

SITE NAME: RUSSEL GARDENS PHASE 3

LOT 232

DATE: Nov-20

WINTER NATURAL AIR CHANGE RATE 0.315

HEAT LOSS AT °F. 71

CSA-F280-12

BUILDER: GREENPARK HOMES

TYPE: MOUNTAINASH 4

GFA: 3190

LO# 88163

SUMMER NATURAL AIR CHANGE RATE 0.113

HEAT GAIN AT °F. 13

SS-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	MBR	ENS	FLEX	BED-2	BED-3	BED-4	ENS-3	S-ENS	SS-12 PACKAGE A1
GRS.WALL AREA	LOSS	GAIN	380	252	396	126	270	117	54	54	54	
GLAZING	LOSS	GAIN	19.8 14.9	0 0 0	14 277 209	16 316 239	16 316 239	0 0 0	0 0 0	0 0 0	7 138 105	
NORTH	19.8 38.4	0 0 0	0 0 0	0 0 0	72 1423 2764	0 0 0	57 1127 2185	0 0 0	0 0 0	0 0 0	0 0 0	
EAST	19.8 23.1	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	16 316 370	7 138 162	0 0 0	0 0 0	
SOUTH	19.8 38.4	32 633 1228	14 277 537	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
WEST	34.5 101.5	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
SKYLT.	23.5 4.3	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
DOORS	4.1 0.8	328 1350 247	224 929 168	308 1277 231	110 456 83	213 883 160	101 419 76	47 195 35	47 195 35	47 195 35	47 195 35	
NET EXPOSED WALL	3.3 0.6	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
EXPOSED CLG	1.2 0.6	384 458 228	192 229 113	189 225 111	251 299 147	195 234 115	209 238 118	96 114 56	114 136 67	114 136 67	114 136 67	
NO ATTIC EXPOSED CLG	2.6 1.3	0 0 0	0 0 0	0 0 0	30 77 38	0 0 0	20 51 25	0 0 0	0 0 0	0 0 0	0 0 0	
EXPOSED FLOOR	2.4 0.4	0 0 0	0 0 0	0 0 0	20 47 9	69 163 30	216 512 93	0 0 0	0 0 0	0 0 0	114 270 49	
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		2450		1711	3366	1235	2896	973	448	739	256	
SUB TOTAL HT GAIN			1701	1028	3392	498	2581	563	254			
LEVEL FACTOR / MULTIPLIER	0.20	0.24		0.20	0.24	0.20	0.24	0.20	0.24	0.20	0.24	
AIR CHANGE HEAT LOSS		576		402	791	290	660	229	105	174	18	
AIR CHANGE HEAT GAIN			122	74	243	86	185	40	18			
DUCT LOSS		0		0	416	153	347	0	0	91	27	
DUCT GAIN		0		0	416	130	354	0	0	0	0	
HEAT GAIN PEOPLE	240	2	480	0	0	1	240	1	240	0	0	
HEAT GAIN APPLIANCES/LIGHTS			530	0	530	530	530	530	530	530	530	
TOTAL HT LOSS BTU/H		3026		2113	4573	1678	3813	1202	563	1804	392	
TOTAL HT GAIN x 1.3 BTU/H		3682		1432	5955	1865	5056	1785	353			

