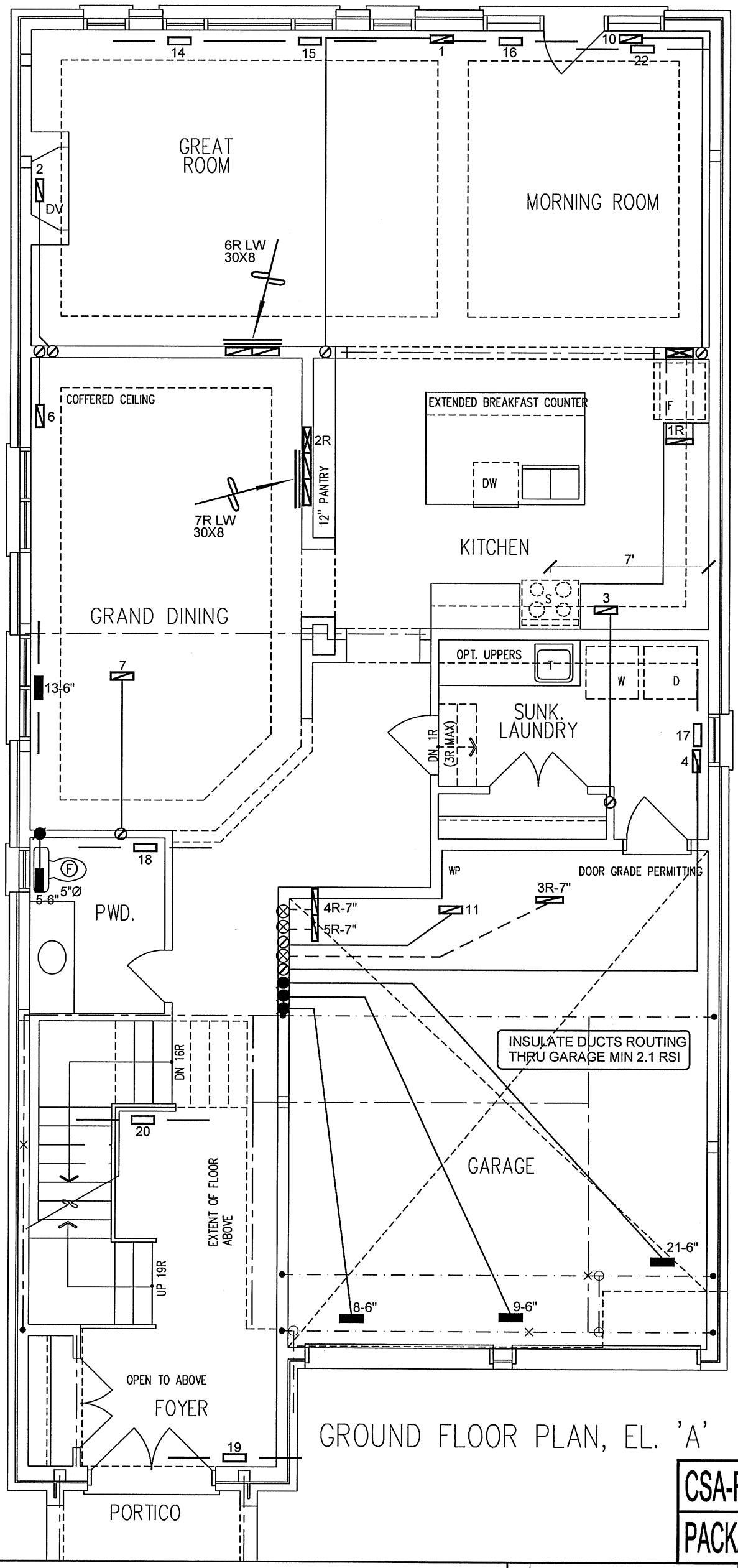
LO# 77461



GROUND FLOOR PLAN, EL. 'C'



GROUND FLOOR PLAN, EL. 'B'



GROUND FLOOR PLAN, EL. 'A'

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HVAC DESIGNS LTD.

