

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]

☐ House ☐ Small Buildings ☐ Large Buildings ☐ Complex Buildings	☒ HVAC – House ☐ Building Services ☐ Detection, Lighting and Power ☐ Fire Protection	☐ Building Structural ☐ Plumbing – House ☐ Plumbing – All Buildings ☐ On-site Sewage Systems
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Description of designer's work
HEAT LOSS / GAIN CALCULATIONS **Model: 42-4**
DUCT SIZING **Project: KLEINBURG GLEN**
RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY
RESIDENTIAL SYSTEM DESIGN per CSA-F280-12

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 Division 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.

March 7, 2017

Date

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.

SITE NAME: KLEINBURG GLEN BUILDING: GOLD PARK HOMES TYPE: 42-4 DATE: Mar-17 LOR: 73000 GFA: 3371 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	WC-2	ENS-2	HEAT LOSS AT *F: 76	HEAT GAIN AT *F: 16
GRS.WALL AREA GLAZING	370	261	81	144	234	144	63	99	135		
NORTH	0	0	0	0	0	0	7	11	0		
EAST	32	447	891	0	0	0	0	0	0		
SOUTH	0	8	170	0	0	0	0	0	0		
WEST	0	0	0	0	0	0	0	0	0		
SKYLT.	21.3	87.5	0	0	0	0	0	0	0		
DOORS	25.2	6.3	0	0	0	0	0	0	0		
NET EXPOSED WALL	4.5	0.9	338	1508	318	232	1035	218	81	361	76
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	340	436	218	210	270	136	117	160	76
NO A TITC EXPOSED CLG	2.7	1.4	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.5	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS	2626	1894	512	1179	666	1410	781	855	990	436	
SUB TOTAL HT GAIN	0.20	0.33	0.20	0.33	0.20	0.33	0.20	0.33	0.20	0.33	
LEVEL FACTOR / MULTIPLIER	866	633	169	388	804	465	257	282	326	36	
AIR CHANGE HEAT LOSS	0	0	0	0	0	0	104	114	0	0	
AIR CHANGE HEAT GAIN	0	0	0	0	0	0	0	0	0	0	
DUCT LOSS	0	0	0	0	0	0	0	0	0	0	
DUCT GAIN	0	0	0	0	0	0	0	0	0	0	
HEAT GAIN PEOPLE	240	0	0	1	240	1	33	63	0	0	
HEAT GAIN APPLIANCES/LIGHTS	940	0	0	940	940	940	0	0	0	0	
TOTAL HT LOSS BTU/H	3491	2555	680	1567	3568	1875	1143	1251	1316	0	
TOTAL HT GAIN x 1.3 BTU/H	4513	2042	213	2473	4059	2477	474	904	613		

ROOM USE EXP. WALL CLG. HT.	LVDN	DEN	KITCH	LAUN	FOY	BAS
GRS.WALL AREA GLAZING	220	240	760	319	820	1140
NORTH	0	0	0	7	0	6
EAST	0	0	10	149	0	128
SOUTH	38	809	2724	0	0	0
WEST	0	0	0	0	0	6
SKYLT.	21.3	87.5	0	0	0	128
DOORS	25.2	6.3	0	0	0	155
NET EXPOSED WALL	4.5	0.9	182	812	171	2051
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.8	0	0	0	432
EXPOSED CLG	1.3	0.6	0	0	0	0
NO A TITC EXPOSED CLG	2.7	1.4	0	0	0	0
EXPOSED FLOOR	2.6	0.5	0	0	0	0
BASEMENT/CRAWL HEAT LOSS	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0
SUBTOTAL HT LOSS	1621	1391	5773	1541	2397	6476
SUB TOTAL HT GAIN	0.30	0.40	0.30	0.40	0.30	0.50
LEVEL FACTOR / MULTIPLIER	660	558	2315	618	2142	10472
AIR CHANGE HEAT LOSS	0	0	0	0	0	0
AIR CHANGE HEAT GAIN	0	0	0	0	0	0
DUCT LOSS	0	0	0	0	0	0
DUCT GAIN	0	0	0	0	0	0
HEAT GAIN PEOPLE	240	0	1	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	940	0	940	940	0	0
TOTAL HT LOSS BTU/H	2271	1948	8088	2159	7484	19823
TOTAL HT GAIN x 1.3 BTU/H	3155	2205	8088	1801	3375	1297

