

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]				
☐ 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				
Description of designer's work HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12		Model: 5009 ALT 5 BED Project: PINE VALLEY & TESTON		
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.				
June 29, 2020		 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: Jun-20		WINTER NATURAL AIR CHANGE RATE		HEAT LOSS AT °F		CSA-F280-12	
ALT 5 BED TYPE: 5009										LOF 86419		SUMMER NATURAL AIR CHANGE RATE		HEAT GAIN AT °F		SB-12 PACKAGE A1	
ROOM USE										GFA: 3751		S-BATH		BED-2		ENS-3	
EXP. WALL CLG. HT.										BED-5		FOY		MUD		BAS	
GRS.WALL AREA										BED-4		WIR		LAUND		LIV/DIN	
GLAZING										WIC		KIT		GRITBF		KIT	
NORTH										ENS		MBR		GRS.WALL AREA		GRS.WALL AREA	
EAST										LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
SOUTH										270		207		78		78	
WEST										270		207		78		78	
SKYLT.										270		207		78		78	
DOORS										270		207		78		78	
NET EXPOSED WALL										270		207		78		78	
NET EXPOSED BSMT WALL ABOVE GR										270		207		78		78	
NO ATTIC EXPOSED CLG										270		207		78		78	
EXPOSED FLOOR										270		207		78		78	
BASEMENT/CRAWL HEAT LOSS										270		207		78		78	
SLAB ON GRADE HEAT LOSS										270		207		78		78	
SUBTOTAL HT LOSS										270		207		78		78	
SUB TOTAL HT GAIN										270		207		78		78	
LEVEL FACTOR / MULTIPLIER										270		207		78		78	
AIR CHANGE HEAT LOSS										270		207		78		78	
AIR CHANGE HEAT GAIN										270		207		78		78	
DUCT LOSS										270		207		78		78	
DUCT GAIN										270		207		78		78	
HEAT GAIN PEOPLE										270		207		78		78	
HEAT GAIN APPLIANCES/LIGHTS										270		207		78		78	
TOTAL HT LOSS BTU/H										270		207		78		78	
TOTAL HT GAIN x 1.3 BTU/H										270		207		78		78	

REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C.3.2.5 OF THE BUILDING CODE.

INDIVIDUAL BCIN: 15669

MICHAEL O'ROURKE

Michael O'Rourke

TOTAL COMBINED HEAT LOSS BTU/H: 76513

STRUCTURAL HEAT LOSS: 74555

LOSS DUE TO VENTILATION LOAD BTU/H: 1958

TONS: 4.06

TOTAL HEAT GAIN BTU/H: 48678

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

ALT 5 BED

TYPE: 5009

DATE: Jun-20

GFA: 3751 LO# 86419

HEATING CFM 1575 COOLING CFM 1575
TOTAL HEAT LOSS 48,348
AIR FLOW RATE CFM 32.58

EL196UH090XE48C
FAN SPEED LOW 0
MEDIUM 1080
HIGH 1575

LENNOX 90
AFUE = 96 %
INPUT (BTU/H) = 88,000
OUTPUT (BTU/H) = 85,600

plenum pressure s/a 0.18
max s/a diff press. loss 0.02
min adjusted pressure s/a 0.16

r/a pressure 0.17
r/a grille press. loss 0.02
adjusted pressure r/a 0.15

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	17	13	6
R/A	0	0	5	2	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	WIC	ENS	ENS	BED-3	BED-3	BED-4	BED-5	S-BATH	BED-3	ENS-3	MBR	ENS-4	GRT/BF	GRT/BF	KIT	GRT/BF	LIV/DIN	S-BATH	W/R	FOY	MUD	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS	BAS

ROOM NAME	25	26	27	28	29	30	31	32	33	34	35	36
BAS	4.13	1.60	1.60	1.94	2.20	2.20	1.95	1.95	2.02	1.40	1.28	1.28
RM LOSS MBH	87	87	87	87	87	87	87	87	87	87	87	87
CFM PER RUN HEAT	0.34	0.28	0.28	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
RM GAIN MBH	11	11	11	11	11	11	11	11	11	11	11	11
CFM PER RUN COOLING	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
ADJUSTED PRESSURE	52	25	25	52	52	52	52	52	52	52	52	52
ACTUAL DUCT LGH.	140	100	100	140	140	140	140	140	140	140	140	140
EQUIVALENT LENGTH	192	125	125	192	192	192	192	192	192	192	192	192
ADJUSTED PRESSURE	0.08	0.13	0.13	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
ROUND DUCT SIZE	6	6	6	6	6	6	6	6	6	6	6	6
HEATING VELOCITY (ft/min)	444	444	444	444	444	444	444	444	444	444	444	444
COOLING VELOCITY (ft/min)	56	56	56	56	56	56	56	56	56	56	56	56
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10
TRUNK	B	E	C	D	A	A	D	D	D	A	D	D

