

SITE NAME: ZADORRA ESTATING OFFICIAL

DATE: Jul-23

WINTER NATURAL AIR CHANGE RATE 0.340

HEAT LOSS ΔT °F. 74

CSA-F280-12

BUILDER: GREENPARK HOMES

TYPE: VILLA 5

GFA: 2834

LO# 101809

SUMMER NATURAL AIR CHANGE RATE 0.094

HEAT GAIN ΔT °F. 11

SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	FLEX	WIC-2	ENS-2		
	32		9	23	5	14	27	12	8	33	6	13		
	9		9	9	9	9	9	9	9	9	9	9		
FACTORS														
GRS.WALL AREA	LOSS	GAIN	288	207	45	126	243	108	72	297	54	117		
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
NORTH	20.8	15.5	0	0	0	0	0	0	0	0	0	0	0	0
EAST	20.8	41.0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	20.8	24.4	0	0	0	18	374	439	0	0	0	7	145	171
WEST	20.8	41.0	20	416	821	14	291	575	0	0	0	0	0	0
SKYLT.	36.4	100.7	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	19.6	2.9	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.4	0.6	268	1168	173	175	762	113	45	196	29	108	471	70
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	328	411	183	131	164	73	47	59	26	201	252	112
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	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	0	0
SUBTOTAL HT LOSS			1994		1591	255	1096	2296	1040	557	2397	566	722	
SUB TOTAL HT GAIN				1177	1200	55	460	1735	618	110	1389	516	285	
LEVEL FACTOR / MULTIPLIER	0.20	0.27		0.20	0.27	0.20	0.27	0.20	0.27	0.20	0.27	0.20	0.27	
AIR CHANGE HEAT LOSS			547		437	70	301	630	286	153	658	155	198	
AIR CHANGE HEAT GAIN				74	75	3	29	109	39	7	87	32	18	
DUCT LOSS			0		0		0	293	133	71	305	72	0	
DUCT GAIN			0		0		0	266	147	12	148	55	0	
HEAT GAIN PEOPLE	240		2	480	0	0	1	240	1	240	0	0	0	
HEAT GAIN APPLIANCES/LIGHTS				577	0		0	577		577	0	0	0	
TOTAL HT LOSS BTU/H			2541		2028	325	1397	3219	1459	781	3360	793	921	
TOTAL HT GAIN x 1.3 BTU/H			3000		1658	76	1698	3805	2107	168	2111	785	394	

ROOM USE	EXP. WALL	CLG. HT.	H-OFF	DN/LV	KT/BF	FAM	PWD	FOY					WOD	BAS
	0		10	40	33	33	20	38					37	176
	10		10	10	10	10	10	10					9	9
FACTORS														
GRS.WALL AREA	LOSS	GAIN	0	400	330	330	200	380					333	1167
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
NORTH	20.8	15.5	22	457	340	0	0	0	0	0	0	0	0	0
EAST	20.8	41.0	0	0	0	0	0	0	22	457	903	0	0	0
SOUTH	20.8	24.4	0	0	0	44	914	1073	0	0	0	0	0	0
WEST	20.8	41.0	0	0	0	0	0	0	0	0	0	0	0	0
SKYLT.	36.4	100.7	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	19.6	2.9	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.4	0.6	-22	-96	-14	356	1551	230	269	1172	174	308	1342	199
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	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	0	0
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	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	0	0
SUBTOTAL HT LOSS			361		2465	2439	1799		1191	2352			780	7966
SUB TOTAL HT GAIN				326	1303	2678	1102		177	1184			116	471
LEVEL FACTOR / MULTIPLIER	0.30	0.49		0.30	0.49	0.30	0.49	0.30	0.49	0.30	0.49	0.30	0.49	0.50
AIR CHANGE HEAT LOSS			175		1197	1185	874		578	1142				8587
AIR CHANGE HEAT GAIN				20	82	168	69		11	74				37
DUCT LOSS			0		0	0	0		0	0			0	0
DUCT GAIN			0		0	0	0		0	0			0	0
HEAT GAIN PEOPLE	240		0	0	0	0	0		0	0			0	0
HEAT GAIN APPLIANCES/LIGHTS				577	577	577	577		0	0			0	577
TOTAL HT LOSS BTU/H			537		3663	3624	2673		1770	3494			780	16552
TOTAL HT GAIN x 1.3 BTU/H			1200		2550	4449	2272		244	1636			150	1410