CSA-F280-12

PACKAGE A1

HVAC LEGEND

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REVISIONS

Client

GOLD PARK HOMES

Project Name

PINE VALLEY & TESTON
VAUGHAN, ONTARIO

THE EDGEBROOK
4005 3481 sqft

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Sheet Title

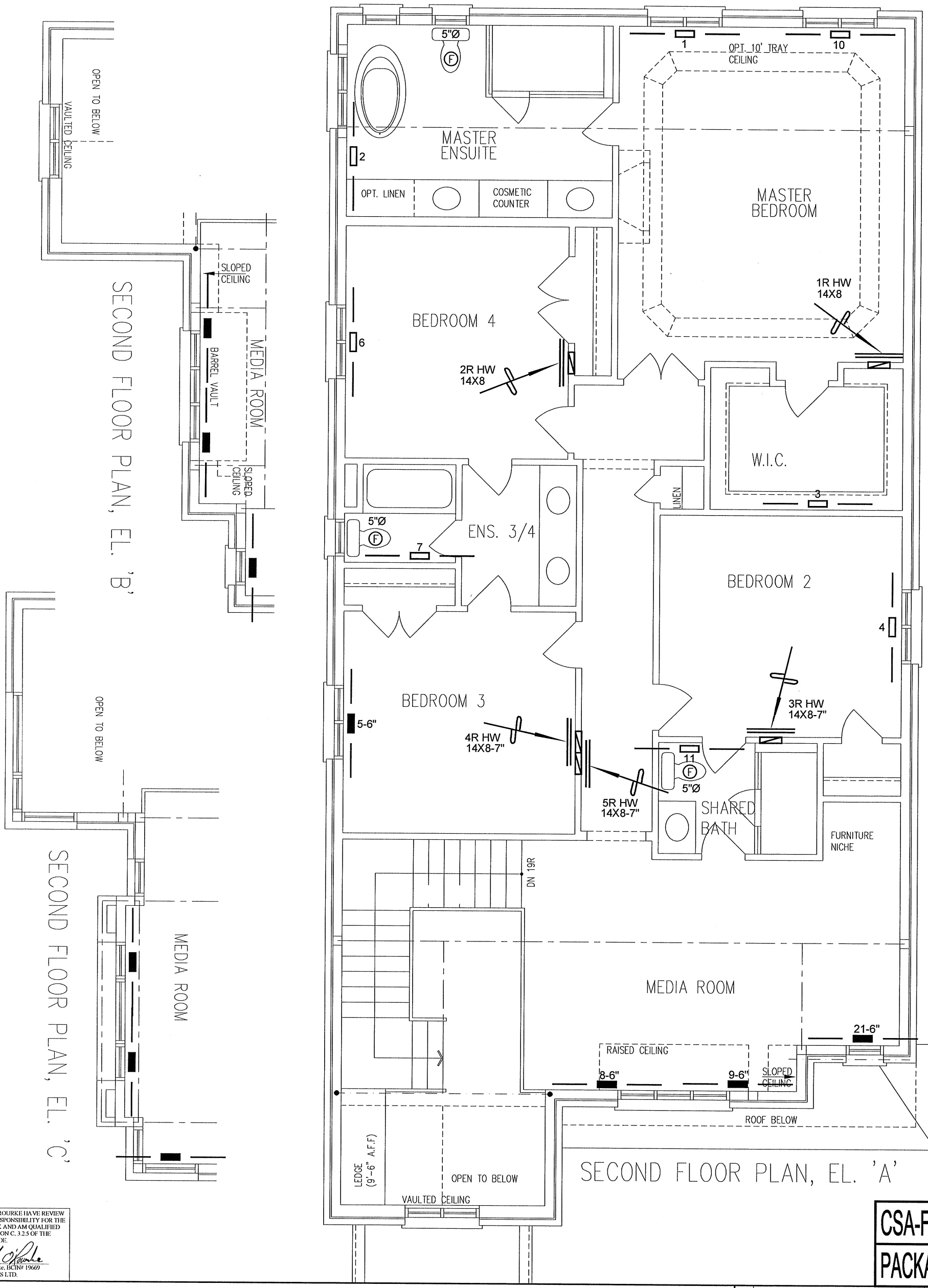
FIRST FLOOR
HEATING
LAYOUT

Date JAN/2018

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 77461



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CSA-F280-12

PACKAGE A1

HVAC LEGEND

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REVISIONS

Client
GOLD PARK HOMES

Project Name
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VAUGHAN, ONTARIO

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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date JAN/2018
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 77461