


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 (WOODBIDGE)	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]				
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings </div> <div style="width: 30%;"> <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection </div> <div style="width: 30%;"> <input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> On-site Sewage Systems </div> </div>				
Description of designer's work HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12		Model: 5005 ELEV. 'B' - KNIGHTSWOOD Project: PINE VALLEY & TESTON		
D. Declaration of Designer				
I, <u>MICHAEL O'ROURKE</u> (print name)		declare that (choose one as appropriate):		
<input type="checkbox"/> 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: _____				
<input checked="" type="checkbox"/> 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>				
<input type="checkbox"/> 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.				
September 10, 2018		 Signature of Designer		
Date				

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.

Application for a Permit Construct or Demolish – Effective January 1, 2015

SITE NAME: PINE VALLEY & TESTON
BUILDER: GOLD PARK HOMES
DATE: Sep-18
LO# 77532
TYPE: 5005 ELEV. 'B' - KNIGHTSWOOD
GFA: 4380
WINTER NATURAL AIR CHANGE RATE 0.360
SUMMER NATURAL AIR CHANGE RATE 0.124
HEAT LOSS AT 'F' 76
HEAT GAIN AT 'F' 15
CSA-F280-12
SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS	GAIN	ENS	WIC	BED-2	BED-3	BED-4	ENS-2	WIC-2	ENS-3	ENS-4	WIC-3
GRS.WALL AREA															
GLAZING															
NORTH	21.3	16.5				36	13	36	36	19	6	3	4	7	14
EAST	21.3	42.1				10	10	11	11	10	10	10	10	10	10
SOUTH	21.3	25.5													
WEST	21.3	42.1													
SKYL.T.	37.2	102.5													
DOORS	25.2	4.9													
NET EXPOSED WALL	4.5	0.9													
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.7													
EXPOSED CLG	1.3	0.6													
NO ATTIC EXPOSED CLG	2.7	1.3													
EXPOSED FLOOR	2.5	0.5													
BASEMENT/CRAWL HEAT LOSS															
SLAB ON GRADE HEAT LOSS															
SUBTOTAL HT LOSS															
SUB TOTAL HT GAIN															
LEVEL FACTOR / MULTIPLIER															
AIR CHANGE HEAT LOSS															
AIR CHANGE HEAT GAIN															
DUCT LOSS															
DUCT GAIN															
HEAT GAIN PEOPLE															
HEAT GAIN APPLIANCES/LIGHTS															
TOTAL HT LOSS BTU/H															
TOTAL HT GAIN x 1.3 BTU/H															

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS	GAIN	DIN	KIT/IGT	CAB	LAUN	PWD	FOY	MUD	LOD	BAS
GRS.WALL AREA														
GLAZING														
NORTH	21.3	16.5				32	87	45	0	5	35	18	82	238
EAST	21.3	42.1				11	11	11	10	11	11	12	10	10
SOUTH	21.3	25.5												
WEST	21.3	42.1												
SKYL.T.	37.2	102.5												
DOORS	25.2	4.9												
NET EXPOSED WALL	4.5	0.9												
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.7												
EXPOSED CLG	1.3	0.6												
NO ATTIC EXPOSED CLG	2.7	1.3												
EXPOSED FLOOR	2.5	0.5												
BASEMENT/CRAWL HEAT LOSS														
SLAB ON GRADE HEAT LOSS														
SUBTOTAL HT LOSS														
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AIR CHANGE HEAT GAIN														
DUCT LOSS														
DUCT GAIN														
HEAT GAIN PEOPLE														
HEAT GAIN APPLIANCES/LIGHTS														
TOTAL HT LOSS BTU/H														
TOTAL HT GAIN x 1.3 BTU/H														

TOTAL HEAT GAIN BTU/H: 60163 TONS: 5.01 LOSS DUE TO VENTILATION LOAD BTU/H: 3481 STRUCTURAL HEAT LOSS: 85243 TOTAL COMBINED HEAT LOSS BTU/H: 89423

Michael O'Rourke

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

TYPE: 5005 ELEV. 'B' - KNIGHTSWOOD DATE: Sep-18

GFA: 4380 LO# 77532

HEATING CFM	1955	COOLING CFM	1955
TOTAL HEAT LOSS	85,243	TOTAL HEAT GAIN	59,534
AIR FLOW/RATE CFM	22.67	AIR FLOW/RATE CFM	32.84

EL206RUH110XE60C
FAN SPEED
LOW
MEDIUM
HIGH

*LENNOX

110

AFUE = 96 %

INPUT (BTU/H) = 110,000

OUTPUT (BTU/H) = 106,000

DESIGN CFM = 1955

CFM @ 8" E.S.P.

TEMPERATURE RISE 50 °F

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

All S/A runs 5"x10" unless noted otherwise on layout.