TOTAL HEAT GAIN BTU/H:

29949

TONS: 2.50

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 49915

TOTAL COMBINED HEAT LOSS BTU/H: 51508

SITE NAME: GREENPARK HOMES
BUILDER: GREENPARK HOMES

TYPE: VILLA 5

DATE: Jul-23

GFA: 2834

LO# 101809

HEATING CFM 928 COOLING CFM 928
TOTAL HEAT LOSS 49,915 TOTAL HEAT GAIN 29,713
AIR FLOW RATE CFM 18.59 AIR FLOW RATE CFM 31.23

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

#GOODMAN
GMEC960603BNA 60
FAN SPEED
LOW
MEDLOW
MEDIUM 928
MEDIUM HIGH 1017
HIGH 1131

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600

DESIGN CFM = 928
CFM @ .6" E.S.P.

TEMPERATURE RISE 57 °F

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

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

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

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.	1.27	1.01	0.32	1.40	1.61	1.46	0.78	3.36	0.79	1.27	0.92	0.54	3.66	1.81	1.81	2.67	1.77	3.49	4.33	4.33	4.33	4.33
CFM PER RUN HEAT	24	19	6	26	30	27	15	62	15	24	17	10	68	34	34	50	33	65	81	81	81	81
RM GAIN MBH.	1.50	0.83	0.08	1.70	1.90	2.11	0.17	2.11	0.78	1.50	0.39	1.20	2.55	2.22	2.22	2.27	0.24	1.64	0.39	0.39	0.39	0.39
CFM PER RUN COOLING	47	26	2	53	59	66	5	66	25	47	12	37	80	69	69	71	8	51	12	12	12	12
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	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	31	24	18	37
EQUIVALENT LENGTH	130	160	130	200	160	170	180	150	150	170	130	110	110	80	130	130	120	130	140	110	150	110
TOTAL EFFECTIVE LENGTH	163	210	151	229	216	215	227	210	204	210	161	120	131	105	156	165	139	173	171	134	168	147
ADJUSTED PRESSURE	0.11	0.08	0.11	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.11	0.14	0.13	0.16	0.11	0.1	0.12	0.1	0.09	0.12	0.1	0.11
ROUND DUCT SIZE	4	4	4	6	5	6	4	5	4	5	4	4	5	5	5	5	4	5	6	5	5	5
HEATING VELOCITY (ft/min)	275	218	69	133	220	138	172	455	172	176	195	115	499	250	250	367	379	477	413	595	595	595
COOLING VELOCITY (ft/min)	539	298	23	270	433	337	57	485	287	345	138	424	587	507	507	521	92	374	61	88	88	88
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	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 #	26	27
ROOM NAME	BED-3	ENS
RM LOSS MBH.	1.61	1.01
CFM PER RUN HEAT	30	19
RM GAIN MBH.	1.90	0.83
CFM PER RUN COOLING	59	26
ADJUSTED PRESSURE	0.17	0.17
ACTUAL DUCT LGH.	59	40
EQUIVALENT LENGTH	170	140
TOTAL EFFECTIVE LENGTH	229	180
ADJUSTED PRESSURE	0.08	0.1
ROUND DUCT SIZE	5	4
HEATING VELOCITY (ft/min)	220	218
COOLING VELOCITY (ft/min)	433	298
OUTLET GRILL SIZE	3X10	3X10
TRUNK	A	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	298	0.08	8.9	10	x	8	536		TRUNK G	0	0.00	0	0	8
TRUNK B	343	0.08	9.4	10	x	8	617		TRUNK H	0	0.00	0	0	8
TRUNK C	641	0.08	11.9	16	x	8	721		TRUNK I	0	0.00	0	0	8
TRUNK D	214	0.08	7.9	8	x	8	482		TRUNK J	0	0.00	0	0	8
TRUNK E	0	0.00	0	0	x	8	0		TRUNK K	0	0.00	0	0	8
TRUNK F	0	0.00	0	0	x	8	0		TRUNK L	0	0.00	0	0	8

