

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: 3101 END 1 Project: PINE VALLEY DRIVE	
D. Declaration of Designer			
I, <u>MICHAEL O'ROURKE</u> (print name)		declare that (choose one as appropriate):	
☐ 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.			
April 29, 2021 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 DRIVE
BUILDER: GOLD PARK HOMES
END 1
TYPE: 3101
DATE: Apr-21
LO# 90615
GFA: 1864
WINTER NATURAL AIR CHANGE RATE 0.342
SUMMER NATURAL AIR CHANGE RATE 0.111
HEAT LOSS AT °F. 76
HEAT GAIN AT °F. 13
CSA-F280-12
SB-12 PACKAGE A1

ROOM USE	EXP. WALL CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BATH	LAUN	WIC-3	HEAT LOSS AT °F.	HEAT GAIN AT °F.
GRS.WALL AREA	144	144	261	63	108	288	0	0	54		
GLAZING	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN		
NORTH	21.3 16.0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0		
EAST	21.3 41.6	0 0	0 0	0 0	28 596	44 936	0 0	0 0	0 0		
SOUTH	21.3 24.9	0 0	18 383	0 0	0 0	11 234	0 0	0 0	9 192		
WEST	21.3 41.6	40 851	16 340	9 192	0 0	0 0	0 0	0 0	0 0		
SKYLT.	37.2 101.5	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0		
DOORS	25.2 4.3	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0		
NET EXPOSED WALL	4.5 0.8	104 464	78 227	1013 171	54 241	41 80	357 60	233 1040	175 0		
NET EXPOSED BSMT WALL ABOVE GR	3.6 0.6	0 0	0 0	0 0	0 0	0 0	0 0	0 0	45 201		
EXPOSED CLG	1.3 0.6	256 329	150 168	216 99	112 144	66 156	200 92	247 317	145 0		
NO ATTIC EXPOSED CLG	2.7 1.3	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0		
EXPOSED FLOOR	2.6 0.4	24 61	10 0	14 36	6 156	398 67	0 0	0 0	0 0		
BASEMENT/CRAWL HEAT LOSS		0	0	0	0	0	0	0	0		
SLAB ON GRADE HEAT LOSS		0	0	0	0	0	0	0	0		
SUBTOTAL HT LOSS	1705	1705	1952	612	1551	2527	435	399	507		
SUB TOTAL HT GAIN	1901	1901	1382	486	1382	2422	124	106	438		
LEVEL FACTOR / MULTIPLIER	0.20 0.23	0.20 0.23	0.20 0.23	0.20 0.23	0.20 0.23	0.20 0.23	0.20 0.23	0.20 0.23	0.20 0.23		
AIR CHANGE HEAT LOSS	400	400	458	143	364	592	102	93	119		
AIR CHANGE HEAT GAIN	96	96	70	25	70	123	6	5	22		
DUCT LOSS	210	210	0	76	191	0	54	49	63		
DUCT GAIN	272	272	0	75	193	0	37	35	70		
HEAT GAIN PEOPLE	240	240	0	0	240	240	0	0	0		
HEAT GAIN APPLIANCES/LIGHTS	239	239	239	239	239	239	239	239	239		
TOTAL HT LOSS BTU/H	2315	2315	2410	831	2106	3120	590	541	689		
TOTAL HT GAIN x 1.3 BTU/H	3884	3884	2199	1073	2762	3932	528	501	1000		