ROOM NAME	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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
RM LOSS MBH	2.49	2.74	2.02	1.91	2.31	2.31	0.92	WIC-2	ENS-3	MBR	ENS-4	LIB	DIN	KIT/GT	KIT/GT	KIT/GT	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
CFM PER RUN HEAT	57	62	46	43	52	52	21	9	9	57	17	40	70	59	59	59	9	16	97	45	90	90	90	90
RM GAIN MBH	2.75	2.30	1.65	2.18	2.86	2.79	0.38	0.11	0.13	2.75	0.46	2.28	2.49	2.61	2.61	2.61	1.11	0.34	0.87	1.28	0.48	0.48	0.48	0.48
CFM PER RUN COOLING	90	76	54	72	94	91	12	4	4	90	15	75	82	86	86	86	36	11	29	41	16	16	16	16
ADJUSTED PRESSURE	0.15	0.16	0.16	0.16	0.15	0.15	0.15	0.16	0.16	0.15	0.16	0.16	0.15	0.15	0.15	0.15	0.16	0.16	0.15	0.16	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH	70	70	53	49	70	48	47	48	53	64	59	57	29	52	69	54	36	73	40	47	67	60	54	38
EQUIVALENT LENGTH	200	200	170	160	160	160	200	150	170	170	150	140	103	120	140	110	200	170	210	160	150	120	103	90
TOTAL EFFECTIVE LENGTH	270	270	223	209	230	208	247	198	223	234	209	197	132	172	209	164	236	243	250	207	217	180	157	128
ADJUSTED PRESSURE	0.05	0.06	0.07	0.07	0.06	0.07	0.06	0.08	0.07	0.06	0.07	0.08	0.11	0.09	0.07	0.09	0.07	0.08	0.06	0.08	0.07	0.08	0.09	0.11
ROUND DUCT SIZE	6	6	5	5	6	6	4	4	4	6	4	4	5	5	6	5	4	4	6	4	6	6	6	5
HEATING VELOCITY (ft/min)	291	316	338	316	265	241	103	103	103	291	195	294	514	433	301	433	103	184	495	516	459	459	681	681
COOLING VELOCITY (ft/min)	459	388	396	529	479	464	138	46	46	459	172	551	602	631	438	631	413	126	148	470	82	82	82	117
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	3X10
TRUNK	D	C	E	G	F	E	E	G	G	D	E	F	E	D	B	C	G	A	F	C	A	B	D	E

ROOM NAME	25	26	27	28	29	30	31	32	33	34	35	36	37	38
ROOM NAME	25	26	27	28	29	30	31	32	33	34	35	36	37	38
RM LOSS MBH	3.97	3.97	1.91	1.91	2.31	1.36	1.77	2.62	2.34	2.34	2.34	0.34	0.34	3.97
CFM PER RUN HEAT	90	90	43	43	52	31	40	59	53	53	53	8	8	90
RM GAIN MBH	0.48	0.48	2.18	2.18	2.86	1.38	2.28	2.61	2.57	2.57	2.57	0.20	0.20	0.48
CFM PER RUN COOLING	16	16	72	72	94	45	75	86	85	85	85	7	7	16
ADJUSTED PRESSURE	0.15	0.15	0.16	0.16	0.15	0.16	0.16	0.15	0.15	0.15	0.15	0.16	0.16	0.15
ACTUAL DUCT LGH	34	50	52	55	75	58	51	55	69	71	82	56	58	23
EQUIVALENT LENGTH	110	150	170	160	160	190	160	120	150	130	140	200	190	140
TOTAL EFFECTIVE LENGTH	144	200	222	215	235	248	211	175	219	201	222	256	248	163
ADJUSTED PRESSURE	0.1	0.07	0.07	0.07	0.06	0.06	0.07	0.08	0.07	0.07	0.07	0.06	0.06	0.09
ROUND DUCT SIZE	5	6	5	5	6	5	5	6	6	6	6	4	4	6
HEATING VELOCITY (ft/min)	661	459	316	316	265	228	294	301	270	270	270	92	92	459
COOLING VELOCITY (ft/min)	117	82	529	529	479	330	551	438	433	433	433	80	80	82
OUTLET GRILL SIZE	3X10	4X10	3X10	3X10	4X10	3X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10
TRUNK	G	F	G	G	F	F	F	B	A	A	A	C	C	E