RETURN AIR TRUNK SIZE

	TRUNK	STATIC	ROUND	RECT		VELOCITY
	CFM	PRESS.	DUCT	DUCT		(ft/min)
TRUNK O	0	0.06	0	0	x	8
TRUNK P	0	0.06	0	0	x	8
TRUNK Q	0	0.06	0	0	x	8
TRUNK R	0	0.06	0	0	x	8
TRUNK S	0	0.06	0	0	x	8
TRUNK T	0	0.06	0	0	x	8
TRUNK U	0	0.06	0	0	x	8
TRUNK V	0	0.06	0	0	x	8
TRUNK W	0	0.06	0	0	x	8
TRUNK X	928	0.06	14.7	26	x	8
TRUNK Y	0	0.06	0	0	x	8
TRUNK Z	0	0.06	0	0	x	8
DROP	928	0.06	14.7	24	x	10

RETURN AIR #	1	2	3	4	5	6	7									BR
AIR VOLUME	120	110	115	106	110	85	120	0	0	0	0	0	0	0	0	162
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.	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	0.09	0.07	0.06	0.07	0.06	0.06	0.10	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.06	0.06
ROUND DUCT SIZE	6	6.3	6.7	6	6.6	6	6	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

Nov 03 2023

PER: 
TYPE: CHIEF BUILDING OFFICIAL

SITE NAME: ZADORRA ESTATES INC

MHP 23036

LO # 101809

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

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		<u>79.5</u> 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 74 F	X 1.08	X	0.25

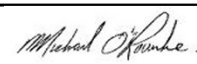
SUPPLEMENTAL FANS		BY INSTALLING CONTRACTOR		
Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	☒	3.5
BATH	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-2	BY INSTALLING CONTRACTOR	50	☒	3.5
PWD	BY INSTALLING CONTRACTOR	50	☒	3.5

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	Plan:
Address	
Roll #	Building Permit #

BUILDER:	
GREENPARK HOMES	
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:	
HRAI #	001820
Date:	July-23

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 101809	Model: VILLA 5	Builder: GREENPARK HOMES	Date: 2023-07-12																																																									
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>1231</td><td>9</td><td>11079</td></tr> <tr><td>First</td><td>1231</td><td>10</td><td>12310</td></tr> <tr><td>Second</td><td>1625</td><td>9</td><td>14625</td></tr> <tr><td>Third</td><td>0</td><td>9</td><td>0</td></tr> <tr><td>Fourth</td><td>0</td><td>9</td><td>0</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>38,014.0 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>1076.4 m³</td></tr> </tbody> </table>			Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)	Bsmt	1231	9	11079	First	1231	10	12310	Second	1625	9	14625	Third	0	9	0	Fourth	0	9	0	Total:			38,014.0 ft ³	Total:			1076.4 m ³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%;">0.340</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.094</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>T_{in} °C</th> <th>T_{out} °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTD_h</td> <td>22</td> <td>-19</td> <td>41</td> <td>74</td> </tr> <tr> <td>Summer DTD_c</td> <td>24</td> <td>30</td> <td>6</td> <td>11</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.340	SUMMER NATURAL AIR CHANGE RATE	0.094	Design Temperature Difference						T _{in} °C	T _{out} °C	ΔT °C	ΔT °F	Winter DTD _h	22	-19	41	74	Summer DTD _c	24	30	6	11
Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)																																																									
Bsmt	1231	9	11079																																																									
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Second	1625	9	14625																																																									
Third	0	9	0																																																									
Fourth	0	9	0																																																									
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.340 x 299.01 x 41 °C x 1.2 = 5033 W = 17173 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.094 x 299.01 x 6 °C x 1.2 = 205 W = 700 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 74 °F x 1.08 x 0.25 = 1593 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 11 °F x 1.08 x 0.25 = 236 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)	HL _{airve} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{clevel})																																																								
1	0.5	17,173	8,746	0.982																																																								
2	0.3		10,608	0.486																																																								
3	0.2		12,515	0.274																																																								
4	0		0	0.000																																																								
5	0		0	0.000																																																								
*HL_{airbv} = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HL_{airve} = 0																																																												
				Michael O'Rourke BCIN# 19669 																																																								

