

HVAC REVIEWED

SITE NAME: ROUNDEL HOMES INC
BUILDER: GREENPARK HOMESALT GUEST
TYPE: GLENROWAN 2

GFA: 2848

DATE: Apr-23
LO# 101016WINTER NATURAL AIR
SUMMER NATURAL AIR

PXV

S ΔT °F. 78
W ΔT °F. 13CSA-F280-12
SB-12 PACKAGE A1

ROOM USE			MBR		ENS				BED-2		BED-3		BED-4		S-BATH		INITIALS-		ENS-1					
EXP. WALL			41		30				11		30		47		6				7					
CLG. HT.			9		9				9		9		9		9				9					
GRS.WALL AREA	FACTORS		369		270				99		270		423		54				63					
GLAZING	LOSS GAIN		LOSS GAIN		LOSS GAIN				LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN				LOSS GAIN					
NORTH	21.8	16.0	0	0	0	9	196	144	16	349	256	0	0	0	0	0	0	7	152	112	0	0	0	
EAST	21.8	41.6	0	0	0	0	0	0	0	0	0	45	980	1870	32	697	1330	0	0	0	12	261	499	
SOUTH	21.8	24.9	16	349	398	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WEST	21.8	41.6	36	784	1496	16	349	665	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SKYLT.	38.1	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
DOORS	25.8	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NET EXPOSED WALL	4.6	0.8	317	1448	238	245	1119	184	83	379	62	225	1028	169	391	1786	294	47	215	35	51	233	38	
NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EXPOSED CLG	1.3	0.6	363	477	213	220	289	129	207	272	122	278	365	163	300	394	176	80	105	47	67	88	39	
NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	0	0	0	0	0	0	0	0	22	62	28	0	0	0	0	0	0	
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0	0	0	241	629	104	0	0	0	59	154	25	67	175	29	
BASEMENT/CRAWL HEAT LOSS			0		0				0		0		0		0		0		0		0		0	
SLAB ON GRADE HEAT LOSS			0		0				0		0		0		0		0		0		0		0	
SUBTOTAL HT LOSS			3058		1953				1000		3003		2939		626				757					
SUB TOTAL HT GAIN			2346		1122				440		2306		1828		219				605					
LEVEL FACTOR / MULTIPLIER			0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		0.20	0.25		
AIR CHANGE HEAT LOSS			749		479				245		736		720		154				186					
AIR CHANGE HEAT GAIN			178		85				33		175		138		17				46					
DUCT LOSS			0		0				0		374		0		78				94					
DUCT GAIN			0		0				0		363		0		24				65					
HEAT GAIN PEOPLE	240		2	480	0	0			1	240	1	240	1	240	0	0			0	0				
HEAT GAIN APPLIANCES/LIGHTS			912		0				912		912		912		0				0					
TOTAL HT LOSS BTU/H			3807		2432				1245		4112		3660		858				1037					
TOTAL HT GAIN x 1.3 BTU/H			5091		1569				2113		5195		4054		338				931					

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HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 52,443 TOTAL HEAT GAIN 35,456
AIR FLOW RATE CFM 21.57 AIR FLOW RATE CFM 31.9furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure
for s/a & r/a 0.35#GOODMAN
GMEC960603BNA 60AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	9	4
R/A	0	0	4	3	1

plenum pressure s/a 0.18 r/a pressure 0.17
max s/a dif press. loss 0.02 r/a grille press. Loss 0.02
min adjusted pressure s/a 0.16 adjusted pressure r/a 0.15FAN SPEED LOW
MEDLOW
MEDIUM 928
MEDIUM HIGH 1017
HIGH 1131DESIGN CFM = 1131
CFM @ .6" E.S.P.