ROOM USE	EXP. WALL CLG. HT.	GREAT	KIT	PWD	B-BTH	FOY	G-WIC	BAS
GRS.WALL AREA	420	420	380	60	48	372	110	714
GLAZING	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN
NORTH	21.3 16.0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
EAST	21.3 41.6	0 0	0 0	0 0	0 0	0 0	12 255	0 0
SOUTH	21.3 24.9	24 511	0 0	9 192	0 0	0 0	0 0	4 85
WEST	21.3 41.6	60 1277	61 1298	0 0	4 85	0 0	0 0	8 170
SKYLT.	37.2 101.5	0 0	0 0	0 0	0 0	0 0	0 0	0 0
DOORS	25.2 4.3	0 0	0 0	0 0	0 0	63 1591	0 0	0 0
NET EXPOSED WALL	4.5 0.8	336 1499	319 1424	51 228	0 0	309 1379	98 437	20 505
NET EXPOSED BSMT WALL ABOVE GR	3.6 0.6	0 0	0 0	0 0	24 86	15 0	0 0	0 0
EXPOSED CLG	1.3 0.6	0 0	0 0	0 0	0 0	0 0	0 0	357 1285
NO ATTIC EXPOSED CLG	2.7 1.3	0 0	0 0	0 0	0 0	0 0	0 0	0 0
EXPOSED FLOOR	2.6 0.4	0 0	0 0	0 0	0 0	0 0	0 0	0 0
BASEMENT/CRAWL HEAT LOSS		0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS		0	0	0	0	0	0	0
SUBTOTAL HT LOSS	3287	3287	2722	419	431	2970	693	3856
SUB TOTAL HT GAIN	3343	3343	2774	262	181	500	572	5901
LEVEL FACTOR / MULTIPLIER	0.30 0.34	0.30 0.34	0.30 0.34	0.30 0.34	0.50 0.90	0.30 0.34	0.30 0.34	0.50 0.90
AIR CHANGE HEAT LOSS	1110	1110	919	142	386	1003	234	5292
AIR CHANGE HEAT GAIN	169	169	141	13	9	25	29	37
DUCT LOSS	0	0	0	0	0	0	0	0
DUCT GAIN	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240	240	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	239	239	239	239	239	239	239	239
TOTAL HT LOSS BTU/H	4397	4397	3641	561	817	3972	927	11193
TOTAL HT GAIN x 1.3 BTU/H	4877	4877	4100	358	558	994	1092	1313

TOTAL HEAT GAIN BTU/H: 29391 TONS: 2.45 LOSS DUE TO VENTILATION LOAD BTU/H: 1305 STRUCTURAL HEAT LOSS: 38109 TOTAL COMBINED HEAT LOSS BTU/H: 39414

Michael O'Rourke

SITE NAME: PINE VALLEY DRIVE
BUILDING: GOLD PARK HOMES

END 1
TYPE: 3101

GFA: 1864 LO# 90615

DATE: Apr-21

HEATING CFM 980 COOLING CFM 980
TOTAL HEAT LOSS 38,109 TOTAL HEAT GAIN 29,171
AIR FLOW RATE CFM 25.72 AIR FLOW RATE CFM 33.6

\$LENNOX

AFUE = 96 %
INPUT (BTU/H) = 44,000
OUTPUT (BTU/H) = 42,800

furnace pressure

a/c coil pressure

available pressure

for s/a & r/a

plenum pressure s/a

max s/a diff press. loss

min adjusted pressure s/a

r/a pressure

r/a grille press. loss

adjusted pressure r/a

0.05

0.2

0.35

0.18

0.02

0.16

0.17

0.02

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

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

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

0.15

0.15

0.15

0.15

0.15

0.15

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	8	5
R/A	0	0	4	1	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	WIC	BED-2	BED-3	BED-3	BATH	LAUN	WIC-3	MBR	ENS	GREAT	GREAT	KIT	KIT	BATH	FOY	B-BTH	FOY	G-WIC	BAS	BAS	BAS	BAS
RM LOSS MBH	1.16	1.20	0.83	2.11	1.56	1.56	0.30	0.54	0.69	1.16	1.20	2.20	2.20	1.82	1.82	0.30	1.99	0.82	1.99	0.93	2.80	2.80	2.80	2.80
CFM PER RUN HEAT	30	31	21	54	40	40	8	14	18	30	31	57	57	47	47	8	51	21	51	24	72	72	72	72
RM GAIN MBH	1.94	1.10	1.07	2.76	1.97	1.97	0.26	0.50	1.00	1.94	1.10	2.44	2.44	2.05	2.05	0.26	0.50	0.56	0.50	1.09	0.33	0.33	0.33	0.33
CFM PER RUN COOLING	65	37	36	93	66	66	9	17	34	65	37	82	82	69	69	9	17	19	17	37	11	11	11	11
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
EQUIVALENT LENGTH	30	41	48	58	53	50	40	42	49	41	30	13	17	22	32	37	29	12	36	43	20	33	36	6
TOTAL EFFECTIVE LENGTH	190	190	130	150	120	150	150	120	150	120	220	140	90	140	160	150	160	100	150	110	180	150	130	100
ADJUSTED PRESSURE	0.08	0.07	0.1	0.08	0.1	0.09	0.09	0.11	0.09	0.11	0.07	0.15	0.15	0.11	0.09	0.09	0.09	0.15	0.09	0.11	0.09	0.09	0.1	0.16
ROUND DUCT SIZE	5	4	4	6	5	5	4	4	4	5	4	6	6	5	5	4	5	4	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	220	356	241	275	294	294	92	161	207	220	356	291	291	345	345	92	374	241	374	275	529	529	529	529
COOLING VELOCITY (ft/min)	477	424	413	474	485	485	103	195	390	477	424	418	418	507	507	103	125	218	125	424	81	81	81	81
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	C	A	A	C	C	B	A	B	B	C	D	D	B	A	B	C	D	C	C	B	A	C	D