TOTAL HEAT GAIN BTU/H: 40486 TONS: 3.37 LOSS DUE TO VENTILATION LOAD BTU/H: 2852 STRUCTURAL HEAT LOSS: 59219 TOTAL COMBINED HEAT LOSS BTU/H: 62071

TYPE: 42-4	0.6
furnace pressure	0.6

^LENNOX 90
EL296UH090XE48C
FAN SPEED

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

	plenum pressure s/a	0.18	r/a pressure	0.17
max s/a dif press, loss	0.03	0.03	r/a qille press. Loss	0.02
min adjusted pressure s/a	0.15	0.15	adjusted pressure r/a	0.15

min adjusted pressure	s/a	0.15	adjusted pressure	r/a	0.15
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All S/A turns 5-0 unless noted otherwise on layout	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	17	18	19	20	21	22	23	24
RUN #	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	WIC-2	BED-3	MBR	ENS-2	LV/DN	LV/DN	KT/FM	KT/FM	LAUN	ENS	FOY	DEN	BAS	BAS	C	F
ROOM NAME	RM LOSS MBH	1.75	1.28	0.68	1.78	1.87	1.14	1.25	1.78	1.75	1.32	1.14	1.14	2.70	2.70	2.16	1.28	3.74	1.95	3.96	3.96	3.96	3.96
CFM PER RUN HEAT	37	27	14	33	38	40	24	27	38	37	28	24	24	57	57	46	27	79	41	84	84	84	84
RM GAIN MBH	2.26	1.02	0.21	2.47	2.03	2.48	0.47	0.90	2.03	2.26	0.61	1.58	1.58	3.43	3.43	1.80	1.02	1.69	2.20	0.26	0.26	0.26	0.26
CFM PER RUN COOLING	71	32	7	78	64	78	15	28	64	71	19	50	50	108	108	57	32	53	69	8	8	8	8
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	0.15	0.15	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	50	52	35	36	44	36	44	42	38	28	39	22	41	41	32	16	30	36	30	38	38	20	22
EQUIVALENT LENGTH	170	130	140	180	170	130	180	150	190	220	200	102	160	170	170	130	160	160	170	170	190	80	120
TOTAL EFFECTIVE LENGTH	220	182	175	216	214	166	224	192	228	248	239	124	201	211	202	146	190	196	200	208	228	100	142
ADJUSTED PRESSURE	0.08	0.09	0.1	0.08	0.08	0.1	0.08	0.09	0.08	0.07	0.07	0.14	0.09	0.11	0.07	0.12	0.09	0.09	0.09	0.08	0.07	0.16	0.11
ROUND DUCT SIZE	5	5	4	5	5	5	4	4	5	5	4	4	4	6	6	4	4	5	5	6	6	5	5
HEATING VELOCITY (ft/min)	272	310	161	242	279	294	275	310	279	272	321	275	275	291	291	528	310	580	301	428	428	617	617
COOLING VELOCITY (ft/min)	521	367	80	573	470	573	172	321	470	521	218	574	574	551	551	654	367	389	507	41	41	59	59
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10
TRUNK	A	B	F	E	E	F	E	E	E	A	E	F	B	A	A	F	B	D	E	B	A	C	F

25	29	30
RUN #	FOY	KT/PM
ROOM NAME	3.74	2.70
BAS	79	57
RM LOSS MBH	84	
CFM PER RUN HEAT	1.69	3.43
RM GAIN MBH	53	108
CFM PER RUN COOLING	0.17	0.15
ADJUSTED PRESSURE	17	41
ACTUAL DUCT LGH	35	
EQUIVALENT LENGTH	170	120
TOTAL EFFECTIVE LENGTH	187	161
ADJUSTED PRESSURE	0.09	0.09
ROUND DUCT SIZE	5	6
HEATING VELOCITY (ft/min)	580	291
COOLING VELOCITY (ft/min)	389	551
OUTLET GRILL SIZE	3X10	4X10
TRUNK	D	B

