

SITE NAME: ROUNDEL HOMES INC

BUILDER: GREENPARK HOMES

TYPE: TERRACOTA 3

GFA: 3496

DATE: May-21

LO# 90749

WINTER NATURAL AIR CHANGE RATE 0.352

SUMMER NATURAL AIR CHANGE RATE 0.110

HEAT LOSS AT °F. 78

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	BED-4	ENS-2/3	FLEX	WIC-3	ENS-4
			35	29	7	31	34	13	0	11	10	6
			9	9	9	9	9	9	9	9	9	9
GRS.WALL AREA	LOSS	GAIN	315	261	63	279	306	117	0	99	90	51
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS
NORTH	21.8	16.0	0	0	0	14	305	224	0	0	0	0
EAST	21.8	41.6	0	0	0	0	0	0	0	0	0	0
SOUTH	21.8	24.9	0	0	0	0	0	0	0	0	0	0
WEST	21.8	41.6	32	697	1330	14	305	582	0	0	0	0
SKYLT.	38.1	101.5	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
NET EXPOSED WALL	4.6	0.8	283	1293	213	233	1064	175	63	288	47	232
NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	305	401	179	188	247	110	140	184	82	284
NO ATTIC EXPOSED CLG	2.8	1.3	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
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			2391			1921			472			3198
SUB TOTAL HT GAIN				1722		1091		130		2416		3238
LEVEL FACTOR / MULTIPLIER	0.20	0.28				0.20	0.28		0.20	0.28		0.20
AIR CHANGE HEAT LOSS			667			536			132			892
AIR CHANGE HEAT GAIN				112		71		8		157		210
DUCT LOSS			0			0			409			410
DUCT GAIN			0			0			319			406
HEAT GAIN PEOPLE	240		2			480			0			240
HEAT GAIN APPLIANCES/LIGHTS						375			375			375
TOTAL HT LOSS BTU/H			3058			2457			603			4500
TOTAL HT GAIN x 1.3 BTU/H			3494			1997			666			4558


City of Richmond Hill
Building Division

HVAC REVIEWED

PXV

Initials:

ROOM USE	EXP. WALL	CLG. HT.	LV/DN	FAM	KIT	LIB	LAUN	WIC-G	FOY	MUD	WOD	BAS
			50	35	39	11	9	13	17	23	47	188
			10	10	10	10	9	10	10	11	8	8
GRS.WALL AREA	LOSS	GAIN	500	350	390	110	81	130	170	253	376	1081
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS
NORTH	21.8	16.0	0	0	0	0	0	0	14	305	224	0
EAST	21.8	41.6	0	0	0	0	0	0	6	131	249	0
SOUTH	21.8	24.9	36	784	896	0	0	0	0	0	0	0
WEST	21.8	41.6	0	0	0	48	1046	1994	74	1612	3075	0
SKYLT.	38.1	101.5	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
NET EXPOSED WALL	4.6	0.8	464	2120	349	302	1380	227	307	1403	231	92
NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.8	1.3	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
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			2904			2425			3211			812
SUB TOTAL HT GAIN				1245		2221		3530		357		268
LEVEL FACTOR / MULTIPLIER	0.30	0.48				0.30	0.48		0.30	0.48		0.30
AIR CHANGE HEAT LOSS			1400			1169			392			212
AIR CHANGE HEAT GAIN				81		144		229		23		17
DUCT LOSS			0			0			97			0
DUCT GAIN			0			0			66			0
HEAT GAIN PEOPLE	240		0			0			0			0
HEAT GAIN APPLIANCES/LIGHTS						375			375			375
TOTAL HT LOSS BTU/H			4304			3594			4758			1204
TOTAL HT GAIN x 1.3 BTU/H			2211			3562			5373			981

Per:maddy.toalalejandro
RECEIVED
08/22/2022
CITY OF RICHMOND HILL
BUILDING DIVISION

TOTAL HEAT GAIN BTU/H:

41540

TONS: 3.46

LOSS DUE TO VENTILATION LOAD BTU/H: 1670

STRUCTURAL HEAT LOSS: 62829

TOTAL COMBINED HEAT LOSS BTU/H: 64499

SITE NAME: ROUNDEL HOMES INC
BUILDER: GREENPARK HOMES

TYPE: TERRACOTA 3

DATE: May-21

GFA: 3496 LO# 90749

HEATING CFM 1504 COOLING CFM 1504
TOTAL HEAT LOSS 62,829 TOTAL HEAT GAIN 41,266
AIR FLOW RATE CFM 23.94 AIR FLOW RATE CFM 36.45

furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure for s/a & r/a 0.35

#*GOODMAN
GMEC960804CNA 80
FAN SPEED
LOW 868
MEDLOW 978
MEDIUM 1112
MEDIUM HIGH 1504
HIGH 1615

AFUE = 96 %
INPUT (BTU/H) = 80,000
OUTPUT (BTU/H) = 76,800
DESIGN CFM = 1504
CFM @ .6" E.S.P.

