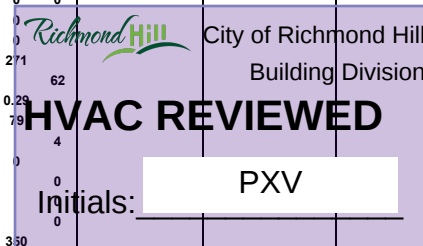


SITE NAME: TRINIGROUP										WOB										DATE: Oct-23										WINTER NATURAL AIR CHANGE RATE 0.377										HEAT LOSS ΔT °F. 78										CSA-F280-12																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
BUILDER: GREENPARK HOMES										TYPE: ROSE 3										GFA: 2596										LO# 102625										SUMMER NATURAL AIR CHANGE RATE 0.118										HEAT GAIN ΔT °F. 13										SB-12 PACKAGE A1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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ROOM USE				H-OFF			DIN			KT/BF			FAM			LAUN			PWD			FOY			MUD									WOB			BAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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SITE NAME: TRINIGROUP
BUILDER: GREENPARK HOMESWOB
TYPE: ROSE 3

DATE: Oct-23

GFA: 2596 LO# 102625

HEATING CFM 1083 COOLING CFM 1083
TOTAL HEAT LOSS 53,754 TOTAL HEAT GAIN 36,650
AIR FLOW RATE CFM 20.15 AIR FLOW RATE CFM 29.55furnace pressure 0.7
furnace filter 0.14
a/c coil pressure 0.26
available pressure
for s/a & r/a 0.30#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	15	9	5
R/A	0	0	5	2	1

plenium pressure s/a 0.16
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.14
r/a pressure 0.14
r/a grille press. Loss 0.02
adjusted pressure r/a 0.12MEDLOW
MEDIUM 928
MEDIUM HIGH 1083
HIGH 1131DESIGN CFM = 1083
CFM @ .7" E.S.P.

TEMPERATURE RISE 49 °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	WIC	BED-2	BED-3	BED-4	S-BATH	FLEX	BED-3	MBR	ENS-4	H-OFF	DIN	KT/BF	KT/BF	FAM	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.49	1.17	0.50	1.41	1.06	1.21	0.83	1.93	1.06	1.49	0.35	2.14	3.46	2.21	2.21	1.60	0.70	0.60	4.37	0.95	3.50	3.50	3.50	3.50
CFM PER RUN HEAT	30	24	10	28	21	24	17	39	21	30	7	43	70	45	45	32	14	12	88	19	71	71	71	71
RM GAIN MBH.	1.56	1.05	0.13	1.61	1.88	1.75	0.41	1.85	1.88	1.56	0.09	1.37	1.58	2.49	2.49	1.37	1.04	0.09	1.84	0.15	1.16	1.16	1.16	1.16
CFM PER RUN COOLING	46	31	4	48	55	52	12	55	55	46	3	41	47	74	74	40	31	3	54	4	34	34	34	34
ADJUSTED 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	0.14	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	37	53	35	34	41	35	41	50	42	48	35	20	21	37	30	30	34	19	29	20	42	34	18	25
EQUIVALENT LENGTH	140	190	200	180	130	180	150	160	140	170	120	180	120	160	150	120	200	120	140	130	80	90	120	140
TOTAL EFFECTIVE LENGTH	177	243	235	214	171	215	191	210	182	218	155	200	141	197	180	150	234	139	169	150	122	124	138	165
ADJUSTED PRESSURE	0.08	0.06	0.06	0.07	0.09	0.07	0.08	0.07	0.08	0.07	0.09	0.07	0.1	0.07	0.08	0.1	0.06	0.11	0.08	0.1	0.12	0.12	0.11	0.09
ROUND DUCT SIZE	5	4	4	6	5	6	4	5	5	5	4	5	5	6	6	4	4	4	6	4	6	6	6	6
HEATING VELOCITY (ft/min)	220	275	115	143	154	122	195	286	154	220	80	316	514	229	229	367	161	138	449	218	362	362	362	362
COOLING VELOCITY (ft/min)	338	356	46	245	404	265	138	404	404	338	34	301	345	377	377	459	356	34	275	46	173	173	173	173
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	4X10	4X10	4X10	4X10
TRUNK	C	C	D	D	B	B	B	A	B	C	D	B	D	C	C	C	B	B	A	B	D	D	D	A

RUN #	25	26	27	28	29
ROOM NAME	FLEX	ENS	FAM	BAS	S-BATH
RM LOSS MBH.	1.93	1.17	1.60	3.50	0.83
CFM PER RUN HEAT	39	24	32	71	17
RM GAIN MBH.	1.85	1.05	1.37	1.16	0.41
CFM PER RUN COOLING	55	31	40	34	12
ADJUSTED PRESSURE	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	54	39	40	26	36
EQUIVALENT LENGTH	200	170	140	170	160
TOTAL EFFECTIVE LENGTH	254	209	180	196	196
ADJUSTED PRESSURE	0.06	0.07	0.08	0.07	0.07
ROUND DUCT SIZE	5	4	4	6	4
HEATING VELOCITY (ft/min)	286	275	367	362	195
COOLING VELOCITY (ft/min)	404	356	459	173	138
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10
TRUNK	A	C	C	C	B