SUPPLY AIR TRUNK SIZE										RETURN 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 CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)				
TRUNK A	272	0.07	8.9	10	x	8	0	0	0	x	8	0	0	0	8				
TRUNK B	219	0.08	7.9	8	x	8	0	0	0	x	8	0	0	0	8				
TRUNK C	575	0.07	11.8	16	x	8	0	0	0	x	8	0	0	0	8				
TRUNK D	8.2	0.08	8.2	x	x	8	0	0	0	x	8	0	0	0	8				
TRUNK E	471	0.07	10.9	14	x	8	0	0	0	x	8	0	0	0	8				
TRUNK F	679	0.07	12.5	18	x	8	0	0	0	x	8	0	0	0	8				
RETURN AIR #	1	2	3	4	5	6	7	BR											
AIR VOLUME	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
PLENUM PRESSURE	130	130	130	130	155	255	135	0	0	0	0	0	0	0	190				
	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.	45	52	55	36	32	42	40	1	1	1	1	1	1	1	15				
EQUIVALENT LENGTH	175	195	195	175	190	235	240	0	0	0	0	0	0	0	185				
TOTAL EFFECTIVE LH	220	247	250	211	222	277	280	1	1	1	1	1	1	1	200				
ADJUSTED PRESSURE	0.07	0.06	0.06	0.07	0.07	0.05	0.05	14.80	14.80	14.80	14.80	14.80	14.80	0.07	0.07				
ROUND DUCT SIZE	6.8	7	7	6.8	7.2	9.5	7.5	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	8				
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
INLET GRILL SIZE	14	14	14	14	14	14	14	0	0	0	0	0	0	0	24				

TYPE: 42-4
SITE NAME: KLEINBURG GLEN

LO # 73000

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a) ☒	Direct vent (sealed combustion) only	
b) ☐	Positive venting induced draft (except fireplaces)	
c) ☐	Natural draft, B-vent or induced draft gas fireplace	
d) ☐	Solid Fuel (including fireplaces)	
e) ☐	No Combustion Appliances	

HEATING SYSTEM	
☒ Forced Air	☐ Non Forced Air
☐ Electric Space Heat	

HOUSE TYPE		9.32.1(2)
☒	I Type a) or b) appliance only, no solid fuel	
☐	II Type I except with solid fuel (including fireplaces)	
☐	III Any Type c) appliance	
☐	IV Type I, or II with electric space heat	
☐	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
☐	1 Exhaust only/Forced Air System	
☐	2 HRV with Ducting/Forced Air System	
☒	3 HRV Simplified/connected to forced air system	
☐	4 HRV with Ducting/non forced air system	
☐	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	2 @ 21.2 cfm	42.4 cfm
Other Bedrooms	3 @ 10.6 cfm	31.8 cfm
Kitchen & Bathrooms	5 @ 10.6 cfm	53 cfm
Other Rooms	5 @ 10.6 cfm	53.0 cfm
Table 9.32.3.A.	TOTAL	180.2 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	79.5 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	180.2	cfm
Less Principal Ventil. Capacity	139	cfm
Required Supplemental Capacity	41.2	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 60H-V+	Location: BSMT
139.0 cfm	3.0 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+		
139 cfm high	50 cfm low	
75 % 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

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 42-4

BUILDER: GOLD PARK HOMES

SFQT: 3371

LO# 73000

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:	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 (ft³):	46694.0	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: 61.0 ft	WIDTH: 34.0 ft	EXPOSED PERIMETER:	190.0 ft

