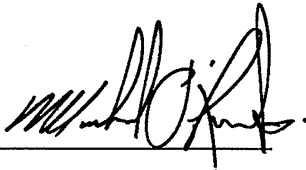


Schedule 1: Designer Information

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: 38-5 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 BUILDER: GOLD PARK HOMES										TYPE: 38-5		DATE: Mar-17		WINTER NATURAL AIR CHANGE RATE		HEAT LOSS AT °F.		CSA-F280-3 SB-12 PACKAGE A					
ROOM USE EXP. WALL CLG. HT.										ENS		WIC		BED-2		BED-3		BED-4		BATH		ENS-2	
FACTORS																							
LOSS GAIN										234		90		153		126		117		198		54	
GRS.WALL AREA										LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
GLAZING										0		0		0		0		0		0		0	
NORTH										7		0		0		0		0		0		0	
EAST										14		0		0		0		0		0		0	
SOUTH										213		0		15		0		0		0		0	
WEST										0		0		0		27		0		9		7	
SKYL.T.										0		0		0		575		0		192		149	
DOORS										0		0		0		0		0		0		0	
NET EXPOSED WALL										25.2		0		0		0		0		0		0	
NET EXPOSED BSMT WALL ABOVE GR										4.5		0		138		99		117		489		47	
EXPOSED CLG										213		90		616		442		522		843		210	
EXPOSED FLOOR										168		140		204		174		210		105		72	
BASEMENT/CRAWL HEAT LOSS										0		0		0		204		42		105		0	
SLAB ON GRADE HEAT LOSS										0		0		0		0		0		0		0	
SUB TOTAL HT LOSS										1613		581		1197		1842		899		1438		451	
LEVEL FACTOR / MULTIPLIER										0.20		0.20		0.20		0.20		0.20		0.20		0.20	
AIR CHANGE HEAT LOSS										704		185		381		587		286		458		144	
AIR CHANGE HEAT GAIN										139		14		51		117		21		53		21	
DUCT LOSS										583		0		0		243		119		190		0	
HEAT GAIN PEOPLE										159		0		0		285		132		74		0	
HEAT GAIN APPLIANCES/LIGHTS										2		0		1		240		1		0		0	
TOTAL HT LOSS BTU/H										787		0		787		787		787		0		0	
TOTAL HT GAIN x 1.3 BTU/H										3498		767		1578		2673		1304		2085		595	
										4350		244		2243		3784		1881		1054		380	

ROOM USE EXP. WALL CLG. HT.										DIN		KIT/GR		LAUN.		PWDR		FOY		DEN		BAS	
FACTORS																							
LOSS GAIN										120		820		70		120		440		110		1080	
GRS.WALL AREA										LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
GLAZING										0		0		8		0		0		0		4	
NORTH										0		0		170		0		0		0		85	
EAST										0		113		0		0		0		0		170	
SOUTH										22		2405		0		8		22		468		340	
WEST										567		0		0		170		0		567		206	
SKYL.T.										0		0		0		0		34		0		0	
DOORS										0		0		0		0		724		0		0	
NET EXPOSED WALL										25.2		0		505		0		0		0		505	
NET EXPOSED BSMT WALL ABOVE GR										5.3		0		106		0		42		1060		106	
EXPOSED CLG										4.5		98		42		112		364		88		393	
EXPOSED FLOOR										92		664		187		500		1624		342		0	
BASEMENT/CRAWL HEAT LOSS										0		0		0		0		0		0		0	
SLAB ON GRADE HEAT LOSS										0		0		0		0		0		0		0	
SUB TOTAL HT LOSS										906		5560		863		670		3578		861		8922	
LEVEL FACTOR / MULTIPLIER										0.20		0.30		0.30		0.30		0.30		0.30		0.50	
AIR CHANGE HEAT LOSS										245		2351		365		283		1513		364		8764	
AIR CHANGE HEAT GAIN										52		427		22		24		164		51		88	
DUCT LOSS										0		0		0		0		0		0		0	
HEAT GAIN PEOPLE										0		0		0		0		0		0		0	
HEAT GAIN APPLIANCES/LIGHTS										0		0		0		0		0		0		0	
TOTAL HT LOSS BTU/H										1014		7911		1227		953		5091		1225		17686	
TOTAL HT GAIN x 1.3 BTU/H										1948		8878		1417		437		2934		1935		1532	