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	FAM	L/D	KOB	L/H	LND	WIR	FOY	WUB	SAS
GRS.WALL AREA	LOSS	GAIN	360	254	392	191	72	302	445	216	745	
GLAZING	LOSS	GAIN	19.8 14.9	8 158 120	0 0 0	0 0 0	0 0 0	0 0 0	7 138 105	0 0 0	5 99 75	
NORTH	19.8 38.4	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	6 119 230	0 0 0	7 138 269	
EAST	19.8 23.1	0 0 0	33 652 763	0 0 0	12 237 277	0 0 0	7 138 162	0 0 0	0 0 0	0 0 0	10 198 231	
SOUTH	19.8 38.4	40 791 1536	0 0 0	71 1404 2726	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
WEST	34.5 101.5	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
SKYLT.	23.5 4.3	0 0 0	0 0 0	12 281 51	0 0 0	0 0 0	0 0 0	20 469 85	40 936 170	20 469 85	20 469 85	
DOORS	4.1 0.8	312 1235 235	221 918 166	309 1282 232	179 741 134	65 269 49	275 1132 206	399 1655 300	196 813 147	0 0 0	447 1494 271	
NET EXPOSED WALL	3.3 0.6	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
EXPOSED CLG	1.2 0.6	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	120 143 71	0 0 0	0 0 0	0 0 0	0 0 0	
NO ATTIC EXPOSED CLG	2.6 1.3	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
EXPOSED FLOOR	2.4 0.4	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	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	
SLAB ON GRADE HEAT LOSS		0	0	0	0	0	0	0	0	0	0	
SUBTOTAL HT LOSS		2244		1570	2967	978	551	1746	2712	240	4871	
SUB TOTAL HT GAIN			1890	929	3909	412	281	396	700	1522	7270	
LEVEL FACTOR / MULTIPLIER	0.30	0.41		0.30	0.41	0.30	0.41	0.20	0.24	0.30	0.41	
AIR CHANGE HEAT LOSS		925		647	1223	403	130	720	1118	50	8393	
AIR CHANGE HEAT GAIN			135	67	215	29	20	28	50		83	
DUCT LOSS		0		0	0	0	0	0	0	0	0	
DUCT GAIN		0		0	0	0	0	0	0	0	0	
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0	0	0	
HEAT GAIN APPLIANCES/LIGHTS			530	530	530	530	530	530	530	530	530	
TOTAL HT LOSS BTU/H		3169		2217	4198	1382	680	2465	3828	1522	15662	
TOTAL HT GAIN x 1.3 BTU/H		3821		1983	4880	1262	1080	562	976	302	2007	

TOTAL HEAT GAIN BTU/H: 37160

TONS: 3.10

LOSS DUE TO VENTILATION LOAD BTU/H: 1515

STRUCTURAL HEAT LOSS: 53079

TOTAL COMBINED HEAT LOSS BTU/H: 54595

Michael O'Rourke

SITE NAME: RUSSEL GARDENS PHASE 3
 BUILDER: GREENPARK HOMES

 LOT 232
 TYPE: MOUNTAINASH 4 ✓

DATE: Nov-20

GFA: 3190

LO# 88163

 HEATING CFM 1131 ✓
 TOTAL HEAT LOSS 53,079
 AIR FLOW RATE CFM 21.31
 COOLING CFM 1131
 TOTAL HEAT GAIN 36,885
 AIR FLOW RATE CFM 30.66

 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 = 1131
 CFM @ .5" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	7	4
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.