SUPPLY 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 A	309	0.07	9.3	10	8	TRUNK G	0	0.00	0	0	8
TRUNK B	781	0.07	13.2	20	8	TRUNK H	0	0.00	0	0	8
TRUNK C	1014	0.07	14.6	24	8	TRUNK I	0	0.00	0	0	8
TRUNK D	304	0.08	9	10	8	TRUNK J	0	0.00	0	0	8
TRUNK E	562	0.07	11.7	16	8	TRUNK K	0	0.00	0	0	8
TRUNK F	0	0.00	0	0	8	TRUNK L	0	0.00	0	0	8

RETURN AIR #	1	2	3	4	5	6	7
AIR VOLUME	75	85	190	95	85	380	425
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	90	59	42	53	37	60	26
EQUIVALENT LENGTH	225	175	165	155	195	200	120
TOTAL EFFECTIVE LENGTH	315	234	207	208	232	260	146
ADJUSTED PRESSURE	0.05	0.06	0.07	0.07	0.06	0.06	0.06
ROUND DUCT SIZE	6	6	7.8	8	6	10.5	9.6
INLET GRILL SIZE	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	24	14	14	30	30

RETURN AIR TRUNK SIZE	TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK O	0	0.05	0	0	0	8
TRUNK P	0	0.05	0	0	0	8
TRUNK Q	0	0.05	0	0	0	8
TRUNK R	0	0.05	0	0	0	8
TRUNK S	0	0.05	0	0	0	8
TRUNK T	0	0.05	0	0	0	8
TRUNK U	0	0.05	0	0	0	8
TRUNK V	0	0.05	0	0	0	8
TRUNK W	0	0.05	0	0	0	8
TRUNK X	1150	0.05	16.6	32	32	647
TRUNK Y	425	0.05	11.5	16	16	478
TRUNK Z	455	0.05	11.7	16	16	512
DROP	1575	0.05	18.7	24	24	675

Michael O'Rourke

TYPE: 5009
SITE NAME: PINE VALLEY & TESTON

LO # 86419
ALT 5 BED

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	4	@ 10.6 cfm	42.4	cfm	
Kitchen & Bathrooms	6	@ 10.6 cfm	63.6	cfm	
Other Rooms	5	@ 10.6 cfm	53.0	cfm	
Table 9.32.3.A.	TOTAL			201.4	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	201.4	cfm	
Less Principal Ventil. Capacity	95.4	cfm	
Required Supplemental Capacity	106.0	cfm	

PRINCIPAL EXHAUST FAN CAPACITY			
Model:	VANEE 65H	Location:	BSMT
95.4	cfm	3.0	sones
			☒ HVI Approved

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

SUPPLEMENTAL FANS				
Location	Model	PANASONIC	cfm	HVI
ENS	FV-05-11VK1	50	☒	0.3
S-BATH	FV-05-11VK1	50	☒	0.3
ENS-4	FV-05-11VK1	50	☒	0.3
W/R	FV-05-11VK1	50	☒	0.3

HEAT RECOVERY VENTILATOR			9.32.3.11.
Model:	VANEE 65H		
155	cfm high	64	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:	June-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																							
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																							
LO#: 86419	Model: 5009	Builder: GOLD PARK HOMES	Date: 29/06/2020																																																																				
Volume Calculation		Air Change & Delta T Data																																																																					
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Winter DTDh	22	-20	42																																																																				
Summer DTDc	24	31	7																																																																				
			13																																																																				
5.2.3.1 Heat Loss due to Air Leakage																																																																							
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$																																																																							
0.407	x	423.36	x																																																																				
		42 °C	x																																																																				
		1.2	=																																																																				
			8728 W																																																																				
			=																																																																				
			29778 Btu/h																																																																				
5.2.3.2 Heat Loss due to Mechanical Ventilation																																																																							
$HL_{pairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																																							
95 CFM	x	76 °F	x																																																																				
		1.08	x																																																																				
		0.25	=																																																																				
			1958 Btu/h																																																																				
			=																																																																				
			330 Btu/h																																																																				
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																																							
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																																							
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>Hlaire Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{level})</th> <th>Air Leakage Heat Loss Multiplier (LF x Hlairebv / Hlevel)</th> </tr> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">29,778</td> <td>9,886</td> <td>1.506</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>16,451</td> <td>0.543</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>17,643</td> <td>0.338</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>				Level	Level Factor (LF)	Hlaire Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x Hlairebv / Hlevel)	1	0.5	29,778	9,886	1.506	2	0.3	16,451	0.543	3	0.2	17,643	0.338	4	0	0	0.000	5	0	0	0.000																																										
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*Hlairebv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system Hlairev = 0																																																																							

