

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]					
☐ 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: 4202- ROSEDALE 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.					
September 10, 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 DATE: Sep-18 WINTER NATURAL AIR CHANGE RATE 0.340 CSA-F280-12
BUILDER: GOLD PARK HOMES LOS 77465 SUMMER NATURAL AIR CHANGE RATE 0.124 SB-12 PACKAGE A1

ROOM USE	MBR	ENS	HERS	BED-2	BED-3	BED-4	ENS-2	LOFT	ENS-3	ENS-4	HEAT LOSS AT °F	HEAT GAIN AT °F
EXP. WALL	47	34	7	18	36	12	0	38	9	11		
CLG. HT.	10	9	9	9	9	9	9	9	9	9		
FACTORS												
GRS.WALL AREA	470	308	63	182	324	108	0	342	81	99		
GLAZING												
NORTH	0	0	0	0	0	0	0	0	0	0		
EAST	0	0	0	0	0	0	0	0	0	0		
SOUTH	0	0	0	0	0	0	0	0	0	0		
WEST	0	0	0	0	0	0	0	0	0	0		
SKYL.T.	54	1149	2289	18	383	463	0	20	426	516		
DOORS	0	0	0	0	0	0	0	0	0	0		
NET EXPOSED WALL	470	308	63	182	324	108	0	342	81	99		
NET EXPOSED BSMT WALL ABOVE GR	4.6	1856	386	277	1236	267	0	0	0	0		
NO ATTIC EXPOSED CLG	1.3	480	616	308	168	216	0	30	82	41		
EXPOSED FLOOR	2.7	1.4	0	0	0	0	0	0	0	0		
BASEMENT/CRAWL HEAT LOSS	2.6	0.5	0	0	0	0	0	0	0	0		
SUBTOTAL HT LOSS	3822	2069	407	1809	3411	1000	160	3116	686	678		
SUB TOTAL HT GAIN	2982	1410	121	719	2826	664	50	2787	271	357		
LEVEL FACTOR / MULTIPLIER	0.20	0.27	0.20	0.27	0.20	0.27	0.20	0.27	0.20	0.27		
AIR CHANGE HEAT LOSS	369	553	109	484	912	268	43	833	183	181		
AIR CHANGE HEAT GAIN	317	150	13	76	300	69	5	253	29	38		
DUCT LOSS	0	0	0	229	432	0	20	395	87	0		
DUCT GAIN	0	0	0	191	424	0	6	393	30	0		
HEAT GAIN PEOPLE	2	480	0	1	240	1	0	0	0	0		
HEAT GAIN APPLANCES/LIGHTS	877	877	0	877	877	877	0	877	0	0		
TOTAL HT LOSS BTU/H	4590	2622	516	2522	4755	1268	223	4345	956	859		
TOTAL HT GAIN x 1.3 BTU/H	6051	2028	174	2736	6068	2392	79	5615	428	514		

ROOM USE	DIN	LAUN	PWD	FOY	MUD	HIS	LOD	BAS
EXP. WALL	17	0	15	59	15	6	43	202
CLG. HT.	11	9	12	11	12	9	10	10
FACTORS								
GRS.WALL AREA	187	0	180	649	180	64	430	1672
GLAZING								
NORTH	0	0	0	0	0	0	0	0
EAST	0	0	0	0	0	0	0	0
SOUTH	0	0	0	0	0	0	0	0
WEST	0	0	0	0	0	0	0	0
SKYL.T.	0	0	0	0	0	0	0	0
DOORS	0	0	0	0	0	0	0	0
NET EXPOSED WALL	187	0	180	649	180	64	430	1672
NET EXPOSED BSMT WALL ABOVE GR	4.6	0	0	57	20	0	0	20
NO ATTIC EXPOSED CLG	1.3	0	0	592	160	54	0	505
EXPOSED FLOOR	2.7	0	0	0	0	0	0	105
BASEMENT/CRAWL HEAT LOSS	2.6	0	0	0	0	0	0	0
SUBTOTAL HT LOSS	1406	123	803	4081	1219	563	1282	8678
SUB TOTAL HT GAIN	1017	61	167	848	263	148	1026	365
LEVEL FACTOR / MULTIPLIER	0.30	0.27	0.30	0.30	0.30	0.27	0.50	1.18
AIR CHANGE HEAT LOSS	648	33	370	1882	562	151	238	11797
AIR CHANGE HEAT GAIN	108	7	18	90	27	16	0	148
DUCT LOSS	0	0	0	0	0	0	0	0
DUCT GAIN	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0
HEAT GAIN APPLANCES/LIGHTS	877	877	877	877	877	877	877	877
TOTAL HT LOSS BTU/H	2055	11457	1174	5963	1781	785	1282	20475
TOTAL HT GAIN x 1.3 BTU/H	2602	1228	240	1220	1504	235	1324	1806