RUN #	1	2	3	4	5	6	7	8	9	10	12	13	14	15	16	17	18	19	21	22	23	24
ROOM NAME	MBR	ENS	FLEX	BED-2	BED-3	BED-4	ENS-3	FLEX	BED-3	MBR	FAM	L/D	K/B	K/B	L/H	LND	VWR	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.51	2.11	2.29	1.68	1.91	1.20	0.55	2.29	1.91	1.51	3.17	2.22	2.09	2.09	1.38	0.68	2.47	3.83	4.30	4.30	4.30	4.30
CFM PER RUN HEAT	32	45	49	36	41	26	12	49	41	32	68	47	45	45	29	14	53	82	92	92	92	92
RM GAIN MBH.	1.84	1.43	2.98	1.87	2.53	1.79	0.35	2.98	2.53	1.84	3.32	1.98	2.44	2.44	1.26	1.08	0.55	0.98	0.58	0.58	0.58	0.58
CFM PER RUN COOLING	56	44	91	57	78	55	11	91	78	56	102	61	75	75	39	33	17	30	18	18	18	18
ADJUSTED PRESSURE	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	32	63	51	56	61	46	49	58	49	38	26	25	38	44	40	23	47	48	34	30	24	41
EQUIVALENT LENGTH	130	150	160	140	100	210	200	130	190	100	130	140	120	120	140	160	130	110	120	140	130	130
TOTAL EFFECTIVE LENGTH	162	213	211	196	161	256	249	188	239	138	156	165	158	164	180	183	177	158	154	170	154	171
ADJUSTED PRESSURE	0.11	0.08	0.08	0.09	0.11	0.07	0.07	0.09	0.07	0.12	0.1	0.1	0.11	0.1	0.1	0.09	0.1	0.1	0.11	0.1	0.11	0.09
ROUND DUCT SIZE	5	5	6	6	6	6	4	6	6	5	6	5	5	5	4	4	5	6	6	6	6	6
HEATING VELOCITY (ft/min)	235	330	250	184	209	133	138	250	209	235	347	345	330	330	333	151	389	418	469	469	469	469
COOLING VELOCITY (ft/min)	411	323	464	291	398	280	125	464	398	411	520	448	551	551	447	379	125	153	92	92	92	92
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	4X10	4X10	3X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10
TRUNK	C	A	D	A	E	D	D	D	D	C	C	E	B	B	D	C	A	D	B	C	E	D

RUN #	25
ROOM NAME	S-ENS
RM LOSS MBH.	1.00
CFM PER RUN HEAT	21
RM GAIN MBH.	0.39
CFM PER RUN COOLING	12
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	46
EQUIVALENT LENGTH	140
TOTAL EFFECTIVE LENGTH	186
ADJUSTED PRESSURE	0.09
ROUND DUCT SIZE	4
HEATING VELOCITY (ft/min)	241
COOLING VELOCITY (ft/min)	138
OUTLET GRILL SIZE	3X10
TRUNK	E

SUPPLY AIR TRUNK SIZE														RETURN AIR TRUNK SIZE															
	TRUNK	STATIC	ROUND	RECT	VELOCITY				TRUNK	STATIC	ROUND	RECT	VELOCITY					TRUNK	STATIC	ROUND	RECT	VELOCITY							
	CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT				(ft/min)					
TRUNK A	134	0.08	6.6	8	X	8	302	TRUNK G	0	0.00	0	0	X	8	0	TRUNK O	0	0.05	0	0	X	8	0						
TRUNK B	182	0.10	7	8	X	8	410	TRUNK H	0	0.00	0	0	X	8	0	TRUNK P	0	0.05	0	0	X	8	0						
TRUNK C	554	0.08	11.2	14	X	8	712	TRUNK I	0	0.00	0	0	X	8	0	TRUNK Q	0	0.05	0	0	X	8	0						
TRUNK D	380	0.07	10.1	12	X	8	570	TRUNK J	0	0.00	0	0	X	8	0	TRUNK R	0	0.05	0	0	X	8	0						
TRUNK E	581	0.07	11.8	16	X	8	654	TRUNK K	0	0.00	0	0	X	8	0	TRUNK S	0	0.05	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	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	876	0.05	15	26	X	8	606
														TRUNK Y	535	0.05	12.5	18	X	8	535	TRUNK Z	0	0.05	0	0	X	8	0
														DROP	1131	0.05	16.5	24	X	10	679								

RETURN AIR #	1	2	3	4	5	6	7									BR
AIR VOLUME	85	95	95	85	75	360	175	0	0	0	0	0	0	0	0	161
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.	51	42	51	53	63	26	26	1	1	1	1	1	1	1	15	
EQUIVALENT LENGTH	205	165	155	205	210	185	190	0	0	0	0	0	0	0	185	
TOTAL EFFECTIVE LH	256	207	206	258	273	211	216	1	1	1	1	1	1	1	200	
ADJUSTED PRESSURE	0.06	0.07	0.07	0.06	0.05	0.07	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.07	
ROUND DUCT SIZE	6	6	6	6	6	9.9	7.5	0	0	0	0	0	0	0	7.3	
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	8	
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
INLET GRILL SIZE	14	14	14	14	14	30	14	0	0	0	0	0	0	0	14	