25	PWD	ROOM NAME	RM LOSS MBH	CFM PER RUN HEAT	RM GAIN MBH	CFM PER RUN COOLING	ADJUSTED PRESSURE	ACTUAL DUCT LGH	EQUIVALENT LENGTH	TOTAL EFFECTIVE LENGTH	ADJUSTED PRESSURE	ROUND DUCT SIZE	HEATING VELOCITY (ft/min)	COOLING VELOCITY (ft/min)	OUTLET GRILL SIZE	TRUNK
14	0.56			14	0.36	12	0.17	32	120	152	0.11	4	161	138	3X10	C

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)	RETURN AIR TRUNK SIZE	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	208	0.08	7.8	8	468	TRUNK G	0	0.00	0	0	TRUNK O	0	0.05	0	0	8
TRUNK B	421	0.08	10.1	14	541	TRUNK H	0	0.00	0	0	TRUNK P	0	0.05	0	0	8
TRUNK C	354	0.07	9.8	12	531	TRUNK I	0	0.00	0	0	TRUNK Q	0	0.05	0	0	8
TRUNK D	982	0.07	14.4	24	737	TRUNK J	0	0.00	0	0	TRUNK R	0	0.05	0	0	8
TRUNK E	0	0.00	0	0	0	TRUNK K	0	0.00	0	0	TRUNK S	0	0.05	0	0	8
TRUNK F	0	0.00	0	0	0	TRUNK L	0	0.00	0	0	TRUNK T	0	0.05	0	0	8
											TRUNK U	0	0.05	0	0	8
											TRUNK V	0	0.05	0	0	8
											TRUNK W	0	0.05	0	0	8
											TRUNK X	980	0.05	15.7	28	8
											TRUNK Y	405	0.05	11.2	14	8
											TRUNK Z	0	0.05	0	0	8
											DROP	980	0.05	15.7	24	10

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	85	150	75	95	425	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLENUM PRESSURE	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	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	43	48	51	57	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	205	250	245	165	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	248	298	296	222	149	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.05	0.05	0.07	0.07	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
ROUND DUCT SIZE	6	7.8	6	6	9.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
INLET GRILL SIZE	14	24	14	14	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: 3101
SITE NAME: PINE VALLEY DRIVE

LO # 90615
END 1

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

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

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

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

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

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	<u>2</u> @ 21.2 cfm	<u>42.4</u> cfm
Other Bedrooms	<u>2</u> @ 10.6 cfm	<u>21.2</u> cfm
Kitchen & Bathrooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Other Rooms	<u>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Table 9.32.3.A.	TOTAL	<u>169.6</u> cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4(1)
1 Bedroom	31.8	cfm
2 Bedroom	47.7	cfm
3 Bedroom	63.6	cfm
4 Bedroom	79.5	cfm
5 Bedroom	95.4	cfm
TOTAL		<u>63.6</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>169.6</u>	cfm
Less Principal Ventil. Capacity	<u>63.6</u>	cfm
Required Supplemental Capacity	<u>106.0</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE V150H	Location: BSMT
<u>63.6</u> cfm	☒ HVI Approved

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

SUPPLEMENTAL FANS		BY INSTALLING CONTRACTOR		
Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	☒	3.5
BATH	BY INSTALLING CONTRACTOR	50	☒	3.5
B-BTH	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE V150H		
<u>150</u> cfm high	<u>35</u> cfm low	
<u>75</u> % 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:	April-21