SITE NAME: KLEINBURG GLEN
BUILDER: GOLD PARK HOMES

TYPE: 38-5 DATE: Mar-17 LO# 72990

HEATING CFM	1100	COOLING CFM	1100
TOTAL HEAT LOSS	51,022	TOTAL HEAT GAIN	34,802
AIR FLOW RATE CFM	21.56	AIR FLOW RATE CFM	31.61
4th	0	3rd	0
3rd	0	2nd	0
2nd	0	1st	0
1st	0	Bas	0
S/A	0	8	5
R/A	0	3	1

EL296UH070XE36B
FAN SPEED
LOW 0
MEDIUM 995
HIGH 1100
FAN SPEED
LOW 0
MEDIUM 995
HIGH 1100
AFUE = 96 %
INPUT (BTU/H) = 66,000
OUTPUT (BTU/H) = 64,000
DESIGN CFM = 1100
CFM @ 5" E.S.P. = 1100

TEMPERATURE RISE 54 °F
r/a pressure 0.17
r/a grille press. Loss 0.02
r/a adjusted pressure r/a 0.15
plenum pressure s/a 0.18
max s/a diff press. loss 0.03
min adjusted pressure s/a 0.15

ROOM #	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	ENS	ENS-2	HALL	DIN	KIT/GR	KIT/GR	KIT/GR	KIT/GR	KIT/GR	LAUN.	PWDR	FOY	DEN	BAS	BAS	BAS	BAS
RM LOSS MBH	1.75	1.06	0.77	1.58	2.67	1.30	2.09	1.06	0.59	1.01	1.29	2.64	2.64	2.64	2.64	2.64	1.23	0.95	5.09	1.22	3.54	3.54	3.54	3.54
CFM PER RUN HEAT	38	23	17	34	58	28	45	23	13	22	28	57	57	57	57	57	26	21	110	26	76	76	76	76
RM GAIN MBH	2.18	0.72	0.24	2.24	3.78	1.88	1.05	0.72	0.38	0.50	1.95	2.89	2.89	2.89	2.89	2.89	1.42	0.44	2.93	1.93	0.32	0.32	0.32	0.32
CFM PER RUN COOLING	69	23	8	71	120	59	33	23	12	16	62	91	91	91	91	91	45	14	93	61	10	10	10	10
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.15	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.15	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	57	67	29	37	43	43	45	44	29	35	31	38	30	30	30	30	45	11	24	39	32	16	16	16
EQUIVALENT LENGTH	120	150	140	170	130	200	190	130	230	140	100	130	110	110	110	110	140	110	90	100	120	120	130	130
TOTAL EFFECTIVE LENGTH	177	217	169	207	173	243	235	174	259	175	131	168	140	140	140	155	151	134	125	131	139	152	136	146
ADJUSTED PRESSURE	0.1	0.08	0.1	0.08	0.09	0.07	0.07	0.1	0.08	0.07	0.1	0.13	0.1	0.1	0.12	0.1	0.11	0.13	0.12	0.13	0.12	0.11	0.13	0.12
ROUND DUCT SIZE	5	4	4	5	6	5	5	4	4	4	4	4	5	5	5	5	4	4	6	4	5	5	5	5
HEATING VELOCITY (ft/min)	279	264	195	250	296	206	330	264	279	149	321	419	419	419	419	419	298	241	561	298	558	558	558	558
COOLING VELOCITY (ft/min)	507	264	92	521	612	433	242	264	507	138	711	668	668	668	668	668	516	161	474	700	73	73	73	73
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10
TRUNK	A	B	C	C	E	E	E	C	B	E	C	B	B	B	B	A	C	D	D	E	A	B	C	E