RETURN AIR #	1	2	3	4	5	6	7																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												</
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TYPE: MOUNTAINASH 4 ✓
SITE NAME: RUSSEL GARDENS PHASE 3

LO # 88163
LOT 232 ✓

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	2	@ 21.2 cfm	42.4	✓	cfm
Other Bedrooms	3	@ 10.6 cfm	31.8	✓	cfm
Kitchen & Bathrooms	5	@ 10.6 cfm	53	✓	cfm
Other Rooms	8	@ 10.6 cfm	84.8	✓	cfm
Table 9.32.3.A.			TOTAL	212.0	✓ 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	212	✓	cfm
Less Principal Ventil. Capacity	79.5	✓	cfm
Required Supplemental Capacity	132.5	✓	cfm

PRINCIPAL EXHAUST FAN CAPACITY
Model: VANE 65H Location: BSMT
79.5 cfm 3.0 sones ☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM	ΔT °F	FACTOR	% LOSS
79.5 CFM	X 71 F	X 1.08	X 0.25

SUPPLEMENTAL FANS PANASONIC

Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	80	✓	0.3
ENS-3	FV-05-11VK1	50	✓	0.3
S-ENS	FV-05-11VK1	50	✓	0.3
W/R	FV-05-11VK1	60	✓	0.3

HEAT RECOVERY VENTILATOR 9.32.3.11.
Model: VANE 65H
165 cfm high 64 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: November-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations
Formula Sheet (For Air Leakage / Ventilation Calculation)

LO#: 88163

Model: MOUNTAINASH 4

Builder: GREENPARK HOMES

Date: 09/11/2020

Volume Calculation
House Volume

Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)
Bsmt	1398	8	11184
First	1398	11	14818.8
Second	1792	9	16128
Third	0	9	0
Fourth	0	9	0
Total:			42,130.8 ft ³
Total:			1193.0 m ³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.315
SUMMER NATURAL AIR CHANGE RATE	0.113

Design Temperature Difference				
	T _{in} °C	T _{out} °C	ΔT °C	ΔT °F
Winter DTD _h	22	-17	39	71
Summer DTD _c	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage

$$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

0.315 x 331.39 x 39 °C x 1.2 = 4919 W

= 16785 Btu/h

6.2.6 Sensible Gain due to Air Leakage

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

0.113 x 331.39 x 7 °C x 1.2 = 319 W

= 1090 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 71 °F x 1.08 x 0.25 = 1515 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)

$$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agcleve} + HL_{bgcleve})\}$$

Level	Level Factor (LF)	HL _{airbv} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{level})
1	0.5	16,785	8,792	0.955
2	0.3		12,217	0.412
3	0.2		14,279	0.235
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_{airv} = 0

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: MOUNTAINASH 4 ✓	LOT 232 ✓	BUILDER: GREENPARK HOMES
SFQT: 3190	LO# 88163	SITE: RUSSEL GARDENS PHASE 3

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	1	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75

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):	42130.8	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	5.0 ft
LENGTH: 52.0 ft	WIDTH: 36.0 ft	EXPOSED PERIMETER:	149.0 ft

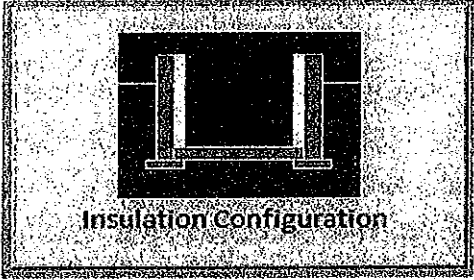
2012 OBC - COMPLIANCE PACKAGE		Compliance Package A1 ✓	
Component		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.65
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		22	17.03
Basement 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		0.96	-
HRV 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 ✓

