

SITE NAME: ROUNDEL PH 2

BUILDER: GREENPARK HOMES

TYPE: PINETREE 11 - ALT 2ND

GFA: 2706

DATE: Apr-23

LO# 100819

WINTER NATURAL AIR CHANGE RATE 0.322

SUMMER NATURAL AIR CHANGE RATE 0.101

HEAT LOSS ΔT °F. 78

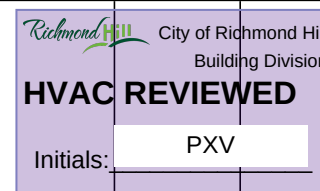
HEAT GAIN ΔT °F. 13

CSA-F280-12

SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS-1	BED-2	BED-3	BED-4	BATH	HALL	ENS-2		
			39	29	32	42	14	9	14	0		
			9	9	9	9	9	9	9	9		
FACTORS												
GRS.WALL AREA	LOSS	GAIN	351	261	288	378	126	81	126	0		
GLAZING	LOSS	GAIN			LOSS	GAIN	LOSS	GAIN	LOSS	GAIN		
NORTH	21.8	16.0	0	0	0	0	0	0	0	0		
EAST	21.8	41.6	0	0	56	1220	2327	52	1133	2161	0	0
SOUTH	21.8	24.9	56	1220	1394	0	0	52	1133	1295	18	392
WEST	21.8	41.6	20	436	831	15	327	623	0	0	0	0
SKYLT.	38.1	101.5	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
NET EXPOSED WALL	4.6	0.8	275	1256	207	246	1124	185	232	1060	174	274
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	326	428	192	196	257	115	180	236	106	0
NO ATTIC EXPOSED CLG	2.8	1.3	31	87	39	0	0	0	30	84	38	226
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	254	663	109	11
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			3427	1708	3264	4182	1206	664	1251	216		
SUB TOTAL HT GAIN			2863	923	2754	3951	656	340	694	56		
LEVEL FACTOR / MULTIPLIER	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20		
AIR CHANGE HEAT LOSS			698	348	665	852	246	135	255	44		
AIR CHANGE HEAT GAIN			126	44	130	187	31	16	33	3		
DUCT LOSS			0	0	393	503	145	0	151	26		
DUCT GAIN			0	0	374	499	154	0	73	6		
HEAT GAIN PEOPLE	240	2	480	0	1	240	1	240	0	0		
HEAT GAIN APPLIANCES/LIGHTS			616	0	616	616	616	616	0	0		
TOTAL HT LOSS BTU/H			4126	2056	4321	5537	1596	800	1656	286		
TOTAL HT GAIN x 1.3 BTU/H			5051	1257	5349	7141	2207	464	1040	84		

ROOM USE	EXP. WALL	CLG. HT.	LVDN	KT/BF	FAM	PWD	FOY	MUD	BAS
			63	36	36	10	8	28	174
			10	10	10	10	10	10	9
FACTORS									
GRS.WALL AREA	LOSS	GAIN	630	360	360	100	80	280	1044
GLAZING	LOSS	GAIN		LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
NORTH	21.8	16.0	0	0	0	0	0	0	0
EAST	21.8	41.6	48	1046	1994	0	0	0	0
SOUTH	21.8	24.9	60	1307	1494	0	0	0	0
WEST	21.8	41.6	0	0	0	12	261	299	31
SKYLT.	38.1	101.5	0	0	0	0	0	0	0
DOORS	20.5	3.4	0	0	0	0	0	0	0
NET EXPOSED WALL	4.6	0.8	522	2385	392	88	402	66	29
NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	15	20	9	0	0	0	0
NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0
SUBTOTAL HT LOSS			4757	2872	2963	663	1218	1598	8425
SUB TOTAL HT GAIN			3890	2826	2494	365	861	263	633
LEVEL FACTOR / MULTIPLIER	0.30	0.35	0.30	0.35	0.30	0.35	0.30	0.35	0.50
AIR CHANGE HEAT LOSS			1644	992	1024	229	421	552	8106
AIR CHANGE HEAT GAIN			184	134	118	17	41	12	30
DUCT LOSS			0	0	0	0	0	0	0
DUCT GAIN			0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			616	616	616	616	616	616	616
TOTAL HT LOSS BTU/H			6401	3864	3988	893	1639	2151	16531
TOTAL HT GAIN x 1.3 BTU/H			6097	4650	4196	497	1173	358	1663