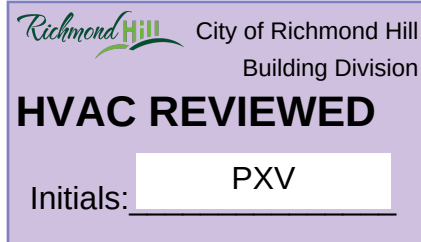
TEMPERATURE RISE 47 °F

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

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

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	BED-3	BED-2	BED-3	BED-4	S-BATH	S-BATH	BED-4	MBR	ENS-4	LV/DN	GST RM	BF/KT	BF/KT	FAM	LAUN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.90	2.43	2.06	1.24	2.06	1.83	0.43	0.43	1.83	1.90	1.04	3.18	1.03	1.85	1.85	3.03	0.82	0.46	3.24	1.31	4.33	4.33	4.33	4.33
CFM PER RUN HEAT	41	52	44	27	44	39	9	9	39	41	22	69	22	40	40	65	18	10	70	28	93	93	93	93
RM GAIN MBH.	2.55	1.57	2.60	2.11	2.60	2.03	0.17	0.17	2.03	2.55	0.93	2.47	1.98	1.77	1.77	2.96	1.64	0.31	1.32	0.21	0.36	0.36	0.36	0.36
CFM PER RUN COOLING	81	50	83	67	83	65	5	5	65	81	30	79	63	56	56	94	52	10	42	7	11	11	11	11
ADJUSTED PRESSURE	0.16	0.17	0.16	0.17	0.16	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	48	44	46	30	42	51	32	36	44	33	34	35	18	25	32	28	31	33	40	13	24	26	16	36
EQUIVALENT LENGTH	180	120	140	160	130	180	160	180	160	140	120	150	150	120	140	130	200	160	120	200	100	90	150	130
TOTAL EFFECTIVE LENGTH	228	164	186	190	172	231	192	216	204	173	154	185	168	145	172	158	231	193	160	213	124	116	166	166
ADJUSTED PRESSURE	0.07	0.1	0.09	0.09	0.09	0.07	0.09	0.08	0.08	0.09	0.11	0.09	0.1	0.12	0.1	0.1	0.07	0.09	0.11	0.08	0.13	0.14	0.1	0.1
ROUND DUCT SIZE	6	5	6	6	6	6	4	4	6	6	4	6	6	6	6	6	5	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	209	382	224	138	224	199	103	103	199	209	252	352	112	204	204	331	132	115	514	321	474	474	474	474
COOLING VELOCITY (ft/min)	413	367	423	342	423	331	57	57	331	413	344	403	321	286	286	479	382	115	308	80	56	56	56	56
OUTLET GRILL SIZE	4X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	A	D	B	D	C	D	D	C	A	C	C	B	A	A	A	D	C	C	D	B	B	D	C

RUN #	25
ROOM NAME	G-ENS
RM LOSS MBH.	1.22
CFM PER RUN HEAT	26
RM GAIN MBH.	0.32
CFM PER RUN COOLING	10
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	19
EQUIVALENT LENGTH	160
TOTAL EFFECTIVE LENGTH	179
ADJUSTED PRESSURE	0.1
ROUND DUCT SIZE	4
HEATING VELOCITY (ft/min)	298
COOLING VELOCITY (ft/min)	115
OUTLET GRILL SIZE	3X10
TRUNK	B



SUPPLY AIR TRUNK SIZE

	TRUNK	STATIC	ROUND	RECT			VELOCITY		TRUNK	STATIC	ROUND	RECT			VELOCITY
	CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT			(ft/min)
TRUNK A	279	0.07	9	14	x	8	359	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	540	0.07	11.5	18	x	8	540	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	342	0.07	9.7	12	x	8	513	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	587	0.07	11.9	16	x	8	660	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	0	0.00	0	0	x	8	0	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0

RETURN AIR TRUNK SIZE

RETURN AIR FLOW SCHEDULE							
TYPE	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)	
TRUNK O	0	0.05	0	0	x	8	0
TRUNK P	0	0.05	0	0	x	8	0
TRUNK Q	0	0.05	0	0	x	8	0
TRUNK R	0	0.05	0	0	x	8	0
TRUNK S	0	0.05	0	0	x	8	0
TRUNK T	0	0.05	0	0	x	8	0
TRUNK U	0	0.05	0	0	x	8	0
TRUNK V	0	0.05	0	0	x	8	0
TRUNK W	0	0.05	0	0	x	8	0
TRUNK X	916	0.05	15.3	28	x	8	589
TRUNK Y	410	0.05	11.3	14	x	8	527
TRUNK Z	0	0.05	0	0	x	8	0
DROP	1131	0.05	16.5	24	x	10	879