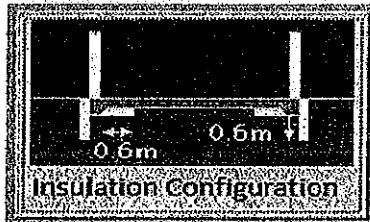
Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	15.8	 Insulation Configuration
Floor Width (m):	11.0	
Exposed Perimeter (m):	45.4	
Wall Height (m):	2.4	
Depth Below Grade (m):	1.52	
Window Area (m ²):	2.0	
Door Area (m ²):	3.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	1427	

TYPE: MOUNTAINASH 4
LO# 88163

LOT 232

Residential Slab on Grade Thermal Load Calculator

Supplemental tool for CAN/CSA-F280 ✓

Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Length (m):	1.8	 Insulation Configuration
Width (m):	4.6	
Exposed Perimeter (m):	8.2	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		70

TYPE: MOUNTAINASH 4 ✓
LO# 88163

LOT 232 ✓

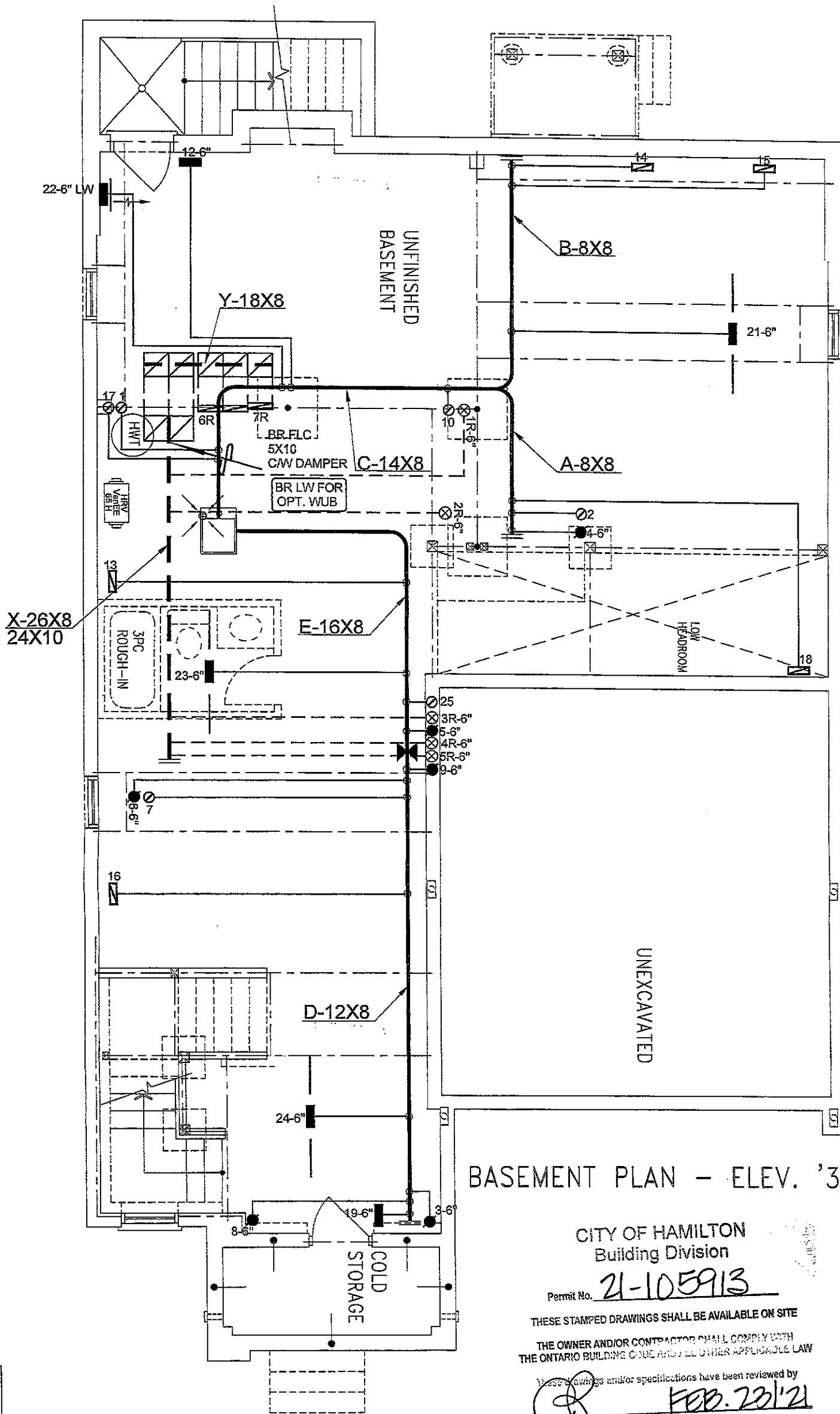
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280 ✓