**MHP 23036**

575 Finley Ave. Suite 202 Ajax, ON L1S 2E2

Tel: 905.619.2300 Fax: 905.619.2375

Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** VILLA 5**BUILDER:** GREENPARK HOMES**SFQT:** 2834**LO#** 101809**SITE:** ZADORRA ESTATES INC**DESIGN ASSUMPTIONS**

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-2	OUTDOOR DESIGN TEMP.	86
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:	176.0 ft

2012 OBC - COMPLIANCE PACKAGE**Component****Compliance Package
A1****Nominal Min. Eff.**

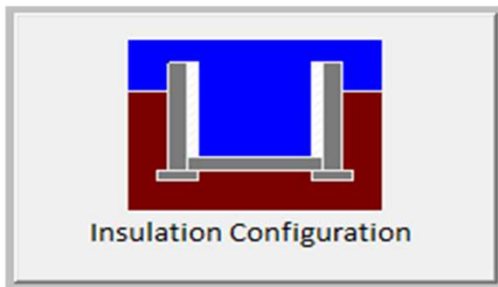
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below 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

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Oshawa	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	17.7	 Insulation Configuration
Floor Width (m):	9.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
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):		1729

TYPE: VILLA 5
LO# 101809

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description			
Province:	Ontario		
Region:	Oshawa		
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):	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
Diameter (mm):	0	0	0
			#4
			0
Natural Infiltration Rates			
Heating Air Leakage Rate (ACH/H):	0.340		
Cooling Air Leakage Rate (ACH/H):	0.094		

