

CORPORATION OF THE CITY OF OSHAWA

TRUE COPY
OF PERMIT PLANS

Nov 16 2023

WOB
PER: 
CHIEF BUILDING OFFICIAL

SITE NAME: ZADORRA ESTATES INC

BUILDER: GREENPARK HOMES

TYPE: WOB

GFA: 3214

DATE: May-23

LO# 101200

WINTER NATURAL AIR CHANGE RATE 0.367

SUMMER NATURAL AIR CHANGE RATE 0.101

HEAT LOSS ΔT °F. 74

HEAT GAIN ΔT °F. 11

CSA-F280-12

SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS	GAIN	MBR	EN-1	EN-2	EN-3	LOFT	EN-4		
						35	28	24	17	20	12		
						9	9	9	9	9	9		
GRS.WALL AREA			LOSS	GAIN		315	252	0	162	180	108		
GLAZING			LOSS	GAIN									
NORTH	20.8	15.5	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
SOUTH	20.8	24.4	0	0	0	23	478	561	0	0	0	26	540
WEST	20.8	41.0	36	748	1478	18	374	739	0	0	0	0	0
SKYLT.	36.4	100.7	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
NET EXPOSED WALL	4.4	0.6	279	1216	180	211	919	136	0	0	0	82	357
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	305	382	170	212	266	118	0	0	0	120	150
NO ATTIC EXPOSED CLG	2.7	1.2	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
BASEMENT/CRAWL HEAT LOSS			0			0			0			0	
SLAB ON GRADE HEAT LOSS			0			0			0			0	
SUBTOTAL HT LOSS			2346			2037			1322			1204	
SUB TOTAL HT GAIN				1828		1554			529			500	
LEVEL FACTOR / MULTIPLIER			0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31
AIR CHANGE HEAT LOSS			725			629			409			372	
AIR CHANGE HEAT GAIN				85		72			25			23	
DUCT LOSS			0			0			0			0	
DUCT GAIN			0			0			0			0	
HEAT GAIN PEOPLE	240		2	480		0	0		1	240		0	
HEAT GAIN APPLIANCES/LIGHTS				711		0	0		711			711	
TOTAL HT LOSS BTU/H			3071			2666			1731			1372	
TOTAL HT GAIN x 1.3 BTU/H				4035		2115			1956			1026	

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS	GAIN	LV/DN	FML	KT/BT	OFFICE	LAUN	PWD	FOY	MUD		WOB	BAS
						27	36	38	37	17	16	12	12		65	133
						10	10	10	10	10	10	10	10		9	9
GRS.WALL AREA			LOSS	GAIN		270	360	380	370	170	160	120	120		585	798
GLAZING			LOSS	GAIN											LOSS	GAIN
NORTH	20.8	15.5	0	0	0	0	0	0	0	9	187	139	0	0	0	0
EAST	20.8	41.0	0	0	0	0	0	0	51	1060	2093	0	0	0	4	83
SOUTH	20.8	24.4	70	1454	1708	28	582	683	41	852	1000	0	0	0	4	83
WEST	20.8	41.0	0	0	0	32	665	1314	66	1371	2709	0	0	0	0	0
SKYLT.	36.4	100.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	19.6	2.9	0	0	0	0	0	0	20	392	58	0	0	0	20	392
NET EXPOSED WALL	4.4	0.6	200	871	129	300	1307	194	258	1124	167	78	340	50	518	2257
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	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	399	1402
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	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	0	0
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0	
SLAB ON GRADE HEAT LOSS			0			0			0			0			0	
SUBTOTAL HT LOSS			2326			2554			3427			1186			976	
SUB TOTAL HT GAIN				1837		2190			2912			602			4625	
LEVEL FACTOR / MULTIPLIER			0.30	0.44		0.30	0.44		0.30	0.44		0.30	0.44		3085	
AIR CHANGE HEAT LOSS			1026			1127			1512			523				
AIR CHANGE HEAT GAIN				85		102			135			28				
DUCT LOSS			0			0			0			0			0	
DUCT GAIN			0			0			0			0			0	
HEAT GAIN PEOPLE	240		0	0	0	0	0		0	0		0	0		0	
HEAT GAIN APPLIANCES/LIGHTS				0		0			711			0	711		0	
TOTAL HT LOSS BTU/H			3352			3680			4939			1709			4625	
TOTAL HT GAIN x 1.3 BTU/H				2499		2980			5438			819			4010	

