


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@hvacdsgns.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]				
<input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection <input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> 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: 5005 - KNIGHTSWOOD OPT. 5 BED - WOB 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: <ol style="list-style-type: none"> The information contained in this schedule is true to the best of my knowledge. I have submitted this application with the knowledge and consent of the firm. 				
September 12, 2018 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.

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

SITE NAME: PINE VALLEY & TESTON OPT. 5 BED - WOB DATE: Sep-18 WINTER NATURAL AIR CHANGE RATE 0.416 HEAT LOSS AT "F." 76 CSA-F280-12
BUILDER: GOLD PARK HOMES TYPE: 5005 - KNIGHTSWOOD LO# 75982 SUMMER NATURAL AIR CHANGE RATE 0.138 HEAT GAIN AT "F." 13 SB-12 PACKAGE A1

ROOM USE	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-2	WIC-2	ENS-3	ENS-4	BED-5
EXP. WALL	45	29	6	34	37	26	6	9	4	7	14
CLG. HT.	11	10	10	11	11	10	10	10	10	10	10
GRS. WALL AREA	496	290	60	374	407	260	60	90	40	70	140
GLAZING	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS
NORTH	0	0	0	18	183	0	8	0	0	0	18
EAST	0	0	0	70	1490	0	0	0	0	0	383
SOUTH	0	0	0	0	28	681	0	0	0	0	0
WEST	0	0	0	0	596	768	0	0	0	8	170
SKYL.T.	50	724	1357	0	0	0	0	0	0	0	0
DOORS	37.2	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5	1142	192	286	1366	1017	52	402	40	62	122
NET EXPOSED BSMT WALL ABOVE GR	3.6	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0	0	24	321	106	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	0	0	0	240	265	45	0	48	140	0	154
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	3615	2128	389	4104	4340	2207	632	586	716	582	1787
SUB TOTAL HT GAIN	2589	1670	105	3543	4117	1172	224	116	172	300	660
LEVEL FACTOR / MULTIPLIER	0.20	0.36	0.20	0.20	0.36	0.20	0.20	0.20	0.20	0.20	0.20
AIR CHANGE HEAT LOSS	1283	766	142	1467	1641	784	226	208	254	207	635
AIR CHANGE HEAT GAIN	207	133	8	284	329	94	18	79	14	24	52
DUCT LOSS	0	0	0	556	588	0	88	79	97	0	242
DUCT GAIN	0	0	0	471	522	0	24	13	19	0	168
HEAT GAIN PEOPLE	2	480	0	1	240	1	0	0	0	0	1
HEAT GAIN APPLIANCES/LIGHTS	635	0	635	635	635	635	0	0	0	0	635
TOTAL HT LOSS BTU/H	4898	2883	540	6118	6468	2990	943	873	1066	788	2664
TOTAL HT GAIN x 1.3 BTU/H	6085	2344	874	6731	7610	2783	345	180	286	421	2265

ROOM USE	LIB	DIN	KIT/IGT	CAB	LAUN	PWD	FOY	MUD	WOB	BAS
EXP. WALL	31	32	87	46	0	6	35	18	52	186
CLG. HT.	11	11	11	11	10	11	11	12	10	10
GRS. WALL AREA	341	382	957	495	0	55	386	216	520	1302
GLAZING	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS
NORTH	0	0	0	0	0	0	0	0	0	0
EAST	56	0	0	0	0	0	0	0	0	6
SOUTH	0	0	0	0	0	0	0	0	0	0
WEST	0	0	0	0	0	0	0	0	0	0
SKYL.T.	0	0	0	0	0	0	0	0	0	0
DOORS	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5	1419	239	369	1647	205	323	196	348	20
NET EXPOSED BSMT WALL ABOVE GR	3.6	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0	0	0	102	60	0	0	0	568
NO ATTIC EXPOSED CLG	2.7	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	0	0	0	203	558	41	113	52	0	0
BASEMENT/CRAWL HEAT LOSS	0	0	0	0	143	24	0	0	0	0
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS	2464	2143	7354	4886	274	507	3120	1380	741	2977
SUB TOTAL HT GAIN	2460	1055	6008	4559	84	224	588	232	6034	5746
LEVEL FACTOR / MULTIPLIER	0.30	0.30	0.30	0.30	0.20	0.30	0.30	0.30	0.30	0.50
AIR CHANGE HEAT LOSS	1283	1116	3830	2545	97	264	1625	719	3014	161
AIR CHANGE HEAT GAIN	186	84	480	364	7	18	45	19	1898	284
DUCT LOSS	0	0	0	0	37	0	0	0	0	0
DUCT GAIN	0	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	635	635	635	635	635	635	0	635	0	635
TOTAL HT LOSS BTU/H	3747	3259	11185	7431	408	771	4744	2098	6775	24713
TOTAL HT GAIN x 1.3 BTU/H	4266	2307	9261	7227	1038	314	753	1152	3919	2066