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																							
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																							
LO#: 90615	Model: 3101	Builder: GOLD PARK HOMES	Date: 4/29/2021																																																																				
Volume Calculation		Air Change & Delta T Data																																																																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>House Volume</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> <tr> <td>Bsmt</td> <td>730</td> <td>9</td> <td>6570</td> </tr> <tr> <td>First</td> <td>730</td> <td>10</td> <td>7300</td> </tr> <tr> <td>Second</td> <td>1175</td> <td>9</td> <td>10575</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>Total:</td> <td></td> <td></td> <td>24,445.0 ft³</td> </tr> <tr> <td>Total:</td> <td></td> <td></td> <td>692.2 m³</td> </tr> </table>		House Volume	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	730	9	6570	First	730	10	7300	Second	1175	9	10575	Third	0	9	0	Fourth	0	9	0	Total:			24,445.0 ft³	Total:			692.2 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">WINTER NATURAL AIR CHANGE RATE</th> </tr> <tr> <td></td> <td></td> <td></td> <td>0.342</td> </tr> <tr> <th colspan="4">SUMMER NATURAL AIR CHANGE RATE</th> </tr> <tr> <td></td> <td></td> <td></td> <td>0.111</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">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>24</td> <td>31</td> <td>7</td> </tr> <tr> <td></td> <td></td> <td></td> <td>13</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE							0.342	SUMMER NATURAL AIR CHANGE RATE							0.111	Design Temperature Difference					Tin °C	Tout °C	ΔT °C	Winter DTDh	22	-20	42	Summer DTDc	24	31	7				13
House Volume	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																																				
Bsmt	730	9	6570																																																																				
First	730	10	7300																																																																				
Second	1175	9	10575																																																																				
Third	0	9	0																																																																				
Fourth	0	9	0																																																																				
Total:			24,445.0 ft³																																																																				
Total:			692.2 m³																																																																				
WINTER NATURAL AIR CHANGE RATE																																																																							
			0.342																																																																				
SUMMER NATURAL AIR CHANGE RATE																																																																							
			0.111																																																																				
Design Temperature Difference																																																																							
	Tin °C	Tout °C	ΔT °C																																																																				
Winter DTDh	22	-20	42																																																																				
Summer DTDc	24	31	7																																																																				
			13																																																																				
6.2.6 Sensible Gain due to Air Leakage																																																																							
$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																																																							
0.342	x	192.28	x																																																																				
		7 °C	x																																																																				
		1.2	=																																																																				
			182 W																																																																				
			=																																																																				
			622 Btu/h																																																																				
6.2.7 Sensible heat Gain due to Ventilation																																																																							
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																																							
64 CFM	x	13 °F	x																																																																				
		1.08	x																																																																				
		0.25	=																																																																				
			220 Btu/h																																																																				
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																																							
$HL_{airrr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HLclevel)</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLclevel)</th> </tr> <tr> <td>1</td> <td>0.5</td> <td rowspan="5">11,356</td> <td>6,332</td> <td>0.897</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>10,090</td> <td>0.338</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>9,688</td> <td>0.234</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)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HLclevel)	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLclevel)	1	0.5	11,356	6,332	0.897	2	0.3	10,090	0.338	3	0.2	9,688	0.234	4	0	0	0.000	5	0	0	0.000																																										
Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HLclevel)	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLclevel)																																																																			
1	0.5	11,356	6,332	0.897																																																																			
2	0.3		10,090	0.338																																																																			
3	0.2		9,688	0.234																																																																			
4	0		0	0.000																																																																			
5	0		0	0.000																																																																			
*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0																																																																							

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 3101	END 1	BUILDER: GOLD PARK HOMES
SFQT: 1864	LO# 90615	SITE: PINE VALLEY DRIVE

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:	ATTACHED	# 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):	24445.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 39.0 ft	WIDTH: 31.0 ft	EXPOSED PERIMETER:	127.0 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	96%	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

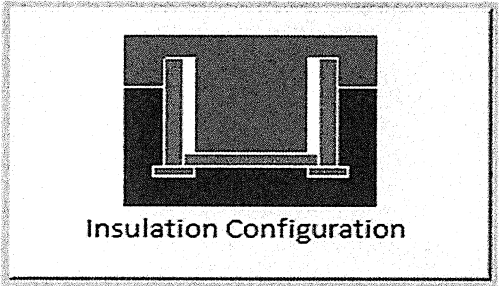
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