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 5009	ALT 5 BED	BUILDER: GOLD PARK HOMES
SFQT: 3751	LO# 86419	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):	53823.0	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: 58.0 ft	WIDTH: 42.0 ft	EXPOSED PERIMETER:	200.0 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	-

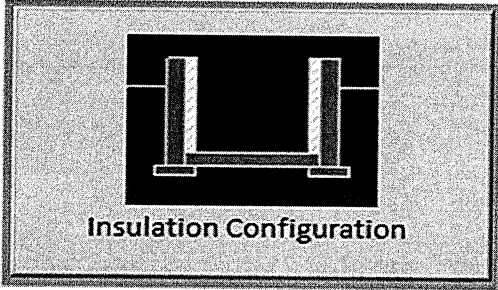
INDIVIDUAL BCIN: 19669

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):	17.7	 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):	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):		2023

TYPE: 5009
LO# 86419

ALT 5 BED

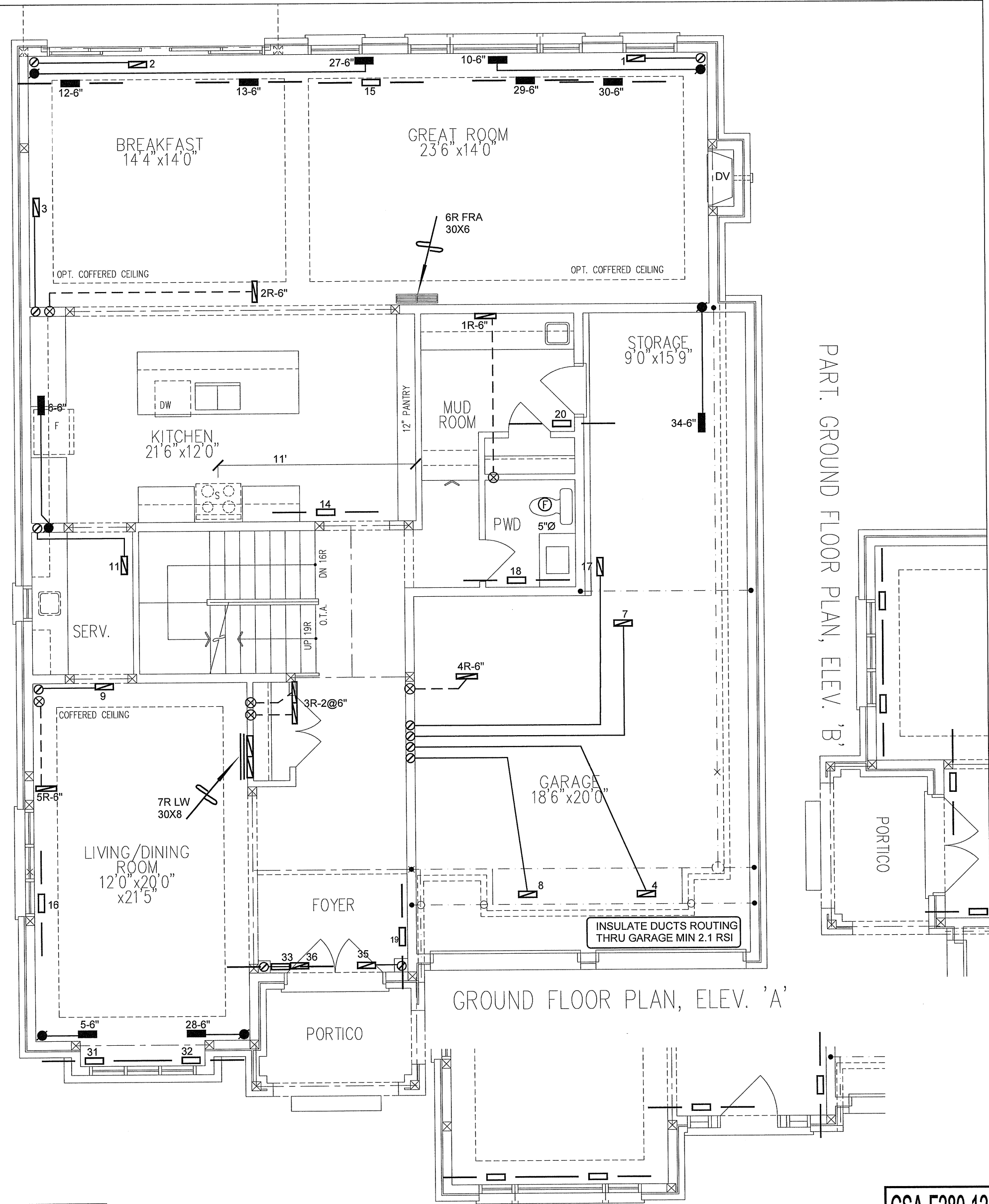
Air Infiltration Residential Load Calculator

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):	9.14		
Building Configuration			
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	1524.1		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	2031.7 cm ²	
	3.57	ACH @ 50 Pa	
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust	
	45.0	45.0	
Flue Size			
Flue #:	#1	#2	#3
Diameter (mm):	0	0	0
Natural Infiltration Rates			
Heating Air Leakage Rate (ACH/H):	0.407		
Cooling Air Leakage Rate (ACH/H):	0.137		

TYPE: 5009
LO# 86419

ALT 5 BED



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.