TOTAL HEAT GAIN BTU/H: 48178 TONS: 4.01 LOSS DUE TO VENTILATION LOAD BTU/H: 3161 STRUCTURAL HEAT LOSS: 8782 TOTAL COMBINED HEAT LOSS BTU/H: 70963

Michael O'Rourke

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

TYPE: 4202- ROSEDALE DATE: Sep-18 LO# 77465

HEATING CFM 1525 COOLING CFM 1525
TOTAL HEAT LOSS 67,782 TOTAL HEAT GAIN 47,516
AIR FLOW RATE CFM 22.5 AIR FLOW RATE CFM 32.09

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

RUN COUNT	4th	3rd	2nd	1st	BAS
S/A	0	0	17	9	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	LOFT	ENS	BED-2	BED-3	BED-4	ENS-3	LOFT	ENS-4	MBR	ENS-3	ENS-4	DIN	KT/GT	KT/GT	KT/GT	KT/GT	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	2.30	1.31	1.31	1.59	1.27	2.30	0.22	0.86	2.30	0.96	0.86	2.05	2.86	2.86	2.86	2.86	0.16	1.17	2.88	1.78	3.63	3.63	3.63	3.63
CFM PER RUN HEAT	52	30	30	57	29	52	5	49	21	52	19	46	64	64	64	64	4	26	67	40	82	82	82	82
RM GAIN MBH	3.03	1.01	1.01	2.73	2.02	3.03	0.08	0.81	0.43	3.03	0.51	2.80	2.82	2.82	2.82	2.82	1.23	0.24	0.61	1.50	0.52	0.52	0.52	0.52
CFM PER RUN COOLING	97	33	33	88	77	97	3	90	14	97	16	84	90	90	90	90	39	8	20	48	17	17	17	17
ADJUSTED PRESSURE	0.16	0.17	0.17	0.16	0.17	0.16	0.17	0.16	0.17	0.16	0.17	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16
EQUIVALENT LENGTH	160	150	130	190	140	140	190	190	160	140	140	150	130	130	130	130	190	160	150	120	110	120	130	130
TOTAL EFFECTIVE LENGTH	229	203	191	250	199	238	245	208	213	179	160	173	177	177	178	187	242	182	192	134	165	160	133	166
ADJUSTED PRESSURE	0.07	0.08	0.09	0.06	0.09	0.1	0.07	0.07	0.08	0.08	0.1	0.09	0.09	0.09	0.09	0.09	0.07	0.09	0.09	0.13	0.1	0.1	0.12	0.1
ROUND DUCT SIZE	6	4	4	6	5	5	4	6	4	6	4	5	6	6	6	6	4	4	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	265	344	344	291	264	213	57	250	241	265	218	338	326	326	326	326	46	298	492	459	602	602	602	602
COOLING VELOCITY (ft/min)	495	379	379	449	477	565	34	459	161	495	184	617	459	459	459	459	447	92	147	551	125	125	125	125
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	A	A	E	C	E	D	E	B	E	C	C	A	A	B	B	B	B	D	C	A	B	C	D

RUN #	25	26	27	28	29	30	31	32
ROOM NAME	BED-3	LOFT	BAS	FOY	HRS	HIS	BED-3	BAS
RM LOSS MBH	1.59	2.17	3.63	2.98	0.52	0.78	1.59	3.63
CFM PER RUN HEAT	36	49	82	67	12	18	36	82
RM GAIN MBH	2.02	2.81	0.52	0.61	0.17	0.23	2.02	0.52
CFM PER RUN COOLING	65	90	17	20	6	8	65	17
ADJUSTED PRESSURE	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.16
EQUIVALENT LENGTH	45	57	33	40	50	60	58	22
TOTAL EFFECTIVE LENGTH	140	150	180	150	180	150	160	120
ADJUSTED PRESSURE	0.09	0.08	0.08	0.09	0.07	0.08	0.08	0.11
ROUND DUCT SIZE	5	6	5	5	4	4	5	5
HEATING VELOCITY (ft/min)	264	250	602	492	138	207	264	602
COOLING VELOCITY (ft/min)	477	459	125	147	69	92	477	125
OUTLET GRILL SIZE	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	E	D	D	D	B	B	E	C

TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	270	0.08	8.6	8	608	TRUNK G	0	0.00	0	0	0	TRUNK O	0	0.06	0	0	8
TRUNK B	348	0.07	9.8	12	522	TRUNK H	0	0.00	0	0	0	TRUNK P	0	0.06	0	0	8
TRUNK C	916	0.07	14	22	749	TRUNK I	0	0.00	0	0	0	TRUNK Q	0	0.06	0	0	8
TRUNK D	396	0.07	10.2	12	594	TRUNK J	0	0.00	0	0	0	TRUNK R	0	0.06	0	0	8
TRUNK E	613	0.06	12.5	18	613	TRUNK K	0	0.00	0	0	0	TRUNK S	0	0.06	0	0	8
TRUNK F	0	0.00	0	0	0	TRUNK L	0	0.00	0	0	0	TRUNK T	0	0.06	0	0	8
												TRUNK U	0	0.06	0	0	8
												TRUNK V	0	0.06	0	0	8
												TRUNK W	0	0.06	0	0	8
												TRUNK X	1525	0.06	17.7	32	8
												TRUNK Y	430	0.06	11	14	8
												TRUNK Z	925	0.06	14.6	24	8
												DROP	1525	0.06	17.7	24	14

RETURN AIR #	1	2	3	4	5	6	7	BR																
AIR VOLUME	130	125	130	130	365	300	130	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	
ACTUAL DUCT LGH	62	69	49	53	30	52	56	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
EQUIVALENT LENGTH	155	165	145	185	185	140	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL EFFECTIVE LH	217	234	194	238	215	192	206	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
ADJUSTED PRESSURE	0.07	0.06	0.08	0.06	0.07	0.08	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	
ROUND DUCT SIZE	6.8	6.9	6.5	7	9.9	8.9	6.8	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
INLET GRILL SIZE	14	14	14	14	30	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

TYPE: 4202- ROSEDALE
SITE NAME: PINE VALLEY & TESTON

LO # 77465

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

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

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

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

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

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	2 @ 21.2 cfm	42.4 cfm
Other Bedrooms	3 @ 10.6 cfm	31.8 cfm
Kitchen & Bathrooms	6 @ 10.6 cfm	63.6 cfm
Other Rooms	8 @ 10.6 cfm	84.8 cfm
Table 9.32.3.A.	TOTAL	222.6 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	222.6	cfm
Less Principal Ventil. Capacity	155	cfm
Required Supplemental Capacity	67.6	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model: VANEE 65H	Location: BSMT		
155.0 cfm	3.0 sones		
☒ 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
ENS	QTXEN050C	50
ENS-2	QTXEN050C	50
ENS-4	QTXEN050C	50
PWD	QTXEN050C	50