TOTAL HEAT GAIN BTU/H:

41501

TONS: 3.46

LOSS DUE TO VENTILATION LOAD BTU/H: 1670

STRUCTURAL HEAT LOSS: 55845

TOTAL COMBINED HEAT LOSS BTU/H: 57515

21.25

CITY OF RICHMOND HILL
BUILDING DIVISION
05/24/2023

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BUILDER: GREENPARK HOMES

TYPE: PINETREE 11 - ALT 2ND

DATE: Apr-23

GFA: 2706 LO# 100819

HEATING CFM	1504	COOLING CFM	1504
TOTAL HEAT LOSS	55,845	TOTAL HEAT GAIN	41,227
AIR FLOW RATE CFM	26.93	AIR FLOW RATE CFM	36.48

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

#GOODMAN	AFUE = 96 %
GMEC960804CNA	INPUT (BTU/H) = 80,000
FAN SPEED	OUTPUT (BTU/H) = 76,800

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	14	10	5
R/A	0	0	5	3	1

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

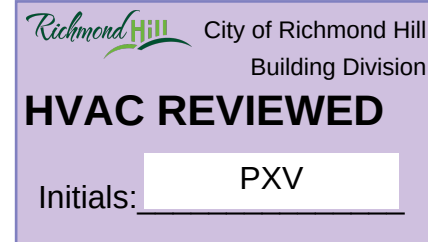
All S/A runs 5"Ø unless noted otherwise on layout.

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	0.15

LOW	868	DESIGN CFM =	1504
MEDLOW	978	CFM @ .6" E.S.P.	
MEDIUM	1112		
MEDIUM HIGH	1504		
HIGH	1615	TEMPERATURE RISE	47 °F

RUN #	1	2	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS-1	BED-2	BED-3	BED-4	BATH	HALL	MBR	LV/DN	LV/DN	LV/DN	KT/BF	KT/BF	FAM	ENS-2	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.38	1.54	2.16	1.85	1.60	0.80	1.66	1.38	2.13	2.13	2.13	1.93	1.93	1.99	0.29	0.89	1.64	2.15	3.31	3.31	3.31	3.31
CFM PER RUN HEAT	37	42	58	50	43	22	45	37	57	57	57	52	52	54	8	24	44	58	89	89	89	89
RM GAIN MBH.	1.68	0.94	2.67	2.38	2.21	0.46	1.04	1.68	2.03	2.03	2.03	2.32	2.32	2.10	0.08	0.50	1.17	0.36	0.33	0.33	0.33	0.33
CFM PER RUN COOLING	61	34	98	87	81	17	38	61	74	74	74	85	85	77	3	18	43	13	12	12	12	12
ADJUSTED PRESSURE	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	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.	45	60	68	64	60	50	58	52	55	65	59	22	16	54	54	43	30	12	15	12	32	30
EQUIVALENT LENGTH	150	170	170	160	190	200	150	190	120	120	130	120	140	120	160	220	130	180	130	110	140	180
TOTAL EFFECTIVE LENGTH	195	230	238	224	250	250	208	242	175	185	189	142	156	174	214	263	160	192	145	122	172	210
ADJUSTED PRESSURE	0.09	0.07	0.07	0.07	0.06	0.07	0.08	0.07	0.1	0.09	0.09	0.11	0.1	0.1	0.08	0.07	0.11	0.09	0.11	0.13	0.09	0.08
ROUND DUCT SIZE	5	5	6	6	6	4	5	5	5	6	6	6	6	5	4	4	4	5	6	6	6	6
HEATING VELOCITY (ft/min)	272	308	296	255	219	252	330	272	419	291	291	265	265	396	92	275	505	426	454	454	454	454
COOLING VELOCITY (ft/min)	448	250	500	444	413	195	279	448	543	377	377	433	433	565	34	207	493	95	61	61	61	61
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	D	D	B	B	A	B	B	C	A	A	A	D	D	C	B	B	C	D	D	D	C	B