ROOM #	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
ROOM NAME	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS
RM LOSS MBH	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54
CFM PER RUN HEAT	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
RM GAIN MBH	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
CFM PER RUN COOLING	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
ADJUSTED PRESSURE	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	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
EQUIVALENT LENGTH	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
TOTAL EFFECTIVE LENGTH	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136
ADJUSTED PRESSURE	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
ROUND DUCT SIZE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
HEATING VELOCITY (ft/min)	558	558	558	558	558	558	558	558	558	558	558	558	558	558	558	558	558	558	558	558	558	558	558	558
COOLING VELOCITY (ft/min)	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D

SUPPLY AIR TRUNK SIZE										RETURN AIR TRUNK SIZE									
TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	0.10	6.8	6	513	0	0.00	0	0	0	0	0.00	0	0	0	0	0.06	0	0	0
TRUNK B	0.08	8.4	8	565	0	0.00	0	0	0	0	0.00	0	0	0	0	0.06	0	0	0
TRUNK C	0.08	11.8	16	704	0	0.00	0	0	0	0	0.00	0	0	0	0	0.06	0	0	0
TRUNK D	0.12	7	6	621	0	0.00	0	0	0	0	0.00	0	0	0	0	0.06	0	0	0
TRUNK E	0.07	11	14	611	0	0.00	0	0	0	0	0.00	0	0	0	0	0.06	0	0	0
TRUNK F	0	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.06	0	0	0
TRUNK G	0.15	130	140	130	0	0.15	130	140	130	0	0.15	130	140	130	0	0.15	130	140	130
TRUNK H	0.15	55	57	33	0	0.15	55	57	33	0	0.15	55	57	33	0	0.15	55	57	33
TRUNK I	0.15	135	165	215	0	0.15	135	165	215	0	0.15	135	165	215	0	0.15	135	165	215
TRUNK J	0.15	190	222	248	0	0.15	190	222	248	0	0.15	190	222	248	0	0.15	190	222	248
TRUNK K	0.06	0.08	0.07	0.06	0	0.06	0.08	0.07	0.06	0	0.06	0.08	0.07	0.06	0	0.06	0.08	0.07	0.06
TRUNK L	0.06	7.2	5.8	7	0	0.06	7.2	5.8	7	0	0.06	7.2	5.8	7	0	0.06	7.2	5.8	7
TRUNK M	0.06	8	8	8	0	0.06	8	8	8	0	0.06	8	8	8	0	0.06	8	8	8
TRUNK N	0.06	14	14	14	0	0.06	14	14	14	0	0.06	14	14	14	0	0.06	14	14	14
TRUNK O	0.06	15.6	15.6	15.6	0	0.06	15.6	15.6	15.6	0	0.06	15.6	15.6	15.6	0	0.06	15.6	15.6	15.6
TRUNK P	0.06	10.9	10.9	10.9	0	0.06	10.9	10.9	10.9	0	0.06	10.9	10.9	10.9	0	0.06	10.9	10.9	10.9
TRUNK Q	0.06	9.2	9.2	9.2	0	0.06	9.2	9.2	9.2	0	0.06	9.2	9.2	9.2	0	0.06	9.2	9.2	9.2
TRUNK R	0.06	15.6	15.6	15.6	0	0.06	15.6	15.6	15.6	0	0.06	15.6	15.6	15.6	0	0.06	15.6	15.6	15.6
TRUNK S	0.06	10	10	10	0	0.06	10	10	10	0	0.06	10	10	10	0	0.06	10	10	10
TRUNK T	0.06	24	24	24	0	0.06	24	24	24	0	0.06	24	24	24	0	0.06	24	24	24
TRUNK U	0.06	10	10	10	0	0.06	10	10	10	0	0.06	10	10	10	0	0.06	10	10	10
TRUNK V	0.06	10	10	10	0	0.06	10	10	10	0	0.06	10	10	10	0	0.06	10	10	10
TRUNK W	0.06	10	10	10	0	0.06	10	10	10	0	0.06	10	10	10	0	0.06	10	10	10
TRUNK X	0.06	10	10	10	0	0.06	10	10	10	0	0.06	10	10	10	0	0.06	10	10	10
TRUNK Y	0.06	10	10	10	0	0.06	10	10	10	0	0.06	10	10	10	0	0.06	10	10	10
TRUNK Z	0.06	10	10	10	0	0.06	10	10	10	0	0.06	10	10	10	0	0.06	10	10	10
DROP	0.06	15.6	15.6	15.6	0	0.06	15.6	15.6	15.6	0	0.06	15.6	15.6	15.6	0	0.06	15.6	15.6	15.6