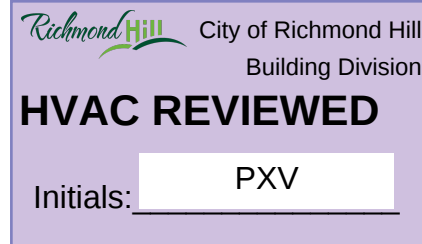
RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	17	10	5
R/A	0	0	6	3	1

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-4	ENS-2/3	FLEX	WIC-3	MBR	ENS-4	LV/DN	FAM	KIT	KIT	LIB	LAUN	WIC-G	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.53	1.23	0.60	2.25	1.50	1.39	0.18	1.17	1.69	1.53	0.55	2.15	1.80	2.38	2.38	1.20	1.07	1.26	2.92	2.34	4.21	4.21	4.21	4.21
CFM PER RUN HEAT	37	29	14	54	36	33	4	28	40	37	13	52	43	57	57	29	26	30	70	56	101	101	101	101
RM GAIN MBH.	1.75	1.00	0.67	2.28	1.94	1.51	0.32	1.13	2.78	1.75	0.82	1.11	1.78	2.69	2.69	0.98	0.94	0.98	1.00	0.85	0.39	0.39	0.39	0.39
CFM PER RUN COOLING	64	36	24	83	71	55	12	41	101	64	30	40	65	98	98	36	34	36	37	31	14	14	14	14
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	37	35	22	65	67	49	44	34	56	26	45	35	26	31	24	19	49	53	46	23	15	22	33	33
EQUIVALENT LENGTH	120	150	160	150	200	190	170	150	160	140	180	120	110	140	130	100	180	140	130	120	140	120	120	180
TOTAL EFFECTIVE LENGTH	157	185	182	215	267	239	214	184	216	166	225	155	136	171	154	119	229	193	176	143	155	142	153	213
ADJUSTED PRESSURE	0.11	0.09	0.09	0.08	0.06	0.07	0.08	0.09	0.08	0.1	0.08	0.11	0.13	0.09	0.11	0.14	0.08	0.09	0.1	0.12	0.1	0.11	0.11	0.08
ROUND DUCT SIZE	5	4	4	6	6	6	4	6	6	5	4	4	5	6	6	4	4	4	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	272	333	161	275	184	168	46	143	204	272	149	597	316	291	291	333	298	344	514	411	515	515	515	515
COOLING VELOCITY (ft/min)	470	413	275	423	362	280	138	209	515	470	344	459	477	500	500	413	390	413	272	228	71	71	71	71
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	4X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	D	F	F	C	A	C	B	C	B	D	C	B	F	D	D	F	C	A	A	F	F	D	C	A

RUN #	25	26	27	28	29	30	31	32
ROOM NAME	BED-2	BED-3	ENS	ENS-2/3	FAM	LV/DN	BAS	BED-3
RM LOSS MBH.	2.25	1.50	1.23	0.18	1.80	2.15	4.21	1.50
CFM PER RUN HEAT	54	36	29	4	43	52	101	36
RM GAIN MBH.	2.28	1.94	1.00	0.32	1.78	1.11	0.39	1.94
CFM PER RUN COOLING	83	71	36	12	65	40	14	71
ADJUSTED PRESSURE	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.17
ACTUAL DUCT LGH.	60	74	30	40	14	49	46	70
EQUIVALENT LENGTH	180	200	120	180	150	170	160	200
TOTAL EFFECTIVE LENGTH	240	274	150	220	164	219	206	270
ADJUSTED PRESSURE	0.07	0.06	0.11	0.08	0.1	0.08	0.08	0.06
ROUND DUCT SIZE	6	6	4	4	5	5	6	6
HEATING VELOCITY (ft/min)	275	184	333	46	316	382	515	184
COOLING VELOCITY (ft/min)	423	362	413	138	477	294	71	362
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10
TRUNK	B	A	F	B	F	A	A	A