Weather Station Description				
Province:	Ontario			
Region:	Hamilton			
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):	6.89			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1193,0			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.		1590.3 cm ²	
	3.57		ACH @ 50 Pa	
Mechanical Ventilation (L/s):	Total Supply		Total Exhaust	
	37.5		37.5	
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.315			
Cooling Air Leakage Rate (ACH/H):	0.113			

TYPE: MOUNTAINASH 4 ✓
LO# 88163

LOT 232 ✓



BASEMENT PLAN - ELEV. '3' ✓

CITY OF HAMILTON
Building Division

Permit No. 21-105913

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ANY OTHER APPLICABLE LAW

These drawings and/or specifications have been reviewed by
[Signature] FEB. 23/21
DATE
FOR CHIEF BUILDING OFFICIAL

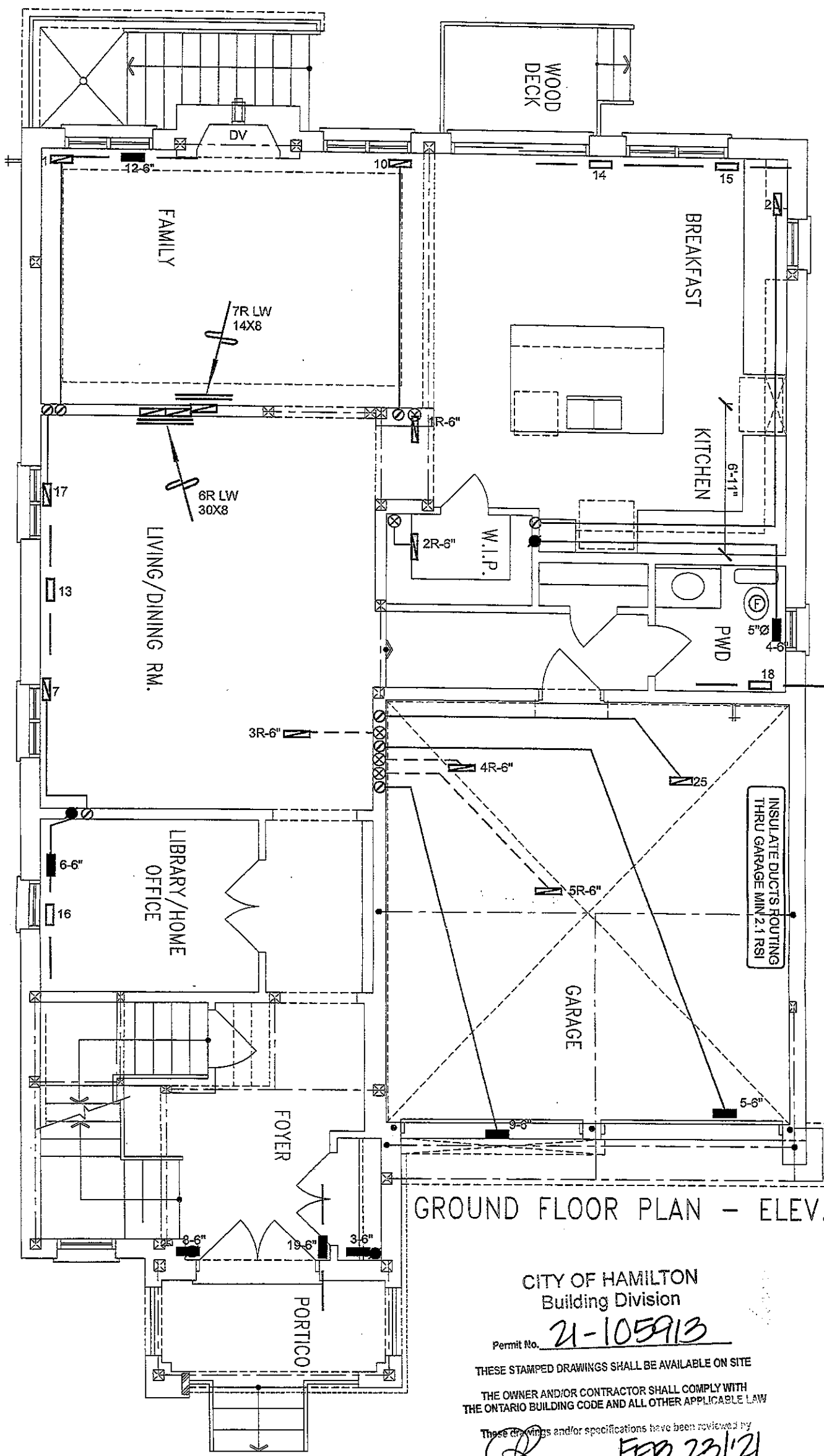
WUB
LOT 232
CSA-F280-12
PACKAGE A1

I MICHAEL OLOUNICE HAVE REVIEWED
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C, 3.2.3 OF THE
BUILDING CODE.
[Signature]
MICHAEL OLOUNICE, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND						3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	
	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	HVACDESIGNS LTD. 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.	HEAT LOSS 54595 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title		
GREENPARK HOMES		MAKE GOODMAN	3RD FLOOR					BASEMENT HEATING LAYOUT	
Project Name		MODEL GMEC960603BNA	2ND FLOOR		12	5	3		
RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO		INPUT 60 MBTU/H	1ST FLOOR		7	2	2		
		OUTPUT 57.6 MBTU/H	BASEMENT		4	1	0	Date	NOV/2020
LOT 232 MOUNTAINASH 4 3190 sqft	COOLING 3.0 TONS	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						Scale	3/16" = 1'-0"
	FAN SPEED 1131 cfm @ 0.5" w.g.							BCIN#	19669
								LO#	88163



GROUND FLOOR PLAN - ELEV. '3' ✓

CITY OF HAMILTON
Building Division
Permit No. 21-105913
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THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW
These drawings and/or specifications have been reviewed by