TOTAL HEAT GAIN BTU/H: 61883 TONS: 5.15 LOSS DUE TO VENTILATION LOAD BTU/H: 3181 STRUCTURAL HEAT LOSS: 95361 TOTAL COMBINED HEAT LOSS BTU/H: 98542

Michael O'Rourke

SITE NAME: PINE VALLEY & TESTON
BUILDER: GOLD PARK HOMESTYPE: 5005 - KNIGHTSWOOD
OPT. 5 BED - WOB

DATE: Sep-18

GFA: 4472

LO# 79982

HEATING CFM 1955 COOLING CFM 1955
TOTAL HEAT LOSS 95,361 TOTAL HEAT GAIN 61,327
AIR FLOW RATE CFM 20.5 AIR FLOW RATE CFM 31.88AFUE = 96 %
INPUT (BTU/H) = 110,000
OUTPUT (BTU/H) = 106,000
DESIGN CFM = 1955
CFM @ 6" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	18	13	8
R/A	0	0	6	3	1

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

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

RUN#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	BED-5	BED-2	BED-3	BED-4	ENS-2	WIC-2	ENS-3	MBR	ENS-4	LIB	DIN	KIT/GT	KIT/GT	KIT/GT	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	2.45	2.24	2.66	2.04	2.16	2.99	0.84	0.87	1.07	2.45	0.79	1.87	3.26	2.80	2.80	2.80	0.41	0.77	4.74	2.10	3.94	3.94	3.94	3.94
CFM PER RUN HEAT	50	46	55	42	44	61	19	18	22	50	16	38	67	57	57	57	8	16	97	43	81	81	81	81
RM GAIN MBH	2.54	1.87	2.26	2.24	2.54	2.78	0.35	0.18	0.27	2.54	0.42	2.13	2.31	2.32	2.32	2.32	1.04	0.31	0.78	1.15	0.75	0.75	0.75	
CFM PER RUN COOLING	81	60	72	72	81	89	11	6	8	81	13	68	74	74	74	74	33	10	25	37	24	24	24	
ADJUSTED PRESSURE	0.15	0.16	0.16	0.16	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.16	0.15	0.15	0.15	
ACTUAL DUCT LGH	70	70	53	49	75	48	47	48	53	64	59	57	29	52	69	54	36	73	40	47	77	60	69	38
EQUIVALENT LENGTH	200	200	170	160	170	180	200	150	170	170	150	140	103	120	140	110	200	170	210	160	150	120	150	90
TOTAL EFFECTIVE LENGTH	270	270	223	209	245	208	247	198	223	234	209	197	132	172	209	164	236	243	250	207	227	180	219	128
ADJUSTED PRESSURE	0.05	0.06	0.07	0.07	0.06	0.07	0.06	0.08	0.07	0.06	0.06	0.08	0.12	0.09	0.07	0.1	0.07	0.06	0.06	0.08	0.06	0.08	0.07	0.11
ROUND DUCT SIZE	6	5	5	5	6	6	4	4	4	6	4	5	5	5	5	5	4	4	6	4	6	6	6	5
HEATING VELOCITY (ft/min)	255	338	404	308	224	311	218	207	252	184	279	492	419	419	419	419	92	184	495	493	413	413	413	595
COOLING VELOCITY (ft/min)	413	441	529	529	413	454	126	69	92	413	149	499	543	543	543	543	379	115	127	424	122	122	122	176
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	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