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

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	237	0.06	8.8	10	x	8	427	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	425	0.06	10.9	14	x	8	546	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	333	0.06	10	14	x	8	428	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	661	0.06	12.9	20	x	8	595	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

	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	1083	0.05	16.3	30	x	8	650
TRUNK Y	265	0.05	9.6	10	x	8	477
TRUNK Z	270	0.05	9.7	12	x	8	405
DROP	1083	0.05	16.3	24	x	10	650

RETURN AIR #	1	2	3	4	5	6	7									BR
AIR VOLUME	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	178
PLENUM PRESSURE	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
ACTUAL DUCT LGH.	56	48	49	47	46	18	17	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	150	185	190	145	145	135	175	0	0	0	0	0	0	0	0	150
TOTAL EFFECTIVE LH	206	233	239	192	191	153	192	1	1	1	1	1	1	1	1	164
ADJUSTED PRESSURE	0.06	0.05	0.05	0.06	0.06	0.08	0.06	12.40	12.40	12.40	12.40	12.40	12.40	12.40	12.40	0.08
ROUND DUCT SIZE	6.7	6	6.5	6	6	6	9.8	0	0	0	0	0	0	0	0	7.3
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	14	14	14	30	0	0	0	0	0	0	0	0	14

CITY OF RICHMOND HILL
BUILDING DIVISION

05/01/2024

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TYPE: ROSE 3
SITE NAME: TRINIGROUPLO # 102625
WOB

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>3</u> @ 10.6 cfm <u>31.8</u> cfm
Kitchen & Bathrooms	<u>5</u> @ 10.6 cfm <u>53</u> cfm
Other Rooms	<u>5</u> @ 10.6 cfm <u>53.0</u> cfm
Table 9.32.3.A.	TOTAL <u>180.2</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	79.5 cfm

SUPPLEMENTAL VENTILATION CAPACITY	9.32.3.5.
Total Ventilation Capacity	<u>180.2</u> cfm
Less Principal Ventil. Capacity	<u>79.5</u> cfm
Required Supplemental Capacity	<u>100.7</u> cfm

PRINCIPAL EXHAUST FAN CAPACITY
Model: VANEE V150H Location: BSMT
<u>79.5</u> cfm ☒ HVI Approved

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

SUPPLEMENTAL FANS	BY INSTALLING CONTRACTOR
Location Model cfm HVI Sones	
ENS BY INSTALLING CONTRACTOR 50 ☒ 3.5	
S-BATH BY INSTALLING CONTRACTOR 50 ☒ 3.5	
ENS-4 BY INSTALLING CONTRACTOR 50 ☒ 3.5	
PWD BY INSTALLING CONTRACTOR 50 ☒ 3.5	

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

LOCATION OF INSTALLATION
Lot: Concession
Township Plan:
Address
Roll # Building Permit #
BUILDER: GREENPARK HOMES City of Richmond Hill Building Division
Name: HVAC REVIEWED
Address: Initials: PXV
City: Initials: PXV
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: October-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*Michael O'Rourke*

05/01/2024

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Per: joshua.nabua

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 102625		Model: ROSE 3		Builder: GREENPARK HOMES																																																								
				Date: 10/19/2023																																																								
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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>1388</td><td>9</td><td>11798</td></tr> <tr><td>First</td><td>1388</td><td>10</td><td>14018.8</td></tr> <tr><td>Second</td><td>1225</td><td>9</td><td>11147.5</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>36,964.3 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>1046.7 m³</td></tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1388	9	11798	First	1388	10	14018.8	Second	1225	9	11147.5	Third	0	9	0	Fourth	0	9	0	Total:			36,964.3 ft³	Total:			1046.7 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%;">0.377</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.118</td> </tr> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <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> <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> </table>		WINTER NATURAL AIR CHANGE RATE	0.377	SUMMER NATURAL AIR CHANGE RATE	0.118	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																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.377 x 290.75 x 43 °C x 1.2 = 5687 W = 19405 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.118 x 290.75 x 7 °C x 1.2 = 292 W = 995 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 78 °F x 1.08 x 0.25 = 1670 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 13 °F x 1.08 x 0.25 = 275 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_{clevel})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HL_{clevel})</th> </tr> </thead> <tbody> <tr><td>1</td><td>0.5</td><td rowspan="5" style="text-align: center; vertical-align: middle;">19,405</td><td>7,795</td><td>1.245</td></tr> <tr><td>2</td><td>0.3</td><td>13,309</td><td>0.437</td></tr> <tr><td>3</td><td>0.2</td><td>13,245</td><td>0.293</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)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HL _{clevel})	1	0.5	19,405	7,795	1.245	2	0.3	13,309	0.437	3	0.2	13,245	0.293	4	0	0	0.000	5	0	0	0.000																														
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*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0																																																												