SUPPLY AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)
TRUNK A	462	0.06	11.3	14	x	8	594	TRUNK G	0	0.00	0	0	8
TRUNK B	616	0.06	12.6	18	x	8	616	TRUNK H	0	0.00	0	0	8
TRUNK C	871	0.06	14.3	24	x	8	653	TRUNK I	0	0.00	0	0	8
TRUNK D	289	0.09	8.6	8	x	8	650	TRUNK J	0	0.00	0	0	8
TRUNK E	1160	0.06	15.9	30	x	8	696	TRUNK K	0	0.00	0	0	8
TRUNK F	344	0.09	9.1	10	x	8	619	TRUNK L	0	0.00	0	0	8

RETURN AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)
TRUNK O	0	0.05	0	0	x	0
TRUNK P	0	0.05	0	0	x	0
TRUNK Q	0	0.05	0	0	x	0
TRUNK R	0	0.05	0	0	x	0
TRUNK S	0	0.05	0	0	x	0
TRUNK T	0	0.05	0	0	x	0
TRUNK U	0	0.05	0	0	x	0
TRUNK V	585	0.05	12.9	20	x	527
TRUNK W	150	0.05	7.8	8	x	338
TRUNK X	919	0.05	15.3	28	x	591
TRUNK Y	685	0.05	13.7	22	x	560
TRUNK Z	535	0.05	12.5	18	x	535
DROP	1504	0.05	18.4	24	x	645

RETURN AIR #	1	2	3	4	5	6	7	8	9	0	0	0	0	0	0	BR
AIR VOLUME	75	75	135	115	75	75	185	400	135	0	0	0	0	0	0	234
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.	68	68	57	74	67	69	21	23	38	1	1	1	1	1	1	17
EQUIVALENT LENGTH	245	235	215	235	220	215	155	160	285	0	0	0	0	0	0	145
TOTAL EFFECTIVE LH	313	303	272	309	287	284	176	183	323	1	1	1	1	1	1	162
ADJUSTED PRESSURE	0.05	0.05	0.05	0.05	0.05	0.05	0.08	0.08	0.05	14.80	14.80	14.80	14.80	14.80	14.80	0.09
ROUND DUCT SIZE	6	6	7.5	7	6	6	7.5	9.9	7.5	0	0	0	0	0	0	7.9
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	0	0	0	0	0	0	8
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	14	14	30	14	0	0	0	0	0	0	24

TYPE: TERRACOTA 3
SITE NAME: ROUNDEL HOMES INC

LO # 90749

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY
**CITY OF RICHMOND HILL
BUILDING DIVISION**
09/22/2022
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Per: maddy.toalaalejandro

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	9 @ 10.6 cfm	95.4 cfm
Table 9.32.3.A.	TOTAL	233.2 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	233.2	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	153.7	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model:	VANEE V150H
Location:	BSMT
79.5 cfm	3.0 sones
☒	HVI Approved

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

SUPPLEMENTAL FANS		PANASONIC
Location	Model	cfm
ENS	FV-05-11VK1	50
ENS-2/3	FV-05-11VK1	50
ENS-4	FV-05-11VK1	50
WIC-G	FV-05-11VK1	50

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE V150H	
150 cfm high	35 cfm low	
75 % Sensible Efficiency	☒ HVI Approved	
@ 32 deg F (0 deg C)		

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

BUILDER:		GREENPARK HOMES
Name:		
Address:		
City:		
Telephone #:		

Building Permit #
Richmond Hill City of Richmond Hill
 Building Division
HVAC REVIEWED
 Initials: **PXV**

INSTALLING CONTRACTOR	
Name:	
Address:	
City:	
Telephone #:	

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:	May-21

CSA F280-12 Residential Heat Loss and Heat Gain Calculations
Formula Sheet (For Air Leakage / Ventilation Calculation)

LO#: 90749

Model: TERRACOTA 3

Builder: GREENPARK HOMES

Date: 2021-05-11

Volume Calculation
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1519	8	12152
First	1519	10	15190
Second	1977	9	17793
Third	0	9	0
Fourth	0	9	0
Total:			45,135.0 ft³
Total:			1278.1 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.352
SUMMER NATURAL AIR CHANGE RATE	0.110

