

SITE NAME: RUSSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMES

LOT 18
TYPE: MOUNTAINASH 7

GFA: 3160

DATE: Aug-20
LO# 87204

WINTER NATURAL AIR CHANGE RATE 0.366
SUMMER NATURAL AIR CHANGE RATE 0.127

HEAT LOSS AT °F. 71
HEAT GAIN AT °F. 13

CSA-F200-12
SE-12 PACKAGE A1

ROOM USE			MBR		ENS		BED-2		BED-3		BED-4		ENS-2		ENS-3										
EXP. WALL			51		28		33		48		13		6		6										
CLG. HT.			9		9		9		9		9		9		9										
FACTORS																									
GRS.WALL AREA			458		252		297		432		117		54		54										
GLAZING			LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN										
NORTH			19.8	16.0	16	316	256	0	0	0	0	0	0	7	138	112									
EAST			19.8	41.6	0	0	0	0	0	0	0	0	0	0	0	0									
SOUTH			19.8	24.9	0	0	0	7	138	174	0	0	0	0	7	138	174								
WEST			19.8	41.6	32	633	1330	14	277	582	0	0	0	0	0	0	0								
SKYL.T.			34.6	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0								
DOORS			23.6	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0								
NET EXPOSED WALL			4.1	0.8	411	1704	309	231	988	174	283	1049	180	342	1418	257	101	419	76	47	195	38			
NET EXPOSED BSMT WALL ABOVE GR			3.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
EXPOSED CLG			1.2	0.6	525	626	309	192	229	113	214	255	126	249	297	148	273	325	160	90	107	53	72	86	42
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
EXPOSED FLOOR			2.4	0.4	0	0	0	0	0	0	214	697	92	68	161	20	0	0	0	90	213	38	0	0	0
BASEMENT CRAWL HEAT LOSS																									
SLAB ON GRADE HEAT LOSS																									
SUBTOTAL HT LOSS					3279			1802		2681			3655			1060			654			419			282
SUB TOTAL HT GAIN						2203			1042		2238		3814		635		239								
LEVEL FACTOR / MULTIPLIER			0.20	0.26				0.20	0.26		0.20	0.26		0.20	0.26		0.20	0.26				0.20	0.26		
AIR CHANGE HEAT LOSS					882			421		705			961			279			172					110	
AIR CHANGE HEAT GAIN						149		71		152			259			43			16					17	
DUCT LOSS					0			0		339			462			0			83					0	
DUCT GAIN						0		0		315			484			0			78					0	
HEAT GAIN PEOPLE			240		2		480		0		1		240		1		240		0				0		0
HEAT GAIN APPLIANCES/LIGHTS						523		523		623			523			523			523					523	
TOTAL HT LOSS BTU/H						4140		2023		3724		5077		1339		908						529		350	
TOTAL HT GAIN x 1.3 BTU/H						4362		2127		4806		6916		1873		1113									

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	FAM	L/D	K/B	L/H	LND	W/R	FOY	MUD	WOB	BAS
EXP. WALL	33			34		40	23	8	6	23	27	47	139
CLG. HT.	10			10		10	10	9	10	10	11	8	8
GRS.WALL AREA	LOSS	GAIN	330	340	480	230	72	80	230	287	376	695	695
GLAZING	LOSS	GAIN			LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS
NORTH	19.8	16.0	0	0	0	0	0	0	0	0	0	0	0
EAST	19.8	41.6	0	0	0	0	0	0	0	0	0	0	0
SOUTH	19.8	24.9	0	0	0	0	0	0	0	0	0	0	0
WEST	19.8	41.6	40	791	1662	0	0	0	0	0	0	0	0
SKYL.T.	34.6	101.5	0	0	0	0	0	0	0	0	0	0	0
DOORS	23.6	4.3	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	290	1202	218	307	1273	231	340	1410	256	204	846
NET EXPOSED BSM WALL ABOVE GR	3.3	0.6	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
NO ATTIC EXPOSED CLG	2.6	1.3	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
BASEMENT CRAWL HEAT LOSS			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
SUBTOTAL HT LOSS			1893	1925	2640	1360	508	368	1804	1817	636	3473	4648
SUB TOTAL HT GAIN			1880	1062	2301	1017	322	214	517	283	3058	535	535
LEVEL FACTOR / MULTIPLIER	0.30	0.47	938	906	1242	640	160	169	848	781	0.50	1.14	9172
AIR CHANGE HEAT LOSS			127	71	156	69	22	15	35	20	0	244	244
AIR CHANGE HEAT GAIN			0	0	0	0	0	0	0	0	0	0	0
DUCT LOSS			0	0	0	0	0	0	0	0	0	0	0
DUCT GAIN			0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			823	823	823	823	823	823	823	823	823	823	823
TOTAL HT LOSS BTU/H			2831	2831	3882	1999	768	527	2853	2378	3473	13720	1692
TOTAL HT GAIN x 1.3 BTU/H			3290	2141	3874	2092	1127	977	718	407	3978	1692	1692