RETURN AIR #	1	2	3	4	5	6	7									BR
AIR VOLUME	120	150	130	290	85	85	85	0	0	0	0	0	0	0	0	186
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
ACTUAL DUCT LGH.	39	38	51	30	18	22	45	1	1	1	1	1	1	1	1	17
EQUIVALENT LENGTH	155	225	185	160	185	165	200	0	0	0	0	0	0	0	0	265
TOTAL EFFECTIVE LH	194	263	236	190	203	187	245	1	1	1	1	1	1	1	1	282
ADJUSTED PRESSURE	0.08	0.06	0.06	0.08	0.07	0.08	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.05
ROUND DUCT SIZE	6.3	7.4	7	8.8	5.8	5.6	6	0	0	0	0	0	0	0	0	8.4
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	30	14	14	14	0	0	0	0	0	0	0	0	24

CITY OF RICHMOND HILL
BUILDING DIVISION

05/24/2023

RECEIVED
Per: joshua.nabua

TYPE: GLENROWAN 2
SITE NAME: ROUNDEL HOMES INC

LO # 101016
ALT GUEST

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>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Kitchen & Bathrooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Other Rooms	<u>5</u> @ 10.6 cfm	<u>53.0</u> cfm
Table 9.32.3.A.	TOTAL	<u>201.4</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	95.4	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>201.4</u>	cfm
Less Principal Ventil. Capacity	<u>95.4</u>	cfm
Required Supplemental Capacity	<u>106.0</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model:	VANEE V150H
Location:	BSMT
<u>95.4</u> cfm	<u>3.0</u> sones
☒	HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
95.4 CFM	X 78 F	X 1.08	X 0.25

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

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:	
GREENPARK HOMES	City of Richmond Hill
Name:	Building Division
Address:	
City:	
Telephone #:	

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-23

I 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: 19669 MICHAEL O'ROURKE

RECEIVED
Per: joshua.nabua

05/24/2023

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 101016	Model: GLENROWAN 2	Builder: GREENPARK HOMES	Date: 4/26/2023																																																									
Volume Calculation			Air Change & Delta T Data																																																									
House Volume <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>1257</td> <td>9</td> <td>11313</td> </tr> <tr> <td>First</td> <td>1257</td> <td>10</td> <td>12570</td> </tr> <tr> <td>Second</td> <td>1591</td> <td>9</td> <td>14319</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="3" style="text-align: right;">Total:</td> <td>38,202.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1081.8 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1257	9	11313	First	1257	10	12570	Second	1591	9	14319	Third	0	9	0	Fourth	0	9	0	Total:			38,202.0 ft³	Total:			1081.8 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%;">0.322</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.101</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="5" style="text-align: center;">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>-21</td> <td>43</td> <td>78</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>31</td> <td>7</td> <td>13</td> </tr> </tbody> </table>		WINTER NATURAL AIR CHANGE RATE	0.322	SUMMER NATURAL AIR CHANGE RATE	0.101	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-21	43	78	Summer DTDc	24	31	7	13
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.322 x 300.49 x 43 °C x 1.2 = 5026 W = 17150 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.101 x 300.49 x 7 °C x 1.2 = 258 W = 880 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 95 CFM x 78 °F x 1.08 x 0.25 = 2004 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 95 CFM x 13 °F x 1.08 x 0.25 = 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;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairve Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{level})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">17,150</td> <td>8,727</td> <td>0.983</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>12,025</td> <td>0.428</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>13,995</td> <td>0.245</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> *HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0					Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)	1	0.5	17,150	8,727	0.983	2	0.3	12,025	0.428	3	0.2	13,995	0.245	4	0	0	0.000	5	0	0	0.000																														
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4	0		0	0.000																																																								
5	0		0	0.000																																																								

CITY OF RICHMOND HILL
BUILDING DIVISION

05/24/2023

RECEIVED

Per: joshua.nabua

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: GLENROWAN 2	ALT GUEST	BUILDER: GREENPARK HOMES
SFQT: 2848	LO# 101016	SITE: ROUNDEL HOMES INC

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-6	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):	38202.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft²):	2.00	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 54.0 ft	WIDTH: 33.0 ft	EXPOSED PERIMETER:	174.0 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