TRUNK	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	265	0.06	9.2	10	648	0.06	12.8	20	583	648	0.06	12.8	20	583
TRUNK B	208	0.07	8.1	8	1955	0.05	20.3	38	741	1955	0.05	20.3	38	741
TRUNK C	655	0.06	12.9	20	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK D	263	0.05	9.6	10	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK E	1304	0.05	17.4	28	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK F	402	0.06	10.7	14	0	0.00	0	0	8	0	0.00	0	0	8
RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14
AIR VOLUME	115	130	125	115	240	200	360	365	0	0	0	0	0	0
PLENUM 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
ACTUAL DUCT LGH	84	51	62	59	47	49	30	51	1	1	1	1	1	1
EQUIVALENT LENGTH	200	135	155	185	135	140	170	195	0	0	0	0	0	0
TOTAL EFFECTIVE LENGTH	284	186	217	244	182	189	200	246	1	1	1	1	1	1
ADJUSTED PRESSURE	0.05	0.07	0.06	0.05	0.07	0.07	0.07	0.05	13.36	13.36	13.36	13.36	13.36	13.36
ROUND DUCT SIZE	7	6.8	6.9	7	8.5	7.9	9.9	10.8	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	8	8	8	8	8
INLET GRILL SIZE	14	14	14	14	30	14	30	30	0	0	0	0	0	0

Michael Spence

INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

TYPE: 5005 ELEV. 'B' - KNIGHTSWOOD
SITE NAME: PINE VALLEY & TESTON

LO # 77532

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a) <input checked="" type="checkbox"/>	Direct vent (sealed combustion) only	
b) <input type="checkbox"/>	Positive venting induced draft (except fireplaces)	
c) <input type="checkbox"/>	Natural draft, B-vent or induced draft gas fireplace	
d) <input type="checkbox"/>	Solid Fuel (including fireplaces)	
e) <input type="checkbox"/>	No Combustion Appliances	

HEATING SYSTEM	
<input checked="" type="checkbox"/>	Forced Air
<input type="checkbox"/>	Non Forced Air
<input type="checkbox"/>	Electric Space Heat

HOUSE TYPE		9.32.1(2)
<input checked="" type="checkbox"/>	I Type a) or b) appliance only, no solid fuel	
<input type="checkbox"/>	II Type I except with solid fuel (including fireplaces)	
<input type="checkbox"/>	III Any Type c) appliance	
<input type="checkbox"/>	IV Type I, or II with electric space heat	
<input type="checkbox"/>	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
<input type="checkbox"/>	1 Exhaust only/Forced Air System	
<input type="checkbox"/>	2 HRV with Ducting/Forced Air System	
<input checked="" type="checkbox"/>	3 HRV Simplified/connected to forced air system	
<input type="checkbox"/>	4 HRV with Ducting/non forced air system	
<input type="checkbox"/>	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	7 @ 10.6 cfm	74.2 cfm
Other Rooms	8 @ 10.6 cfm	84.8 cfm
Table 9.32.3.A.	TOTAL	233.2 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
TOTAL		79.5 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	233.2	cfm
Less Principal Ventil. Capacity	155	cfm
Required Supplemental Capacity	78.2	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model:	VANEE 65H
Location:	BSMT
155.0 cfm	3.0 sones
<input checked="" type="checkbox"/> 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		NUTONE	
Location	Model	cfm	HVI
ENS	QTXEN050C	50	<input checked="" type="checkbox"/>
ENS-2	QTXEN050C	50	<input checked="" type="checkbox"/>
ENS-4	QTXEN050C	50	<input checked="" type="checkbox"/>
PWD	QTXEN050C	50	<input checked="" type="checkbox"/>

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE 65H	
155 cfm high	64 cfm low	
75 % Sensible Efficiency	<input checked="" type="checkbox"/> 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:	September-18

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																			
Formula Sheet (For Air Leakage / Ventilation Calculation)																																			
LO#: 77532		Model: 5005 ELEV. 'B' - KNIGHTSWOOD		Builder: GOLD PARK HOMES		Date: 9/10/2018																													
Volume Calculation				Air Change & Delta T Data																															
House Volume																																			
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																
Bsmt	2020	10	20200																																
First	2020	11	22220																																
Second	2360	10	23600																																
Third	0	9	0																																
Fourth	0	9	0																																
Total:		66,020.0 ft³																																	
Total:		1869.5 m³																																	
5.2.3.1 Heat Loss due to Air Leakage																																			
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$																																			
0.350	x	519.30	x	42 °C	x	1.2	=	9211 W																											
								=	31427 Btu/h																										
5.2.3.2 Heat Loss due to Mechanical Ventilation																																			
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																			
155 CFM	x	76 °F	x	1.08	x	0.25	=	3181 Btu/h																											
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																			
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{aglevel} + HL_{bglevel})\}$																																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>Hlaibv Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{level})</th> <th>Air Leakage Heat Loss Multiplier (LF x Hlaibv / HL_{level})</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">31,427</td> <td>12,091</td> <td>1.300</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>21,688</td> <td>0.435</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>19,755</td> <td>0.318</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> </tbody> </table>				Level	Level Factor (LF)	Hlaibv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x Hlaibv / HL _{level})	1	0.5	31,427	12,091	1.300	2	0.3	21,688	0.435	3	0.2	19,755	0.318	4	0	0	0.000	5	0	0	0.000						
Level	Level Factor (LF)	Hlaibv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x Hlaibv / HL _{level})																															
1	0.5	31,427	12,091	1.300																															
2	0.3		21,688	0.435																															
3	0.2		19,755	0.318																															
4	0		0	0.000																															
5	0		0	0.000																															
<p>*Hlaibv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system Hlaibv = 0</p>																																			

