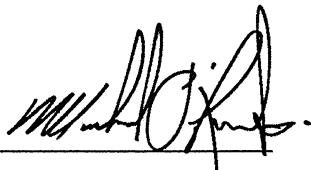


Schedule 1: Designer Information

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	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]															
<table style="width: 100%; border: none;"> <tr> <td>☐ House</td> <td>☒ HVAC – House</td> <td>☐ Building Structural</td> </tr> <tr> <td>☐ Small Buildings</td> <td>☐ Building Services</td> <td>☐ Plumbing – House</td> </tr> <tr> <td>☐ Large Buildings</td> <td>☐ Detection, Lighting and Power</td> <td>☐ Plumbing – All Buildings</td> </tr> <tr> <td>☐ Complex Buildings</td> <td>☐ Fire Protection</td> <td>☐ On-site Sewage Systems</td> </tr> </table>				☐ 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
☐ 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: 38-2 Project: KLEINBURG GLEN													
D. Declaration of Designer															
I <u>MICHAEL O'ROURKE</u> 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 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.															
<u>March 7, 2017</u> 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.

SITE NAME: KLEINBURG GLEN
BUILDING: GOLD PARK HOMES

TYPE: 38-2

DATE: Mar-17
LO# 72986

GFA: 2445

WINTER NATURAL AIR CHANGE RATE 0.330
SUMMER NATURAL AIR CHANGE RATE 0.121

HEAT LOSS AT °F. 76
HEAT GAIN AT °F. 16

CSA-F280-12
SB-12 PACKAGE A1

ROOM USE	EXP. WALL CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	LAUN	ENS-2
GRS.WALL AREA	279	31	25	63	153	324	171	153	63	45
GLAZING										
NORTH	21.3 16.9	0	0	0	0	0	0	0	0	0
EAST	21.3 42.4	32 681 1358	21 447 891	0	0	0	0	0	7 149 118	0
SOUTH	21.3 25.8	0	0	0	0	0	0	0	0	0
WEST	21.3 42.4	0	0	0	24 511 619	8 170 206	0	0	0	7 149 181
SKYLT.	21.3 87.5	0	0	0	0	21 447 891	18 383 764	30 638 1273	0	0
DOORS	25.2 5.3	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5 0.9	247 1102 232	204 910 192	63 281 59	129 576 121	295 1317 277	153 663 144	123 549 116	56 250 53	38 170 36
NET EXPOSED BSMT WALL ABOVE GR	3.6 0.8	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3 0.6	240 308 154	154 198 99	112 144 72	221 284 142	176 226 113	209 268 134	91 117 58	77 99 49	70 90 45
NO ATTIC EXPOSED CLG	2.7 1.4	0	0	0	0	40 110 55	0	0	0	0
EXPOSED FLOOR	2.6 0.5	0	0	0	0	0	209 533 112	91 232 49	36 92 19	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		2091	1555	425	1370	2269	1867	1536	590	408
SUB TOTAL HT GAIN		1744	1182	131	882	1543	1154	1496	239	261
LEVEL FACTOR / MULTIPLIER	0.20	0.24	0.20	0.24	0.20	0.24	0.20	0.24	0.20	0.24
AIR CHANGE HEAT LOSS		506	376	103	332	549	452	372	143	99
AIR CHANGE HEAT GAIN		118	80	9	60	105	78	102	16	18
DUCT LOSS		0	0	0	0	0	232	191	73	0
DUCT GAIN		0	0	0	0	0	235	160	113	0
HEAT GAIN PEOPLE	240	2	480	0	1	240	1	0	0	0
HEAT GAIN APPLIANCES/LIGHTS		878	0	0	878	878	878	0	878	0
TOTAL HT LOSS BTU/H		2597	1931	528	1702	2819	2551	2099	805	507
TOTAL HT GAIN x 1.3 BTU/H		4187	1641	182	2678	3595	3361	2285	1622	363