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-21	43	78
Summer DTDc	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage

$$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

$$0.352 \times 355.02 \times 43^\circ\text{C} \times 1.2 = 6479 \text{ W}$$

$$= 22106 \text{ Btu/h}$$

6.2.6 Sensible Gain due to Air Leakage

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

$$0.110 \times 355.02 \times 7^\circ\text{C} \times 1.2 = 333 \text{ W}$$

$$= 1135 \text{ Btu/h}$$

5.2.3.2 Heat Loss due to Mechanical Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

$$80 \text{ CFM} \times 78^\circ\text{F} \times 1.08 \times 0.25 = 1670 \text{ Btu/h}$$

6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

$$80 \text{ CFM} \times 13^\circ\text{F} \times 1.08 \times 0.25 = 275 \text{ Btu/h}$$

5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

$$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$$

Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	22,106	10,014	1.104
2	0.3		13,758	0.482
3	0.2		15,848	0.279
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

CITY OF RICHMOND HILL
BUILDING DIVISION
09/22/2022
RECEIVED
Per:maddy.toalalelandro

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: TERRACOTA 3	BUILDER: GREENPARK HOMES HILL	
SFQT: 3496	LO# 90749	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):	45135.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	5.0 ft
LENGTH: 57.0 ft	WIDTH: 37.0 ft	EXPOSED PERIMETER:	188.0 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

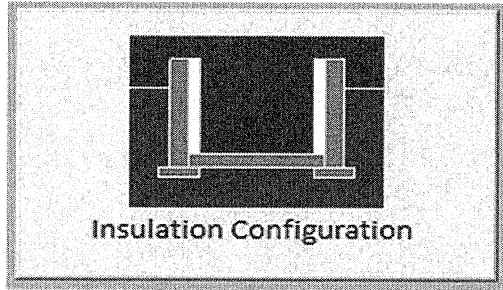
09/22/2022

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Per:maddy.toalaalejandro

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):	17.4	 Insulation Configuration
Floor Width (m):	11.3	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.4	
Depth Below Grade (m):	1.52	
Window Area (m ²):	1.8	
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):		1908

TYPE: TERRACOTA 3
LO# 90749

CITY OF RICHMOND HILL
BUILDING DIVISION

09/22/2022

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Per:maddy.toalaalejandro

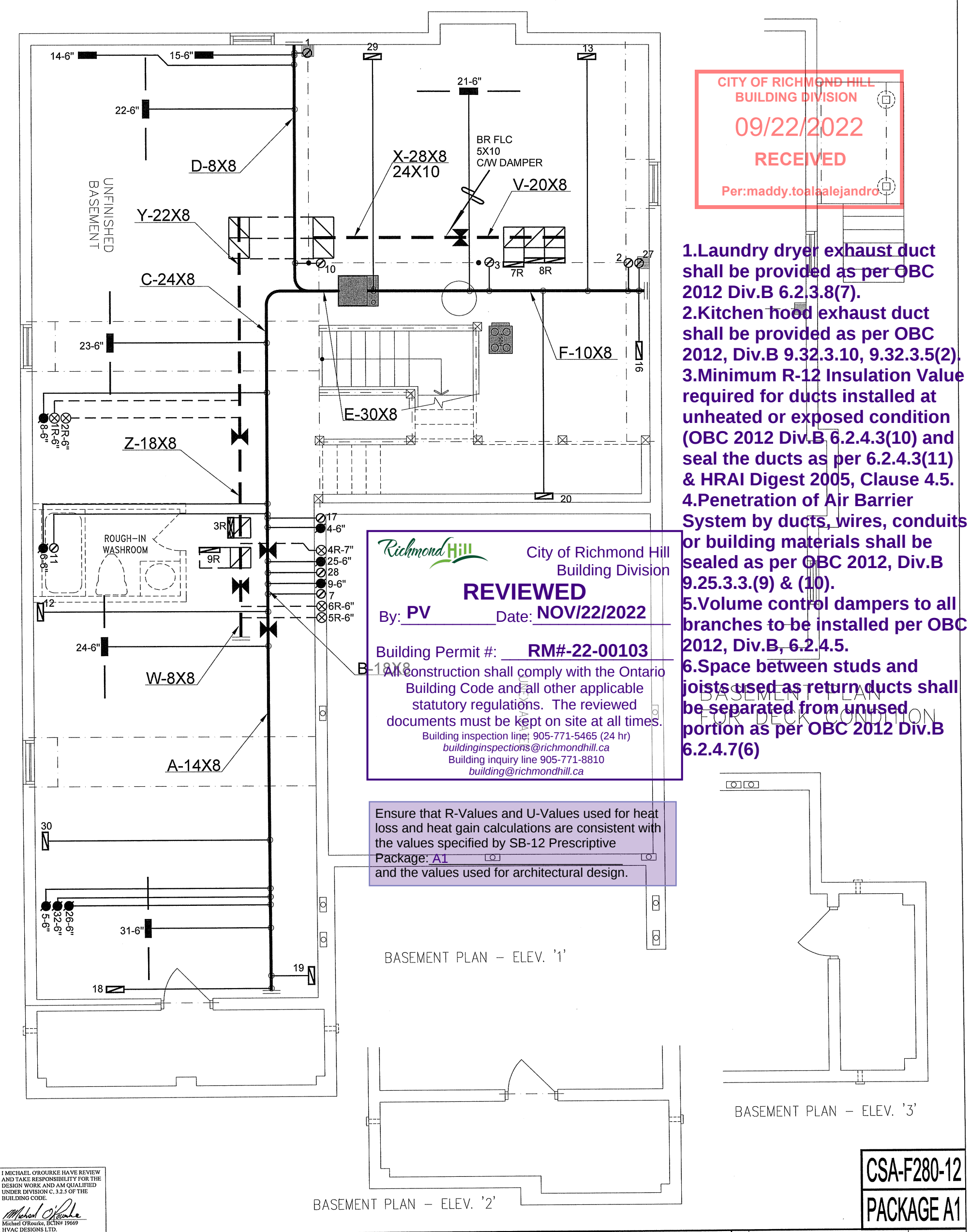
Air Infiltration Residential Load Calculator