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** 5005 ELEV. 'B' - KNIGHTSWOOD**BUILDER:** GOLD PARK HOMES**SFQT:** 4380**LO#** 77532**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)	73

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):	66020.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 77.0 ft	WIDTH: 42.0 ft	EXPOSED PERIMETER:	238.0 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	-

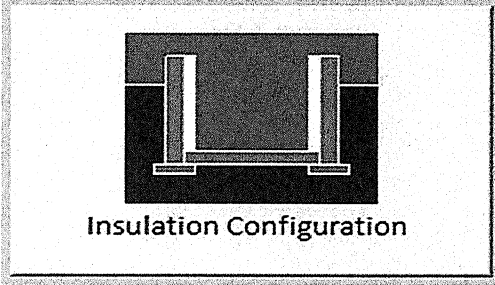
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



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):	23.5	 Insulation Configuration
Floor Width (m):	12.8	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	3.2	
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):		2453

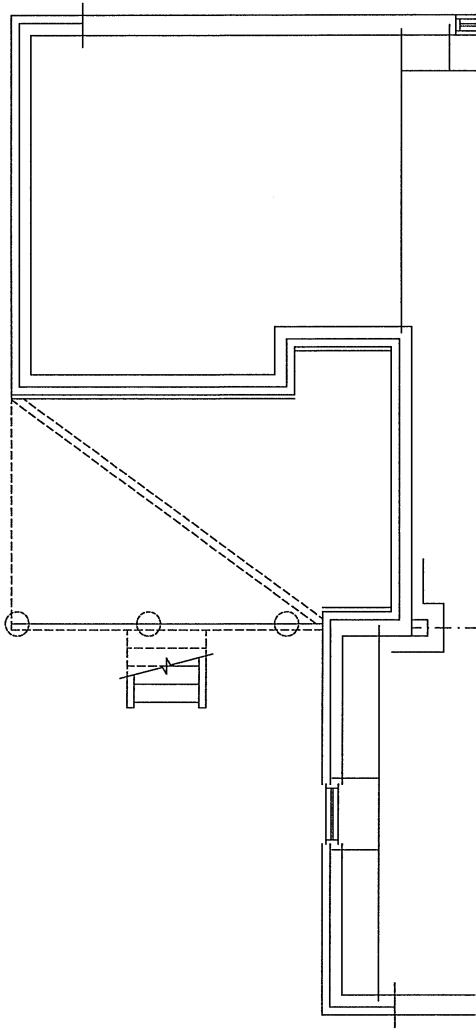
TYPE: 5005 ELEV. 'B' - KNIGHTSWOOD
LO# 77532

Air Infiltration Residential Load Calculator

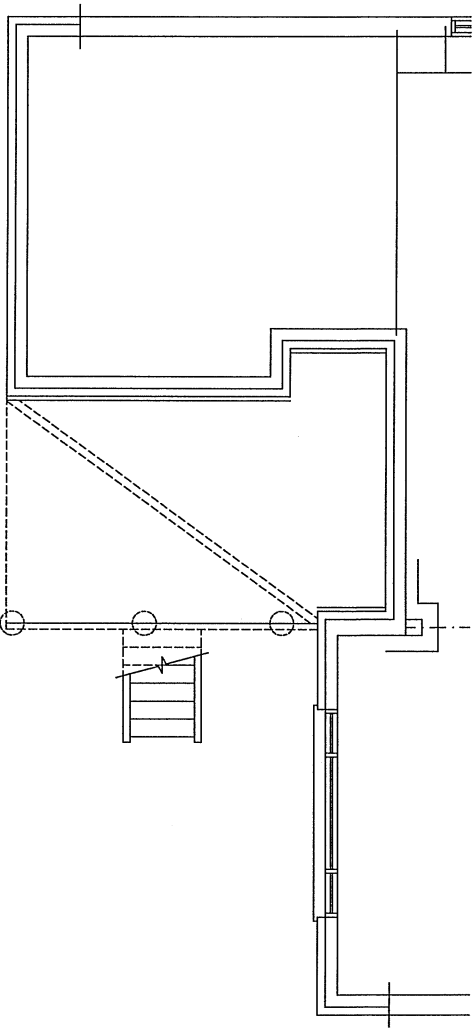
Supplemental tool for CAN/CSA-F280

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):	7.32			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1869.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2492.1 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):	0.350			
Cooling Air Leakage Rate (ACH/H):	0.124			