ROOM USE	EXP. WALL CLG. HT.	DIN.	KT/GT	FOY	PWDR	BAS
GRS.WALL AREA	200	200	710	350	170	984
GLAZING						
NORTH	21.3 16.9	0	0	0	0	0
EAST	21.3 42.4	0	111 2362 4712	0	0	3 64 51
SOUTH	21.3 25.8	30 638 774	0	0	0	6 128 255
WEST	21.3 42.4	0	0	0	8 170 206	3 64 77
SKYLT.	21.3 87.5	0	0	0	0	0
DOORS	25.2 5.3	20 505 106	0	0	0	0
NET EXPOSED WALL	4.5 0.9	150 669 141	599 2673 563	42 1060 223	162 723 152	20 505 106
NET EXPOSED BSMT WALL ABOVE GR	3.6 0.8	0	0	0	0	0
EXPOSED CLG	1.3 0.6	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7 1.4	0	0	0	0	0
EXPOSED FLOOR	2.6 0.5	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS		0	0	0	0	0
SLAB ON GRADE HEAT LOSS		0	0	0	0	0
SUBTOTAL HT LOSS		1813	5035	2435	893	8006
SUB TOTAL HT GAIN		1021	5274	513	359	862
LEVEL FACTOR / MULTIPLIER	0.30	0.43	0.30	0.30	0.43	0.50
AIR CHANGE HEAT LOSS		783	2176	1052	386	7328
AIR CHANGE HEAT GAIN		69	358	35	24	58
DUCT LOSS		0	0	0	0	0
DUCT GAIN		0	0	0	0	0
HEAT GAIN PEOPLE	240	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS		878	878	0	0	0
TOTAL HT LOSS BTU/H		2596	7211	3487	1279	15334
TOTAL HT GAIN x 1.3 BTU/H		2559	8464	712	498	11196

SITE NAME: KLEINBURG GLEN
BUILDER: GOLD PARK HOMES

TYPE: 38-2 DATE: Mar-17 GFA: 2445 LO# 72986

HEATING CFM	1100	COOLING CFM	1100
TOTAL HEAT LOSS	45,446	TOTAL HEAT GAIN	33,343
AIR FLOW RATE CFM	24.2	AIR FLOW RATE CFM	32.99

EL296UH070XE36B
FAN SPEED
LOW 0
MEDIUM 995
HIGH 1100

^LENNOX 70

AFUE = 96 %
INPUT (BTU/H) = 66,000
OUTPUT (BTU/H) = 64,000

4th	3rd	2nd	1st	Bas
0	0	10	6	4
0	0	4	2	1

All S/A diffusers 4"x10" unless noted otherwise on layout.

All S/A runs 5'Ø unless noted otherwise on layout.

ROOM #	1	2	3	4	5	6	7	8	10	11	13	14	15	16	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	LAUN	MBR	ENS-2	DIN.	KT/GT	KT/GT	KT/GT	FOY	PWDR	BAS	BAS	BAS	BAS
RM LOSS MBH	1.30	1.93	0.53	1.70	2.82	2.55	2.10	0.81	1.30	0.51	2.60	2.40	2.40	2.40	3.49	1.28	3.83	3.83	3.83	3.83
CFM PER RUN HEAT	31	47	13	41	68	62	51	19	31	12	63	58	58	58	84	31	93	93	93	93
RM GAIN MBH	2.09	1.64	0.18	2.68	3.60	3.36	2.28	1.62	2.09	0.36	2.56	2.82	2.82	2.82	0.71	0.50	0.30	0.30	0.30	0.30
CFM PER RUN COOLING	69	54	6	88	119	111	75	53	69	12	84	93	93	93	23	16	10	10	10	10
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.15	0.15	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	43	48	27	50	63	30	41	17	37	42	29	21	23	39	46	45	30	17	19	44
EQUIVALENT LENGTH	140	170	150	130	120	140	130	120	120	130	130	150	100	100	100	120	130	110	100	110
TOTAL EFFECTIVE LENGTH	183	218	177	180	183	170	171	137	157	172	159	171	123	159	146	165	160	127	119	154
ADJUSTED PRESSURE	0.09	0.08	0.1	0.09	0.08	0.09	0.1	0.13	0.11	0.1	0.1	0.09	0.13	0.1	0.11	0.1	0.1	0.13	0.14	0.11
ROUND DUCT SIZE	5	5	4	5	6	6	5	4	5	4	5	6	5	5	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	228	345	149	301	316	374	218	608	228	138	463	296	426	426	617	356	683	683	683	683
COOLING VELOCITY (ft/min)	507	396	69	646	607	566	551	608	507	138	617	474	683	683	169	184	73	73	73	73
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10