TYPE: 38-5
SITE NAME: KLEINBURG GLEN

LO # 72990

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>5</u> @ 10.6 cfm	<u>53.0</u> cfm
Table 9.32.3.A.	TOTAL	<u>180.2</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>180.2</u>	cfm
Less Principal Ventil. Capacity	<u>139</u>	cfm
Required Supplemental Capacity	<u>41.2</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
PWDR	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 @ 32 deg F (0 deg C)	☒ HVI Approved

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

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

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

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

CSA F280-12 Residential Heat Loss and Heat Gain Calculations			
Formula Sheet (For Air Leakage / Ventilation Calculation)			
LO#: 72990	Model: 38-5	Builder: GOLD PARK HOMES	Date: 3/7/2017
Air Change & Delta T Data			
House Volume		Design Temperature Difference	
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1289	9	11601
First	1289	10	12890
Second	1621	9	14589
Third	0	9	0
Fourth	0	9	0
Total:		39,080.0 ft³	
Total:		1106.6 m³	
WINTER NATURAL AIR CHANGE RATE		SUMMER NATURAL AIR CHANGE RATE	
0.330		0.121	
Winter DTDh		Summer DTDc	
22		22	
-20		31	
42		9	
76		16	
6.2.6 Sensible Gain due to Air Leakage			
$HG_{salb} = LR_{aire} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$			
0.330	x	307.40	x
		42 °C	x
		1.2	=
			396 W
6.2.7 Sensible heat Gain due to Ventilation			
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$			
139 CFM	x	76 °F	x
		1.08	x
		0.25	=
			600 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)	Hlaire Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})
1	0.5	17,529	8,922
2	0.3		0.982
3	0.2		0.423
4	0		0.319
5	0		0.000
Total:		0	0.000

*HLairbv = Air leakage heat loss + ventilation heat loss

*For a balanced or supply only ventilation system HLairve = 0

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 38-5	BUILDER: GOLD PARK HOMES
SFQT: 2804	SITE: KLEINBURG GLEN
LO# 72990	

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

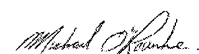
BUILDING DATA

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):	39080.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 60.0 ft	WIDTH: 30.0 ft	EXPOSED PERIMETER:	180.0 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	-

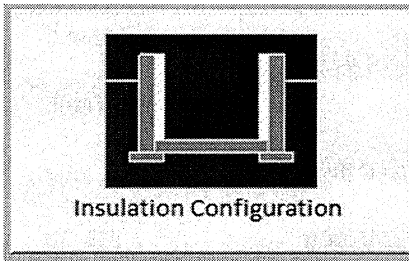
INDIVIDUAL BCIN: 19669

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):	18.3	 Insulation Configuration
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):	1.9	
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):	1772	