CITY OF RICHMOND HILL
BUILDING DIVISION

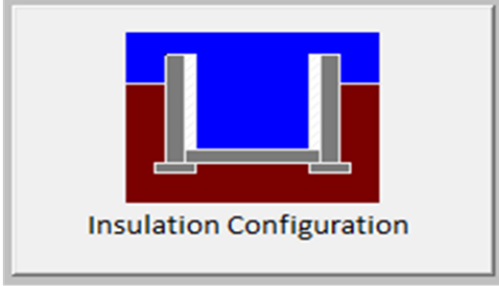
05/24/2023

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Per: joshua.nabua

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Richmond Hill	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	16.5	 Insulation Configuration
Floor Width (m):	10.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.7	
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):		1727

TYPE: GLENROWAN 2
LO# 101016

ALT GUEST

CITY OF RICHMOND HILL
BUILDING DIVISION

05/24/2023

RECEIVED

Per: joshua.nabua

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Richmond Hill			
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:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1081.8			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1442.0 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	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.322			
Cooling Air Leakage Rate (ACH/H):	0.101			

TYPE: GLENROWAN 2
LO# 101016

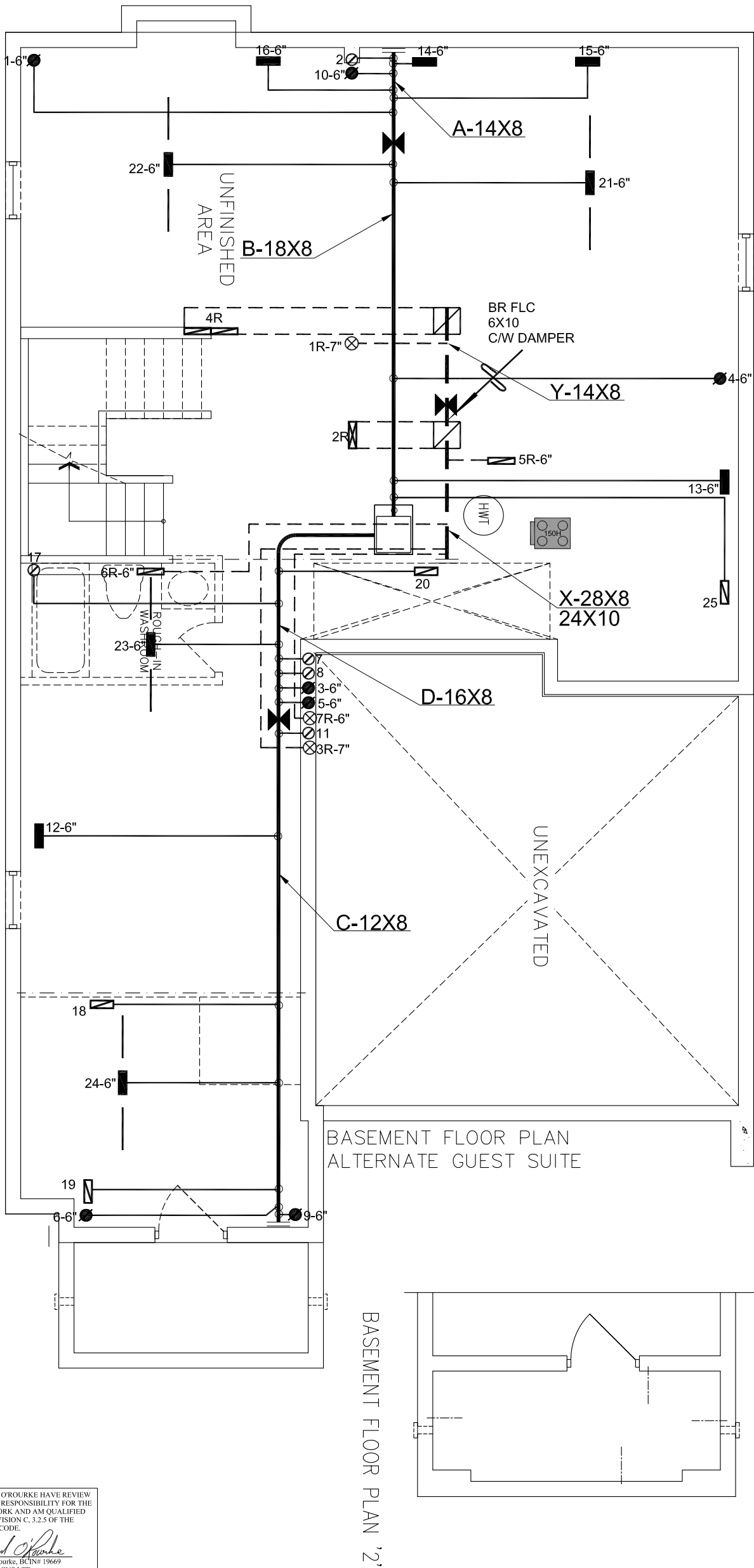
ALT GUEST

CITY OF RICHMOND HILL
BUILDING DIVISION

05/24/2023

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Per: joshua.nabua



City of Richmond Hill
Building Division

REVIEWED

By: **PV** Date: **May/31/2023**

Building Permit #: **BP#-23-00084**

All construction shall comply with the Ontario Building Code and all other applicable statutory regulations. The reviewed documents must be kept on site at all times.

Building inspection line: 905-771-5465 (24 hr)