TYPE: VILLA 5

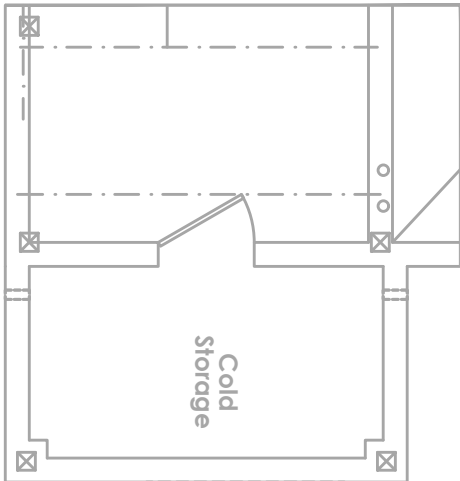
LO# 101809

Michael O'Rourke BCIN# 19669

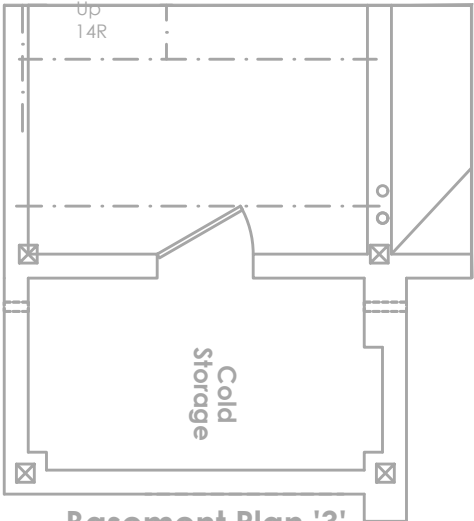


Partial Basement Plan For Deck Condition

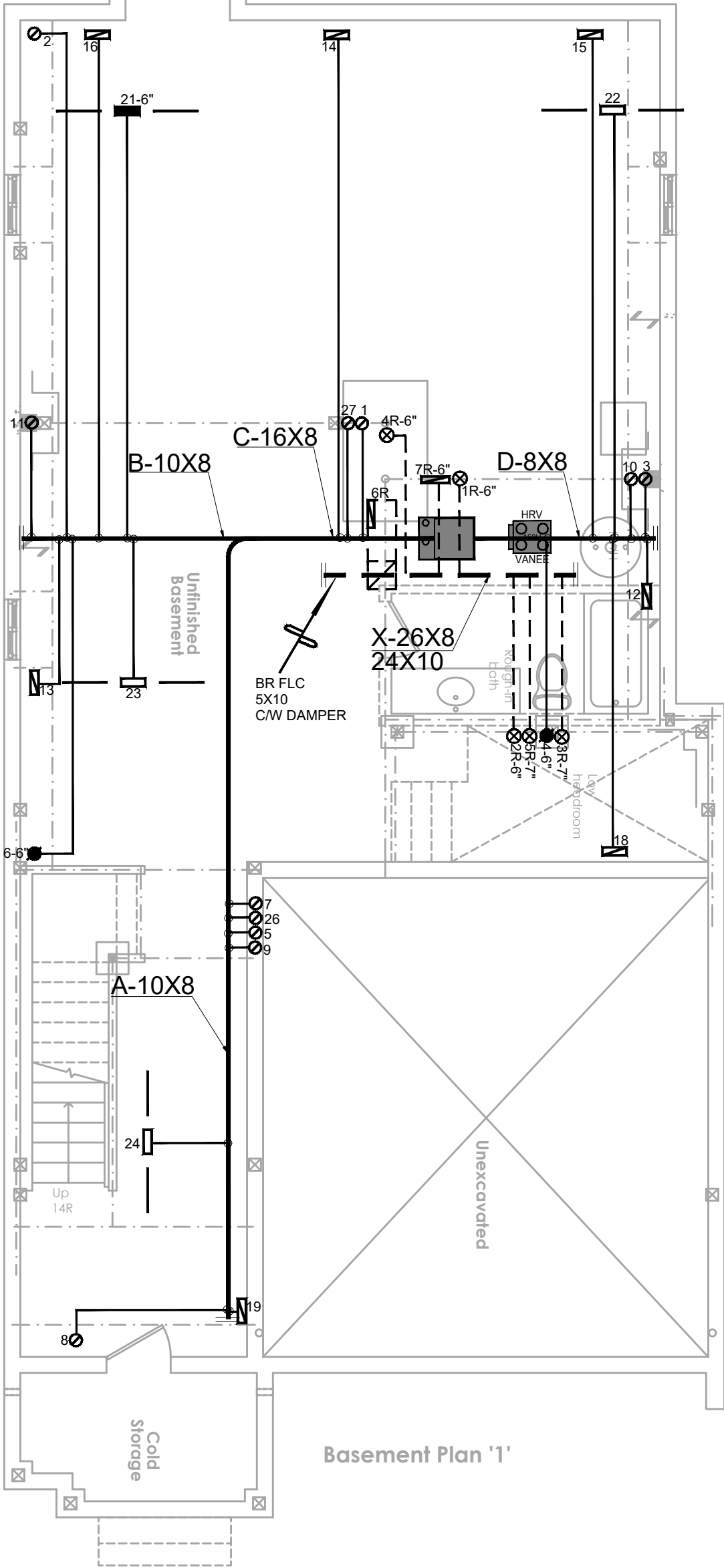
Elevation '1', '2' and '3'