2012 OBC - COMPLIANCE PACKAGE		Compliance Package	
Component		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

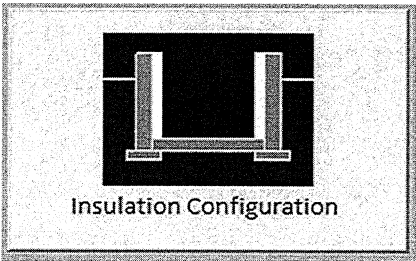
MICHAEL O'ROURKE



CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																															
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																															
LO#: 73000	Model: 42-4	Builder: GOLD PARK HOMES	Date: 2017-03-07																																																												
Volume Calculation		Air Change & Delta T Data																																																													
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> <tr> <td>Bsmt</td> <td>1559</td> <td>9</td> <td>14031</td> </tr> <tr> <td>First</td> <td>1559</td> <td>10</td> <td>15590</td> </tr> <tr> <td>Second</td> <td>1897</td> <td>9</td> <td>17073</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>46,694.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>1322.2 m³</td> </tr> </table>		Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1559	9	14031	First	1559	10	15590	Second	1897	9	17073	Third	0	9	0	Fourth	0	9	0	Total:			46,694.0 ft³	Total:			1322.2 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> </tr> <tr> <td>Winter DTDh</td> <td>22</td> <td>-20</td> <td>42</td> </tr> <tr> <td>Summer DTDc</td> <td>22</td> <td>31</td> <td>9</td> </tr> <tr> <td></td> <td></td> <td></td> <td>ΔT °F</td> </tr> <tr> <td></td> <td></td> <td></td> <td>76</td> </tr> <tr> <td></td> <td></td> <td></td> <td>16</td> </tr> </table>		Design Temperature Difference					Tin °C	Tout °C	ΔT °C	Winter DTDh	22	-20	42	Summer DTDc	22	31	9				ΔT °F				76				16
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5.2.3.1 Heat Loss due to Air Leakage		6.2.6 Sensible Gain due to Air Leakage																																																													
$HL_{airb} = LR_{airb} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.330 x 367.29 x 42 °C x 1.2 = 6138 W = 20944 Btu/h		$HG_{sdlb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.121 x 367.29 x 9 °C x 1.2 = 473 W = 1615 Btu/h																																																													
5.2.3.2 Heat Loss due to Mechanical Ventilation		6.2.7 Sensible heat Gain due to Ventilation																																																													
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 139 CFM x 76 °F x 1.08 x 0.25 = 2852 Btu/h		$HL_{natrb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 139 CFM x 16 °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)																																																															
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{qgr} + HL_{bgr}) \div (HL_{qclvlvl} + HL_{bclvlvl})\}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HLclvlvl)</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLclvlvl)</th> </tr> <tr> <td>1</td> <td>0.5</td> <td rowspan="5">20,944</td> <td>9,351</td> <td>1.120</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>15,668</td> <td>0.401</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>12,714</td> <td>0.329</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </table> *HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairrv = 0				Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HLclvlvl)	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLclvlvl)	1	0.5	20,944	9,351	1.120	2	0.3	15,668	0.401	3	0.2	12,714	0.329	4	0	0	0.000	5	0	0	0.000																																		
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5	0		0	0.000																																																											

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):	18.6	 Insulation Configuration
Floor Width (m):	10.4	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.8	
Window Area (m ²):	1.4	
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):		1897