RUN #	25	26	27	28	29	30	31
ROOM NAME	BAS	BED-2	BED-3	BED-3	MBR	ENS-1	FAM
RM LOSS MBH.	3.31	2.16	1.85	1.85	1.38	0.51	1.99
CFM PER RUN HEAT	89	58	50	50	37	14	54
RM GAIN MBH.	0.33	2.67	2.38	2.38	1.68	0.31	2.10
CFM PER RUN COOLING	12	98	87	87	61	11	77
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.17	0.17	0.17
ACTUAL DUCT LGH.	53	73	74	66	41	46	40
EQUIVALENT LENGTH	120	170	150	200	150	140	150
TOTAL EFFECTIVE LENGTH	173	243	224	266	191	186	190
ADJUSTED PRESSURE	0.09	0.07	0.07	0.06	0.09	0.09	0.09
ROUND DUCT SIZE	6	6	6	6	5	4	5
HEATING VELOCITY (ft/min)	454	296	255	255	272	161	396
COOLING VELOCITY (ft/min)	61	500	444	444	448	126	565
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	3X10	3X10	3X10
TRUNK	A	B	B	A	C	D	C



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	353	0.06	10.2	14	x	8	454		TRUNK G	0	0.00	0	0	x	8
TRUNK B	757	0.06	13.6	24	x	8	568		TRUNK H	0	0.00	0	0	x	8
TRUNK C	315	0.07	9.4	10	x	8	567		TRUNK I	0	0.00	0	0	x	8
TRUNK D	1505	0.06	17.6	28	x	10	774		TRUNK J	0	0.00	0	0	x	8
TRUNK E	0	0.00	0	0	x	8	0		TRUNK K	0	0.00	0	0	x	8
TRUNK F	0	0.00	0	0	x	8	0		TRUNK L	0	0.00	0	0	x	8

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	395	0.05	11.1	14	x	8	508
TRUNK X	1504	0.05	18.4	32	x	10	677
TRUNK Y	996	0.05	15.8	28	x	8	640
TRUNK Z	660	0.05	13.5	22	x	8	540
DROP	1504	0.05	18.4	24	x	14	645

RETURN AIR #	1	2	3	4	5	6	7	8							BR
AIR VOLUME	135	135	130	130	130	135	336	150	0	0	0	0	0	0	223
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
ACTUAL DUCT LGH.	46	43	76	47	75	55	41	26	1	1	1	1	1	1	24
EQUIVALENT LENGTH	165	255	245	225	250	250	130	145	0	0	0	0	0	0	185
TOTAL EFFECTIVE LH	211	298	321	272	325	305	171	171	1	1	1	1	1	1	209
ADJUSTED PRESSURE	0.07	0.05	0.05	0.05	0.05	0.05	0.09	0.09	14.80	14.80	14.80	14.80	14.80	14.80	0.07
ROUND DUCT SIZE	6.8	7.5	7.3	7.3	7.3	7.5	9	6.7	0	0	0	0	0	0	8
INLET GRILL SIZE	x	8	8	8	8	8	8	8	0	0	0	0	0	0	8
	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	14	0	0	0	0	0	0	24

CITY OF RICHMOND HILL
BUILDING DIVISION

05/24/2023

RECEIVED
Per: joshua.nabua

TYPE: PINETREE 11 - ALT 2ND
SITE NAME: ROUNDEL PH 2

LO # 100819

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>4</u> @ 10.6 cfm <u>42.4</u> cfm	
Other Rooms	<u>2</u> @ 10.6 cfm <u>21.2</u> cfm	
Table 9.32.3.A.	TOTAL <u>137.8</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>137.8</u> cfm	
Less Principal Ventil. Capacity	<u>79.5</u> cfm	
Required Supplemental Capacity	<u>58.3</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-1	BY INSTALLING CONTRACTOR	50	☒	3.5
BATH	BY INSTALLING CONTRACTOR	50	☒	3.5
PWD	BY INSTALLING CONTRACTOR	50	☒	3.5

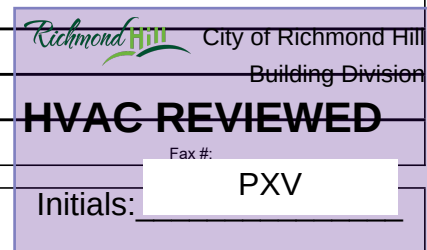
HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE V150H		
<u>150</u> cfm high	<u>35</u> cfm low	
<u>75</u> % Sensible Efficiency	☒ HVI Approved	
@ 32 deg F (0 deg C)		