ROOM #	1	2	3	4	5	6	7	8	10	11	13	14	15	16	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	LAUN	MBR	ENS-2	DIN.	KT/GT	KT/GT	KT/GT	FOY	PWDR	BAS	BAS	BAS	BAS
RM LOSS MBH	1.30	1.93	0.53	1.70	2.82	2.55	2.10	0.81	1.30	0.51	2.60	2.40	2.40	2.40	3.49	1.28	3.83	3.83	3.83	3.83
CFM PER RUN HEAT	31	47	13	41	68	62	51	19	31	12	63	58	58	58	84	31	93	93	93	93
RM GAIN MBH	2.09	1.64	0.18	2.68	3.60	3.36	2.28	1.62	2.09	0.36	2.56	2.82	2.82	2.82	0.71	0.50	0.30	0.30	0.30	0.30
CFM PER RUN COOLING	69	54	6	88	119	111	75	53	69	12	84	93	93	93	23	16	10	10	10	10
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.15	0.15	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	43	48	27	50	63	30	41	17	37	42	29	21	23	39	46	45	30	17	19	44
EQUIVALENT LENGTH	140	170	150	130	120	140	130	120	120	130	130	150	100	100	100	120	130	110	100	110
TOTAL EFFECTIVE LENGTH	183	218	177	180	183	170	171	137	157	172	159	171	123	159	146	165	160	127	119	154
ADJUSTED PRESSURE	0.09	0.08	0.1	0.09	0.08	0.09	0.1	0.13	0.11	0.1	0.1	0.09	0.13	0.1	0.11	0.1	0.1	0.13	0.14	0.11
ROUND DUCT SIZE	5	5	4	5	6	6	5	4	5	4	5	6	5	5	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	228	345	149	301	316	374	218	608	228	138	463	296	426	426	617	356	683	683	683	683
COOLING VELOCITY (ft/min)	507	396	69	646	607	566	551	608	507	138	617	474	683	683	169	184	73	73	73	73
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10

ROOM #	1	2	3	4	5	6	7	8	10	11	13	14	15	16	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	LAUN	MBR	ENS-2	DIN.	KT/GT	KT/GT	KT/GT	FOY	PWDR	BAS	BAS	BAS	BAS
RM LOSS MBH	1.30	1.93	0.53	1.70	2.82	2.55	2.10	0.81	1.30	0.51	2.60	2.40	2.40	2.40	3.49	1.28	3.83	3.83	3.83	3.83
CFM PER RUN HEAT	31	47	13	41	68	62	51	19	31	12	63	58	58	58	84	31	93	93	93	93
RM GAIN MBH	2.09	1.64	0.18	2.68	3.60	3.36	2.28	1.62	2.09	0.36	2.56	2.82	2.82	2.82	0.71	0.50	0.30	0.30	0.30	0.30
CFM PER RUN COOLING	69	54	6	88	119	111	75	53	69	12	84	93	93	93	23	16	10	10	10	10
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.15	0.15	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	43	48	27	50	63	30	41	17	37	42	29	21	23	39	46	45	30	17	19	44
EQUIVALENT LENGTH	140	170	150	130	120	140	130	120	120	130	130	150	100	100	100	120	130	110	100	110
TOTAL EFFECTIVE LENGTH	183	218	177	180	183	170	171	137	157	172	159	171	123	159	146	165	160	127	119	154
ADJUSTED PRESSURE	0.09	0.08	0.1	0.09	0.08	0.09	0.1	0.13	0.11	0.1	0.1	0.09	0.13	0.1	0.11	0.1	0.1	0.13	0.14	0.11
ROUND DUCT SIZE	5	5	4	5	6	6	5	4	5	4	5	6	5	5	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	228	345	149	301	316	374	218	608	228	138	463	296	426	426	617	356	683	683	683	683
COOLING VELOCITY (ft/min)	507	396	69	646	607	566	551	608	507	138	617	474	683	683	169	184	73	73	73	73
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10