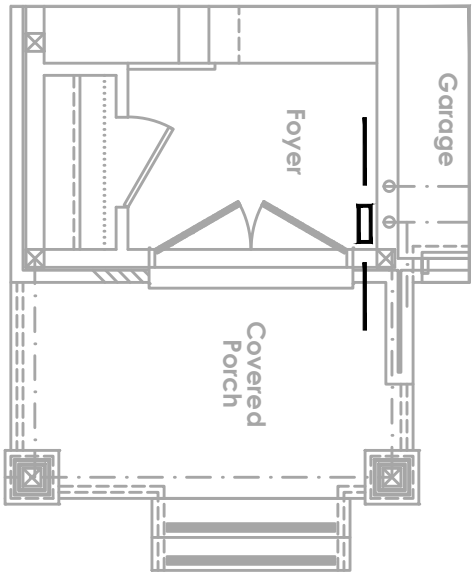
Basement Plan '2'



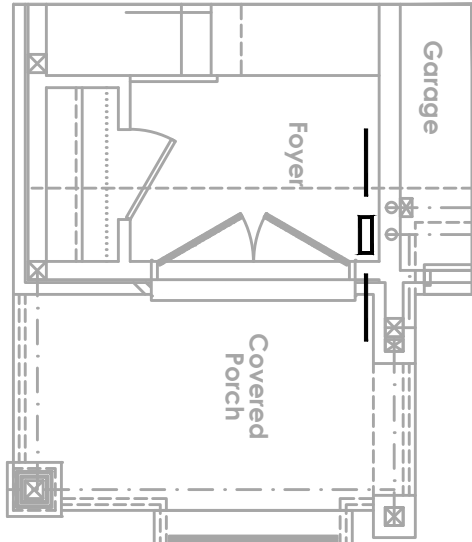
Basement Plan '3'