TOTAL HEAT GAIN BTU/H:

44103

TONS: 3.68

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 60070

TOTAL COMBINED HEAT LOSS BTU/H: 61663



SITE NAME: ZADORRA ESTATES INC
BUILDER: GREENPARK HOMES

CORPORATION OF THE CITY OF OSHAWA

**TRUE COPY
OF PERMIT PLANS**

Nov 16 2023

TYPE: CAROL 12
 DATE: May-23
 GFA: 3214 LO# 101200
 #*GOODMAN
 GMEC960804CNA 80
 FAN SPEED LOW 868
 MEDLOW 978
 MEDIUM 1112
 MEDIUM HIGH 1504
 HIGH 1615
 AFUE = 96 %
 INPUT (BTU/H) = 80,000
 OUTPUT (BTU/H) = **76,800**
 DESIGN CFM = **1504**
 CFM @ .6" E.S.P.

HEATING CFM 1504
 TOTAL HEAT LOSS 60,070
 AIR FLOW RATE CFM 25.04
 COOLING CFM 1504
 TOTAL HEAT GAIN 43,367
 AIR FLOW RATE CFM 34.29

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	12	5
R/A	0	0	6	2	1

plenum pressure s/a 0.18
 max s/a dif press. loss 0.02
 min adjusted pressure s/a 0.16
 r/a pressure 0.17
 r/a grille press. Loss 0.02
 adjusted pressure r/a 0.15

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	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	BED-2	BED-3	BED-4	ENS-2	ENS-3	LOFT	MBR	ENS-4	LV/DN	FML	KT/BT	KT/BT	OFFICE	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.54	2.67	1.73	1.73	0.94	1.27	1.82	1.58	1.54	1.37	1.68	1.84	1.97	1.97	2.47	1.28	1.00	1.71	1.19	4.02	4.02	4.02	4.02
CFM PER RUN HEAT	38	67	43	43	24	32	46	39	38	34	42	46	49	49	62	32	25	43	30	101	101	101	101
RM GAIN MBH.	2.02	2.11	1.96	2.09	1.29	0.41	1.03	1.60	2.02	1.03	1.25	1.49	2.44	2.44	2.72	1.25	0.14	0.82	1.09	1.17	1.17	1.17	1.17
CFM PER RUN COOLING	69	73	67	72	44	14	35	55	69	35	43	51	84	84	93	43	5	28	37	40	40	40	40
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	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	28	41	48	56	37	52	62	54	36	53	26	33	17	26	52	40	38	44	33	37	44	12	21
EQUIVALENT LENGTH	130	150	230	190	180	120	230	200	160	150	160	80	110	120	110	180	140	130	150	120	160	120	150
TOTAL EFFECTIVE LENGTH	158	191	278	246	217	172	292	254	196	203	186	113	127	146	162	220	178	174	183	157	204	132	171
ADJUSTED PRESSURE	0.11	0.09	0.06	0.07	0.08	0.1	0.06	0.07	0.09	0.08	0.09	0.15	0.13	0.11	0.1	0.08	0.1	0.1	0.09	0.1	0.08	0.12	0.09
ROUND DUCT SIZE	5	5	6	6	5	4	5	5	5	4	4	5	6	6	6	5	4	4	4	6	6	6	6
HEATING VELOCITY (ft/min)	279	492	219	219	176	367	338	286	279	390	482	338	250	250	316	235	287	493	344	515	515	515	515
COOLING VELOCITY (ft/min)	507	536	342	367	323	161	257	404	507	402	493	374	428	428	474	316	57	321	424	204	204	204	204
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	B	C	D	B	C	D	D	A	C	C	B	A	A	D	C	D	D	C	A	A	B	C