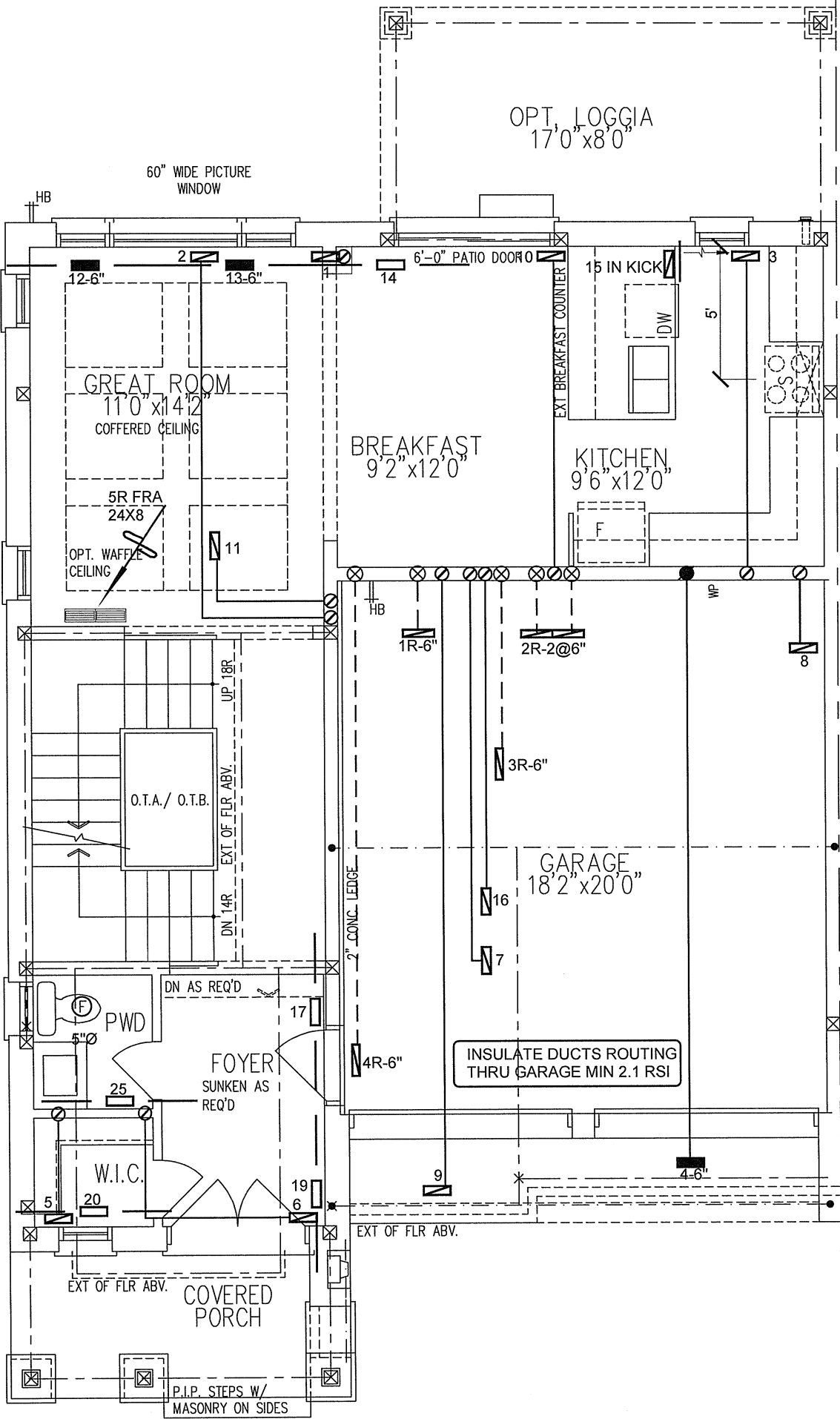
Supplemental tool for CAN/CSA-F280

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):	11.9	 Insulation Configuration
Floor Width (m):	9.4	
Exposed Perimeter (m):	38.7	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.5	
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):		1206

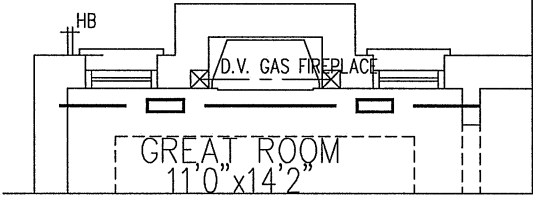
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