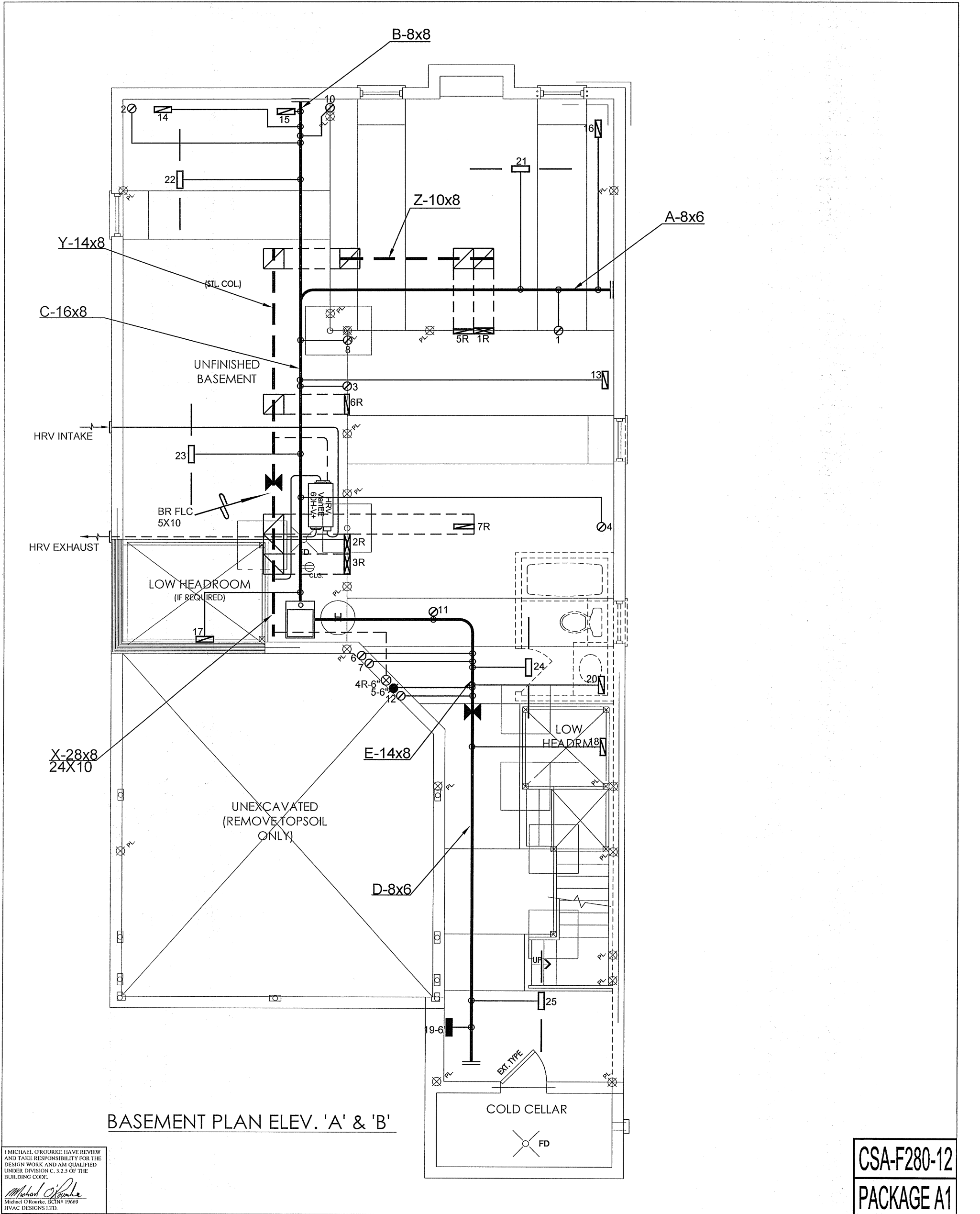
TYPE: 38-5
LO# 72990

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):	1106.6			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa. 3.57	1475.2 cm ² ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply 65.6	Total Exhaust 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: 38-5
LO# 72990