TYPE: 5005 ELEV. 'B' - KNIGHTSWOOD
LO# 77532

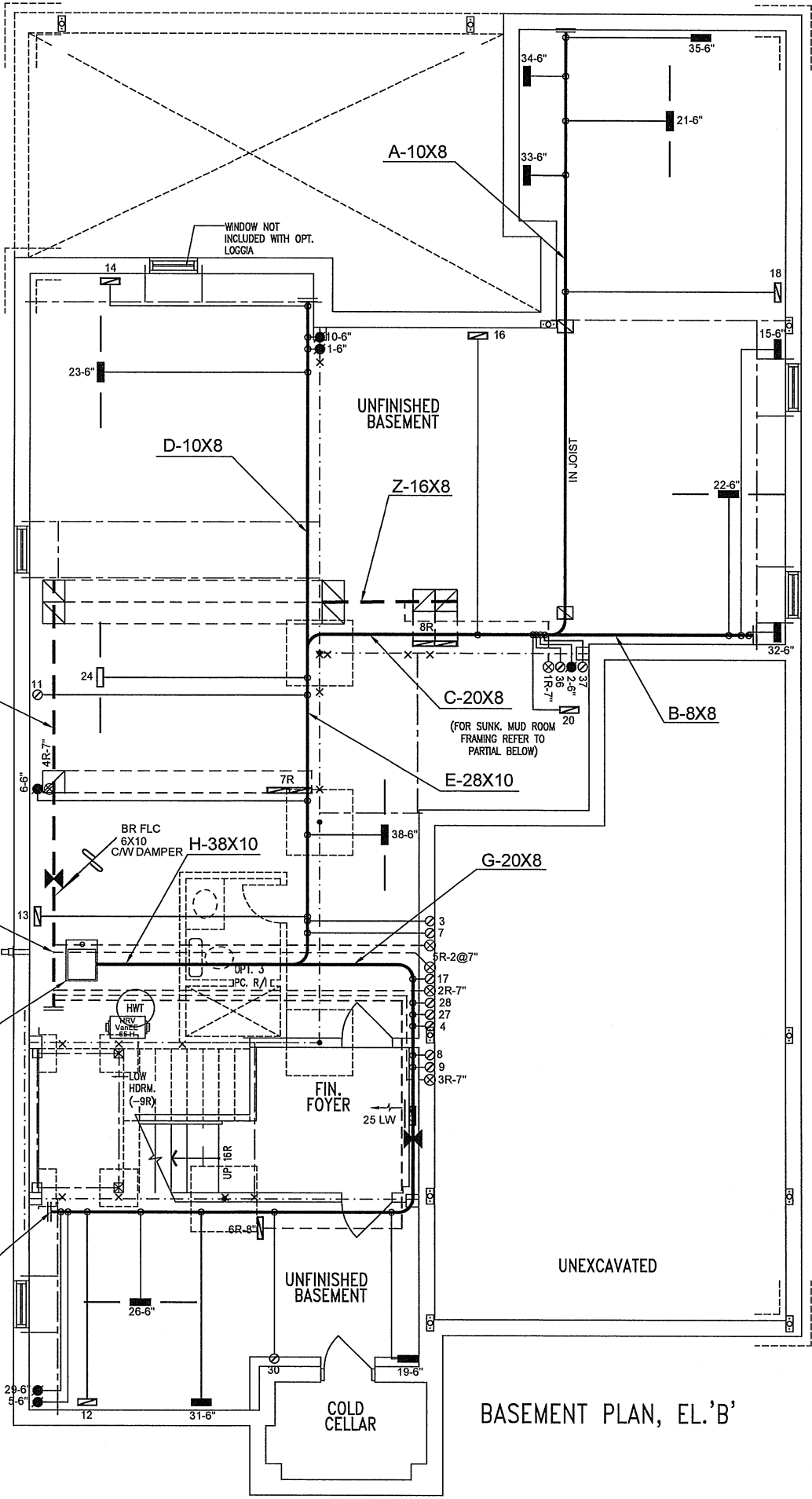


PART. BASEMENT PLAN ELEV. 'A', 'B' & 'C' - W.O.D. COND.



PART. BASEMENT PLAN ELEV. 'A', 'B' & 'C' - L.O.D. COND.