TOTAL HEAT GAIN BTU/H

41815

TONS: 3.48

LOSS DUE TO VENTILATION LOAD BTU/H: 1515

STRUCTURAL HEAT LOSS: 62902

TOTAL COMBINED HEAT LOSS BTU/H: 64418

SITE NAME: RUSSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMES

LOT 18
TYPE: MOUNTAINASH 7

DATE: Aug-20

GFA: 3160 LO# 87204

HEATING CFM 1504 COOLING CFM 1504
TOTAL HEAT LOSS 52,902 TOTAL HEAT GAIN 41,540
AIR FLOW RATE CFM 28.43 AIR FLOW RATE CFM 36.21

#GOODMAN 80 AFUE = 98 %
GMEC960804CNA INPUT (BTU/H) = 80,000
FAN SPEED OUTPUT (BTU/H) = 76,800

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	13	8	5
R/A	0	0	5	3	1

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

All S/A runs 5"x12" unless noted otherwise on layout.

plenum pressure s/a 0.18 r/a pressure 0.17
max s/a dif press. loss 0.03 r/a grille press. loss 0.02
min adjusted pressure s/a 0.15 adjusted pressure r/a 0.15

DESIGN CFM = 1504
CFM @ 5" E.S.P.
TEMPERATURE RISE 47 °F

RUN #	1	2	3	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	ENS	BED-2	BED-3	BED-4	ENS-2	BED-3	BED-2	MBR	ENS-3	FAM	L/D	K/B	K/B	L/H	LND	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	2.07	1.01	1.01	1.86	1.69	1.34	0.91	1.69	1.86	2.07	0.53	2.93	2.83	1.94	1.94	2.00	0.77	0.53	2.65	2.38	3.44	3.44	3.44	3.44
CFM PER RUN HEAT	59	29	29	53	48	38	26	48	53	59	15	83	80	55	55	57	22	15	75	68	98	98	98	98
RM GAIN MBH	2.18	1.06	1.06	2.25	2.31	1.87	1.11	2.31	2.25	2.18	0.35	3.29	2.14	1.94	1.94	2.09	1.13	0.98	0.72	0.41	1.13	1.13	1.13	1.13
CFM PER RUN COOLING	79	39	39	82	83	68	40	83	82	79	13	119	78	70	70	76	41	35	26	15	41	41	41	41
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.16	0.16	0.17	0.17	0.15	0.17	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.	56	29	18	62	53	23	54	59	67	47	41	14	18	37	29	34	14	8	49	35	56	35	23	40
EQUIVALENT LENGTH	90	160	180	110	120	160	130	155	120	130	180	160	160	110	150	110	190	130	140	90	100	140	150	130
TOTAL EFFECTIVE LENGTH	146	189	198	172	173	183	184	214	187	177	221	174	178	147	179	144	204	138	189	125	156	175	173	170
ADJUSTED PRESSURE	0.12	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.09	0.1	0.08	0.09	0.1	0.12	0.1	0.12	0.08	0.12	0.09	0.14	0.1	0.09	0.09	0.1
ROUND DUCT SIZE	5	4	4	6	6	6	4	6	6	5	4	6	5	5	5	8	4	4	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	433	333	333	270	245	194	298	245	270	433	172	423	587	404	404	291	252	172	551	499	500	500	500	500
COOLING VELOCITY (ft/min)	580	447	447	418	423	347	459	423	418	580	149	607	573	514	514	388	470	402	191	110	209	209	209	209
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	4X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	C	D	B	B	A	B	B	A	B	C	A	D	A	C	D	A	B	B	A	C	C	D	A	A