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):	7.62			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1278.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1703.7 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	37.5	37.5		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.352			
Cooling Air Leakage Rate (ACH/H):	0.110			

TYPE: TERRACOTA 3

LO# 90749



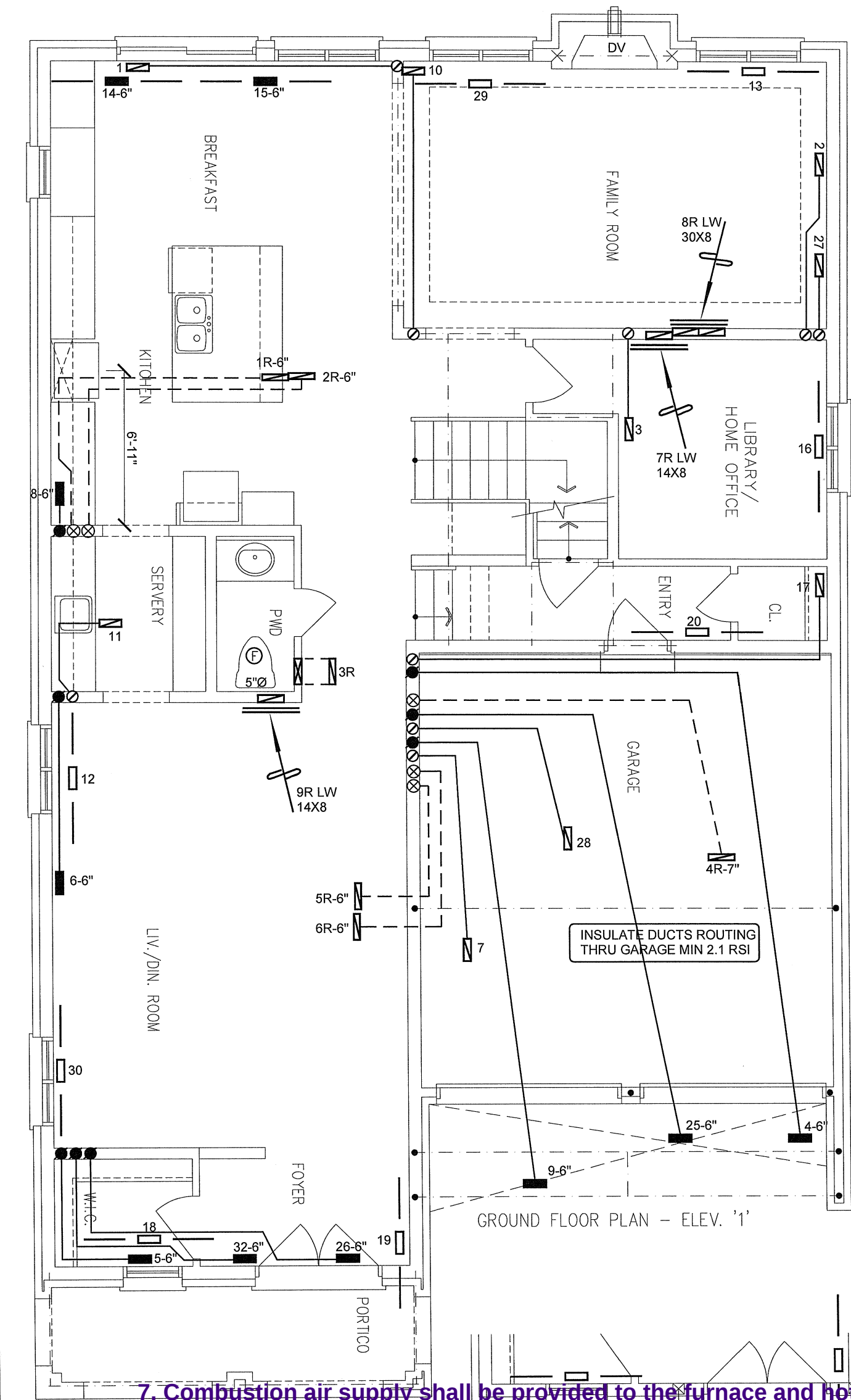
I MICHAEL O'ROURKE HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.3.2.5 OF THE BUILDING CODE.