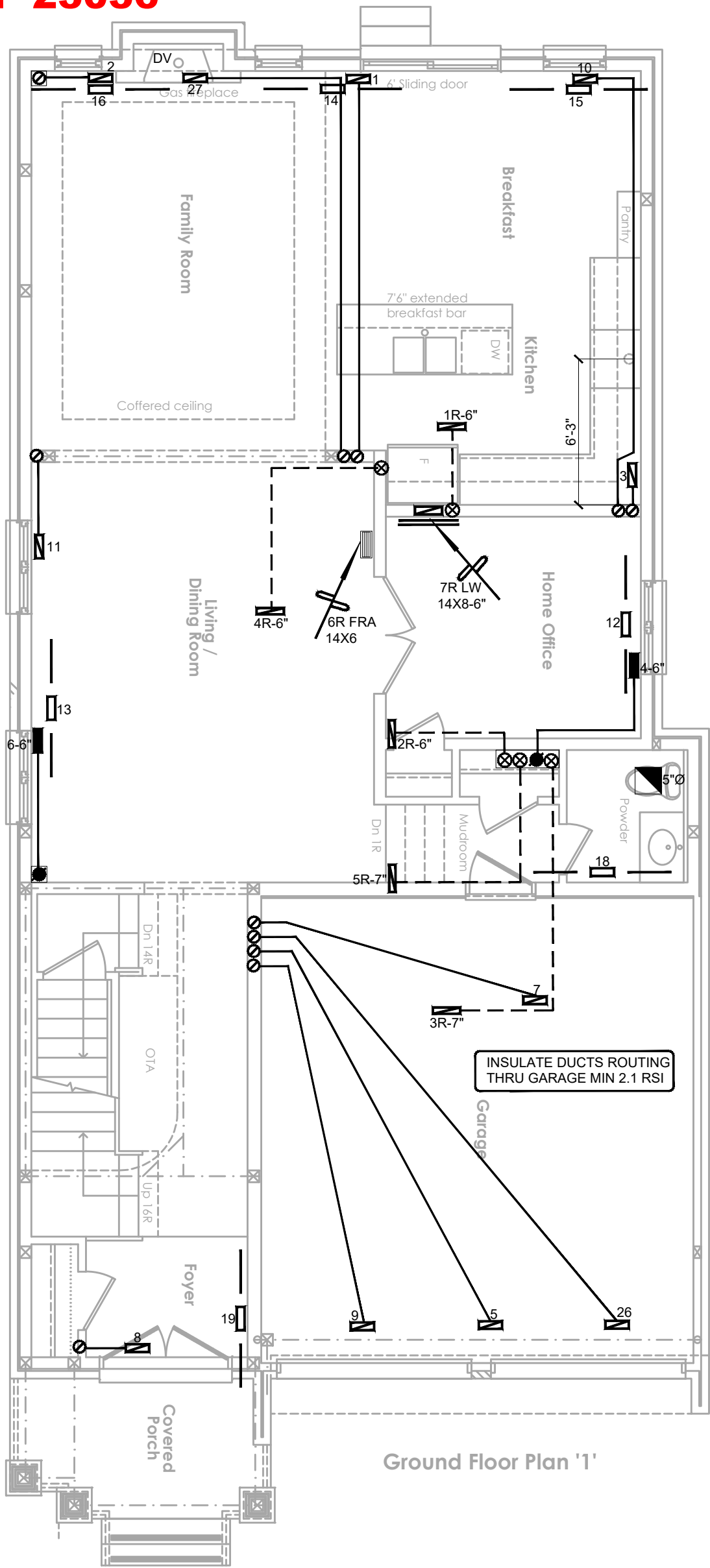
HVAC LEGEND								3.			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.			
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.			
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN 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		 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 51508 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		Sheet Title	
GREENPARK HOMES						MAKE GOODMAN		3RD FLOOR		BASEMENT HEATING LAYOUT	
Project Name		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.				MODEL GMEC960603BNA		2ND FLOOR 13 5 4		Date JULY/2023	
ZADORRA OSHAWA, ONTARIO						INPUT 60.0 MBTU/H		1ST FLOOR 7 2 2		Scale 3/16" = 1'-0"	
VILLA 5						OUTPUT 57.6 MBTU/H		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		BCIN# 19669	
2834 sqft						COOLING 2.5 TONS				LO# 101809	
						FAN SPEED 928 cfm @ 0.6" w.c.					



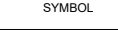
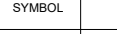
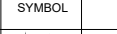
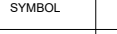
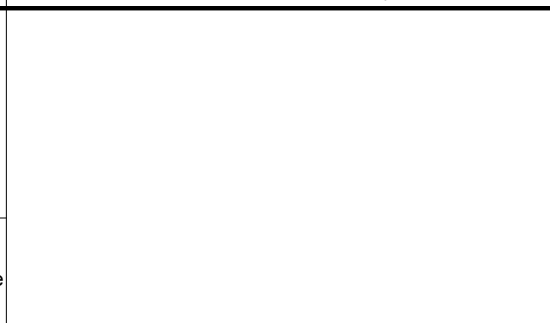
Ground Floor Plan '2'