RUN #	25	26
ROOM NAME	BAS	BED-3
RM LOSS MBH	3.44	1.69
CFM PER RUN HEAT	98	48
RM GAIN MBH	1.13	2.31
CFM PER RUN COOLING	41	83
ADJUSTED PRESSURE	0.16	0.16
ACTUAL DUCT LGH.	32	53
EQUIVALENT LENGTH	130	180
TOTAL EFFECTIVE LENGTH	162	233
ADJUSTED PRESSURE	0.1	0.07
ROUND DUCT SIZE	6	6
HEATING VELOCITY (ft/min)	500	245
COOLING VELOCITY (ft/min)	209	423
OUTLET GRILL SIZE	4X10	4X10
TRUNK	C	A

SUPPLY AIR TRUNK SIZE													RETURN AIR TRUNK SIZE												
	TRUNK	STATIC	ROUND	RECT	VELOCITY			TRUNK	STATIC	ROUND	RECT	VELOCITY			TRUNK	STATIC	ROUND	RECT	VELOCITY			TRUNK	STATIC	ROUND	RECT
	CFM	PRESS.	DUCT	DUCT			(ft/min)	CFM	PRESS.	DUCT	DUCT			(ft/min)	CFM	PRESS.	DUCT	DUCT			(ft/min)	CFM	PRESS.	DUCT	DUCT
TRUNK A	567	0.07	11.7	16	x	8	638	TRUNK G	0	0.00	0	0	x	8	0	0	0.05	0	0	x	8	0	0	0.05	0
TRUNK B	803	0.07	13.4	22	x	8	657	TRUNK H	0	0.00	0	0	x	8	0	0	0.05	0	0	x	8	0	0	0.05	0
TRUNK C	437	0.10	9.7	12	x	8	656	TRUNK I	0	0.00	0	0	x	8	0	0	0.05	0	0	x	8	0	0	0.05	0
TRUNK D	702	0.09	11.9	16	x	8	790	TRUNK J	0	0.00	0	0	x	8	0	0	0.05	0	0	x	8	0	0	0.05	0
TRUNK E	0	0.00	0	0	x	8	0	TRUNK K	0	0.00	0	0	x	8	0	0	0.05	0	0	x	8	0	0	0.05	0
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0	0	0.05	0	0	x	8	0	0	0.05	0
RETURN AIR #	1	2	3	4	5	6	7	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR VOLUME	130	115	115	115	115	185	395	115	0	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	0.15
ACTUAL DUCT LGH.	47	53	55	67	68	20	26	44	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	190	225	215	235	240	165	235	260	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	237	278	270	302	308	185	261	304	1	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	0.08	0.06	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	14.80
ROUND DUCT SIZE	7	7	7	7	7	7.5	10.6	7	0	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	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	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	0

TYPE: MOUNTAINASH 7
 SITE NAME: RUSSEL GARDENS PHASE 3

 LO # 87204
 LOT 18

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 5 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> @ 10.8 cfm	<u>31.8</u> cfm
Kitchen & Bathrooms	<u>5</u> @ 10.6 cfm	<u>53</u> cfm
Other Rooms	<u>7</u> @ 10.6 cfm	<u>74.2</u> cfm
Table 9.32.3.A.	TOTAL	<u>201.4</u> cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4(1)
1 Bedroom	31.8	cfm
2 Bedroom	47.7	cfm
3 Bedroom	63.8	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>201.4</u>	cfm
Less Principal Ventil. Capacity	<u>79.5</u>	cfm
Required Supplemental Capacity	<u>121.9</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model:	VANEE 65H		
Location:	BSMT		
<u>79.5</u> cfm	<u>3.0</u> sones		
☒ HVI Approved			
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	AT °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	60	☒	0.3
ENS-2	FV-05-11VK1	60	☒	0.3
ENS-3	FV-05-11VK1	60	☒	0.3
W/R	FV-05-11VK1	60	☒	0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE 65H	
<u>155</u>	cfm high	
<u>64</u>	cfm low	
<u>75</u>	% 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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	August-20