RUN #	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
ROOM NAME	BAS	BAS	BED-2	BED-2	BED-3	BED-3	LIB	KIT/GT	CAB	CAB	CAB	WIC	ENS	BAS	BAS
RM LOSS MBH	3.94	3.94	2.04	2.04	2.16	2.16	1.87	2.80	2.48	2.48	2.48	0.54	0.64	3.94	3.94
CFM PER RUN HEAT	81	81	42	42	44	44	38	57	51	51	51	11	13	81	81
RM GAIN MBH	0.75	0.75	2.24	2.24	2.54	2.54	2.13	2.32	2.41	2.41	2.41	0.97	0.47	0.75	0.75
CFM PER RUN COOLING	24	24	72	72	81	81	68	74	77	77	77	31	15	24	24
ADJUSTED PRESSURE	0.15	0.15	0.16	0.16	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.15	0.15
ACTUAL DUCT LGH	34	50	52	55	80	63	51	55	69	71	82	56	58	23	58
EQUIVALENT LENGTH	110	150	170	160	170	200	160	120	150	130	140	200	190	140	170
TOTAL EFFECTIVE LENGTH	144	200	222	215	250	263	211	175	219	201	222	256	248	163	228
ADJUSTED PRESSURE	0.1	0.07	0.07	0.07	0.06	0.06	0.07	0.09	0.07	0.08	0.07	0.06	0.06	0.09	0.06
ROUND DUCT SIZE	5	6	5	5	6	6	5	5	6	5	6	4	4	5	6
HEATING VELOCITY (ft/min)	595	413	308	308	224	224	279	419	260	374	260	126	149	595	413
COOLING VELOCITY (ft/min)	176	122	529	529	413	413	499	543	393	585	393	356	172	176	122
OUTLET GRILL SIZE	3X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	4X10
TRUNK	G	F	G	G	F	F	F	B	A	A	A	C	C	E	C

TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	250	0.06	9	10	TRUNK G	641	0.06	12.8	20	TRUNK H	1955	0.05	20.3	38	TRUNK I	0	0.00	0	0	TRUNK J	0	0.00	0	0	577
TRUNK B	195	0.07	7.9	8	TRUNK K	0	0.00	0	0	TRUNK L	0	0.00	0	0	TRUNK M	0	0.00	0	0	TRUNK N	0	0.00	0	0	741
TRUNK C	696	0.06	13.2	20	TRUNK O	0	0.05	0	0	TRUNK P	0	0.05	0	0	TRUNK Q	0	0.05	0	0	TRUNK R	0	0.05	0	0	0
TRUNK D	238	0.05	9.2	10	TRUNK S	0	0.05	0	0	TRUNK T	0	0.05	0	0	TRUNK U	0	0.05	0	0	TRUNK V	0	0.05	0	0	0
TRUNK E	1314	0.05	17.5	28	TRUNK W	0	0.00	0	0	TRUNK X	0	0.00	0	0	TRUNK Y	0	0.05	0	0	TRUNK Z	0	0.05	0	0	0
TRUNK F	386	0.06	10.6	14	TRUNK A	0	0.00	0	0	TRUNK B	0	0.00	0	0	TRUNK C	0	0.05	0	0	TRUNK D	0	0.05	0	0	0

RETURN AIR #	1	2	3	4	5	6	7	8	9	TRUNK Y														TRUNK W				TRUNK Z				DROP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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TYPE: 5005 - KNIGHTSWOOD
SITE NAME: PINE VALLEY & TESTON

LO # 79982
OPT. 5 BED - WOB

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	4 @ 10.6 cfm	42.4 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	243.8 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		95.4 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	243.8	cfm
Less Principal Ventil. Capacity	155	cfm
Required Supplemental Capacity	88.8	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	Sones
ENS	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
ENS-2	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
ENS-4	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
PWD	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3