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

BUILDER:		GREENPARK HOMES
Name:		
Address:		
City:		
Telephone #:		
INSTALLING CONTRACTOR	Initials: <u>PXV</u>	
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

Michael O'Rourke

RECEIVED
Per: joshua.nabua

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																	
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																	
LO#: 100819		Model: PINETREE 11 - ALT 2ND			Builder: GREENPARK HOMES			Date: 2023-04-04																																																									
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>1176</td><td>9</td><td>10584</td></tr> <tr><td>First</td><td>1176</td><td>10</td><td>11760</td></tr> <tr><td>Second</td><td>1530</td><td>9</td><td>13770</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>36,114.0 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>1022.6 m³</td></tr> </tbody> </table>					Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1176	9	10584	First	1176	10	11760	Second	1530	9	13770	Third	0	9	0	Fourth	0	9	0	Total:			36,114.0 ft³	Total:			1022.6 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;"> <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	0.322	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
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																														
Bsmt	1176	9	10584																																																														
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Summer DTDc	24	31	7	13																																																													
5.2.3.1 Heat Loss due to Air Leakage $HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.322 x 284.07 x 43 °C x 1.2 = 4752 W = 16212 Btu/h					6.2.6 Sensible Gain due to Air Leakage $HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.101 x 284.07 x 7 °C x 1.2 = 244 W = 832 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 CFM x 78 °F x 1.08 x 0.25 = 1670 Btu/h					6.2.7 Sensible heat Gain due to Ventilation $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 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)																																																																	
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																																	
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	16,212	8,425	0.962																																																													
2	0.3		14,072	0.346																																																													
3	0.2		15,918	0.204																																																													
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																																																																	

Michael O'Rourke
BCIN# 19669

CITY OF RICHMOND HILL
BUILDING DIVISION

05/24/2023

RECEIVED

Per: joshua.nabua

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: PINETREE 11 - ALT 2ND

BUILDER: GREENPARK HOMES

SFQT: 2706

LO# 100819

SITE: ROUNDEL PH 2

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 (ft ³):	36114.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 53.0 ft	WIDTH: 34.0 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	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

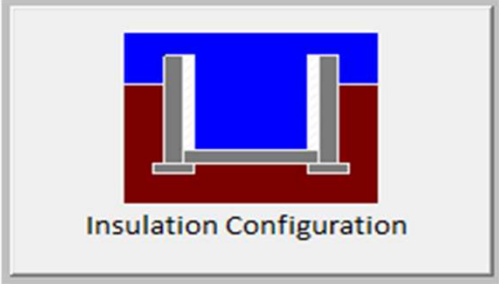
05/24/2023

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):	16.2	 Insulation Configuration
Floor Width (m):	10.4	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	0.6	
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):		1747

TYPE: PINETREE 11 - ALT 2ND
LO# 100819

Michael O'Rourke BCIN #19669

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	22 feet		
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1022.6			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1363.2 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):	0.322			
Cooling Air Leakage Rate (ACH/H):	0.101			