buildinginspections@richmondhill.ca
Building inquiry line 905-771-8810
building@richmondhill.ca

Ensure that R-Values and U-Values used for heat loss and heat gain calculations are consistent with the values specified by SB-12 Prescriptive Package: A1 and the values used for architectural design.

- 1.Laundry dryer exhaust duct shall be provided as per OBC 2012 Div.B 6.2.3.8(7).
- 2.Kitchen hood exhaust duct shall be provided as per OBC 2012, Div.B 9.32.3.10, 9.32.3.5(2).
- 3.Minimum R-12 Insulation Value required for ducts installed at unheated or exposed condition (OBC 2012 Div.B 6.2.4.3(10) and seal the ducts as per 6.2.4.3(11) & HRAI Digest 2005, Clause 4.5.
- 4.Penetration of Air Barrier System by ducts, wires, conduits or building materials shall be sealed as per OBC 2012, Div.B 9.25.3.3.(9) & (10).
- 5.Volume control dampers to all branches to be installed per OBC 2012, Div.B 6.2.4.5.
- 6.Space between studs and joists used as return ducts shall be separated from unused portion as per OBC 2012 Div.B 6.2.4.7(6)

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							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

GREENPARK HOMES

Project Name

ROUNDEL HOMES INC
RICHMOND HILL, ONTARIO

ALT GUEST
GLENROWAN 2 2848 sqft

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

Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

HEAT LOSS 54447 BTU/H
UNIT DATA

MAKE GOODMAN

MODEL GMEC960603BNA

INPUT 60 MBTU/H

OUTPUT 57.6 MBTU/H

COOLING 3.0 TONS

FAN SPEED 1131 cfm @ 0.6" w.c.