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#: 79982	Model: 5005 - KNIGHTSWOOD	Builder: GOLD PARK HOMES	Date: 9/12/2018																																																												
Volume Calculation		Air Change & Delta T Data																																																													
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5.2.3.1 Heat Loss due to Air Leakage																																																															
$HL_{air-b} = LR_{air-b} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$																																																															
0.416	x	527.66	x	42 °C	x	1.2	=	11118 W																																																							
								=	37935 Btu/h																																																						
5.2.3.2 Heat Loss due to Mechanical Ventilation																																																															
$HL_{vair-b} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																															
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)																																																															
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																															
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*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: 5005 - KNIGHTSWOOD	OPT. 5 BED - WOB	BUILDER: GOLD PARK HOMES
SFQT: 4472	LO# 79982	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)	75

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):	67083.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
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:	186.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	52.0 ft

2012 OBC - COMPLIANCE PACKAGE

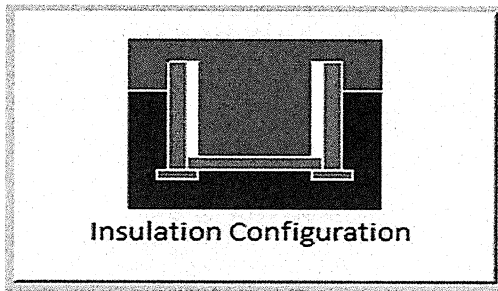
Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 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

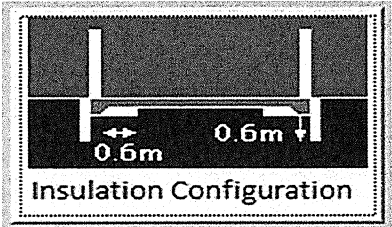
Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	12.8	
Exposed Perimeter (m):	56.7	
Wall Height (m):	3.0	
Depth Below Grade (m):	1.84	
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):		872

TYPE: 5005 - KNIGHTSWOOD
LO# 79982

OPT. 5 BED - WOB

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		
Length (m):	1.5	 Insulation Configuration
Width (m):	12.8	
Exposed Perimeter (m):	15.8	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		217