Michael O'Rourke
BCIN# 19669

CITY OF RICHMOND HILL
BUILDING DIVISION

05/01/2024

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Per: joshua.nabua

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: ROSE 3	WOB	BUILDER: GREENPARK HOMES
SFQT: 2596	LO# 102625	SITE: TRINIGROUP

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
		WINDOW SHGC	0.50

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):	36964.3	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:	5.5 ft
LENGTH: 56.0 ft	WIDTH: 31.0 ft	EXPOSED PERIMETER:	133.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	41.0 ft

2012 OBC - COMPLIANCE PACKAGE

Component

Compliance Package A1

Nominal	Min. Eff.
---------	-----------

Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	96%	-
HRV/ERV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



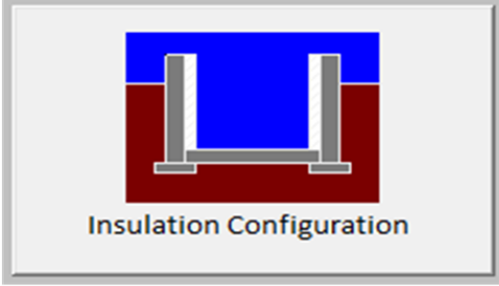
CITY OF RICHMOND HILL
BUILDING DIVISION

05/01/2024

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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):	4.6	 Insulation Configuration
Floor Width (m):	9.4	
Exposed Perimeter (m):	40.5	
Wall Height (m):	2.6	
Depth Below Grade (m):	1.40	
Window Area (m ²):	0.8	
Door Area (m ²):	2.0	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		688

TYPE: ROSE 3
LO# 102625

WOB

Michael O'Rourke BCIN #19669

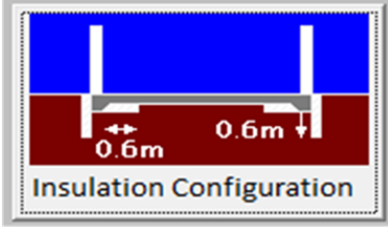
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BUILDING DIVISION

05/01/2024


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Per: joshua.nabua

Residential Slab on Grade 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		
Length (m):	1.5	
Width (m):	9.4	
Exposed Perimeter (m):	12.5	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		152

TYPE: ROSE 3
LO# 102625

WOB

Michael O'Rourke BCIN# 19669

CITY OF RICHMOND HILL
BUILDING DIVISION

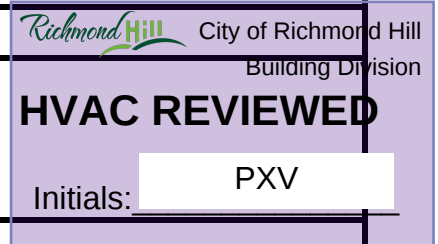
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RECEIVED
Per: joshua.nabua

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):	8.44		
Building Configuration			
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	1046.7		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1395.3 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
Diameter (mm):	0	0	0
Natural Infiltration Rates			
Heating Air Leakage Rate (ACH/H):	0.377		
Cooling Air Leakage Rate (ACH/H):	0.118		