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

LO#: 87204

Model: MOUNTAINASH 7

Builder: GREENPARK HOMES

Date: 2020-08-20

Volume Calculation
House Volume

Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)
Bsmt	1374	8	10992
First	1374	10	13740
Second	1786	9	16074
Third	0	9	0
Fourth	0	9	0
Total:			40,806.0 ft ³
Total:			1155.5 m ³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.356
SUMMER NATURAL AIR CHANGE RATE	0.127

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-17	39	71
Summer DTDc	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage

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

0.356 x 320.97 x 39 °C x 1.2 = 5376 W

= 18344 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.127 x 320.97 x 7 °C x 1.2 = 349 W

= 1191 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)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{cleve})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HL _{cleve})
1	0.5	18,344	8,021	1.143
2	0.3		11,697	0.470
3	0.2		13,957	0.263
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

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: MOUNTAINASH 7	LOT 18	BUILDER: GREENPARK HOMES
SFQT: 3160	LO# 87204	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):	40806.0	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:	5.0 ft
LENGTH: 56.0 ft	WIDTH: 37.0 ft	EXPOSED PERIMETER:	139.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	47.0 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	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

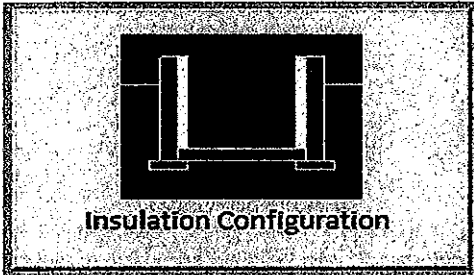
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

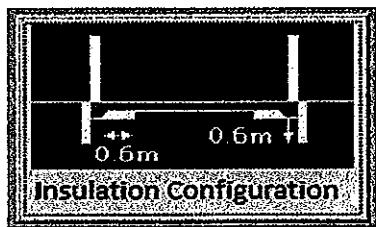
Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	11.3	
Exposed Perimeter (m):	42.4	
Wall Height (m):	2.4	
Depth Below Grade (m):	1.30	
Window Area (m ²):	0.8	
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):	735	

TYPE: MOUNTAINASH 7
LO# 87204

LOT 18

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):	1.5	
Width (m):	11.3	
Exposed Perimeter (m):	14.3	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):	186	