TYPE: PINETREE 11 - ALT 2ND
LO# 100819

Richmond Hill City of Richmond Hill
Building Division

HVAC REVIEWED

Initials: PXV

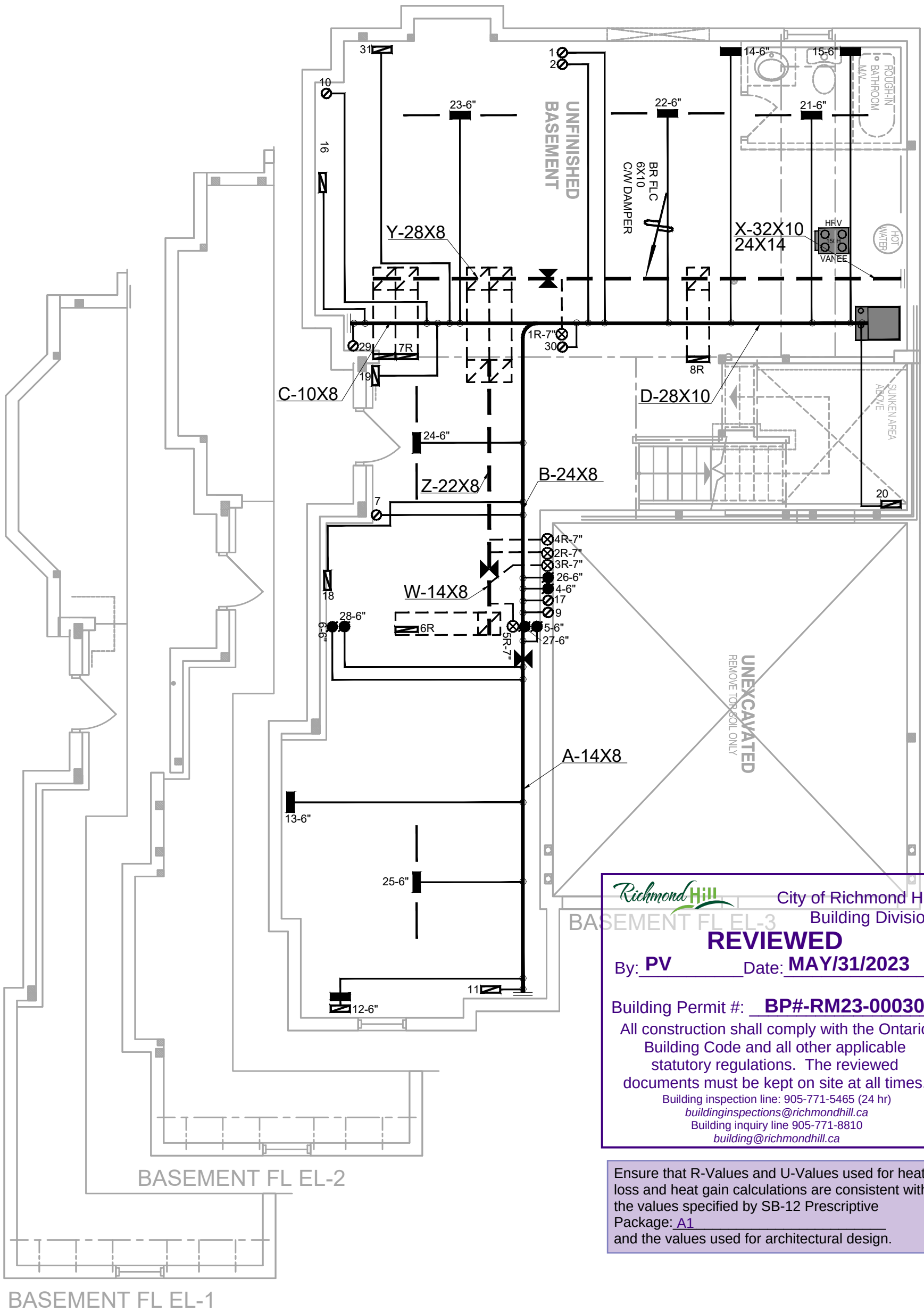
Michael O'Rourke BCIN# 19669

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#-RM23-00030**

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.

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								 Michael O'Rourke BCIN # 19669 HVAC Designs Ltd.		
GREENPARK HOMES								PACKAGE A1		
Project Name								Sheet Title		
ROUND EL PH 2								BASEMENT HEATING LAYOUT		
RICHMOND HILL, ONTARIO								Date		
ALT 2ND								3/16" = 1'-0"		
PINETREE 11								BCIN# 19669		
2706 sqft								LO# 100819		
								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)