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	

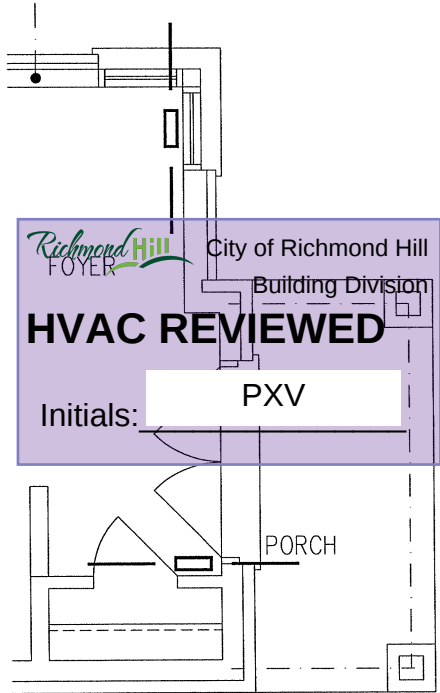
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Client GREENPARK HOMES		HVAC DESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	HEAT LOSS 64258 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			BASEMENT HEATING LAYOUT			
Project Name ROUNDEL HOMES INC RICHMOND HILL, ONTARIO			MAKE GOODMAN	3RD FLOOR							
			MODEL GMEC960804CNA	2ND FLOOR			17			6	4
			INPUT 80 MBTU/H	1ST FLOOR			10	3	2		
			OUTPUT 76.8 MBTU/H	BASEMENT			5	1	0		
TERRACOTA 3 3496 sqft		COOLING 3.5 TONS		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					Date MAY/2021		
		FAN SPEED 1504 cfm @ 0.6" w.c.							Scale 3/16" = 1'-0"		
									BCIN# 19669		
									LO#	90749	



CITY OF RICHMOND HILL
BUILDING DIVISION
09/22/2022
RECEIVED
Per:maddy.toalaalejandro

FIRST FLOOR PLAN
FOR DECK CONDITION



Richmond Hill
FOYER
City of Richmond Hill
Building Division
HVAC REVIEWED
Initials: PXV

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).

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, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND						REVISIONS	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	No.	Date
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE	3.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE	2.	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		RETURN AIR STACK 2nd FLOOR	1.	
			FRA- FLOOR RETURN AIR GRILLE		REDUCER	No.	Description

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Client GREENPARK 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 ROUNDEL HOMES INC RICHMOND HILL, ONTARIO			Date MAY/2021	
TERRACOTA 3 3496 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO#	90749

CSA-F280-12
PACKAGE A1