TYPE: MOUNTAINASH 7
LO# 87204

LOT 18

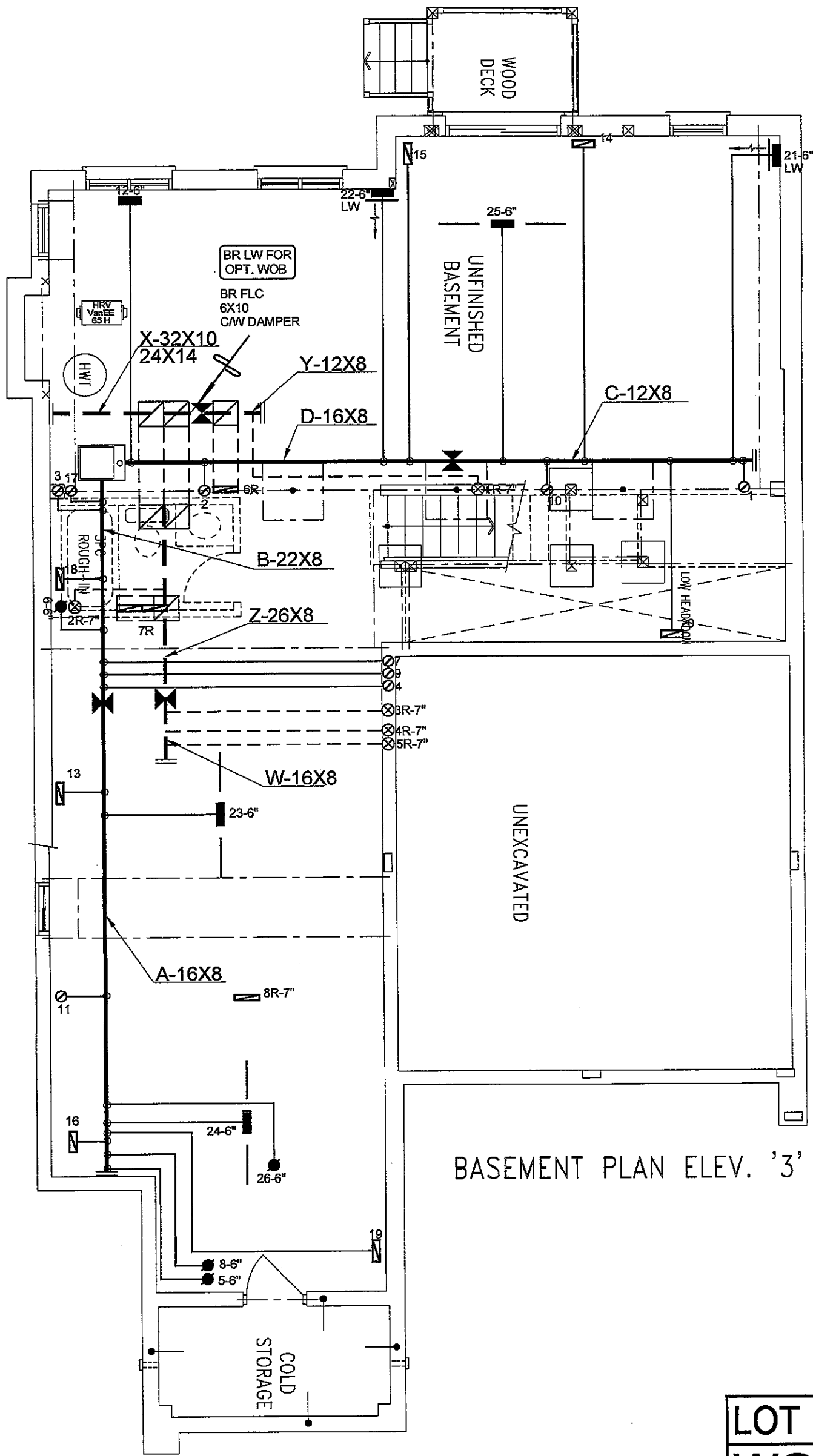
Air Infiltration Residential Load Calculator

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):	8.23		
Building Configuration			
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	1155.5		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1540.3 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):	0.356		
Cooling Air Leakage Rate (ACH/H):	0.127		

TYPE: MOUNTAINASH 7
LO# 87204

LOT 18



BASEMENT PLAN ELEV. '3'