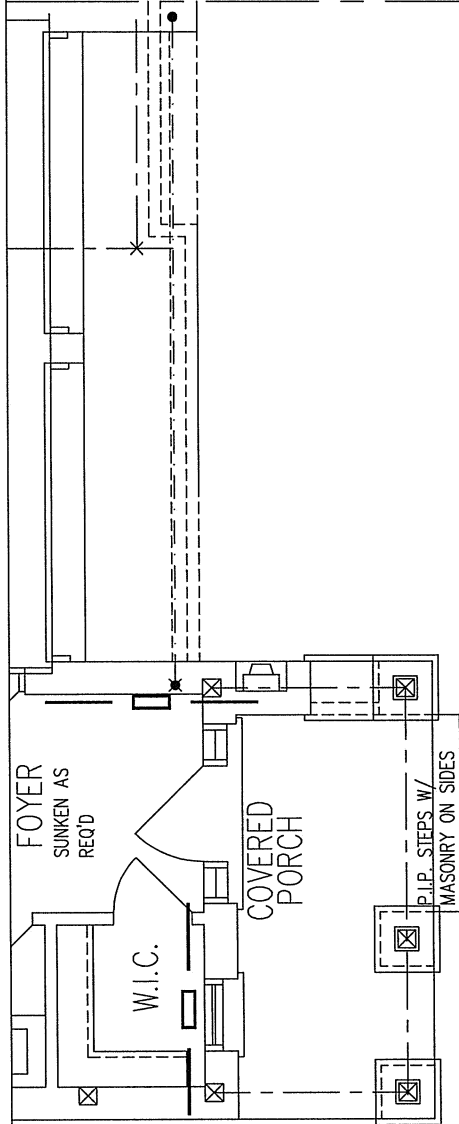
Weather Station Description				
Province:	Ontario			
Region:	Vaughan (Woodbridge)			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	6.71			
Building Configuration				
Type:	Semi			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	692.2			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	922.7 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	30.0	30.0		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.342			
Cooling Air Leakage Rate (ACH/H):	0.111			



GROUND FLOOR PLAN, ELEV. 'A'



PARTIAL OPT. GROUND FLOOR
PLAN, ELEV. 'A' & 'B'
W/ GAS FIREPLACE



PARTIAL GROUND FLOOR PLAN, ELEV. 'B'