OF RUNS S/A R/A FANS

3RD FLOOR			
2ND FLOOR	12	4	3
1ST FLOOR	9	3	3
BASEMENT	4	1	0

ALL S/A DIFFUSERS 4"x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

Sheet Title

BASEMENT HEATING LAYOUT

Date

APR/2023

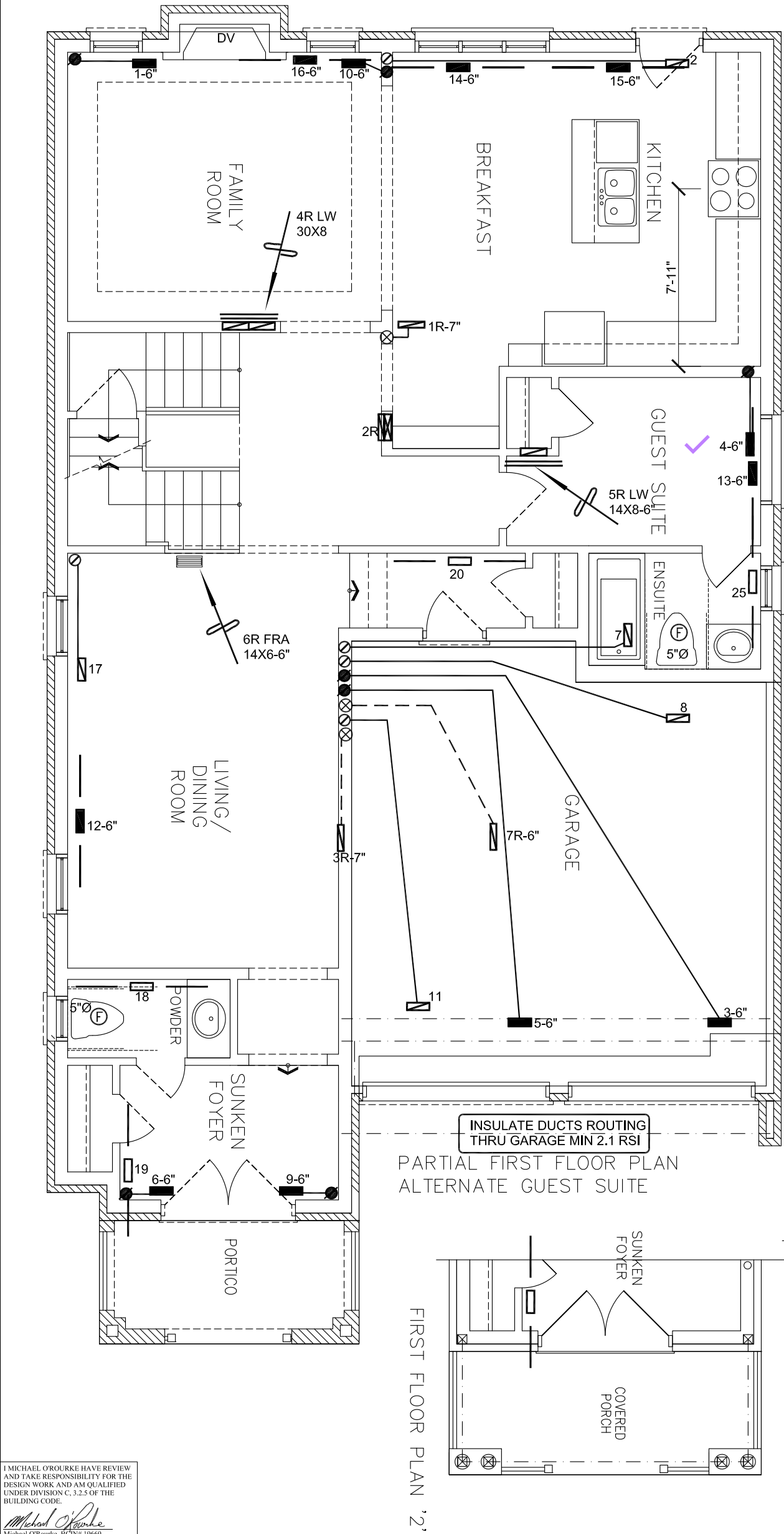
Scale

3/16" = 1'-0"

