

SITE NAME: TRINIGROUP				WOB				DATE: Sep-23				WINTER NATURAL AIR CHANGE RATE 0.380				HEAT LOSS ΔT °F. 78				CSA-F280-12			
BUILDER: GREENPARK HOMES				TYPE: VILLA 5				GFA: 2834				SUMMER NATURAL AIR CHANGE RATE 0.118				HEAT GAIN ΔT °F. 13				SB-12 PACKAGE A1			
ROOM USE				MBR				ENS				WIC				BED-2				BED-3			
EXP. WALL				32				23				5				14				27			
CLG. HT.				9				9				9				9				9			
FACTORS																							
GRS.WALL AREA				288				207				45				126				243			
GLAZING				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN			
NORTH				21.8 16.0				0 0 0				0 0 0				18 392 288				0 0 0			
EAST				21.8 41.6				0 0 0				0 0 0				35 762 1454				0 0 0			
SOUTH				21.8 24.9				0 0 0				0 0 0				0 0 0				18 392 448			
WEST				21.8 41.6				20 436 831				14 305 582				0 0 0				0 0 0			
SKYLT.				38.1 101.5				0 0 0				0 0 0				0 0 0				0 0 0			
DOORS				20.5 3.4				0 0 0				0 0 0				0 0 0				0 0 0			
NET EXPOSED WALL				4.6 0.8				268 1224 201				175 799 132				45 206 34				108 493 81			
NET EXPOSED BSMT WALL ABOVE GR				3.7 0.6				0 0 0				0 0 0				0 0 0				0 0 0			
EXPOSED CLG				1.3 0.6				328 431 193				131 172 77				47 62 28				201 264 118			
NO ATTIC EXPOSED CLG				2.8 1.3				0 0 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				177 462 76			
BASEMENT/CRAWL HEAT LOSS								0				0				0				0			
SLAB ON GRADE HEAT LOSS								0				0				0				0			
SUBTOTAL HT LOSS				2091				1669				267				1150				2407			
SUB TOTAL HT GAIN								1225				1238				61				487			
LEVEL FACTOR / MULTIPLIER				0.20 0.31				0.20 0.31				0.20 0.31				0.20 0.31				0.20 0.31			
AIR CHANGE HEAT LOSS				641				511				82				352				738			
AIR CHANGE HEAT GAIN				96				97				5				38				141			
DUCT LOSS				0				0				0				0				314			
DUCT GAIN				0				0				0				0				275			
HEAT GAIN PEOPLE				240				2				480				0				1			
HEAT GAIN APPLIANCES/LIGHTS				577				0				0				577				577			
TOTAL HT LOSS BTU/H				2732				2180				349				1502				3459			
TOTAL HT GAIN x 1.3 BTU/H				3092				1737				86				1744				3930			

ROOM USE													H-OFF			DN/LV			KT/BF			FAM			PWD			FOY			WOB			BAS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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SITE NAME: TRINIGROUP
BUILDER: GREENPARK HOMESWOB
TYPE: VILLA 5

DATE: Sep-23

GFA: 2834 LO# 102637

HEATING CFM	978	COOLING CFM	978
TOTAL HEAT LOSS	53,298	TOTAL HEAT GAIN	32,431
AIR FLOW RATE CFM	18.35	AIR FLOW RATE CFM	30.16

furnace pressure	0.7
furnace filter	0.14
a/c coil pressure	0.24
available pressure for s/a & r/a	0.32

#GOODMAN
GMEC960603BNA
FAN SPEED 60AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	13	7	5
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.

plenium pressure s/a	0.17	r/a pressure	0.15
max s/a dif press. loss	0.01	r/a grille press. Loss	0.02
min adjusted pressure s/a	0.16	adjusted pressure r/a	0.13

MEDLOW
MEDIUM 978
MEDIUM HIGH 1017
HIGH 1131DESIGN CFM = 978
CFM @ .7" E.S.P.