PROVIDE BOX UNDER FURNACE FOR RETURN AIR



BASEMENT PLAN, EL.'B'

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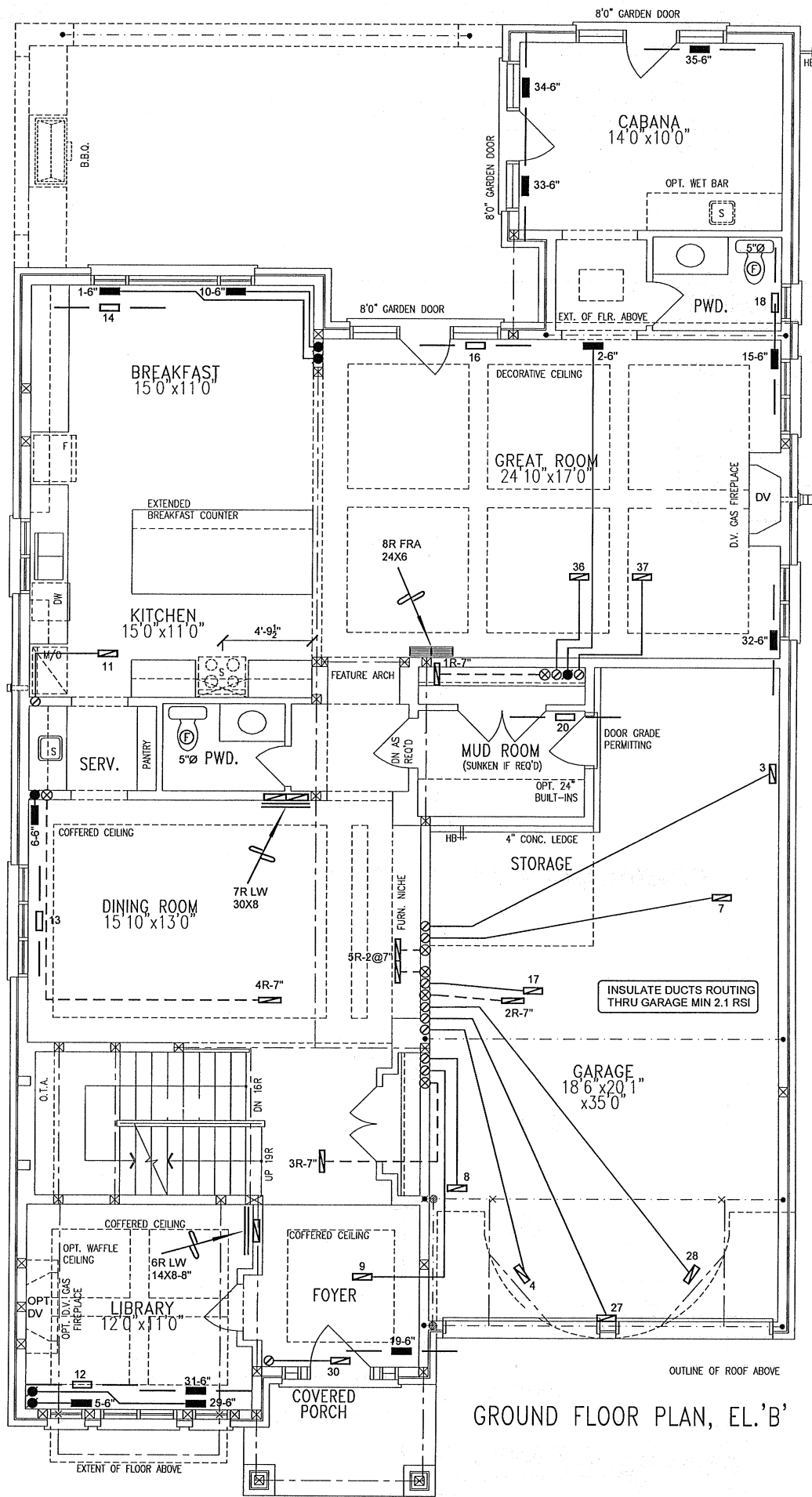
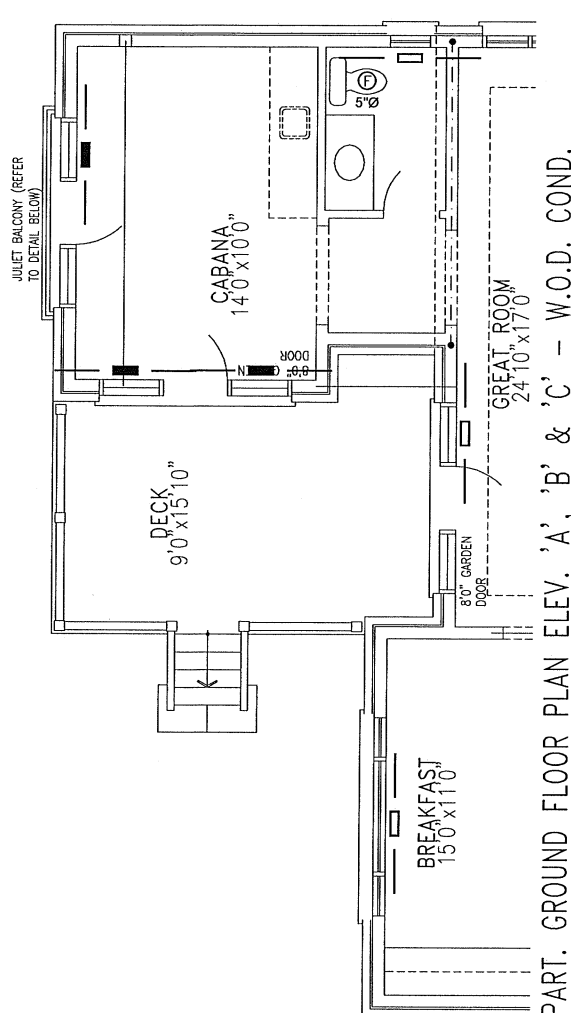
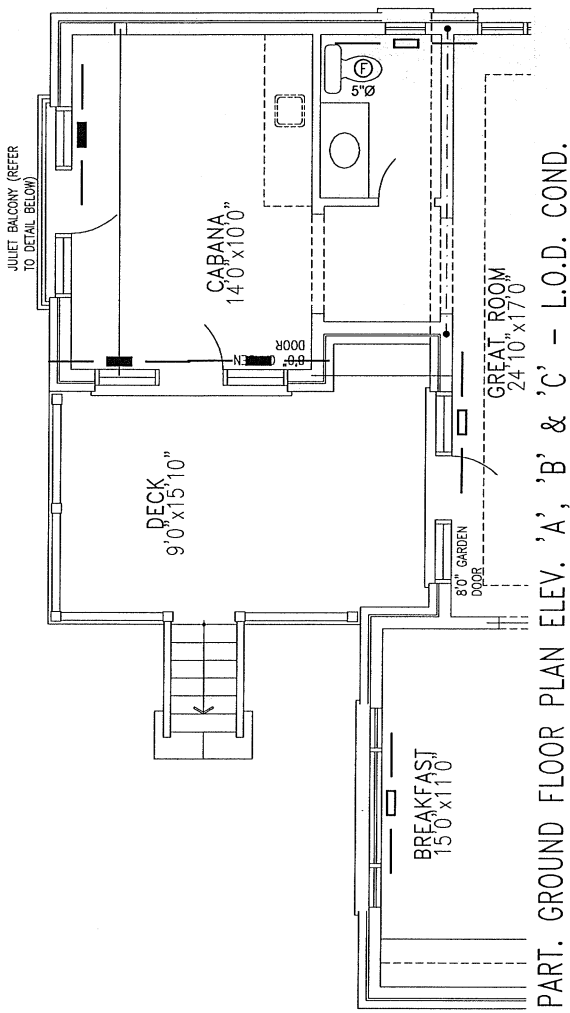
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
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CSA-F280-12
PACKAGE A1