BCIN# 19669

LO# 101016

Per: joshua.nabua

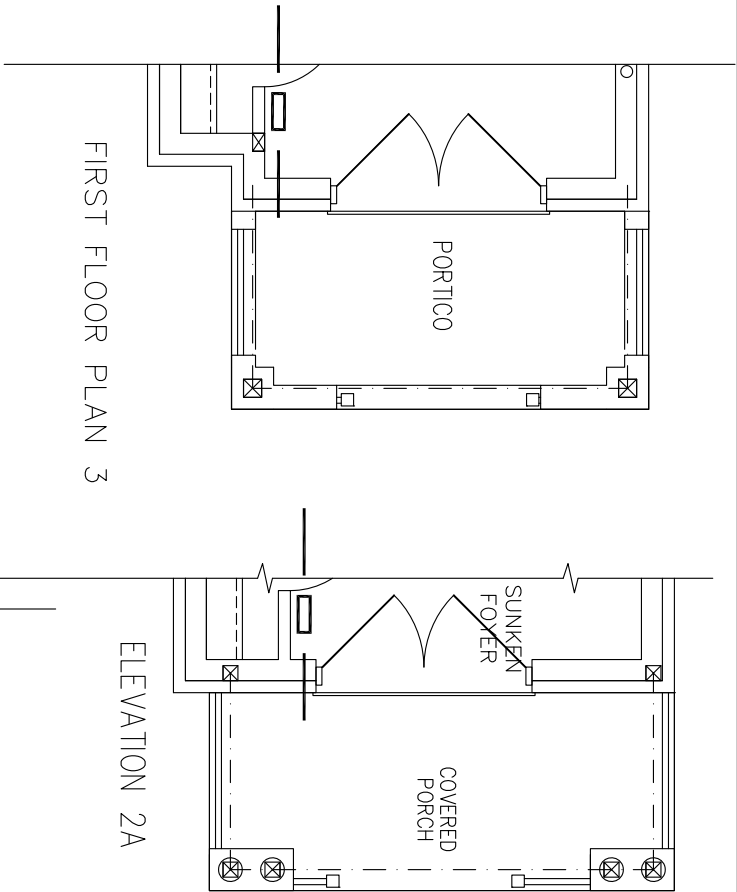


7. Combustion air supply shall be provided to the furnace and hot water tank.

8.HRV installation, testing, startup and commissioning shall be in compliance with OBC 2012, Div.B 9.32.3.11, 9.32.3.11(7)&(10)

9. HRV duct connection shall be in compliance with OBC 2012 Div.B 9.32.3.6(3) & 9.32.3.4(7).

10. Supply air grill at finished basement shall be at low level. Return air grill for finished or unfinished basement shall be at low level. HRAI digest 2005, clause 7.7(3).



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HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

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Client

GREENPARK HOMES

Project Name

ROUNDEL HOMES INC
RICHMOND HILL, ONTARIO

ALT GUEST
GLENROWAN 2 2848 sqft

375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdsgns.ca
Web: www.hvacdsgns.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

CITY OF RICHMOND HILL
BUILDING DIVISION

Date

APR/2023

Scale

3/16" = 1'-0"