TEMPERATURE RISE 55 °F

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	19	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	FLEX	WIC-2	MBR	ENS-2	H-OFF	DN/LV	KT/BF	KT/BF	FAM	PWD	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.37	1.09	0.35	1.50	1.73	1.57	0.84	3.61	0.85	1.37	0.99	1.34	3.93	1.94	1.94	2.86	1.90	3.75	3.51	3.51	3.51	3.51
CFM PER RUN HEAT	25	20	6	28	32	29	15	66	16	25	18	25	72	36	36	53	35	69	64	64	64	64
RM GAIN MBH.	1.55	0.87	0.09	1.74	1.97	2.16	0.19	2.23	0.82	1.55	0.42	1.34	2.66	2.29	2.29	2.36	0.29	1.74	0.61	0.61	0.61	0.61
CFM PER RUN COOLING	47	26	3	53	59	65	6	67	25	47	13	40	80	69	69	71	9	52	18	18	18	18
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	33	50	21	29	56	45	47	60	54	40	31	10	21	25	26	35	19	43	39	32	18	37
EQUIVALENT LENGTH	140	160	130	200	160	170	180	150	150	170	130	110	110	90	130	130	120	130	120	120	150	110
TOTAL EFFECTIVE LENGTH	173	210	151	229	216	215	227	210	204	210	161	120	131	115	156	165	139	173	159	152	168	147
ADJUSTED PRESSURE	0.09	0.07	0.1	0.07	0.07	0.07	0.07	0.07	0.08	0.07	0.1	0.13	0.12	0.14	0.1	0.09	0.11	0.09	0.1	0.1	0.09	0.11
ROUND DUCT SIZE	5	4	4	6	5	6	4	6	4	5	4	4	5	5	5	5	4	5	5	5	5	5
HEATING VELOCITY (ft/min)	184	229	69	143	235	148	172	337	184	184	207	287	529	264	264	389	402	507	470	470	470	470
COOLING VELOCITY (ft/min)	345	298	34	270	433	331	69	342	287	345	149	459	587	507	507	521	103	382	132	132	132	132
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	C	B	D	D	A	B	A	A	A	D	B	D	B	C	D	B	D	A	B	D	B	A

RUN #	25	26	27
ROOM NAME	BAS	BED-3	ENS
RM LOSS MBH.	3.51	1.73	1.09
CFM PER RUN HEAT	64	32	20
RM GAIN MBH.	0.61	1.97	0.87
CFM PER RUN COOLING	18	59	26
ADJUSTED PRESSURE	0.16	0.16	0.16
ACTUAL DUCT LGH.	23	59	40
EQUIVALENT LENGTH	80	170	150
TOTAL EFFECTIVE LENGTH	103	229	190
ADJUSTED PRESSURE	0.15	0.07	0.08
ROUND DUCT SIZE	5	5	4
HEATING VELOCITY (ft/min)	470	235	229
COOLING VELOCITY (ft/min)	132	433	298
OUTLET GRILL SIZE	3X10	3X10	3X10
TRUNK	A	C	

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	294	0.07	9.2	10	x	8	529	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	320	0.07	9.5	10	x	8	576	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	614	0.07	12.1	18	x	8	614	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	219	0.07	8.2	8	x	8	493	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	STATIC	ROUND	RECT		VELOCITY	
	CFM	PRESS.	DUCT	DUCT		(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	978	0.05	15.6	28	x	8	629
TRUNK Y	0	0.05	0	0	x	8	0
TRUNK Z	0	0.05	0	0	x	8	0
DROP	978	0.05	15.6	24	x	10	887

RETURN AIR #	1	2	3	4	5	6	7									BR
AIR VOLUME	110	90	85	85	90	153	205	0	0	0	0	0	0	0	0	160
PLENUM PRESSURE	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
ACTUAL DUCT LGH.	31	40	52	44	45	14	13	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	135	175	184	175	215	215	135	0	0	0	0	0	0	0	0	220
TOTAL EFFECTIVE LH	166	215	236	219	260	229	148	1	1	1	1	1	1	1	1	234
ADJUSTED PRESSURE	0.08	0.06	0.06	0.06	0.05	0.06	0.09	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	0.06
ROUND DUCT SIZE	6	6	6	6	6.4	7.5	7.5	0	0	0	0	0	0	0	0	7.6
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	14	0	0	0	0	0	0	0	0	24