ROOM #	1	2	3	4	5	6	7	8	10	11	13	14	15	16	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	LAUN	MBR	ENS-2	DIN.	KT/GT	KT/GT	KT/GT	FOY	PWDR	BAS	BAS	BAS	BAS
RM LOSS MBH	1.30	1.93	0.53	1.70	2.82	2.55	2.10	0.81	1.30	0.51	2.60	2.40	2.40	2.40	3.49	1.28	3.83	3.83	3.83	3.83
CFM PER RUN HEAT	31	47	13	41	68	62	51	19	31	12	63	58	58	58	84	31	93	93	93	93
RM GAIN MBH	2.09	1.64	0.18	2.68	3.60	3.36	2.28	1.62	2.09	0.36	2.56	2.82	2.82	2.82	0.71	0.50	0.30	0.30	0.30	0.30
CFM PER RUN COOLING	69	54	6	88	119	111	75	53	69	12	84	93	93	93	23	16	10	10	10	10
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.15	0.15	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	43	48	27	50	63	30	41	17	37	42	29	21	23	39	46	45	30	17	19	44
EQUIVALENT LENGTH	140	170	150	130	120	140	130	120	120	130	130	150	100	100	100	120	130	110	100	110
TOTAL EFFECTIVE LENGTH	183	218	177	180	183	170	171	137	157	172	159	171	123	159	146	165	160	127	119	154
ADJUSTED PRESSURE	0.09	0.08	0.1	0.09	0.08	0.09	0.1	0.13	0.11	0.1	0.1	0.09	0.13	0.1	0.11	0.1	0.1	0.13	0.14	0.11
ROUND DUCT SIZE	5	5	4	5	6	6	5	4	5	4	5	6	5	5	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	228	345	149	301	316	374	218	608	228	138	463	296	426	426	617	356	683	683	683	683
COOLING VELOCITY (ft/min)	507	396	69	646	607	566	551	608	507	138	617	474	683	683	169	184	73	73	73	73
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10

TYPE: 38-2
SITE NAME: KLEINBURG GLEN

LO # 72986

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>3</u> @ 10.6 cfm	<u>31.8</u> cfm
Kitchen & Bathrooms	<u>5</u> @ 10.6 cfm	<u>53</u> cfm
Other Rooms	<u>2</u> @ 10.6 cfm	<u>21.2</u> cfm
Table 9.32.3.A.	TOTAL	<u>148.4</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
More than 5 - Part 6	TOTAL	<u>79.5</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>148.4</u>	cfm
Less Principal Ventil. Capacity	<u>139</u>	cfm
Required Supplemental Capacity	<u>9.4</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 60H-V+	Location: BSMT
<u>139.0</u> cfm	<u>3.0</u> sones ☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
139.0 CFM	X 76 F	X 1.08	X	0.25

SUPPLEMENTAL FANS		NUTONE		
Location	Model	cfm	HVI	Sones
ENS	QTXEN050C	50	☒	0.3
BATH	QTXEN050C	50	☒	0.3
ENS-2	QTXEN050C	50	☒	0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 60H-V+		
<u>139</u> cfm high	<u>50</u> cfm low	
<u>75</u> % Sensible Efficiency	☒ HVI Approved	
@ 32 deg F (0 deg C)		

LOCATION OF INSTALLATION	
Lot:	Concession
Township	Plan:
Address	
Roll #	Building Permit #

BUILDER:	
GOLD PARK HOMES	
Name:	
Address:	
City:	
Telephone #:	Fax #:

INSTALLING CONTRACTOR	
Name:	
Address:	
City:	
Telephone #:	Fax #:

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	March-17

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																									
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																									
LO#: 72986		Model: 38-2		Builder: GOLD PARK HOMES		Date: 3/7/2017																																																			
Volume Calculation					Air Change & Delta T Data																																																				
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$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$					$= 0.121 \times 257.02 \times 9^\circ\text{C} \times 1.2 = 331 \text{ W}$																																																				
$0.330 \times 257.02 \times 42^\circ\text{C} \times 1.2 = 4296 \text{ W}$					$= 14656 \text{ Btu/h}$																																																				
6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$					$139 \text{ CFM} \times 16^\circ\text{F} \times 1.08 \times 0.25 = 600 \text{ Btu/h}$																																																				
5.2.3.2 Heat Loss due to Mechanical Ventilation																																																									
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$					$139 \text{ CFM} \times 76^\circ\text{F} \times 1.08 \times 0.25 = 2852 \text{ Btu/h}$																																																				
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																									
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HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** 38-2**BUILDER:** GOLD PARK HOMES**SFQT:** 2445**LO#** 72986**SITE:** KLEINBURG GLEN**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:	WEST	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):	32676.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.75	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 52.0 ft	WIDTH: 30.0 ft	EXPOSED PERIMETER:	164.0 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	29.8
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	-

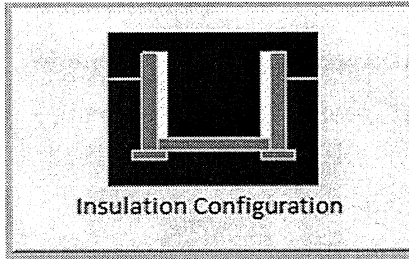
INDIVIDUAL BCIN: 19669

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):	15.8	
Floor Width (m):	9.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.8	
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):		1604