FOR CHIEF BUILDING OFFICIAL
DATE FEB. 23/21

WUB
LOT 232
CSA-F280-12
PACKAGE A1

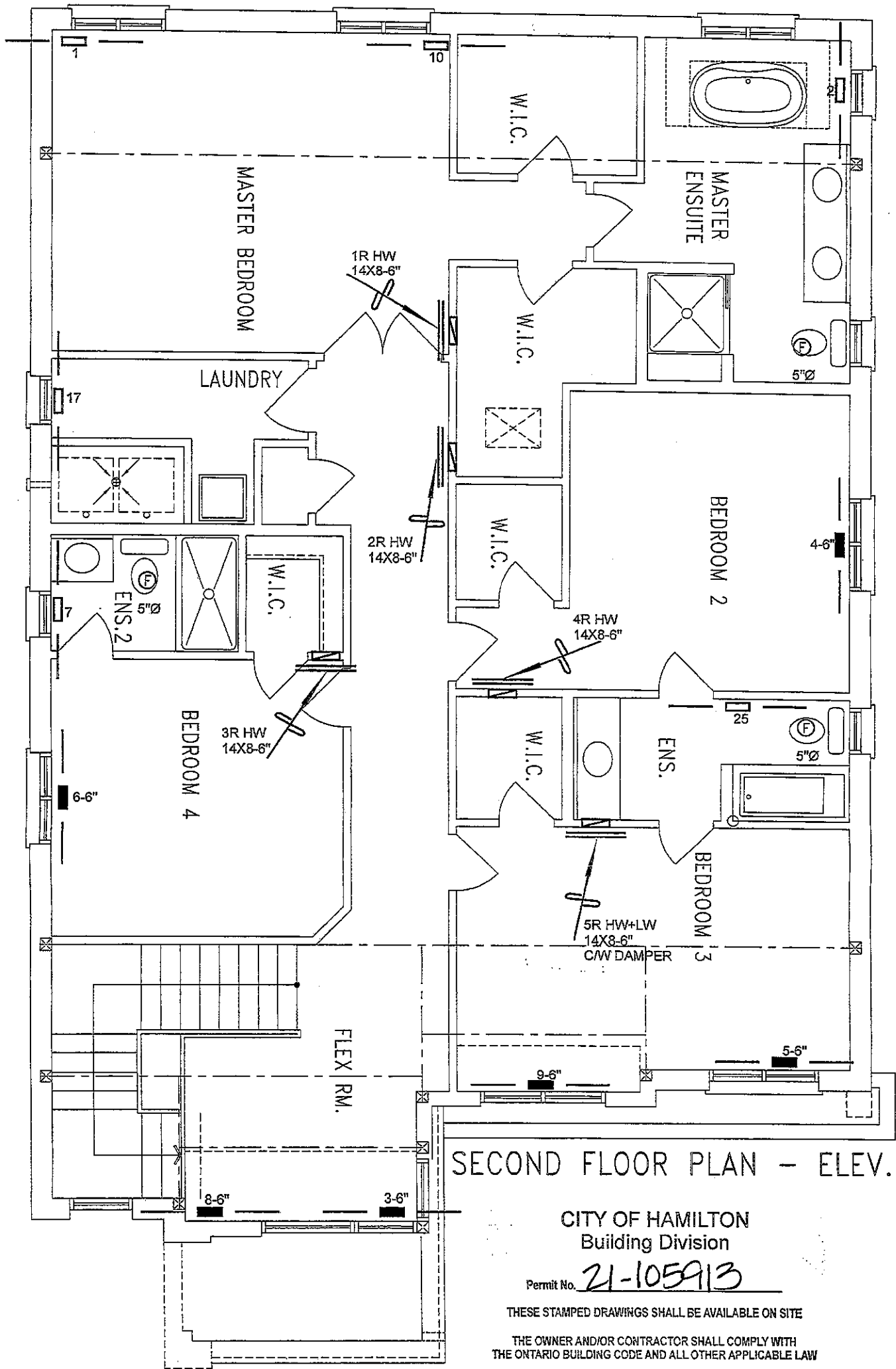
I MICHAEL O'SHAUGHNESSY HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 12.5 OF THE BUILDING CODE.

Michael O'Shaughnessy, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND								
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	3.
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	2.
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	1.
							No.	
							Description	Date

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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@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.	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			Date NOV/2020	
LOT 232 MOUNTAINASH 4 3190 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO#	88163



SECOND FLOOR PLAN - ELEV. '3' ✓

CITY OF HAMILTON
Building Division
Permit No. 21-105913
THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW
These drawings and/or specifications have been reviewed by
[Signature] FEB. 23/21
FOR CHIEF BUILDING OFFICIAL DATE

WUB
LOT 232
CSA-F280-12
PACKAGE A1

I MICHAEL O'Rourke HAVE REVIEWED
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C, 3.2.3 OF THE
BUILDING CODE.
[Signature]
MICHAEL O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

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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Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			Date NOV/2020		
LOT 232 MOUNTAINASH 4 3190 sqft			Scale 3/16" = 1'-0"		
			BCIN# 19669		
			LO# 88163		