TYPE: 5005 - KNIGHTSWOOD
LO# 79982

OPT. 5 BED - WOB

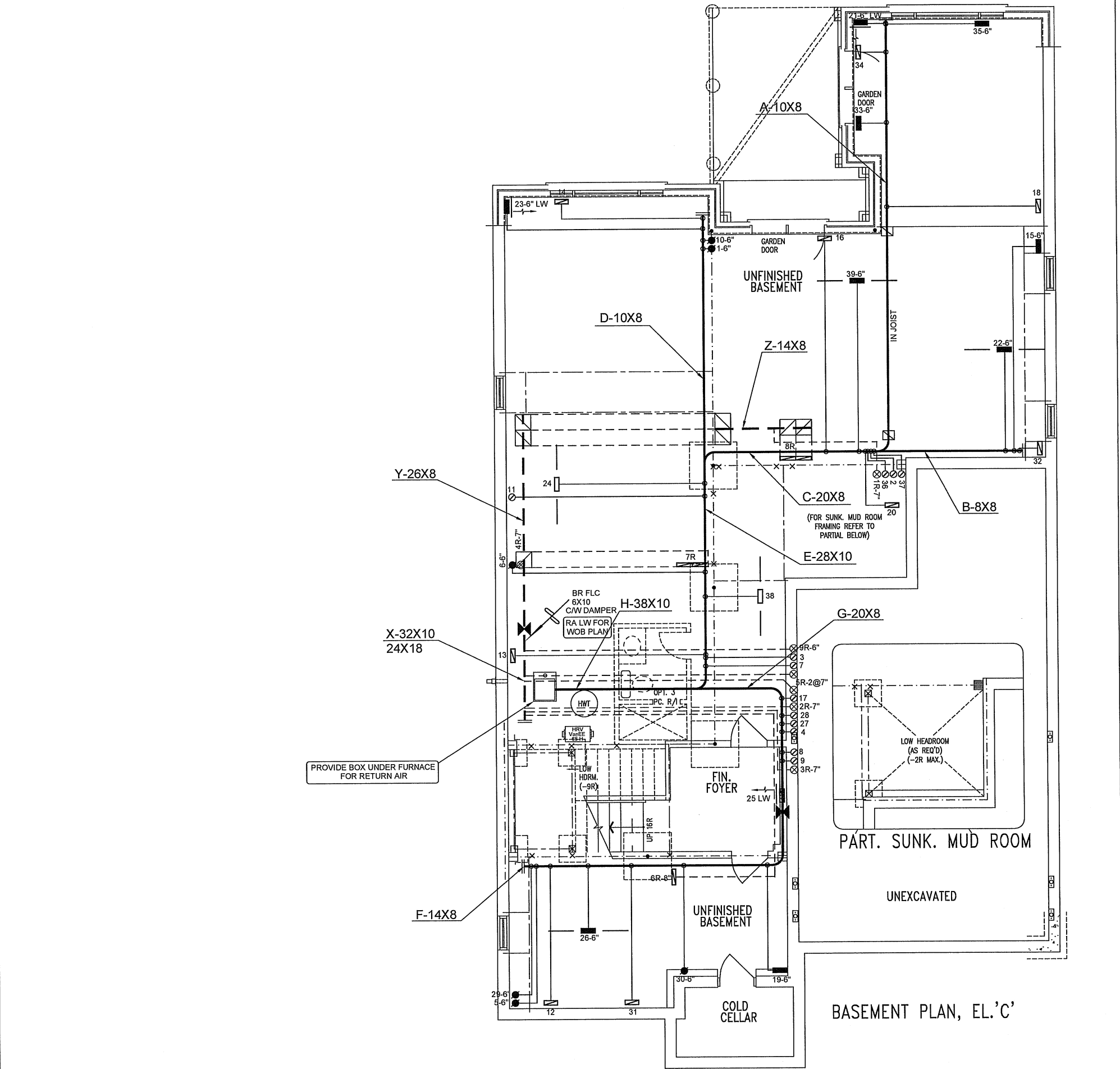
Air Infiltration Residential Load Calculator

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):	9.45			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1899.6			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2532.2 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):	0.416			
Cooling Air Leakage Rate (ACH/H):	0.139			

TYPE: 5005 - KNIGHTSWOOD
LO# 79982

OPT. 5 BED - WOB



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.