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

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

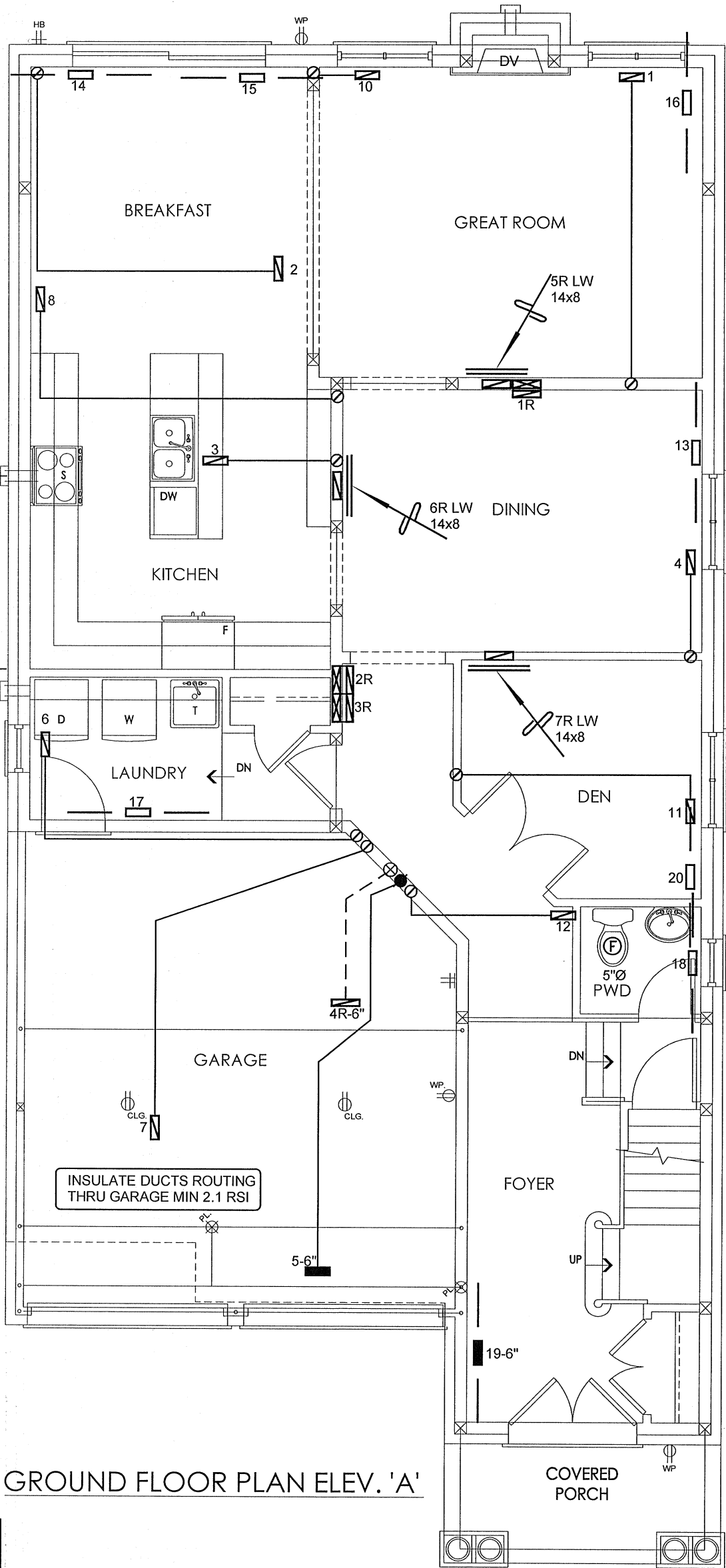
CSA-F280-12

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		

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Client		HVACDESIGNS 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 53874 BTU/H		# OF RUNS S/A R/A FANS				Sheet Title		
GOLD PARK HOMES			UNIT DATA		3RD FLOOR					BASEMENT HEATING LAYOUT	
Project Name			MAKE LENNOX		2ND FLOOR		11	4	4	Date MAR/2017	
KLEINBURG GLEN VAUGHAN, ONTARIO			MODEL EL296UH070XE36B		1ST FLOOR		8	3	2	Scale 3/16" = 1'-0"	
38-5			INPUT 66 MBTU/H		BASEMENT		5	1	0	BCIN# 19669	
2805 sqft			OUTPUT 64 MBTU/H		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						
			COOLING 3.0 TONS								
			FAN SPEED 1100 cfm @ 0.6" w.c.								
					LO# 72990						