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:	September-18

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																													
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																													
LO#: 77465		Model: 4202- ROSEDALE		Builder: GOLD PARK HOMES		Date: 9/10/2018																																																							
Volume Calculation				Air Change & Delta T Data																																																									
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>1540</td> <td>10</td> <td>15400</td> </tr> <tr> <td>First</td> <td>1540</td> <td>11</td> <td>16940</td> </tr> <tr> <td>Second</td> <td>2076</td> <td>9</td> <td>18684</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>51,024.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>1444.8 m³</td> </tr> </tbody> </table>				Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1540	10	15400	First	1540	11	16940	Second	2076	9	18684	Third	0	9	0	Fourth	0	9	0	Total:			51,024.0 ft³	Total:			1444.8 m³	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> </tr> </thead> <tbody> <tr> <td>Winter DTDh</td> <td>22</td> <td>-20</td> <td>42</td> </tr> <tr> <td>Summer DTDc</td> <td>22</td> <td>31</td> <td>9</td> </tr> <tr> <td></td> <td></td> <td></td> <td>16</td> </tr> </tbody> </table>						Design Temperature Difference					Tin °C	Tout °C	ΔT °C	Winter DTDh	22	-20	42	Summer DTDc	22	31	9				16
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																										
Bsmt	1540	10	15400																																																										
First	1540	11	16940																																																										
Second	2076	9	18684																																																										
Third	0	9	0																																																										
Fourth	0	9	0																																																										
Total:			51,024.0 ft³																																																										
Total:			1444.8 m³																																																										
Design Temperature Difference																																																													
	Tin °C	Tout °C	ΔT °C																																																										
Winter DTDh	22	-20	42																																																										
Summer DTDc	22	31	9																																																										
			16																																																										
				<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">WINTER NATURAL AIR CHANGE RATE</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td>0.340</td> </tr> <tr> <th colspan="4" style="text-align: center;">SUMMER NATURAL AIR CHANGE RATE</th> </tr> <tr> <td></td> <td></td> <td></td> <td>0.124</td> </tr> </tbody> </table>						WINTER NATURAL AIR CHANGE RATE							0.340	SUMMER NATURAL AIR CHANGE RATE							0.124																																				
WINTER NATURAL AIR CHANGE RATE																																																													
			0.340																																																										
SUMMER NATURAL AIR CHANGE RATE																																																													
			0.124																																																										
5.2.3.1 Heat Loss due to Air Leakage																																																													
$HL_{airb} = LR_{airb} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$																																																													
0.340	x	401.34	x	42 °C	x	1.2	=	6915 W																																																					
								=	23594 Btu/h																																																				
5.2.3.2 Heat Loss due to Mechanical Ventilation																																																													
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																													
155 CFM	x	76 °F	x	1.08	x	0.25	=	3181 Btu/h																																																					
								=	661 Btu/h																																																				
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																													
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{qgcr} + HL_{bgcr}) \div (HL_{qglevel} + HL_{bglevel})\}$																																																													
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <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 HLairev / HL_{level})</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">23,594</td> <td>9,960</td> <td>1.184</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>15,351</td> <td>0.461</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>17,643</td> <td>0.267</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)	HLaire Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairev / HL _{level})	1	0.5	23,594	9,960	1.184	2	0.3	15,351	0.461	3	0.2	17,643	0.267	4	0	0	0.000	5	0	0	0.000																										
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 HLairev / HL _{level})																																																									
1	0.5	23,594	9,960	1.184																																																									
2	0.3		15,351	0.461																																																									
3	0.2		17,643	0.267																																																									
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:** 4202- ROSEDALE**BUILDER:** GOLD PARK HOMES**SFQT:** 3592**LO#** 77465**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)	72

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft ³):	51024.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.70	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 68.0 ft	WIDTH: 33.0 ft	EXPOSED PERIMETER:	202.0 ft

2012 OBC - COMPLIANCE PACKAGE		Compliance Package	
Component		A1	
		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.65
Exposed Floor Minimum RSI (R)-Value		31	29.80
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	-

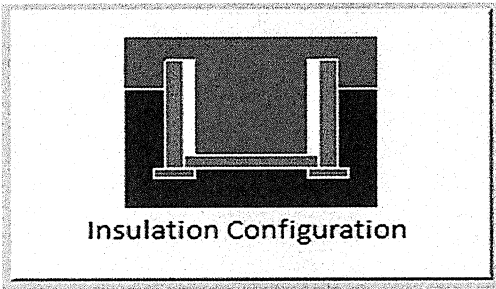
INDIVIDUAL BCIN: 19669

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):	20.7	 Insulation Configuration
Floor Width (m):	10.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.9	
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):		2028

TYPE: 4202- ROSEDALE
LO# 77465

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):	7.01			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1444.8			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1926.0 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):	0.340			
Cooling Air Leakage Rate (ACH/H):	0.124			