TYPE: ROSE 3
LO# 102625

WOB

Michael O'Rourke BCIN# 19669

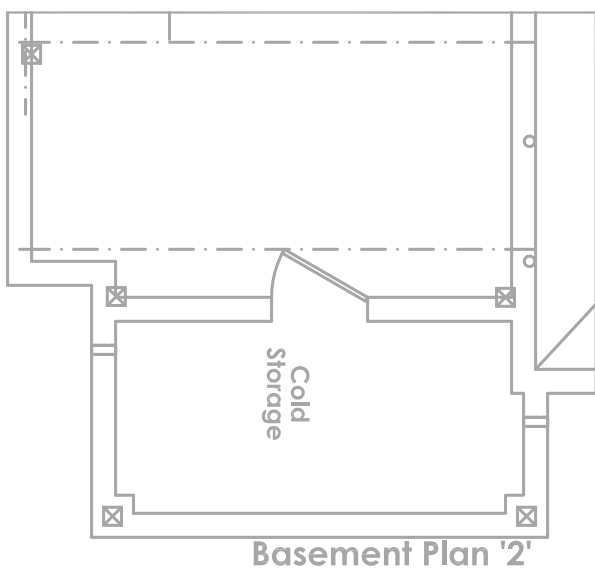
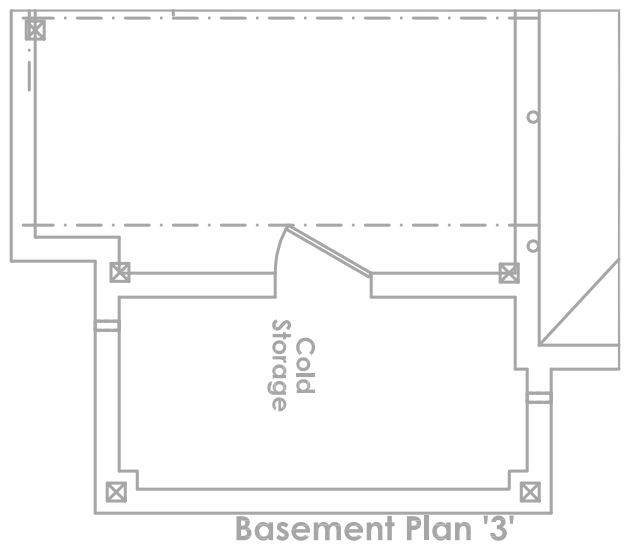
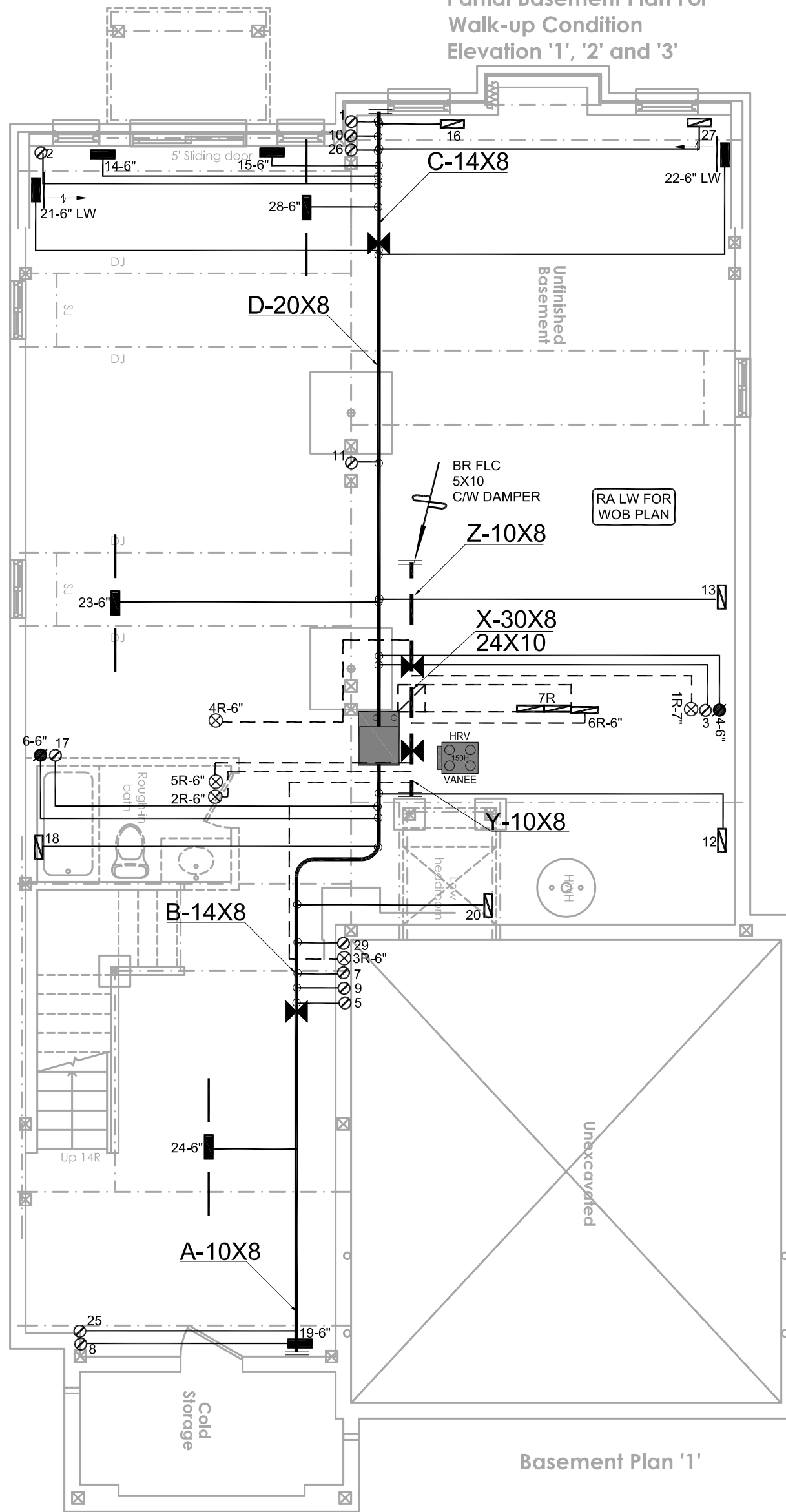
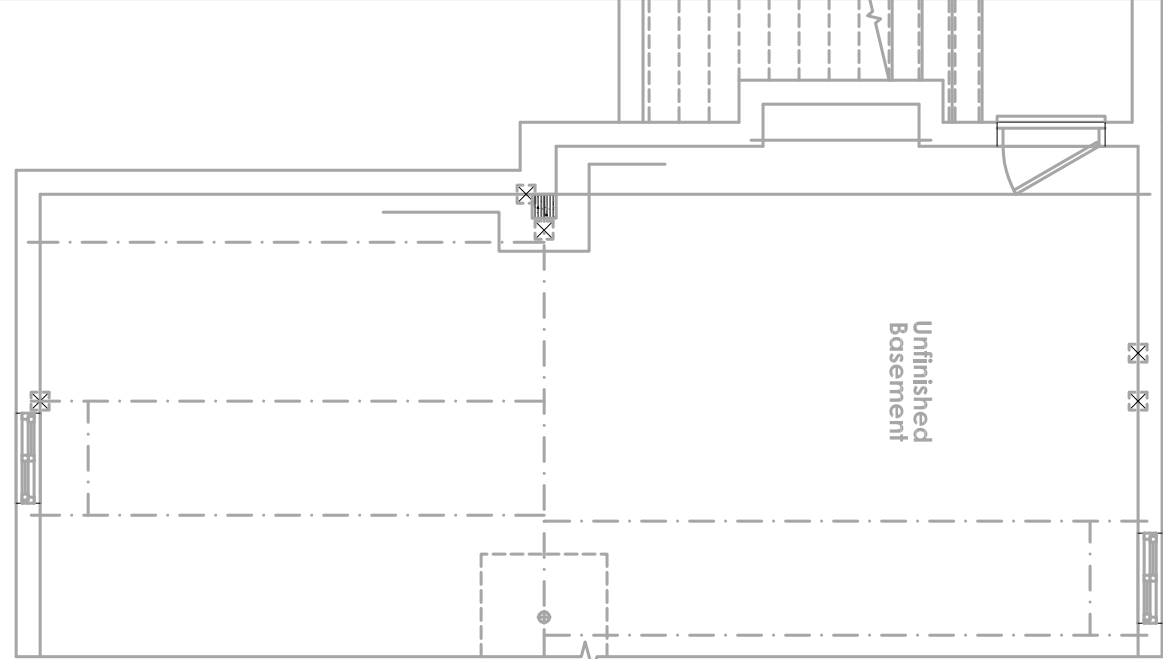