RUN #	25	26	27	28	29	30
ROOM NAME	BAS	BED-3	BED-4	OFFICE	FML	LV/DN
RM LOSS MBH.	4.02	1.73	0.94	2.47	1.84	1.68
CFM PER RUN HEAT	101	43	24	62	46	42
RM GAIN MBH.	1.17	2.09	1.29	2.72	1.49	1.25
CFM PER RUN COOLING	40	72	44	93	51	43
ADJUSTED PRESSURE	0.16	0.17	0.17	0.16	0.17	0.17
ACTUAL DUCT LGH.	44	59	60	54	25	36
EQUIVALENT LENGTH	120	200	180	110	90	120
TOTAL EFFECTIVE LENGTH	164	259	240	164	115	156
ADJUSTED PRESSURE	0.1	0.07	0.07	0.1	0.15	0.11
ROUND DUCT SIZE	6	6	5	6	5	4
HEATING VELOCITY (ft/min)	515	219	176	316	338	482
COOLING VELOCITY (ft/min)	204	367	323	474	374	493
OUTLET GRILL SIZE	4X10	4X10	3X10	4X10	3X10	3X10
TRUNK	D	D	C	D	B	C

SUPPLY AIR TRUNK SIZE							RETURN 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	376	0.08	9.7	12	x	8	564	0	0.00	0	0	x	8
TRUNK B	660	0.08	12	16	x	8	743	0	0.00	0	0	x	8
TRUNK C	844	0.06	14.1	24	x	8	633	0	0.00	0	0	x	8
TRUNK D	464	0.06	11.3	16	x	8	522	0	0.00	0	0	x	8
TRUNK E	0	0.00	0	0	x	8	0	0	0.00	0	0	x	8
TRUNK F	0	0.00	0	0	x	8	0	0	0.00	0	0	x	8

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	128	115	120	130	115	135	393	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	33	69	67	43	65	42	22	43	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	195	215	255	240	230	205	155	235	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	228	284	322	283	295	247	177	278	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.05	0.05	0.05	0.05	0.06	0.08	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	7	7	7	7.3	7	7	9.9	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	X	X	X	X	X	X	X	X	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	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: CAROL 12
SITE NAME: ZADORRA ESTATES INC

LO # 101200
WOB

RESIDENTIAL MECHANICAL INSTALLATION DESIGN SUMMARY

CORPORATION OF THE CITY OF OSHAWA

**TRUE COPY
OF PERMIT PLANS**

May 16, 2020

PER: *Michael O'Rourke*
CHIEF BUILDING OFFICIAL

COMBUSTION APPLIANCES

- 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>6</u>	@ 10.6 cfm	<u>63.6</u>	cfm
Other Rooms	<u>5</u>	@ 10.6 cfm	<u>53.0</u>	cfm
Table 9.32.3.A.		TOTAL	<u>190.8</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>190.8</u>	cfm
Less Principal Ventil. Capacity	<u>79.5</u>	cfm
Required Supplemental Capacity	<u>111.3</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE V150H Location: BSMT

79.5 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
ENS-2	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

150 cfm high 35 cfm low

75 % Sensible Efficiency @ 32 deg F (0 deg C) ☒ HVI Approved

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:

Michael O'Rourke

HRAI #

001820

Date:

May-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



Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 101200	Model: CAROL 12	Builder: GREENPARK HOMES	Date: 2023-05-11																																																									
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>1523</td><td>9</td><td>13707</td></tr> <tr><td>First</td><td>1523</td><td>10</td><td>15230</td></tr> <tr><td>Second</td><td>1691</td><td>9</td><td>15219</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>44,156.0 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>1250.4 m³</td></tr> </tbody> </table>		Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1523	9	13707	First	1523	10	15230	Second	1691	9	15219	Third	0	9	0	Fourth	0	9	0	Total:			44,156.0 ft³	Total:			1250.4 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 30%;">0.367</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>-19</td> <td>41</td> <td>74</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>30</td> <td>6</td> <td>11</td> </tr> </table>			WINTER NATURAL AIR CHANGE RATE	0.367	SUMMER NATURAL AIR CHANGE RATE	0.101	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-19	41	74	Summer DTDc	24	30	6	11
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																									
Bsmt	1523	9	13707																																																									
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5.2.3.1 Heat Loss due to Air Leakage		6.2.6 Sensible Gain due to Air Leakage																																																										
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.367 x 347.32 x 41 °C x 1.2 = 6312 W = 21537 Btu/h		$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.101 x 347.32 x 6 °C x 1.2 = 257 W = 877 Btu/h																																																										
5.2.3.2 Heat Loss due to Mechanical Ventilation		6.2.7 Sensible heat Gain due to Ventilation																																																										
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 74 °F x 1.08 x 0.25 = 1593 Btu/h		$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 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)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <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 / HLlevel)</th> </tr> </thead> <tbody> <tr><td>1</td><td>0.5</td><td rowspan="5" style="text-align: center;">21,537</td><td>9,353</td><td>1.151</td></tr> <tr><td>2</td><td>0.3</td><td>14,645</td><td>0.441</td></tr> <tr><td>3</td><td>0.2</td><td>13,940</td><td>0.309</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 / HLlevel)	1	0.5	21,537	9,353	1.151	2	0.3	14,645	0.441	3	0.2	13,940	0.309	4	0	0	0.000	5	0	0	0.000																														
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				Michael O'Rourke BCIN# 19669 																																																								

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: CAROL 12

SFQT: 3214

LO#

WOB 1012

PER: *C. Martin*

CHIEF BUILDING OFFICIAL

BUILDER: GREENPARK HOMES

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):	44156.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 62.0 ft	WIDTH: 37.0 ft	EXPOSED PERIMETER:	133.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	65.0 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

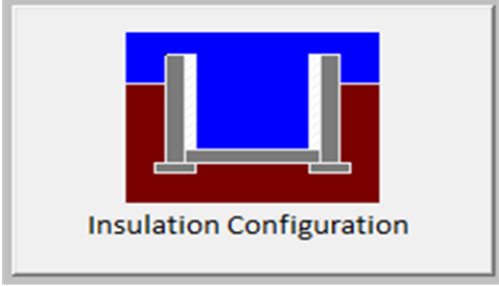
MICHAEL O'ROURKE

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):	7.3	
Floor Width (m):	11.3	
Exposed Perimeter (m):	40.5	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.61	
Window Area (m ²):	0.7	
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):		811

TYPE: CAROL 12
LO# 101200

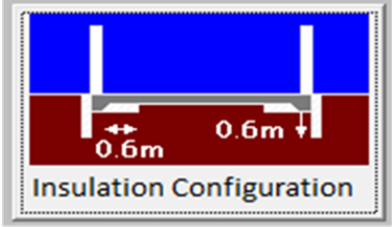
WOB

Michael O'Rourke BCIN #19669



Residential Slab on Grade 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		
Length (m):	4.3	
Width (m):	11.3	
Exposed Perimeter (m):	19.8	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		286