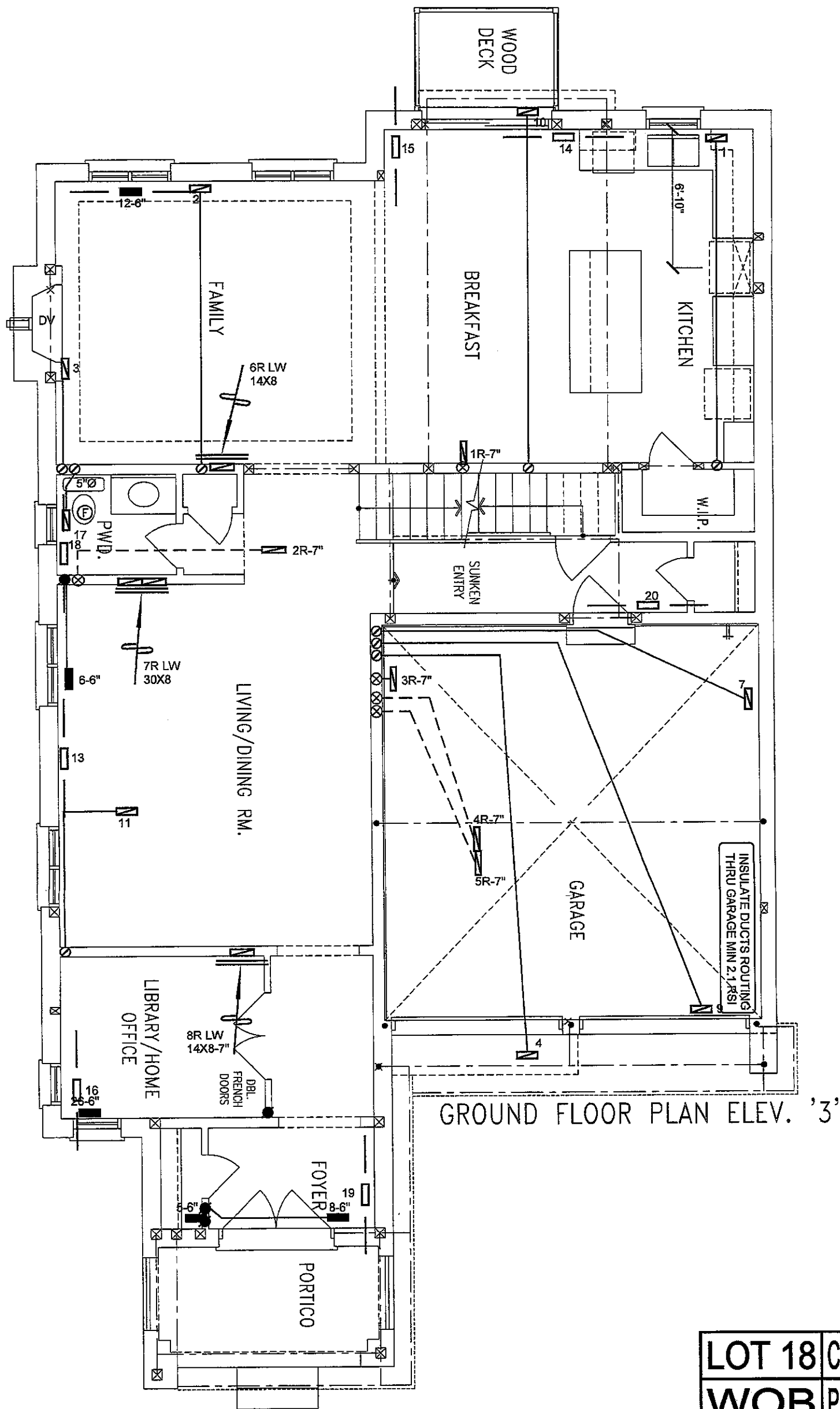
LOT 18 CSA-F280-12
WOB PACKAGE A1

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.
Michael O'Rourke, 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
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER
						REVISIONS	
						No.	Description
						Date	Date

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Client GREENPARK HOMES		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	HEAT LOSS 54418 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS				Sheet Title BASEMENT HEATING LAYOUT		
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			MAKE GOODMAN		3RD FLOOR						
			MODEL GMEC960804CNA		2ND FLOOR		13	5			4
			INPUT 80 MBTU/H		1ST FLOOR		8	3			2
LOT 18 MOUNTAINASH 7 3160 sqft		OUTPUT 76.8 MBTU/H		BASEMENT		5	1	0	Date AUG/2020		
		COOLING 3.5 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 1504 cfm @ 0.6" w.c.								BCIN# 19669	
		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.				LO# 87204					



GROUND FLOOR PLAN ELEV. '3'

I MICHAEL O'BRIEN HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.32.5 OF THE BUILDING CODE.