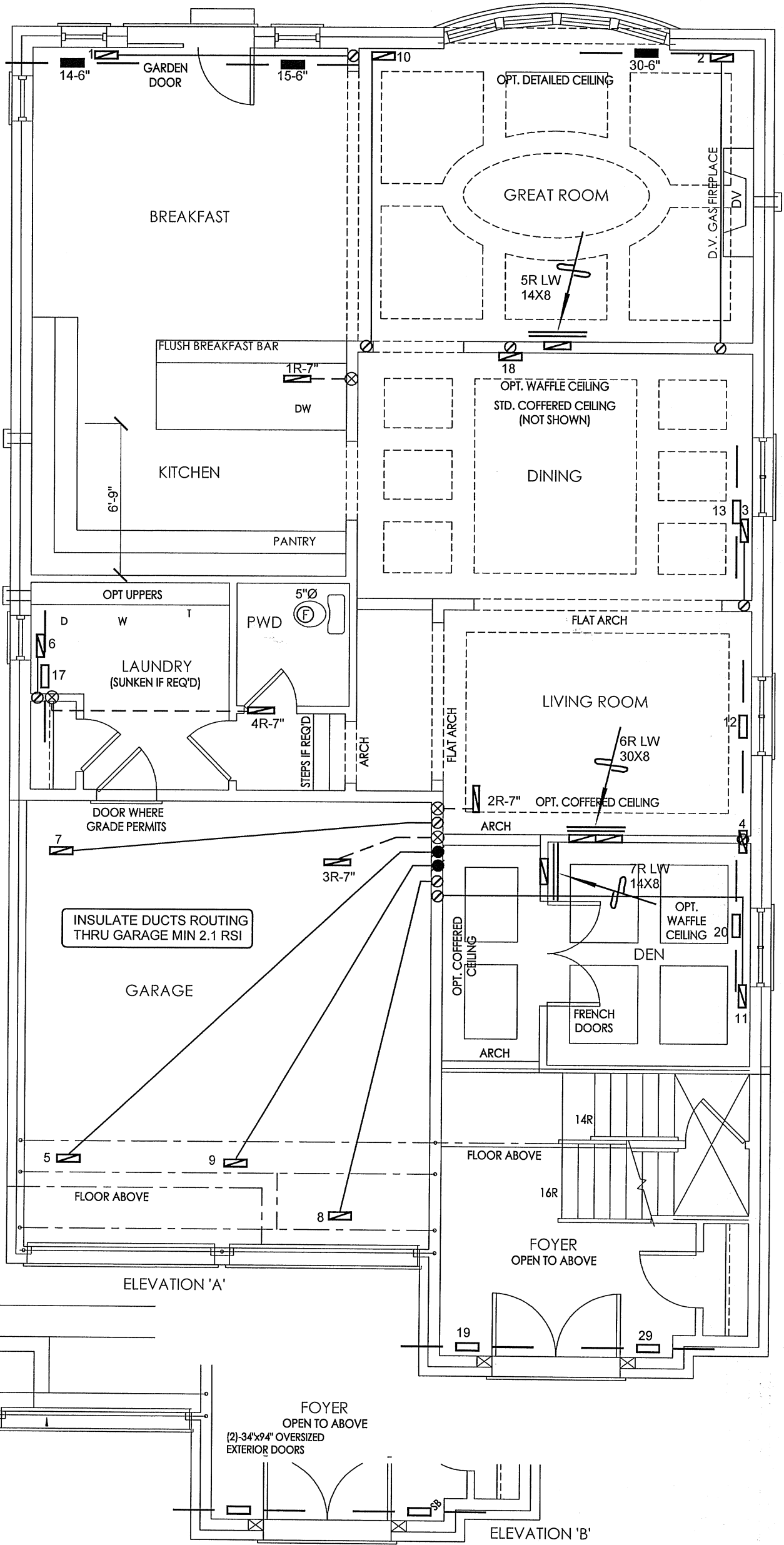
TYPE: 42-4
LO# 73000

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):	1322.2			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1762.6 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: 42-4
LO# 73000



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

GOLD PARK HOMES

Project Name

KLEINBURG GLEN
VAUGHAN, ONTARIO

42-4

3371 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@hvacdsgns.ca
Web: www.hvacdsgns.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