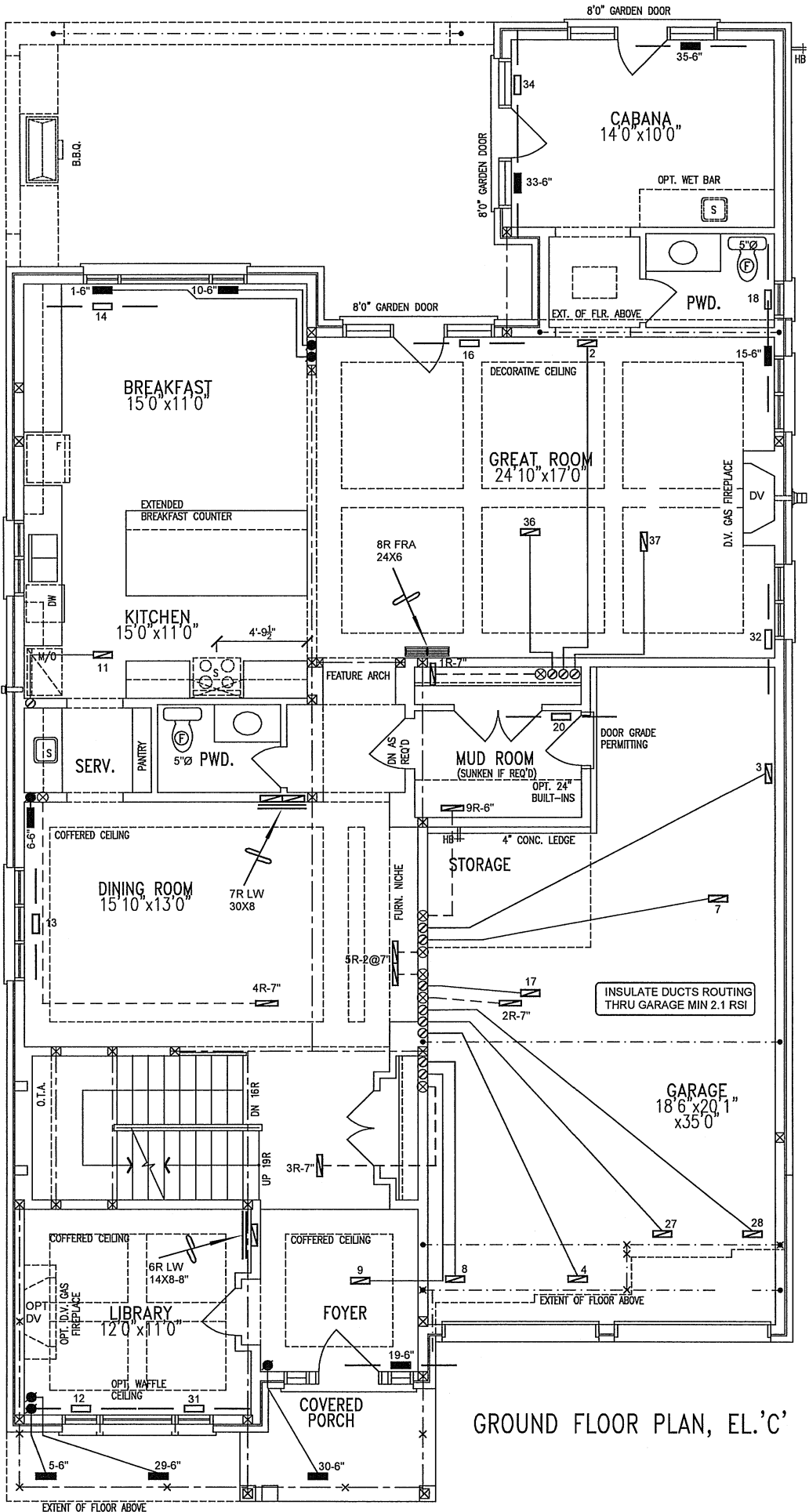
CSA-F280-12

WOB PACKAGE A1

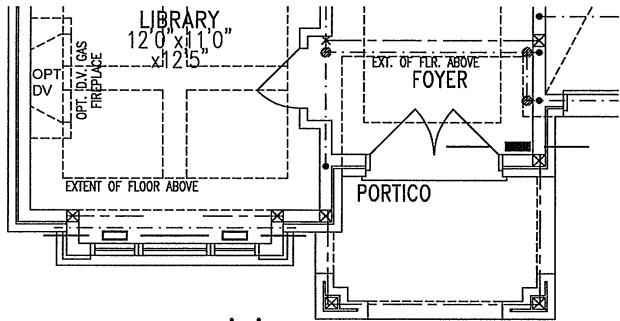
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		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		<div><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>	HEAT LOSS 98542 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		BASEMENT HEATING LAYOUT	
Project Name PINE VALLEY & TESTON VAUGHAN, ONTARIO OPT. 5 BED KNIGHTSWOOD - WOB 5005 4472 sqft			MAKE LENNOX		3RD FLOOR			
			MODEL EL296UH110XE60C		2ND FLOOR			
			INPUT 110 MBTU/H		1ST FLOOR			
			OUTPUT 106 MBTU/H		BASEMENT			
		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		Date SEPT/2018		
		FAN SPEED 1955 cfm @ 0.6" w.c.				Scale 1/8" = 1'-0"		
						BCIN# 19669		
						LO# 79982		



GROUND FLOOR PLAN, EL.'C'



GROUND FLOOR PLAN, EL.'A'