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INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE. ALL SUPPLY BRANCH OUTLETS SHALL BE EQUIPPED WITH MANUAL BALANCING DAMPER. DUCTWORK WHICH PASSES THROUGH THE GARAGE OR UNHEATED SPACES SHALL BE ADEQUATELY INSULATED AND GAS-PROOFED

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

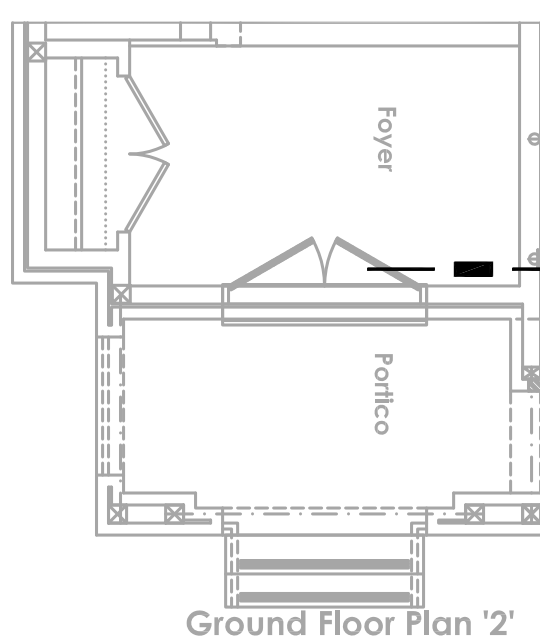
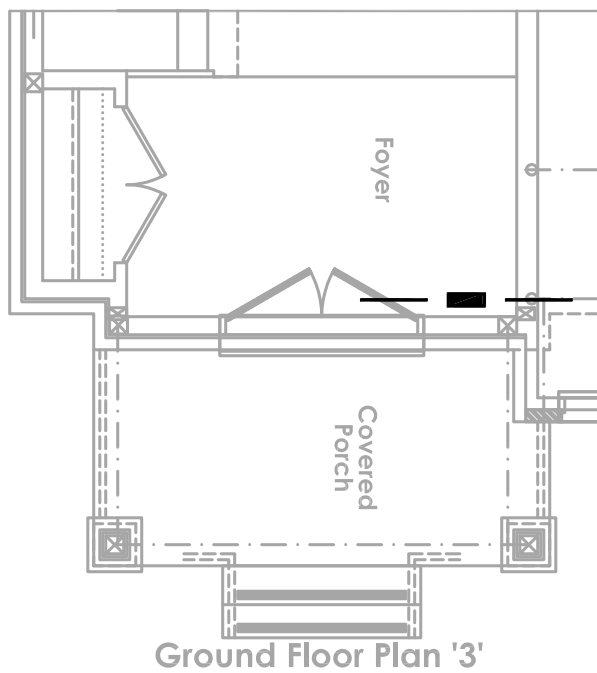
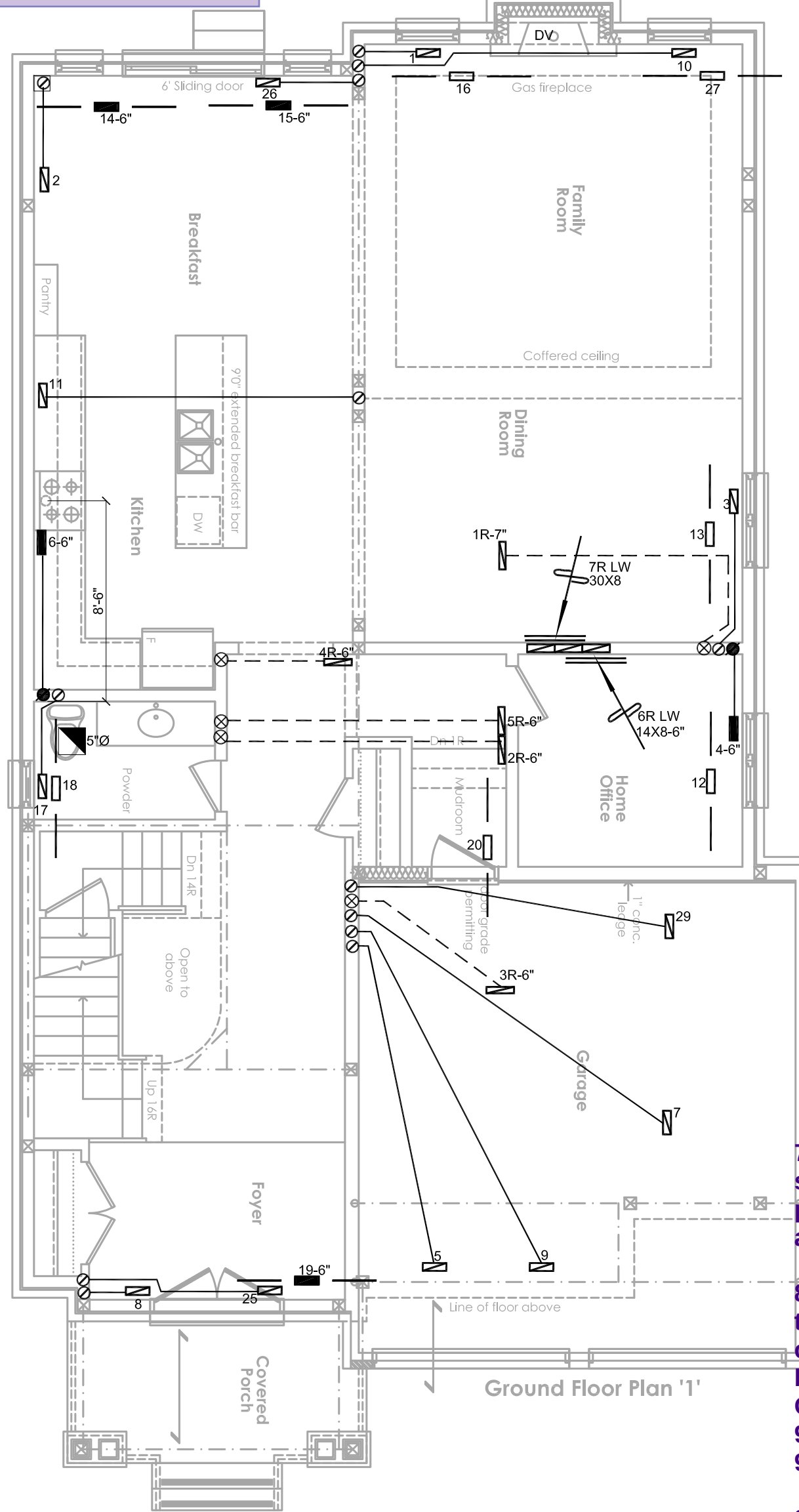
SUPPLEMENTAL EXHAUST FAN (MINIMUM 100 CFM) DISCHARGING DIRECTLY TO THE EXTERIOR WILL BE PROVIDED IN THE KITCHEN. EXHAUST DUCTS SERVING THE KITCHEN SHALL NOT BE SMALLER THAN RECOMMENDED BY THE MANUFACTURER OF THE FANS AND MUST AT LEAST MEET O.B.C. STATED MINIMUMS.