CITY OF RICHMOND HILL
BUILDING DIVISION

05/01/2024

RECEIVED
Per: joshua.nabua

TYPE: VILLA 5
SITE NAME: TRINIGROUPLO # 102637
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	
BATH BY INSTALLING CONTRACTOR 50 ☒ 3.5	
ENS-2 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)	

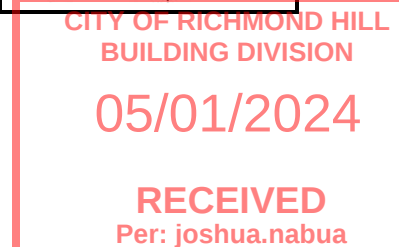
LOCATION OF INSTALLATION
Lot: Concession
Township City of Richmond Hill Plan: Building Division
Address HVAC REVIEWED
Roll # Building Permit #
BUILDER: GREENPARK Initials. PXV
Name:
Address:
City:
Telephone #: Fax #:

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-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'ROURKERECEIVED
Per: joshua.nabua

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 102637		Model: VILLA 5		Builder: GREENPARK HOMES																																																								
				Date: 9/22/2023																																																								
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.380 x 299.01 x 43 °C x 1.2 = 5892 W = 20102 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.118 x 299.01 x 7 °C x 1.2 = 302 W = 1031 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)																																																												
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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


HEAT LOSS AND GAIN SUMMARY SHEET

MODEL:	VILLA 5	WOB		BUILDER:	GREENPARK HOMES
SFQT:	2834	LO#	102637	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):	38014.0	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:	6.0 ft
LENGTH: 58.0 ft	WIDTH: 30.0 ft	EXPOSED PERIMETER:	139.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	37.0 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	-

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INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



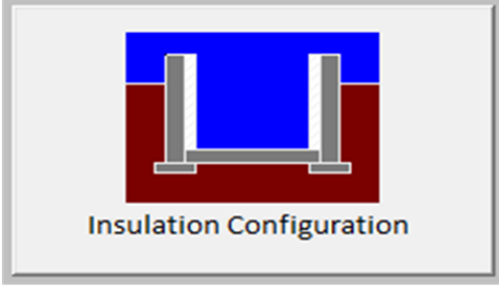
CITY OF RICHMOND HILL
BUILDING DIVISION

05/01/2024

RECEIVED
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):	9.1	
Exposed Perimeter (m):	42.4	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.51	
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):		704

TYPE: VILLA 5
LO# 102637

WOB

Michael O'Rourke BCIN #19669

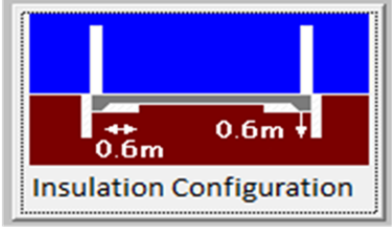
CITY OF RICHMOND HILL
BUILDING DIVISION

05/01/2024


RECEIVED
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):	8.2	
Exposed Perimeter (m):	11.3	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		129

TYPE: VILLA 5
LO# 102637

WOB

Michael O'Rourke BCIN# 19669

CITY OF RICHMOND HILL
BUILDING DIVISION

05/01/2024


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):	8.53			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1076.4			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1434.9 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):	0.380			
Cooling Air Leakage Rate (ACH/H):	0.118			