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.	DECK CONDITIONS ADDED
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER		Date
							REVISIONS		

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Client		<div></div> <div>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</div> <div>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.</div>	HEAT LOSS 89423 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title			
GOLDPARK HOMES			MAKE	LENNOX	3RD FLOOR				BASEMENT HEATING LAYOUT		
Project Name			MODEL	EL296UH110XE60C	2ND FLOOR	18	5	7	Date	JAN/2018	
PINE VALLEY & TESTON VAUGHAN, ONTARIO			INPUT	110 MBTU/H	1ST FLOOR	13	3	3			
KNIGHTSWOOD			OUTPUT	106 MBTU/H	BASEMENT					Scale	1/8" = 1'-0"
5005 ELEV. 'B' 4380 sqft			COOLING	5.0 TONS	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					BCIN# 19669	
			FAN SPEED	1955 cfm @ 0.6" w.c.						LO#	77532



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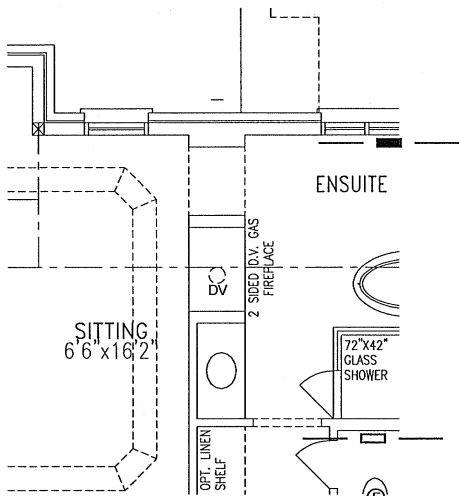
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

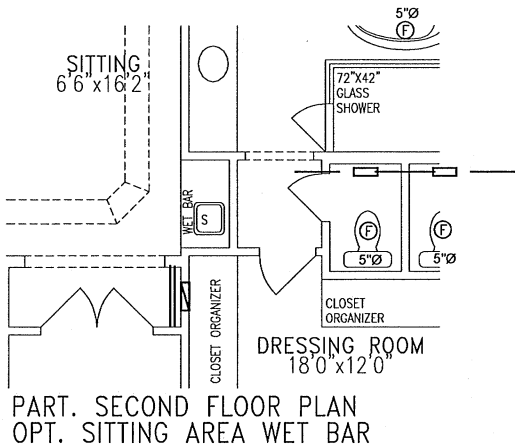
HVAC LEGEND							
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK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