TYPE: CAROL 12
LO# 101200

WOB



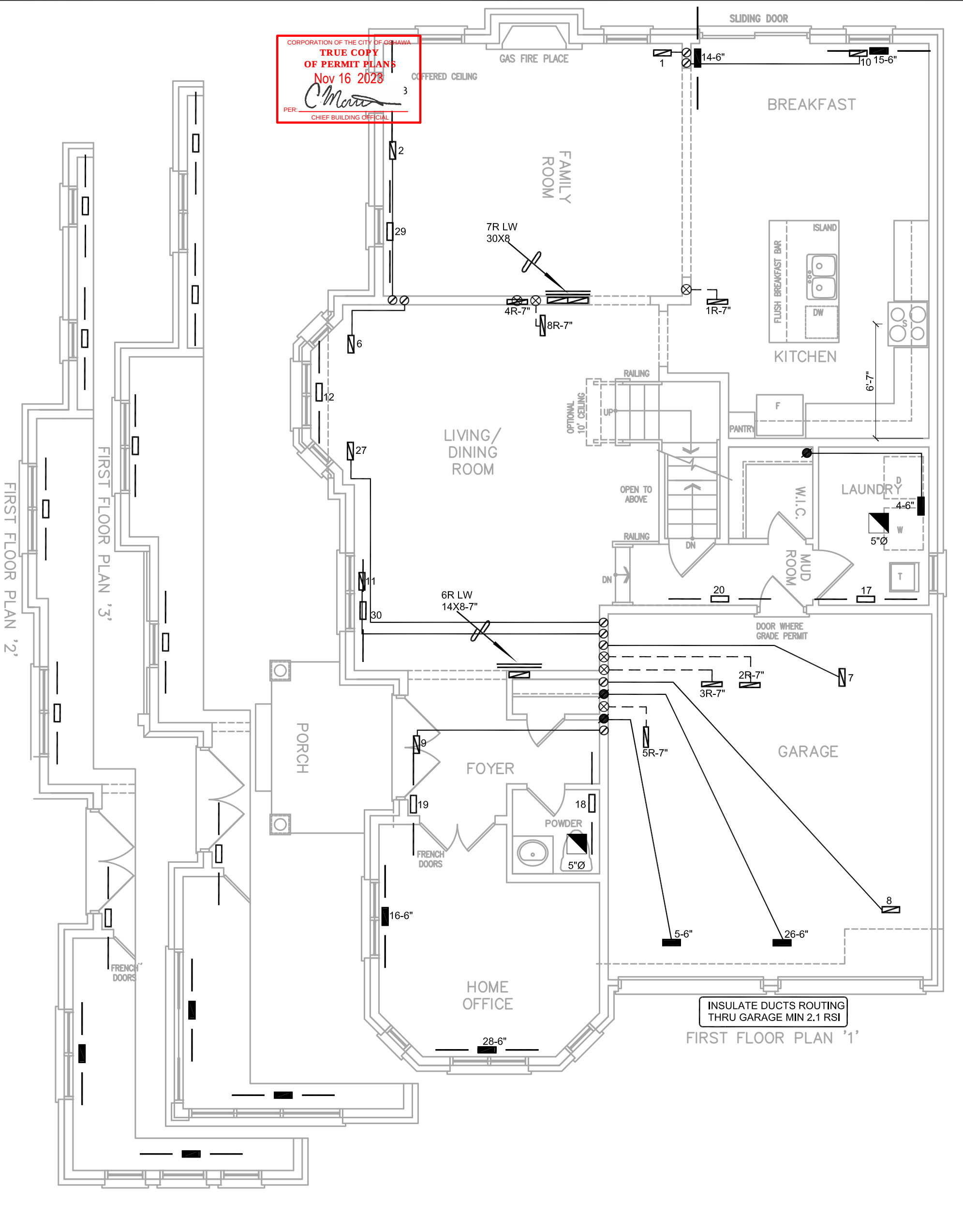
Air Infiltration Residential Load Calculator

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):	8.53			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1250.4			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1666.8 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):	0.367			
Cooling Air Leakage Rate (ACH/H):	0.101			