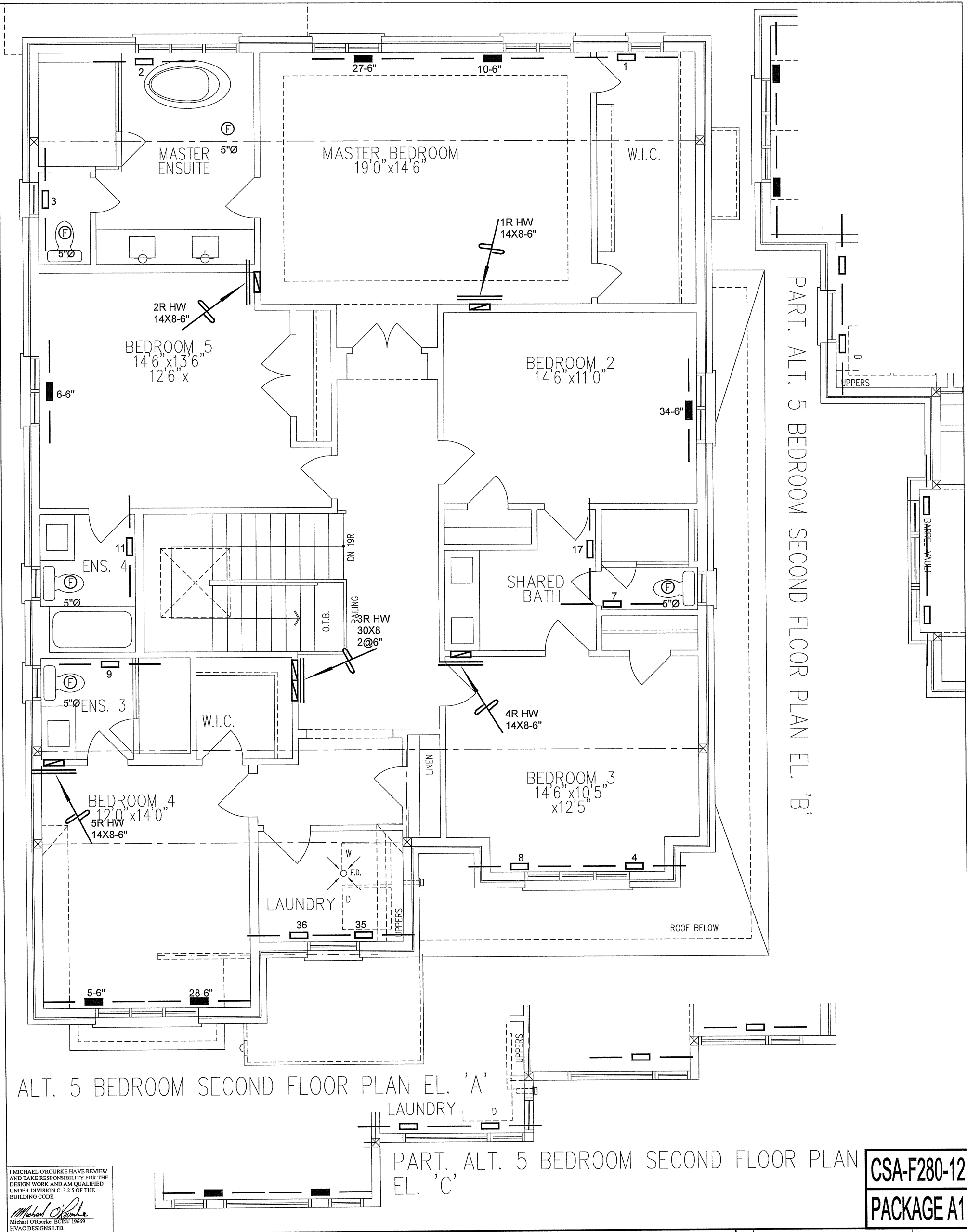
CSA-F280-12
PACKAGE A1

PART. GROUND FLOOR PLAN, ELEV. 'C'

HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	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	Sheet Title	
GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name		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.	Date JUNE/2020	
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale 3/16" = 1'-0"	
OPT 5 BED 5009		3751 sqft	BCIN# 19669	
			LO# 86419	



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GOLD PARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	JUNE/2020
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
OPT 5 BED 5009			BCIN# 19669	
3751 sqft			LO#	86419