


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: 4202- ROSEDALE Project: PINE VALLEY & TESTON		
D. Declaration of Designer				
I, <u>MICHAEL O'ROURKE</u> (print name)		declare that (choose one as appropriate):		
<input type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____				
<input checked="" type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code. Individual BCIN: <u>19669</u> Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>				
<input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: _____				
I certify that:				
1. The information contained in this schedule is true to the best of my knowledge. 2. I have submitted this application with the knowledge and consent of the firm.				
September 10, 2018				
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	9	182		
NO ATTIC EXPOSED CLG	1.3	480	616	308	168	216	0	30	45	68		
EXPOSED FLOOR	2.7	1.4	0	0	0	0	0	50	128	27		
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	505	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	253	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	11797	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	11266	1228	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

GFA: 3592 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

furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure 0.35

EL296UH090XE48C

^LENNOX

FAN SPEED 90

AFUE = 96 %

INPUT (BTU/H) = 88,000

OUTPUT (BTU/H) = 85,000

LOW 0

MEDLOW 0

MEDIUM 1105

HIGH 1255

DESIGN CFM = 1525

CFM @ .6" E.S.P.

TEMPERATURE RISE 52 °F

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	BED-3	BED-2	ENS	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	1.59	1.31	1.31	1.27	0.96	2.17	0.86	2.30	0.96	0.86	2.05	2.86	2.86	2.86	2.86	0.16	1.17	2.98	1.78	3.63	3.63	3.63	3.63
CFM PER RUN HEAT	52	30	57	30	29	21	49	19	52	21	46	64	64	64	64	64	4	26	67	40	82	82	82	82
RM GAIN MBH	3.03	1.01	2.73	2.02	2.39	0.88	0.08	2.81	0.43	0.43	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	33	77	3	90	14	97	16	16	84	90	90	90	90	39	8	20	48	17	17	17	17
ADJUSTED PRESSURE	0.16	0.17	0.16	0.17	0.17	0.17	0.16	0.17	0.16	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
EQUIVALENT LENGTH	160	150	130	190	140	140	190	190	160	160	140	150	130	130	130	130	190	160	150	120	110	120	130	130
TOTAL EFFECTIVE LENGTH	229	203	191	250	199	165	238	245	208	213	179	160	173	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	E	C	E	D	E	B	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	X	8	X	8	X	X	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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) <input checked="" type="checkbox"/>	Direct vent (sealed combustion) only	
b) <input type="checkbox"/>	Positive venting induced draft (except fireplaces)	
c) <input type="checkbox"/>	Natural draft, B-vent or induced draft gas fireplace	
d) <input type="checkbox"/>	Solid Fuel (Including fireplaces)	
e) <input type="checkbox"/>	No Combustion Appliances	

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

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

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
<input type="checkbox"/>	1 Exhaust only/Forced Air System	
<input type="checkbox"/>	2 HRV with Ducting/Forced Air System	
<input checked="" type="checkbox"/>	3 HRV Simplified/connected to forced air system	
<input type="checkbox"/>	4 HRV with Ducting/non forced air system	
<input type="checkbox"/>	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	2 @ 21.2 cfm	42.4 cfm
Other Bedrooms	3 @ 10.6 cfm	31.8 cfm
Kitchen & Bathrooms	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
<input checked="" type="checkbox"/> HVI Approved	

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

SUPPLEMENTAL FANS		NUTONE	
Location	Model	cfm	HVI
ENS	QTXEN050C	50	<input checked="" type="checkbox"/>
ENS-2	QTXEN050C	50	<input checked="" type="checkbox"/>
ENS-4	QTXEN050C	50	<input checked="" type="checkbox"/>
PWD	QTXEN050C	50	<input checked="" type="checkbox"/>

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 65H		
155 cfm high	64 cfm low	
75 % Sensible Efficiency	<input checked="" type="checkbox"/> HVI Approved	
@ 32 deg F (0 deg C)		

LOCATION OF INSTALLATION	
Lot:	Concession
Township	Plan:
Address	
Roll #	Building Permit #

BUILDER: GOLD PARK HOMES	
Name:	
Address:	
City:	
Telephone #:	Fax #:

INSTALLING CONTRACTOR	
Name:	
Address:	
City:	
Telephone #:	Fax #:

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	September-18

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																																																
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																																																
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Volume Calculation				Air Change & Delta T Data																																																																																												
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>House Volume</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td></td> <td></td> <td></td> </tr> <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">Total:</td> <td></td> <td>51,024.0 ft³</td> </tr> <tr> <td colspan="2">Total:</td> <td></td> <td>1444.8 m³</td> </tr> </tbody> </table>				House Volume	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Level				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">WINTER NATURAL AIR CHANGE RATE</th> <th colspan="4">SUMMER NATURAL AIR CHANGE RATE</th> </tr> </thead> <tbody> <tr> <td colspan="4"></td> <td colspan="4"></td> </tr> <tr> <td colspan="4"></td> <td colspan="4"></td> </tr> <tr> <td colspan="4"></td> <td colspan="4"></td> </tr> </tbody> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> </thead> <tbody> <tr> <td>Winter DTDh</td> <td>22</td> <td>-20</td> <td>42</td> <td>76</td> </tr> <tr> <td>Summer DTDc</td> <td>22</td> <td>31</td> <td>9</td> <td>16</td> </tr> </tbody> </table>						WINTER NATURAL AIR CHANGE RATE				SUMMER NATURAL AIR CHANGE RATE																												Design Temperature Difference					Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	22	31	9	16
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WINTER NATURAL AIR CHANGE RATE				SUMMER NATURAL AIR CHANGE RATE																																																																																												
Design Temperature Difference																																																																																																
	Tin °C	Tout °C	ΔT °C	ΔT °F																																																																																												
Winter DTDh	22	-20	42	76																																																																																												
Summer DTDc	22	31	9	16																																																																																												
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																																																																																								
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																																																																
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{qgcr} + HL_{pgcr}) \div (HL_{qglevel} + HL_{bglevel})\}$																																																																																																
<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 HLairebv / 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 HLairebv / 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																																																													
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<p>*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0</p>																																																																																																

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

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	-

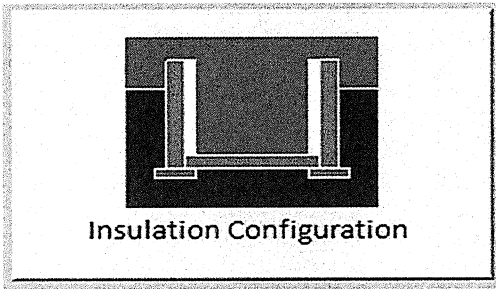
INDIVIDUAL BCIN: 19669

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):	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			