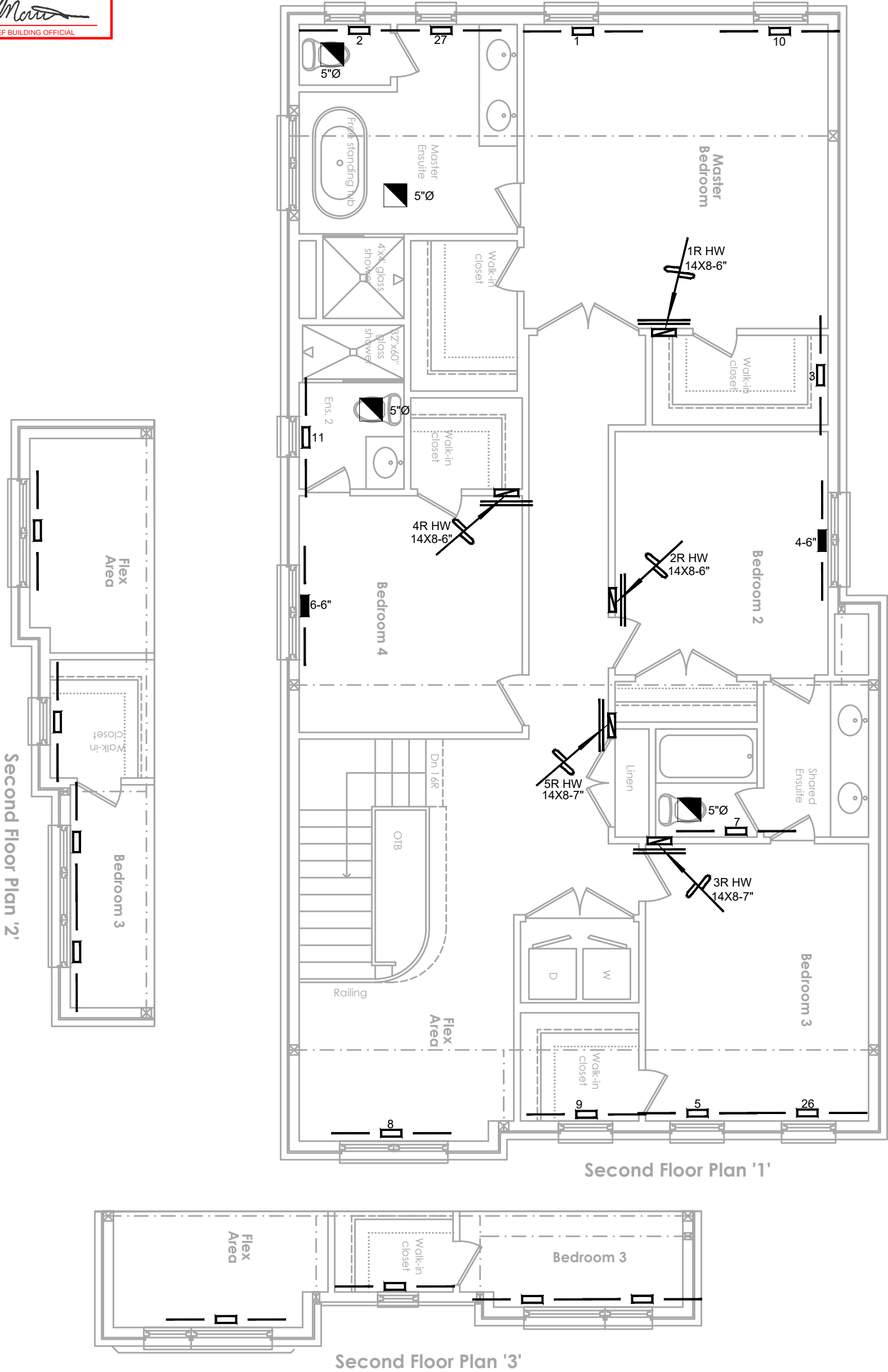


Ground Floor Plan '3'



Ground Floor Plan '1'

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		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdsgns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services								Sheet Title	
GREENPARK HOMES										FIRST FLOOR HEATING LAYOUT	
Project Name										Date	
ZADORRA										JULY/2023	
OSHAWA, ONTARIO										Scale	
						BCIN# 19669					
VILLA 5						LO#		101809			
2834 sqft		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.									



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	
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GREENPARK HOMES										SECOND FLOOR HEATING LAYOUT	
Project Name										Date	
ZADORRA OSHAWA, ONTARIO										JULY/2023	
						Scale					
						3/16" = 1'-0"					
						BCIN# 19669					
VILLA 5						LO#		101809			
2834 sqft		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.									