TYPE: VILLA 5
LO# 102637

WOB

Michael O'Rourke BCIN# 19669

CITY OF RICHMOND HILL
BUILDING DIVISION

05/01/2024

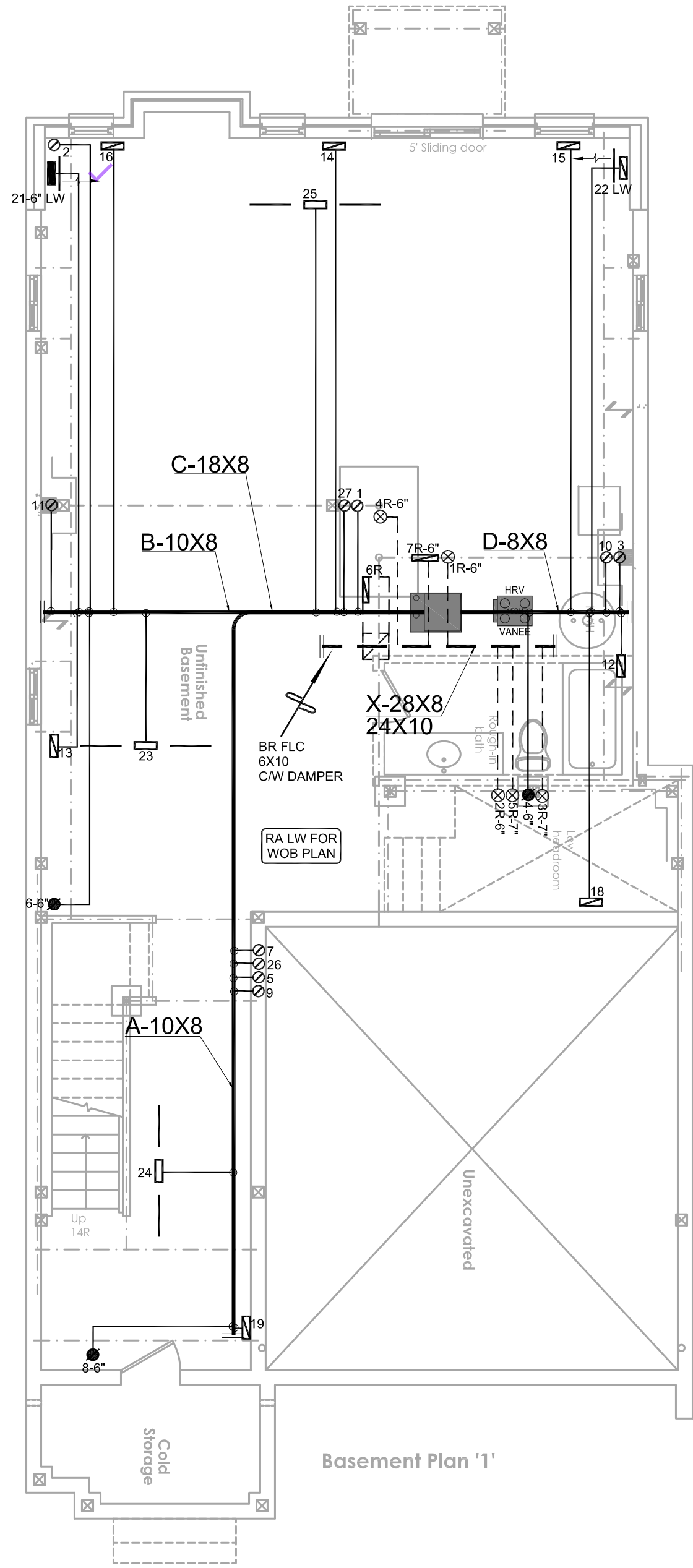
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INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE. ALL SUPPLY BRANCH OUTLETS SHALL BE EQUIPPED WITH MANUAL BALANCING DAMPER. DUCTWORK WHICH PASSES THROUGH THE GARAGE OR UNHEATED SPACES SHALL BE ADEQUATELY INSULATED AND GAS-PROOFED

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.