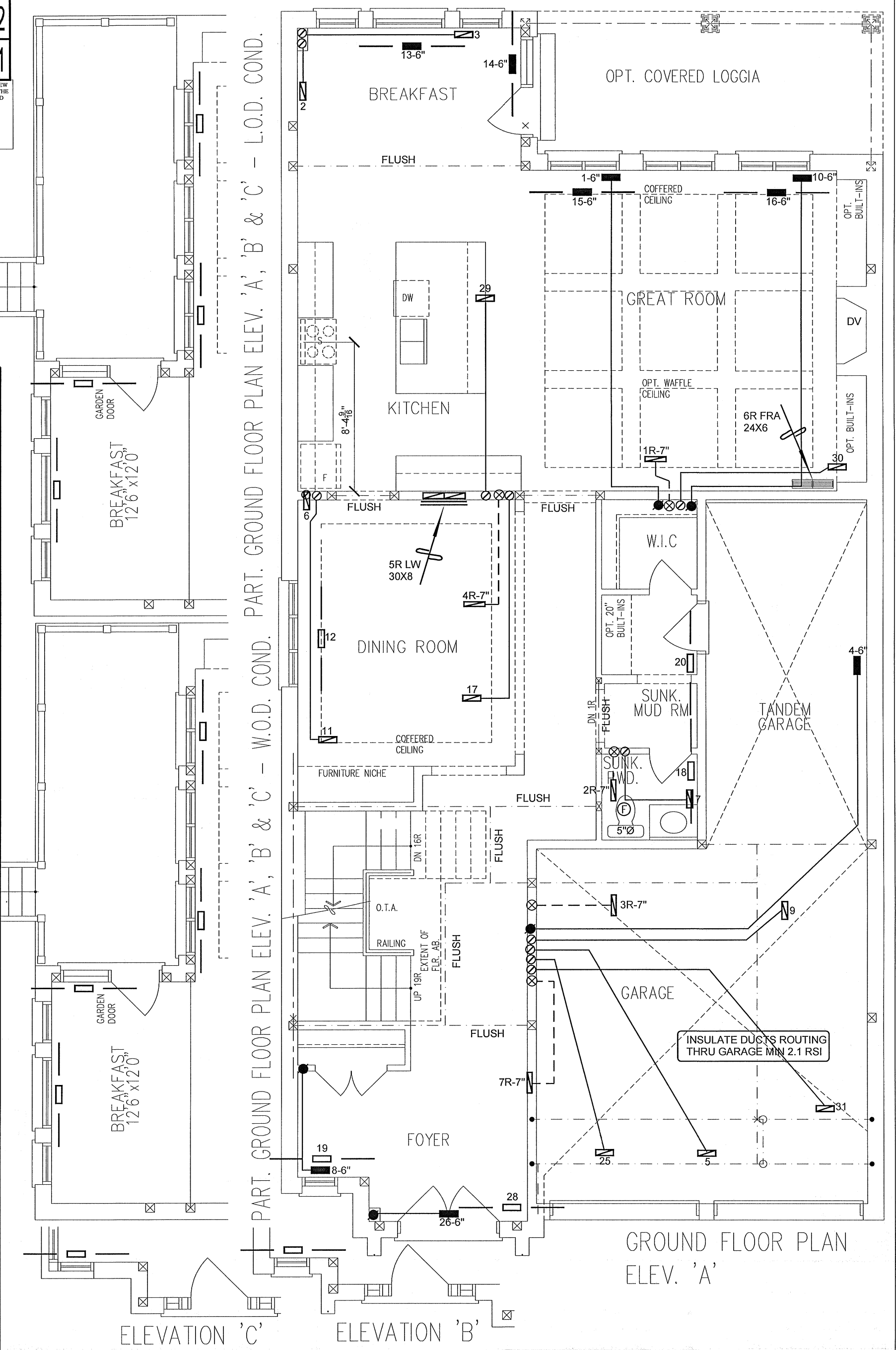
TYPE: 4202- ROSEDALE
LO# 77465

CSA-F280-12
PACKAGE A1

I MICHAEL O'ROURKE HAVE 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.

HVAC LEGEND		
SYMBOL	DESCRIPTION	SYMBOL
	SUPPLY AIR GRILLE	
	SUPPLY AIR GRILLE 6" BOOT	
	SUPPLY AIR BOOT ABOVE	
	6" SUPPLY AIR STACK 2nd FLOOR	
	FRA- FLOOR RETURN AIR GRILLE	
	RETURN AIR STACK ABOVE	
	RETURN AIR STACK 2nd FLOOR	
	REDUCER	
REVISIONS		
NO.	DESCRIPTION	DATE
1.	DECK CONDITIONS ADDED	SEPT/2018
2.	REVISED AS PER CAD	JULY/2018



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Client	GOLD PARK HOMES
Project Name	PINE VALLEY & TESTON VAUGHAN, ONTARIO
ROSEDALE 4202	3592 sqft