TYPE: 38-2

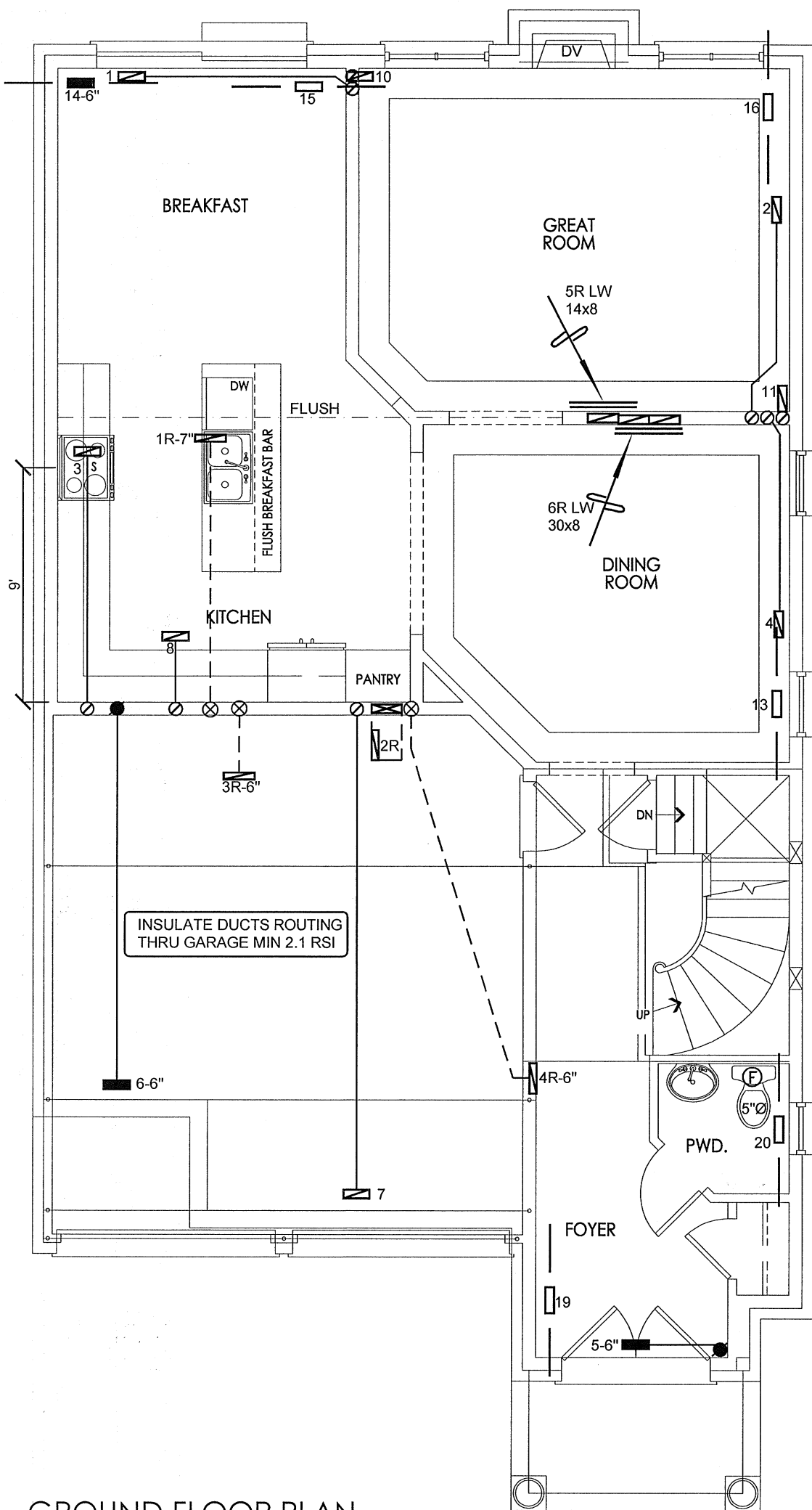
LO# 72986

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:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	925.3			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1233.4 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	65.6	65.6		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.330			
Cooling Air Leakage Rate (ACH/H):	0.121			