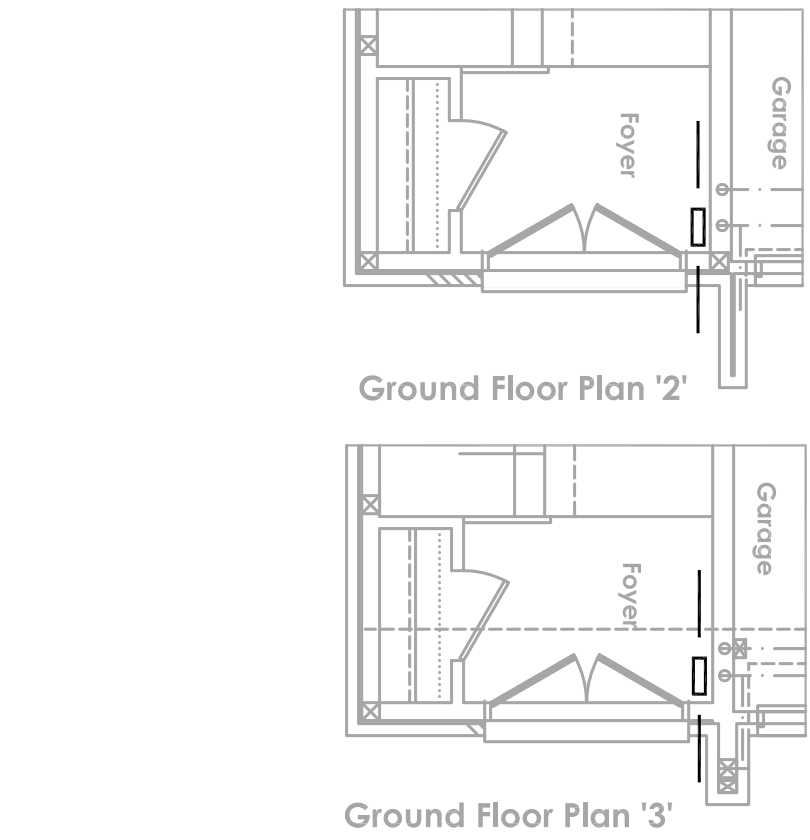
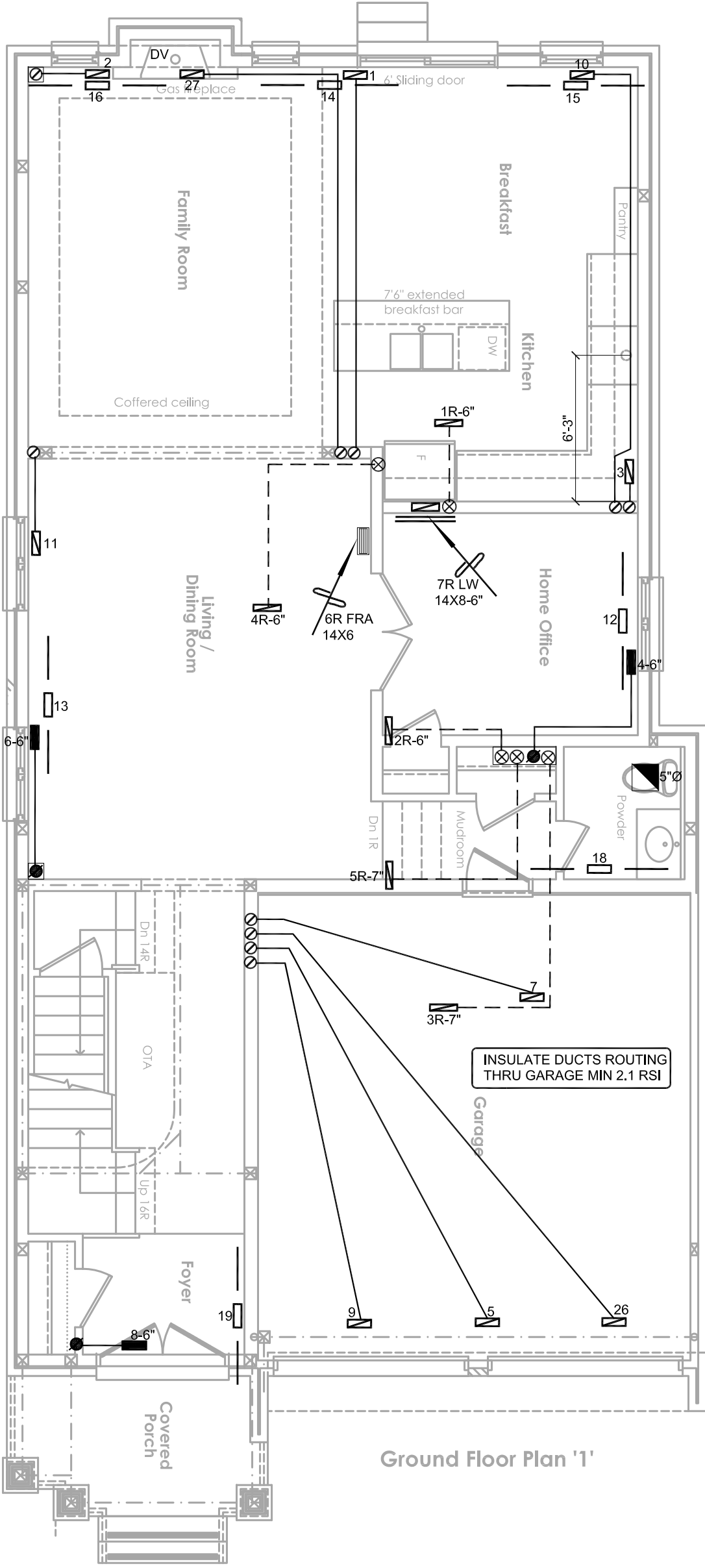
- 1.Laundry dryer exhaust duct shall be provided as per OBC 2012 Div.B 6.2.3.8(7).
- 2.Kitchen hood exhaust duct shall be provided as per OBC 2012, Div.B 9.32.3.10, 9.32.3.5(2).
- 3.Minimum R-12 Insulation Value required for ducts installed at unheated or exposed condition (OBC 2012 Div.B 6.2.4.3(10) 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)