GROUND FLOOR PLAN ELEV. 'A'

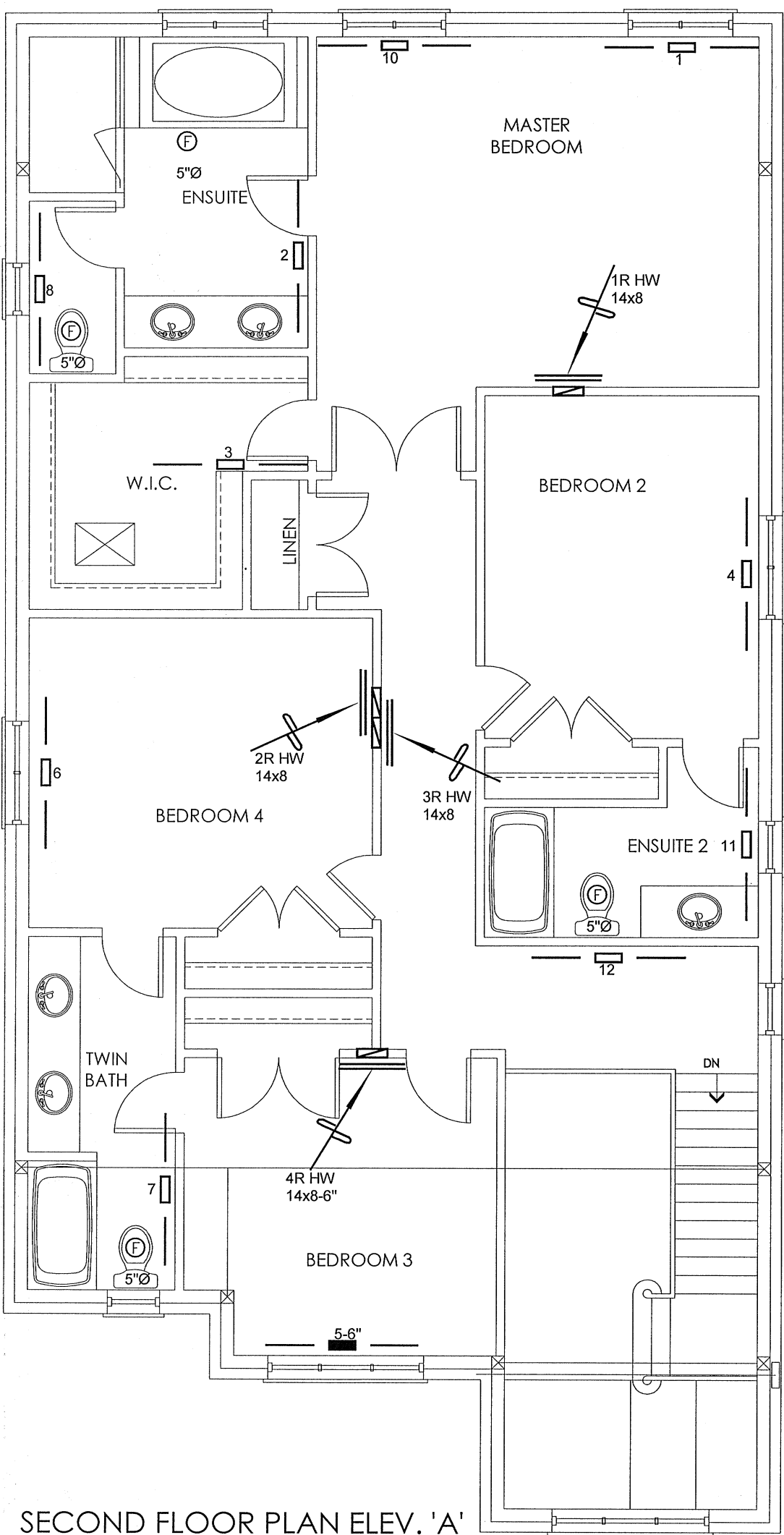
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.3.2.5 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