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)

City of Richmond Hill Building Division
REVIEWED
By: **PV** Date: **May/14/2024**
Building Permit #: **RM#24-00018**
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)
buildinginspectors@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.



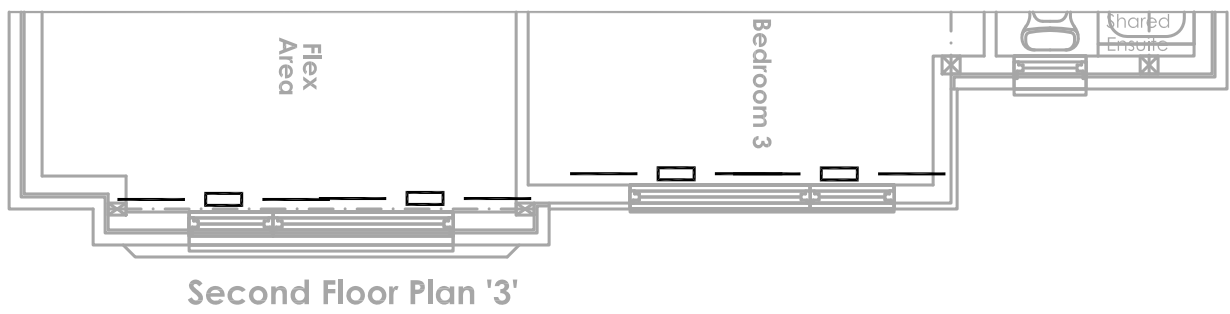
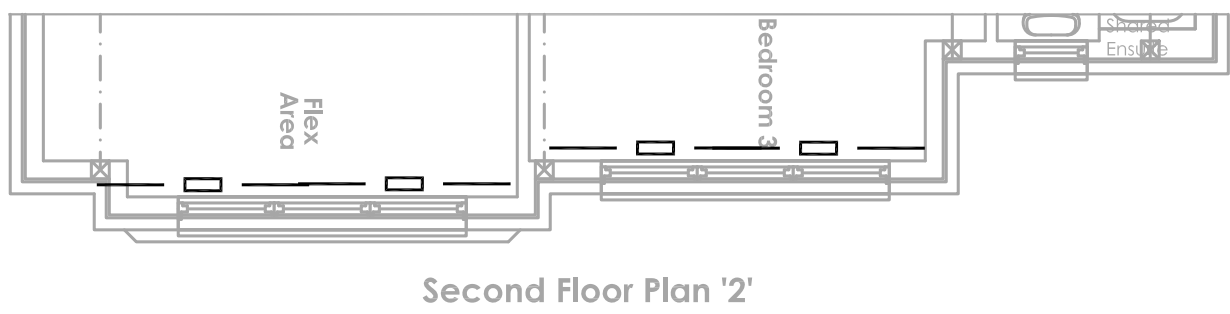
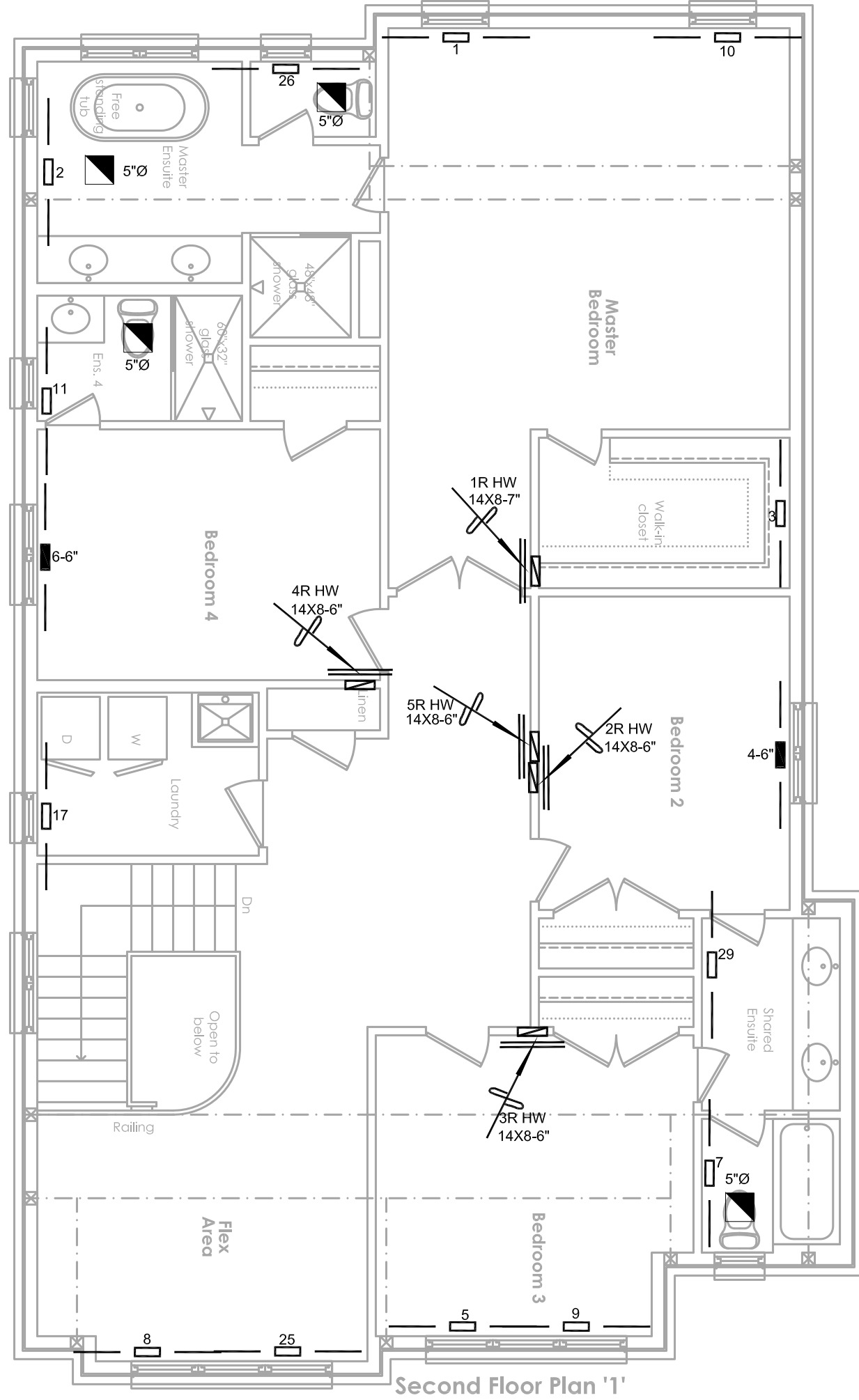
13. Exterior insulation effective R-Value for wall, roof or exposed floor shall be maintained at the respective location where duct or sanitary pipes are routed inside exterior envelope.
14. Return air intake shall be provided as recommended in HRAI Digest 2005 Section 4.7
- Return air inlet should be 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.