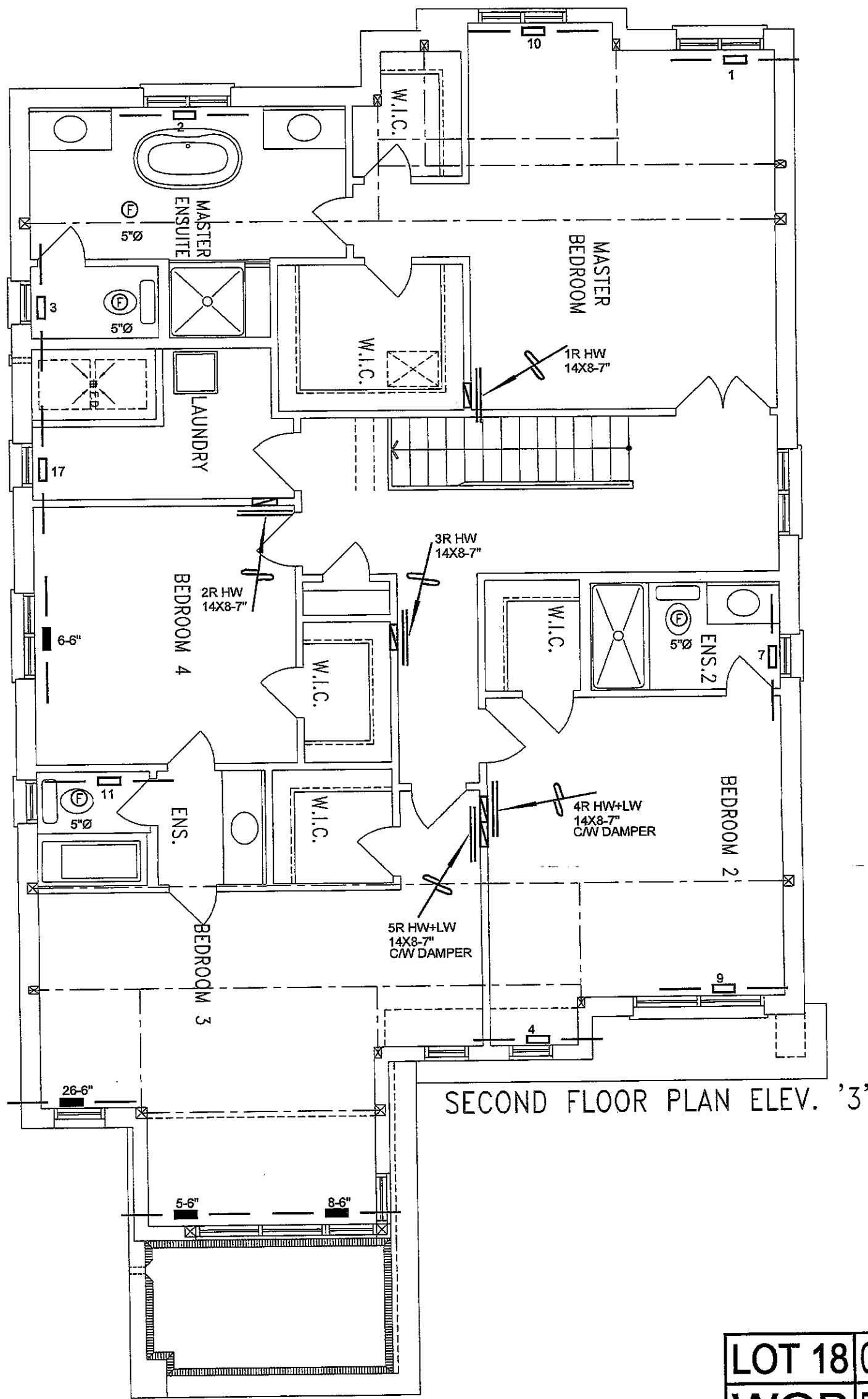
Michael O'Brien
MECHANICAL ENGINEER, BCIN 19669
HVAC DESIGNS LTD.

LOT 18	CSA-F280-12
WOB	PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		8" 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		8" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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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	Sheet Title FIRST FLOOR HEATING LAYOUT
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO		Date AUG/2020
LOT 18 MOUNTAINASH 7 3160 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.	Scale 3/16" = 1'-0"
		BCIN# 19669
		LO# 87204



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

LOT 18	CSA-F280-12
WOB	PACKAGE A1

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 GREENPARK HOMES		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.	Sheet Title SECOND FLOOR HEATING LAYOUT	
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			Date AUG/2020	
LOT 18 MOUNTAINASH 7 3160 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO#	87204