BCIN# 19669

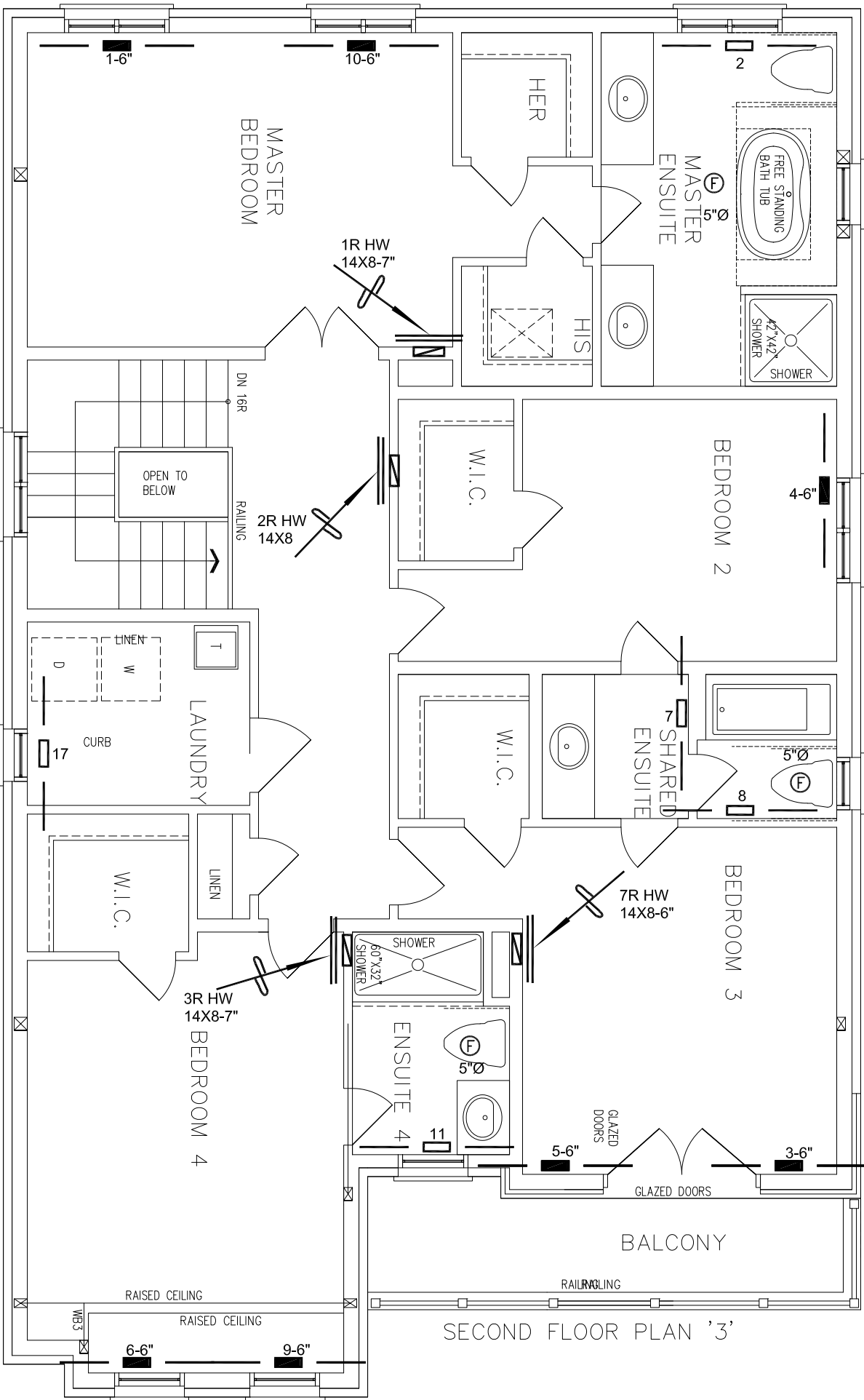
LO# 101016

Per: joshua.nabua

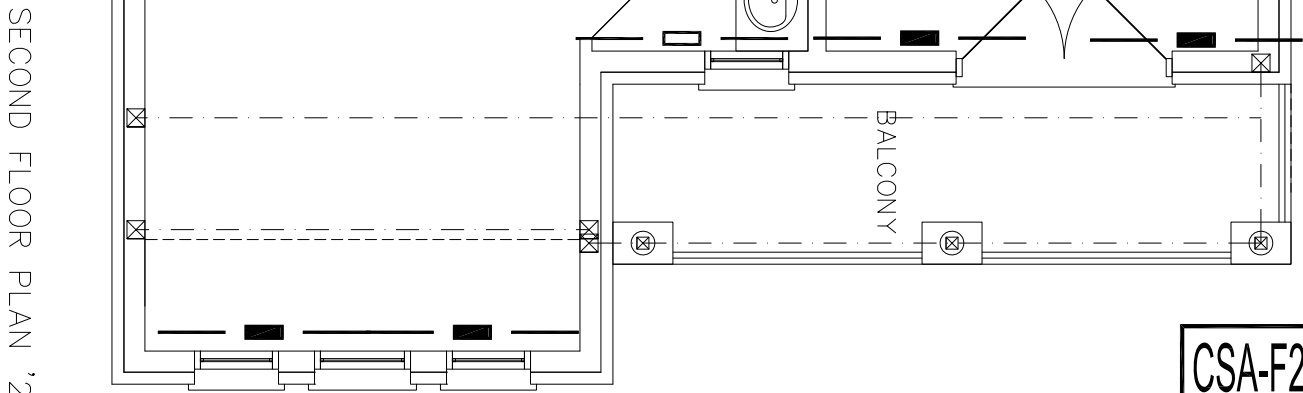
13.Exterior insulation effective R-Value for wall, roof or exposed floor shall be maintained at the respective location where duct or sanitary pipes are routed inside exterior envelope.

14. Return air intake shall be provided as recommended in HRAI Digest 2005 Section 4.7 Return air inlet should be positioned so that short circuiting of supply air is avoided. A high and low wall return air combination shall be provided when a combined cooling & heating system is installed.

15. For simplified HRV/ERV installation, with stale air and fresh air connected to return air plenum, stale air intake and fresh air supply shall be separated minimum 3' or as recommended by HRV/ERV Manufacturer.



SECOND FLOOR PLAN '1'



SECOND FLOOR PLAN '2'

SECOND FLOOR PLAN '3'

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

CSA-F280-12
PACKAGE A1

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Client

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Project Name

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ALT GUEST
GLENROWAN 2 2848 sqft

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Sheet Title

SECOND FLOOR
HEATING
LAYOUT

CITY OF RICHMOND HILL
BUILDING DIVISION

Date
APR/2023

Scale
3/16" = 1'-0"
05/24/2023

BCIN# 19669

LO# 101016

Per: joshua.nabua