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).



HEAT LOSS	55424 BTU/H	# OF RUNS	S/A	R/A	FANS
UNIT DATA		3RD FLOOR			
MAKE	GOODMAN	2ND FLOOR	15	5	4
MODEL	GMEC960603BNA	1ST FLOOR	9	2	2
INPUT	60.0 MBTU/H	BASEMENT	5	1	0
OUTPUT	57.6 MBTU/H				
COOLING	3.0 TONS				
FAN SPEED	1083 cfm @ 0.6" w.c.				

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

HVAC LEGEND	
	SUPPLY AIR GRILLE
	SUPPLY AIR GRILLE 6" BOOT
	LINEAR BAR or LINEAR SLOT GRILLE
	SUPPLY AIR BOOT ABOVE
	6" SUPPLY AIR BOOT ABOVE
	SUPPLY AIR STACK
	6" SUPPLY AIR STACK
	14X8 RETURN AIR GRILLE
	30X8 RETURN AIR GRILLE
	FLOOR RETURN AIR GRILLE
	RETURN STACK ABOVE
	RETURN AIR STACK
	REDUCER
	SUPPLY DUCTWORK
	RETURN DUCTWORK
	FLEX DUCT
	EXHAUST FAN
	LT TRAP by REVERSOMATIC
	DV DIRECT VENT
	LW LOW WALL
	HW HIGH WALL
	CLG. CEILING
	Z.D. MOTORIZED ZONE DAMPER
	M.D. MOTORIZED DAMPER
	EXHAUST PIPE
	CONCENTRIC VENT KIT
	CONCENTRIC HRV or ERV VENT KIT
	SINGLE WALL BOX by REVERSOMATIC
	DOUBLE WALL BOX by REVERSOMATIC
	TRIPLE WALL BOX by REVERSOMATIC
	DRYER BOOSTER FAN

2	ADDED WUB	OCT/23	JW
1	ISSUED FOR PERMIT	SEPT/23	YV
Rev	Revision	Date	By

SB-12 PACKAGE
A1
Michael Offutt has reviewed and sealed this drawing and is responsible for the design work and seal qualified under division C.2.2.5 of the building code.
Michael Offutt BCMA 1998
HVAC Designer Ltd.

HVACDESIGNS LTD.
375 Finley Ave - Unit 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

Client: GREENPARK HOMES
Project Name: TRINIGROUP RICHMOND HILL, ONTARIO
ROSE 3 - WOB
2596 SQFT

Sheet Title: HVAC
Drawn By: YV
Scale: 3/16"=1'-0"
Date: SEPTEMBER 2023
LO #: 102625
Per: joshua.nabulsi

HEATING LAYOUT
BASIC DIVISION

05/01/2024

RECEIVED