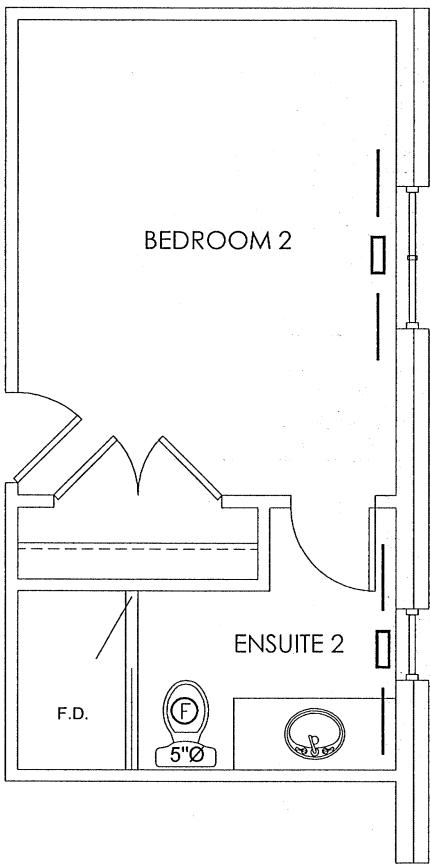
HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		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	

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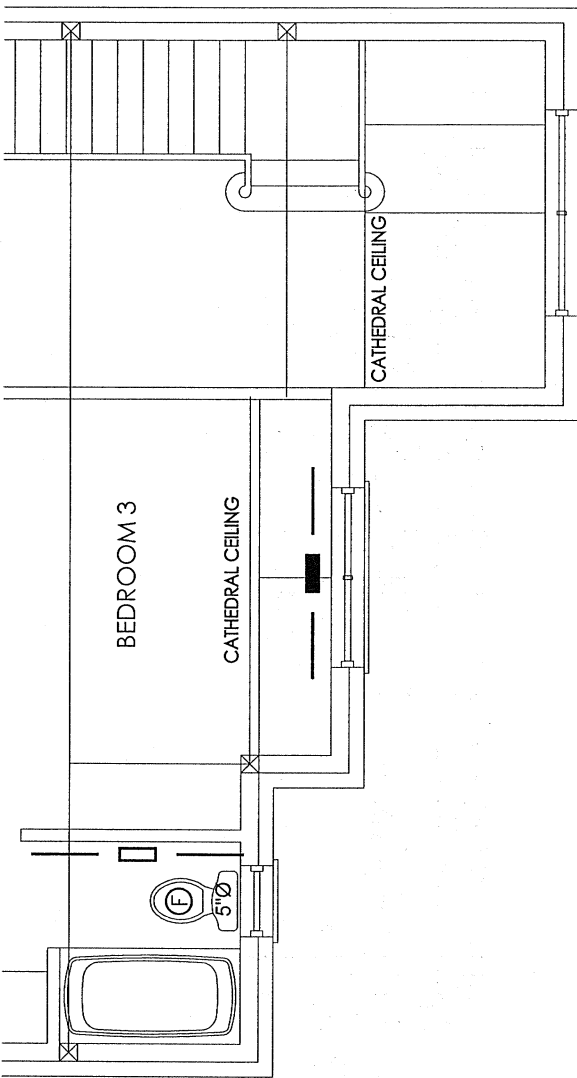
Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets 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 KLEINBURG GLEN VAUGHAN, ONTARIO			Date	MAR/2017
			Scale	3/16" = 1'-0"
		BCIN# 19669		
38-5		LO#		
2805 sqft		72990		



SECOND FLOOR PLAN ELEV. 'A'



PARTIAL OPT. ENSUITE PLAN
EL. 'A' & 'B'



PART. STD. & OPT. SECOND FLOOR PLAN ELEV. 'B'

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	

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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"
38-5			BCIN# 19669	
2805 sqft			LO#	72990