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

CSA-F280-12
PACKAGE A1

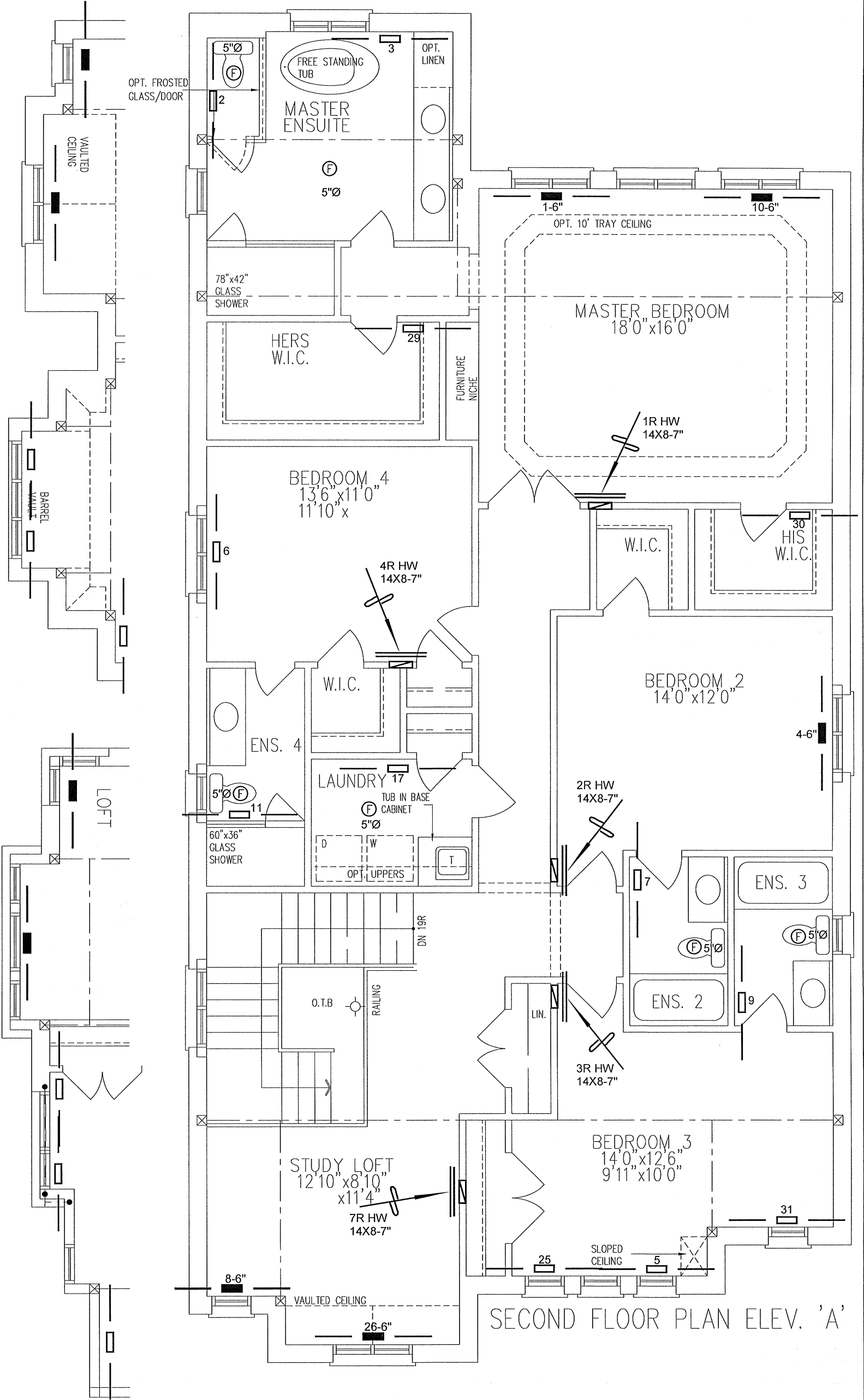
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

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

HVAC LEGEND					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x6" RETURN AIR GRILLE
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA-- FLOOR RETURN AIR GRILLE
					REDUCER
			3.	2.	1.
			DECK CONDITIONS ADDED		
			REVISED AS PER CAD		
			JUL 7/2018		
			Date		
			REVISIONS		

PARTIAL SECOND FLOOR PLAN - ELEVATION 'B'

PARTIAL SECOND FLOOR PLAN - ELEVATION 'C'



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Client		<div><p>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</p><p>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.</p></div>	Sheet Title	
GOLD PARK HOMES			SECOND FLOOR	
Project Name			HEATING LAYOUT	
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Date	JAN/2018
		Scale	3/16" = 1'-0"	
ROSEDALE		BCIN# 19669		
4202	3592 sqft	LO#	77465	