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

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

CSA-F280-12

WOB

PACKAGE A1

HVAC LEGEND								3.		
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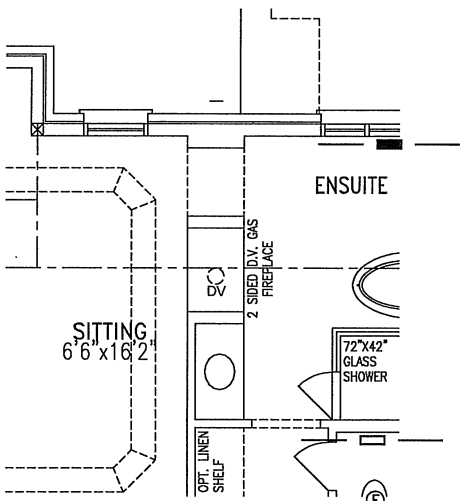
Client	GOLDPARK HOMES
Project Name	PINE VALLEY & TESTON VAUGHAN, ONTARIO OPT. 5 BED KNIGHTSWOOD - WOB 5005 4472 sqft

HVACDESIGNSLTD.

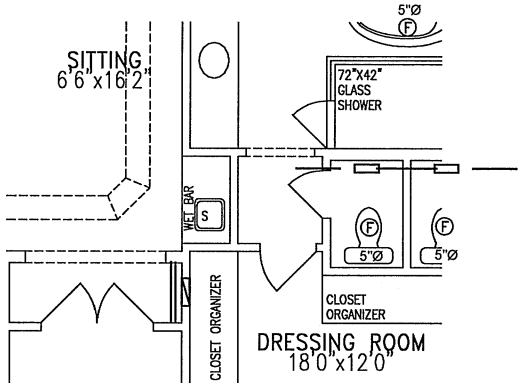
375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdsgns.ca
Web: www.hvacdesigns.ca
Specializing in Residential Mechanical Design Services

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.

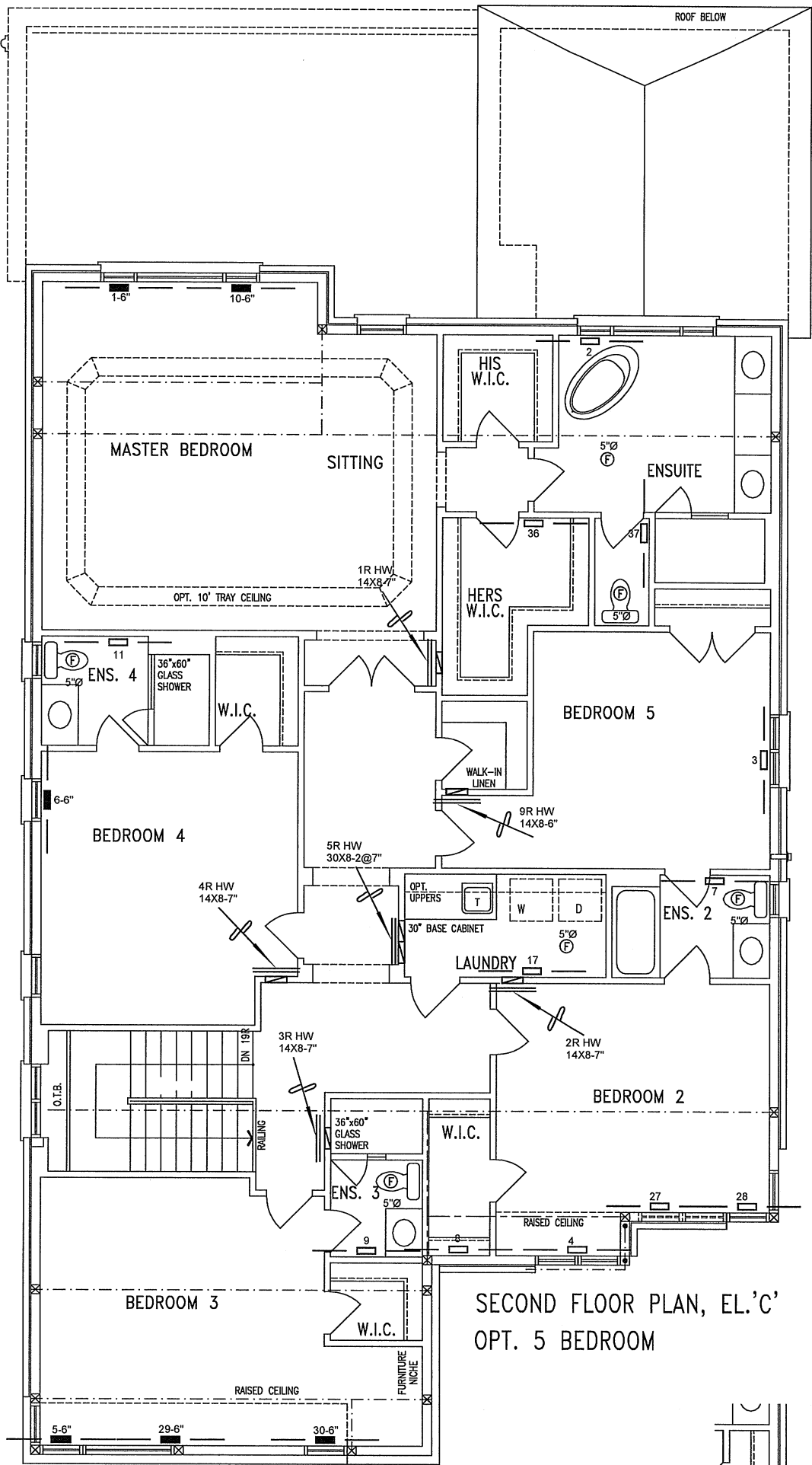
Sheet Title	FIRST FLOOR HEATING LAYOUT
Date	SEPT/2018
Scale	1/8" = 1'-0"
BCIN#	19669
LO#	79982