TYPE: 4202- ROSEDALE
LO# 77465

CSA-F280-12

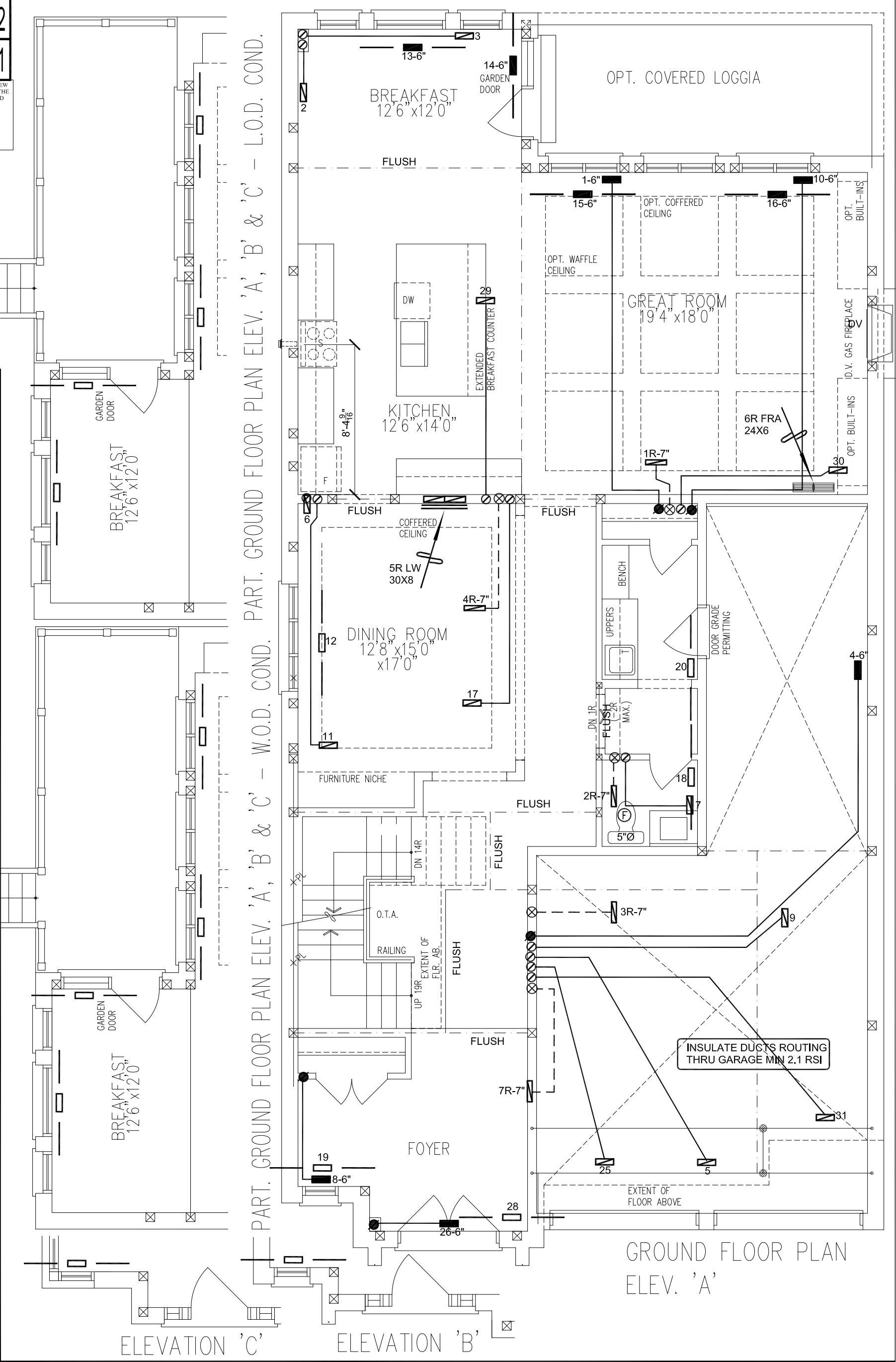
PACKAGE A1

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.

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	HVAC LEGEND			SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	3.	REVISIONS
	SUPPLY AIR GRILLE		SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK ABOVE		6" SUPPLY AIR STACK FROM 2nd FLOOR			30"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	DECK CONDITIONS ADDED
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK 2nd FLOOR		FRA-FLOOR RETURN AIR GRILLE		REDUCER	RETURN AIR STACK 2nd FLOOR	No.	Description	Date		2.	REVISED AS PER CAD
													3.	REVISED AS PER ARCHITECTURALS
														SEPT/2018
														JULY/2018



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
Project Name	PINE VALLEY & TESTON VAUGHAN, ONTARIO
	ROSEDALE 4202
	3592 sqft

HVACDESIGNS 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	FIRST FLOOR HEATING LAYOUT
Date	JAN/2018
Scale	3/16" = 1'-0"
	BCIN# 19669
LO#	77465