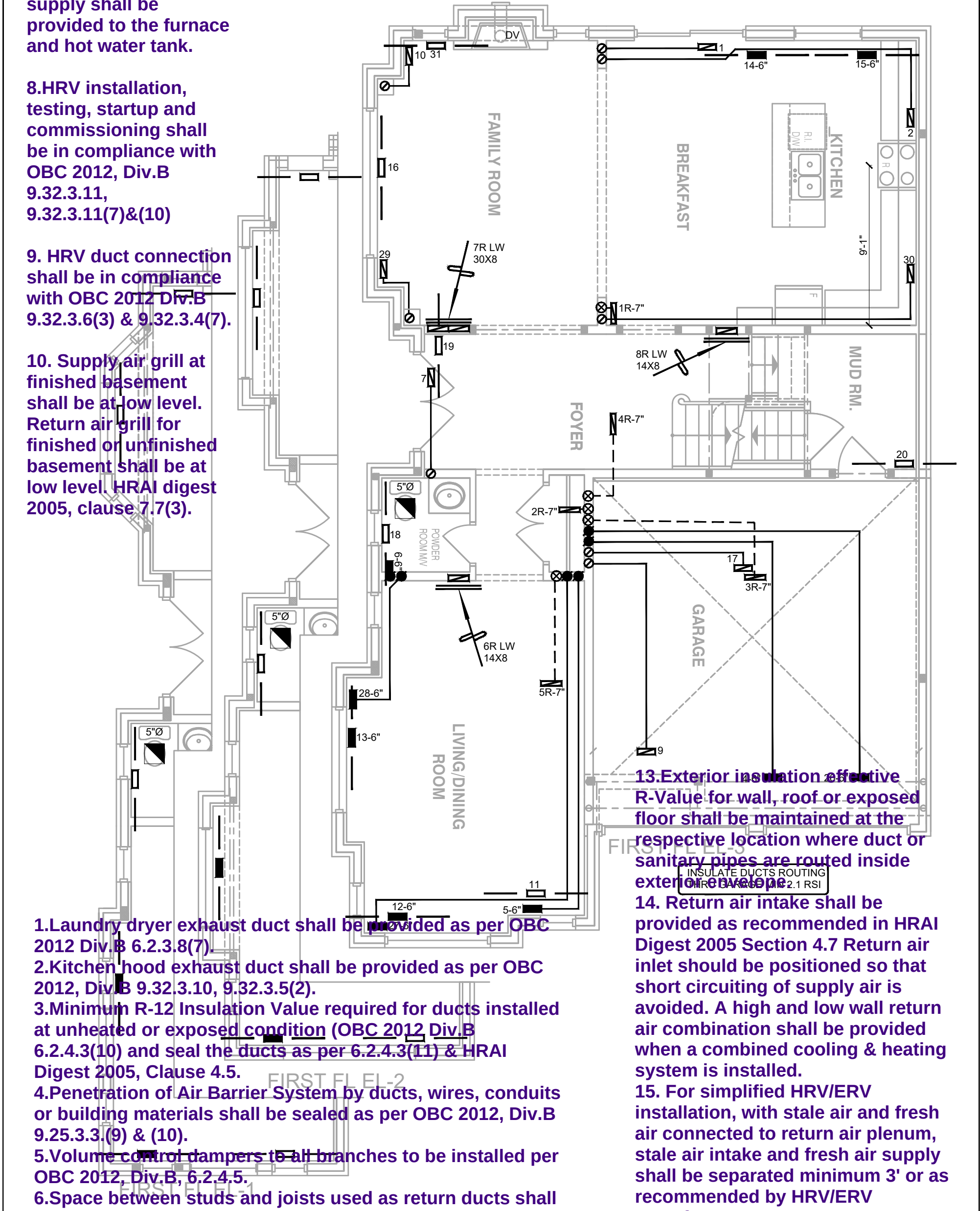
9. HRV duct connection shall be in compliance with OBC 2012 Div.B 9.32.3.6(3) & 9.32.3.4(7).

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).

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).

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



HVAC LEGEND							REVISIONS		
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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.

Client
GREENPARK HOMES

Project Name
**ROUNDEL PH 2
RICHMOND HILL, ONTARIO**

**ALT 2ND
PINETREE 11 2706 sqft**

HVAC DESIGNS LTD.