FIRST FLOOR
HEATING
LAYOUT

Date

MAR/2017

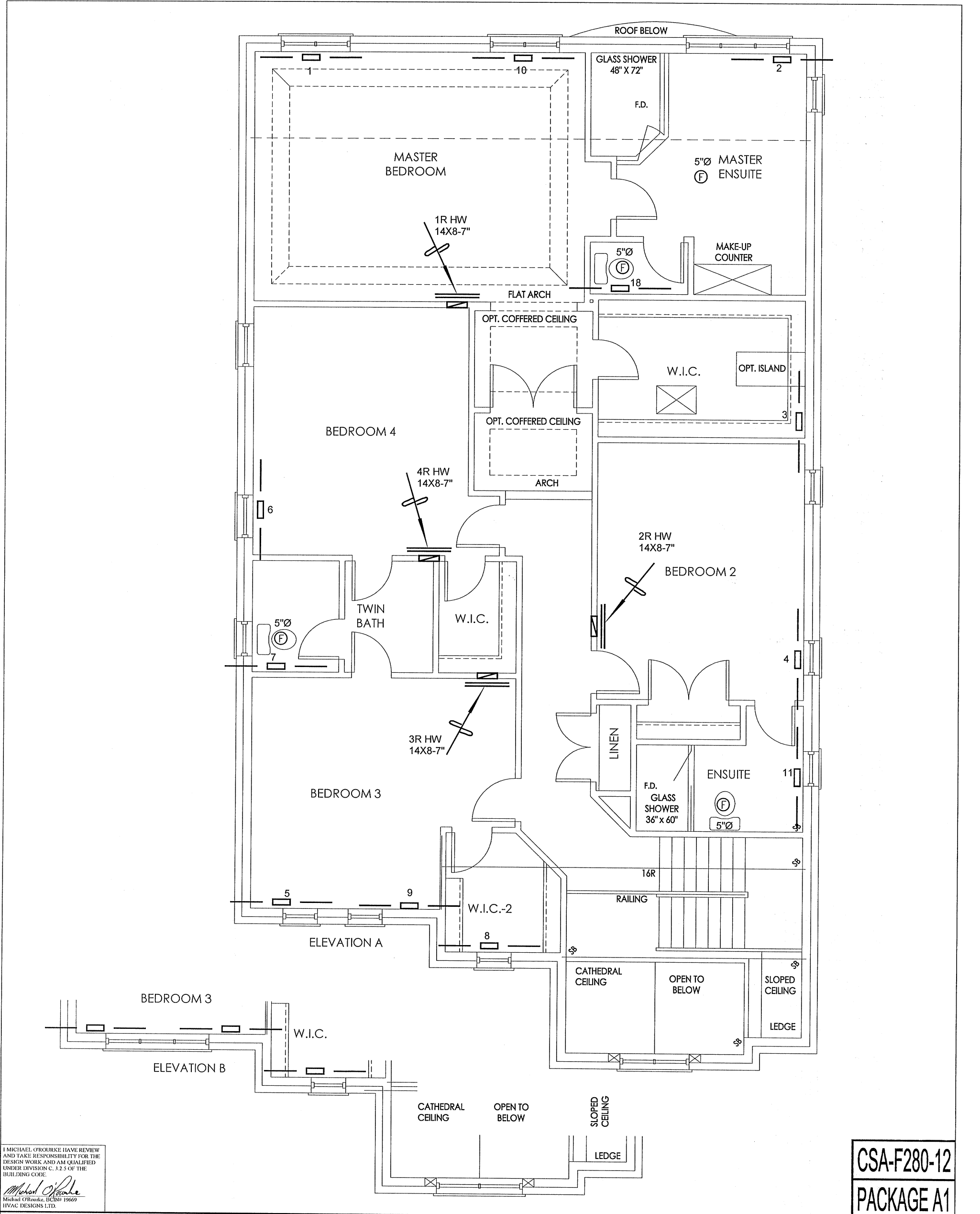
Scale

3/16" = 1'-0"

BCIN# 19669

LO#

73000



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CSA-F280-12
PACKAGE A1

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

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Client

GOLD PARK HOMES

Project Name

KLEINBURG GLEN
VAUGHAN, ONTARIO

375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdsgns.ca
Web: www.hvacdsgns.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

SECOND FLOOR
HEATING
LAYOUT

Date

MAR/2017

Scale

3/16" = 1'-0"

BCIN# 19669

LO#

73000

42-4

3371 sqft