CSA-F280-12

PACKAGE A1

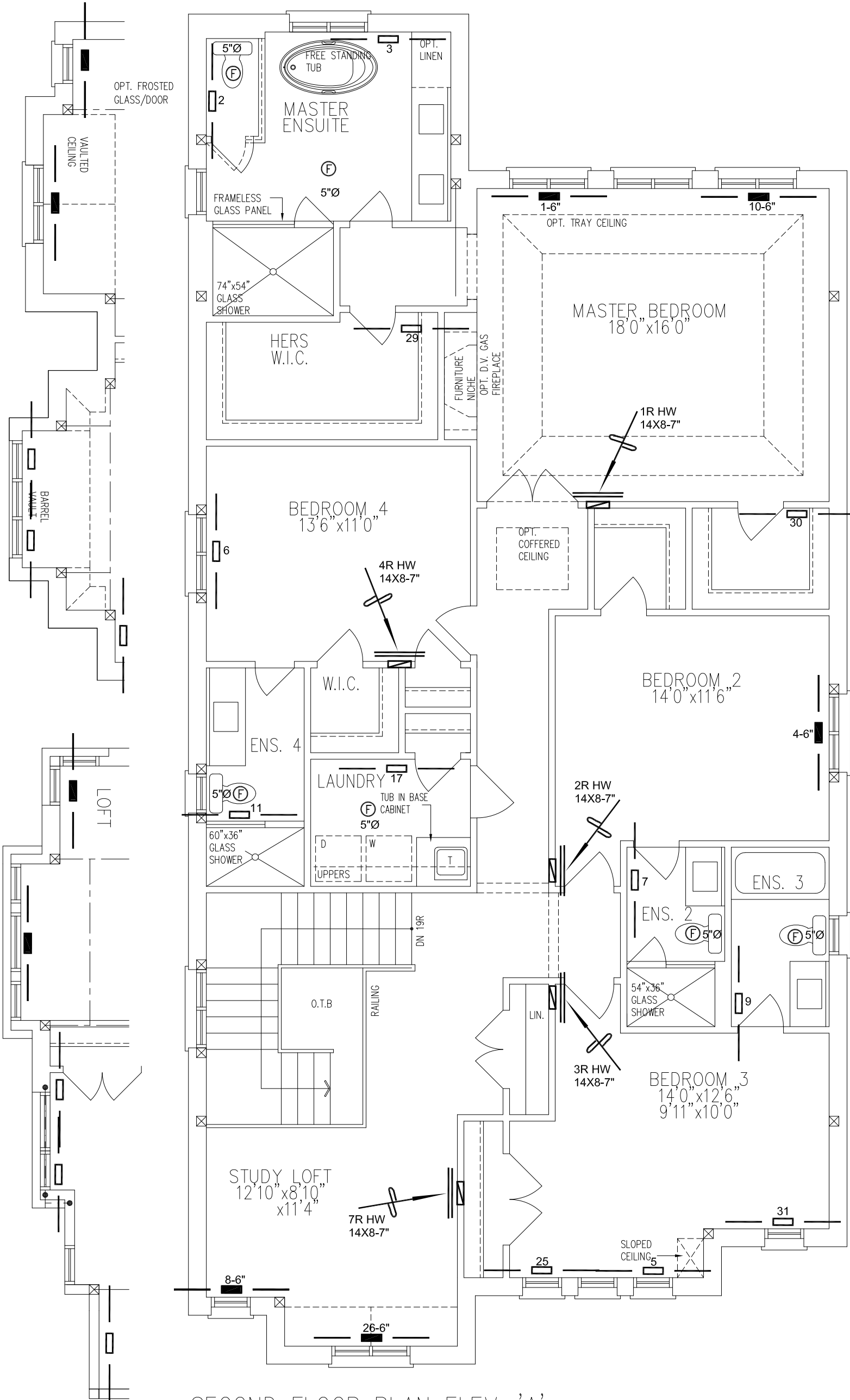
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

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

HVAC LEGEND			3.
SYMBOL	DESCRIPTION	SYMBOL	REVIS AS PER ARCHITECTURALS
	SUPPLY AIR GRILLE		2. DECK CONDITIONS ADDED
	SUPPLY AIR GRILLE 6" BOOT		1. REVISED AS PER CAD
	SUPPLY AIR BOOT ABOVE		No. Description
	SUPPLY AIR BOOT ABOVE		1. Description
	SUPPLY AIR STACK FROM 2nd FLOOR		2. Date
	SUPPLY AIR STACK 2nd FLOOR		
	FRA-FLOOR RETURN AIR GRILLE		
	FRA-FLOOR RETURN AIR GRILLE		
	RETURN AIR STACK ABOVE		
	RETURN AIR STACK ABOVE		
	REDUCER		
	REDUCER		

PARTIAL SECOND FLOOR PLAN – ELEVATION 'B'

PARTIAL SECOND FLOOR PLAN – ELEVATION 'C'



SECOND FLOOR PLAN ELEV. 'A'

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		HVACDESIGNS 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		ROSEDALE 4202	Date	JAN/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
3592 sqft		3592 sqft	BCIN# 19669	
			LO#	77465