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

City of Richmond Hill Building Division

HVAC REVIEWED

Initials: **PXV**

Sheet Title
FIRST FLOOR HEATING LAYOUT

Date
APR/2023

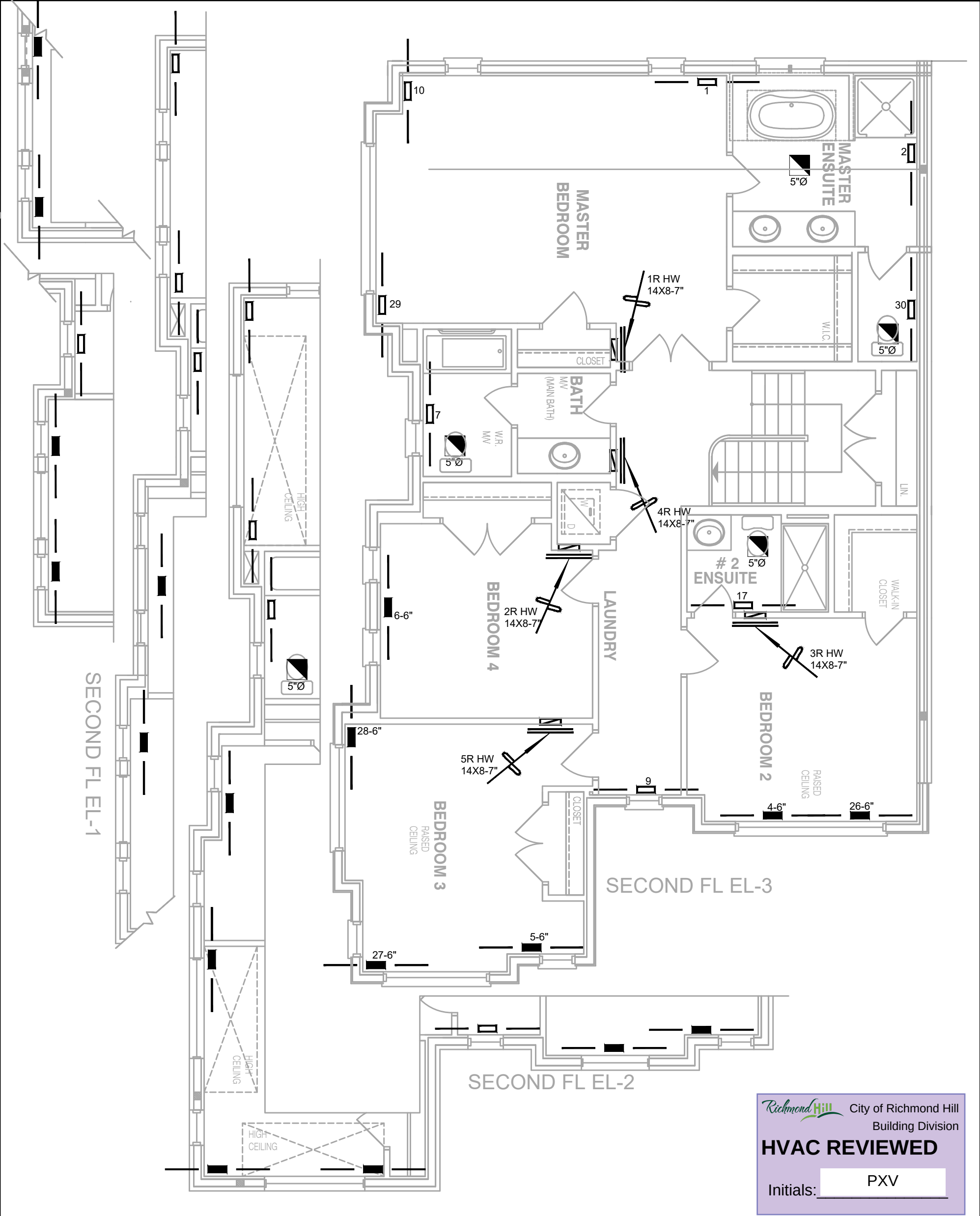
Scale
3/16" = 1'-0"

BCIN# 19669

LO# 100819

Per: **joshua.nabua**

PACKAGE A1





City of Richmond Hill
Building Division

HVAC REVIEWED

Initials:

PXV

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
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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@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		SECOND FLOOR HEATING LAYOUT
Project Name		ROUNDEL PH 2 RICHMOND HILL, ONTARIO						CITY OF RICHMOND HILL BUILDING DIVISION		
ALT 2ND PINETREE 11		2706 sqft						Date		APR/2023
								Scale		3/16" = 1'-0"
								BCIN#		19669
								LO#		100819
								Per:		joshua.nabua