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

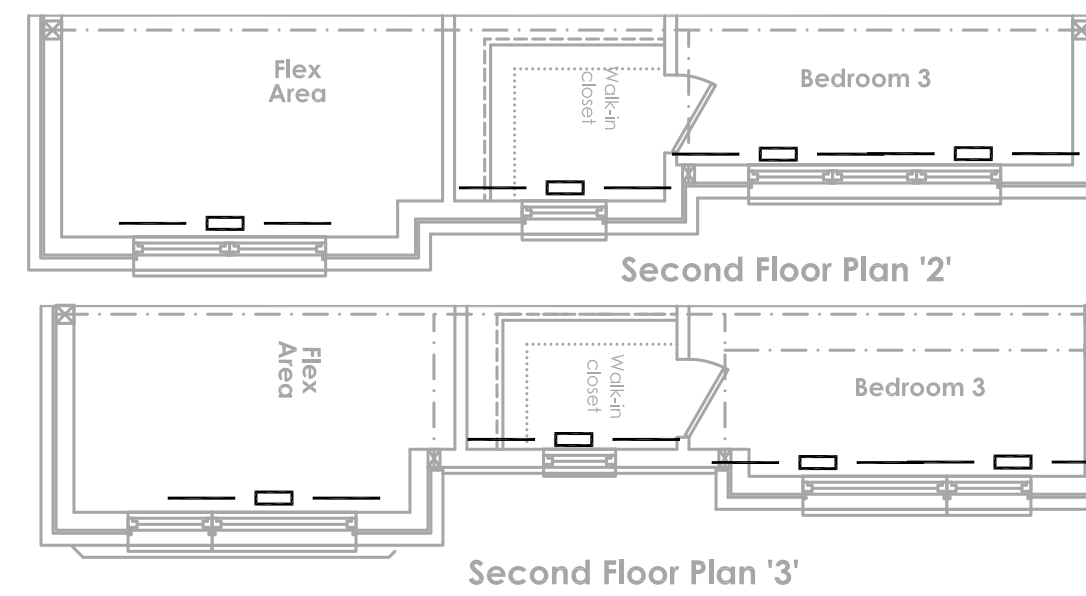
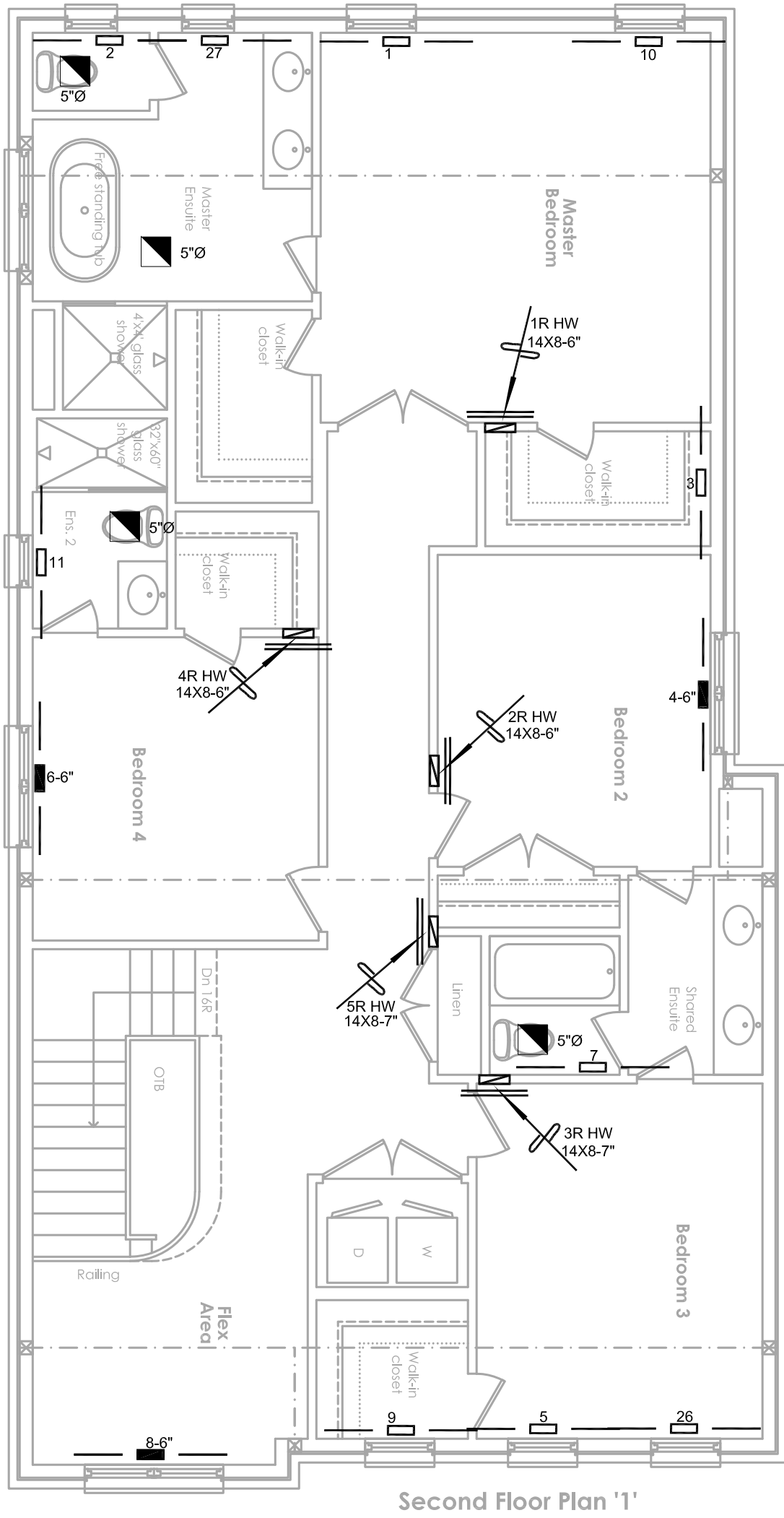
- 8.HRV installation, testing, startup and commissioning shall be in compliance with OBC 2012, Div.B 9.32.3.11, 9.32.3.11(7)&(10)

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).



- 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.



HEAT LOSS	54968 BTU/H	# OF RUNS	S/A	R/A	FANS
UNIT DATA		3RD FLOOR			
MAKE	GOODMAN	2ND FLOOR	13	5	4
MODEL	GMEC960603BNA	1ST FLOOR	7	2	2
INPUT	60 MBTU/H	BASEMENT	5	1	0
OUTPUT	57.6 MBTU/H				
COOLING	2.5 TONS				
FAN SPEED	978 cfm @ 0.6" w.c.				

WOB

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 LINT 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

ISSUED FOR PERMIT		SEPT/23
Revision		Date
SB-12 PACKAGE		A1
I Michael Offutt have reviewed and take responsibility for the design work and am qualified under division C.3.2.5 of the building code.		
 Michael Offutt BCIN # 19996 HVAC Designs Ltd.		

375 Finley Ave - Unit 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

Client	GREENPARK HOMES
Project Name	TRINIGROUP RICHMOND HILL, ONTARIO VILLA 5 - WOB 2834 SQFT
Sheet Title	HVAC
Drawn By	HR
Scale	3/16"=1'-0"
Date	SEPTEMBER 2023
LO #	102637

RECEIVED
Per: joshua.nabulsi