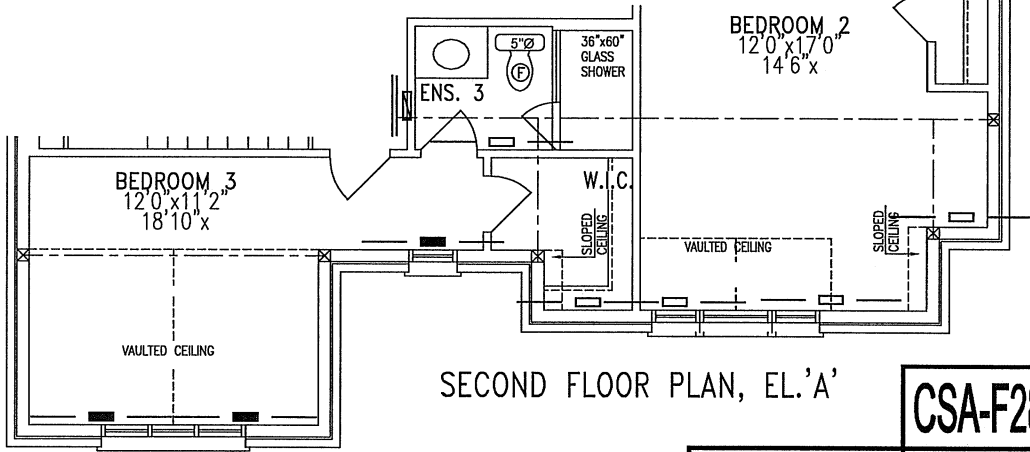
PART. SECOND FLOOR PLAN
OPT. SITTING AREA FIREPLACE



PART. SECOND FLOOR PLAN
OPT. SITTING AREA WET BAR



SECOND FLOOR PLAN, EL.'C'
OPT. 5 BEDROOM



SECOND FLOOR PLAN, EL.'A'

I MICHAEL O'ROURKE HAVE REVIEW
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C, 3.2.5 OF THE
BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
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CSA-F280-12

WOB

PACKAGE A1

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GOLDPARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	SEPT/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
OPT. 5 BED KNIGHTSWOOD - WOB 5005 4472 sqft			BCIN# 19669	
		LO#	79982	