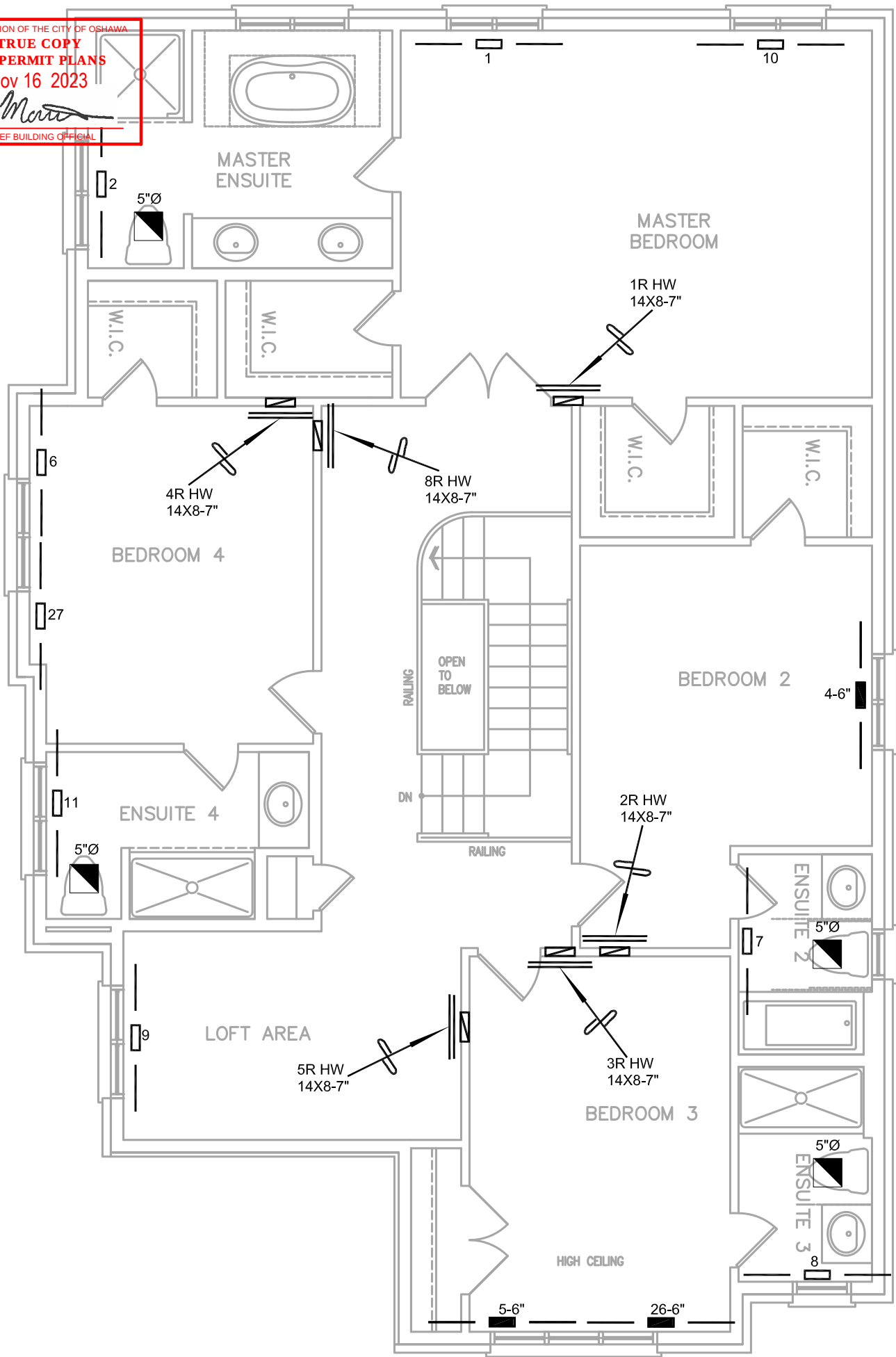
TYPE: CAROL 12
LO# 101200

WOB



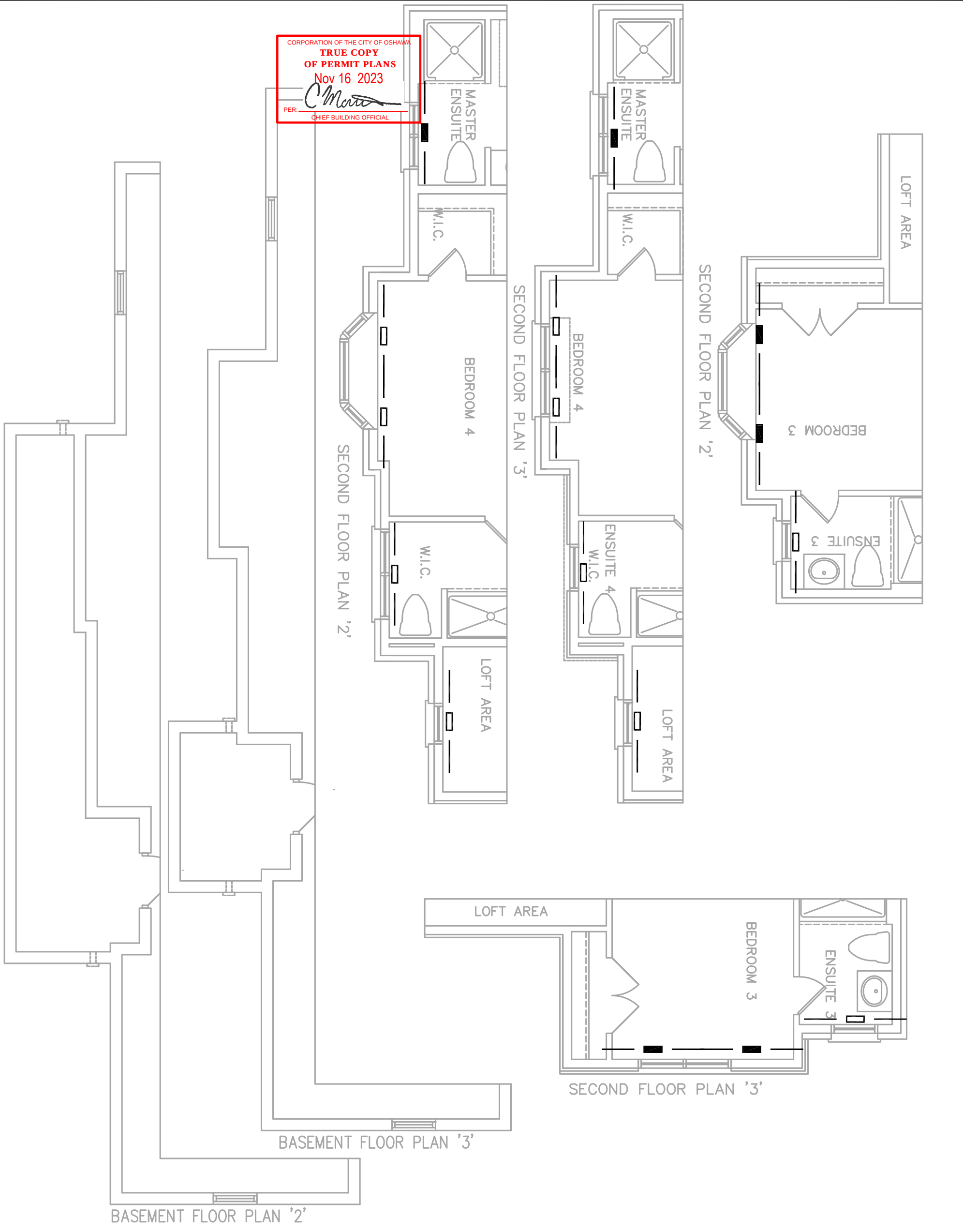
HVAC LEGEND								3.			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.			
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.			
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS			
ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.						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.		PACKAGE A1	
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 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.				Michael O'Rourke BCIN # 19669 HVAC Designs Ltd.				Sheet Title	
Project Name										FIRST FLOOR HEATING LAYOUT	
ZADORRA ESTATES INC OSHAWA, ONTARIO										Date MAY/2023	
WOB CAROL 12						Scale 3/16" = 1'-0"					
3214 sqft						BCIN# 19669					
						LO#		101200			

CORPORATION OF THE CITY OF OSHAWA
**TRUE COPY
OF PERMIT PLANS**
Nov 16 2023
C. Moore
PER: CHIEF BUILDING OFFICIAL



SECOND 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
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS	
ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.						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		 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				PACKAGE A1			
Project Name						Sheet Title			
GREENPARK HOMES		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.				SECOND FLOOR HEATING LAYOUT			
ZADORRA ESTATES INC OSHAWA, ONTARIO						Date MAY/2023			
WOB						Scale 3/16" = 1'-0"			
CAROL 12						BCIN# 19669			
3214 sqft						LO#		101200	



HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
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PACKAGE A1

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	Sheet Title	
GREENPARK HOMES			ELEVATIONS	
Project Name			HEATING	
ZADORRA ESTATES INC			LAYOUT	
OSHAWA, ONTARIO		Date	MAY/2023	
WOB		Scale	3/16" = 1'-0"	
CAROL 12		BCIN# 19669		
3214 sqft		LO#	101200	
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.				