TYPE: 38-2
LO# 72986



GROUND FLOOR PLAN

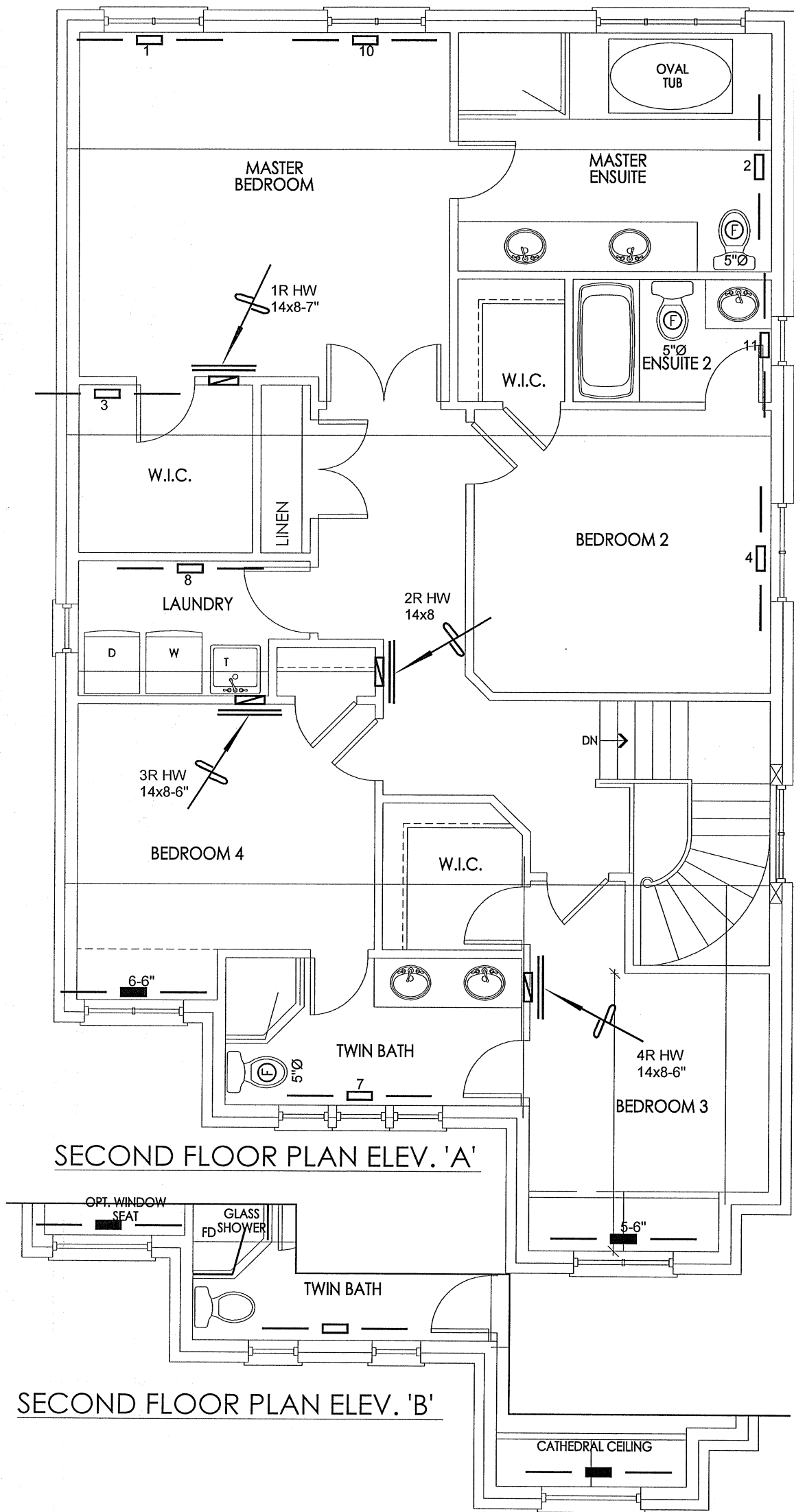
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C. 3.2.3 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

Client		 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.	Sheet Title	
GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	MAR/2017
KLEINBURG GLEN VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
		BCIN# 19669		
38-2	2445 sqft	LO#	72986	



I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.3.2.5 OF THE BUILDING CODE.

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

CSA-F280-12
PACKAGE A1

HVAC LEGEND								3.		
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GOLD PARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	MAR/2017
KLEINBURG GLEN VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
			BCIN# 19669	
38-2	2445 sqft	LO#	72986	