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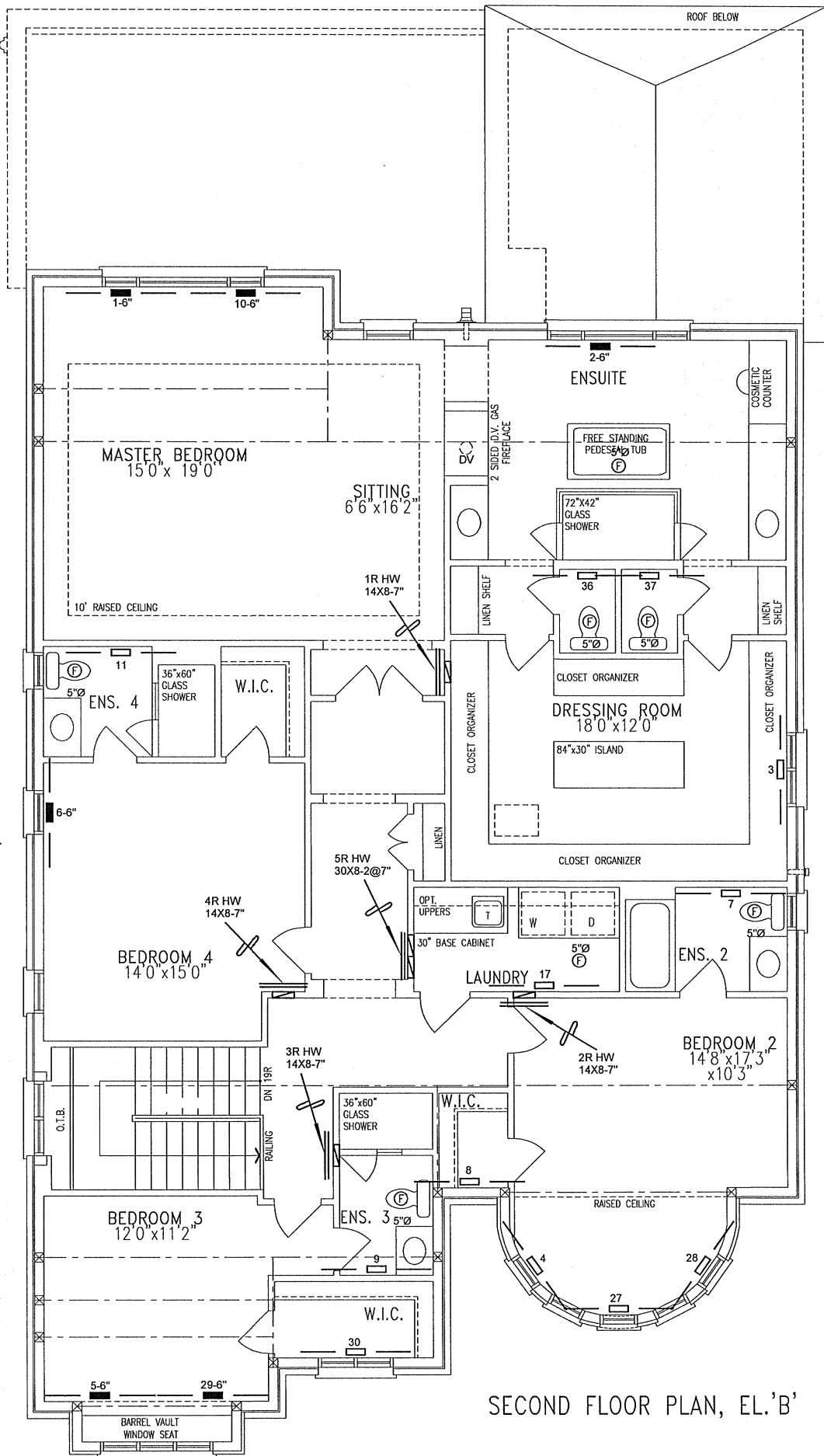
Client		<div>HVACDESIGNS LTD.</div> <div>375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services</div> <div>Installation to comply with the latest Ontario 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.</div>	Sheet Title	
GOLDPARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	JAN/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
KNIGHTSWOOD			BCIN# 19669	
5005 ELEV. 'B'	4380 sqft		LO#	77532



PART. SECOND FLOOR PLAN
OPT. SITTING AREA FIREPLACE



PART. SECOND FLOOR PLAN
OPT. SITTING AREA WET BAR



SECOND FLOOR PLAN, EL.'B'

I MICHAEL O'BROURKE 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.	DECK CONDITIONS ADDED	SEPT/2018
	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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GOLDPARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	JAN/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
KNIGHTSWOOD		BCIN# 19669		
5005 ELEV. 'B'	4380 sqft	LO#	77532	