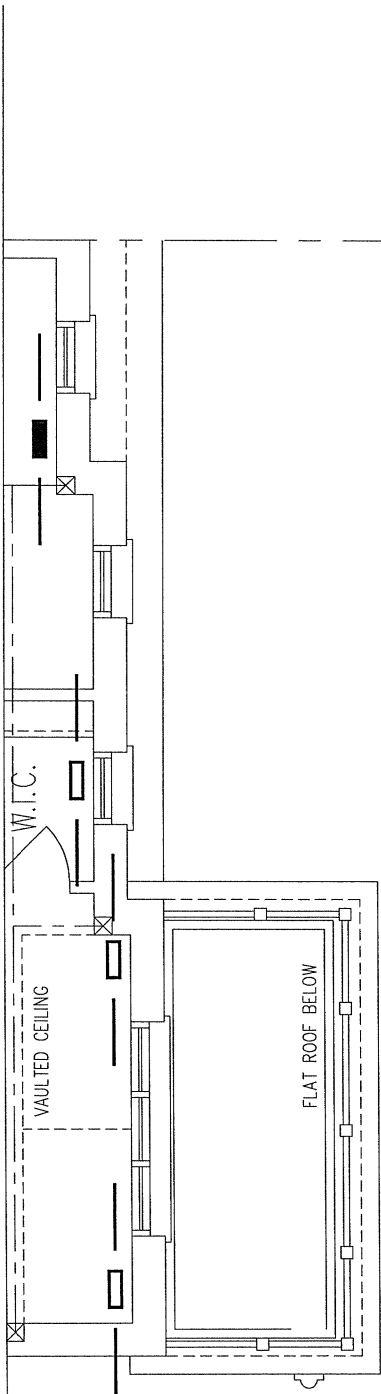
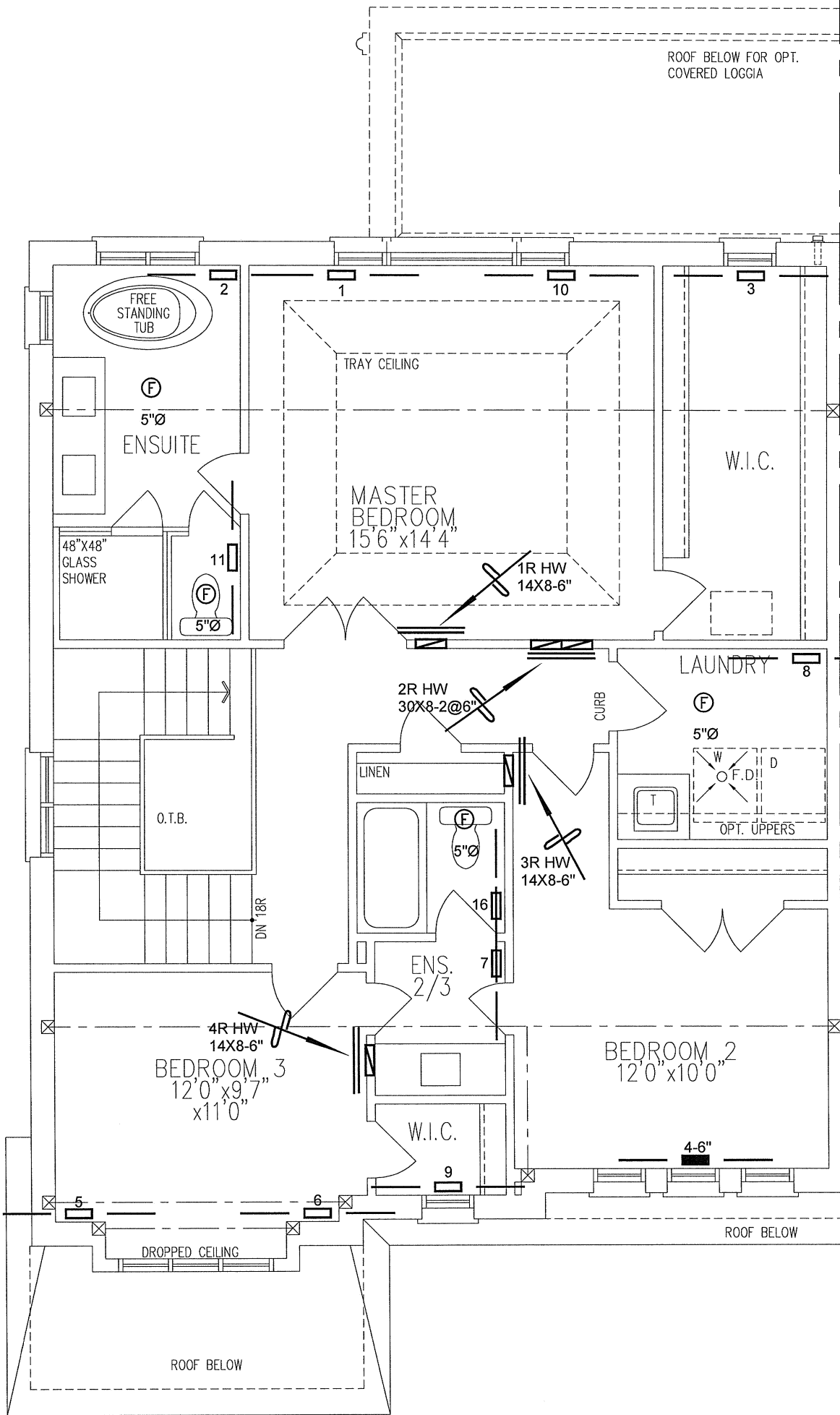
I MICHAEL O'ROURKE HAVE REVIEW
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C, 3.2.5 OF THE
BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	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		

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 GOLD PARK HOMES		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name PINE VALLEY DRIVE VAUGHAN, ONTARIO			Date APR/2021	Scale 3/16" = 1'-0"
3101 - END 1 1864 sqft			BCIN# 19669	
			LO#	90615



PARTIAL SECOND FLOOR PLAN, ELEV. 'B'

SECOND FLOOR PLAN, ELEV. 'A'

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

CSA-F280-12
PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	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		

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		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@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	Sheet Title	
GOLD PARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	APR/2021
PINE VALLEY DRIVE VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
			BCIN# 19669	
3101 - END 1 1864 sqft		LO#	90615	