

SITE NAME: MINNISALE HOMES CORP
BUILDER: GREENPARK HOMES

LOT 1
TYPE: GRANDBROOKE 12

GFA: 3925

DATE: Nov-18
LOS: 80504

WINTER NATURAL AIR CHANGE RATE 0.359
SUMMER NATURAL AIR CHANGE RATE 0.192

HEAT LOSS AT °F. 74
HEAT GAIN AT °F. 11

CSA-F280-12
SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	WHC	BED-2	BED-3	BED-4	BATH	ENS-4
			36	29	7	26	34	21	12	6
			10	9	9	10	10	10	9	9
FACTORS										
GRS.WALL AREA	LOSS	GAIN	360	261	63	260	340	210	108	54
GLAZING	LOSS	GAIN								
NORTH	20.8	14.0	0	0	0	0	0	0	0	0
EAST	20.8	36.5	0	0	0	21	436	766	39	810
SOUTH	20.8	21.8	0	0	30	623	655	9	187	197
WEST	20.8	36.5	36	748	1314	28	582	1022	0	0
SKYL.T.	36.4	100.7	0	0	0	0	0	0	0	0
DOORS	24.7	3.7	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.4	0.6	324	1412	209	203	884	131	64	235
NET EXPOSED BMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	306	383	171	162	203	90	70	88
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	195	486
BASEMENT/CRAWL HEAT LOSS										
SLAB ON GRADE HEAT LOSS										
SUBTOTAL HT LOSS			2643		2292		510		2207	
SUB TOTAL HT GAIN				1694		1898		270		1101
LEVEL FACTOR / MULTIPLIER	0.20	0.27								
AIR CHANGE HEAT LOSS			690		622		138		699	
AIR CHANGE HEAT GAIN				91		162		15		69
DUCT LOSS										
DUCT GAIN										
HEAT GAIN PEOPLE	240		2	480		0		0	1	240
HEAT GAIN APPLIANCES/LIGHTS				701				701		701
TOTAL HT LOSS BTU/H			3234		2915		648		3088	
TOTAL HT GAIN x 1.3 BTU/H				3856		2601		371		3006

ROOM USE	EXP. WALL	CLG. HT.	LV/DN	OFF	KT/PM	LAUN	WIR	FOY	WOB	BAS
			21	46	78	9	27	18	29	151
			10	10	10	9	10	10	10	10
FACTORS										
GRS.WALL AREA	LOSS	GAIN	210	460	780	81	270	180	276	982
GLAZING	LOSS	GAIN								
NORTH	20.8	14.0	0	0	0	0	0	0	0	0
EAST	20.8	36.5	0	0	81	1060	1861	0	0	0
SOUTH	20.8	21.8	42	873	917	27	561	590	48	997
WEST	20.8	36.5	0	0	0	94	1953	3430	0	0
SKYL.T.	36.4	100.7	0	0	0	0	0	0	0	0
DOORS	24.7	3.7	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.4	0.6	168	732	109	382	1664	247	638	2780
NET EXPOSED BMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	38	81	38	40	107
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS										
SLAB ON GRADE HEAT LOSS										
SUBTOTAL HT LOSS			1686		3365		5837			
SUB TOTAL HT GAIN				1026		2733		4938		
LEVEL FACTOR / MULTIPLIER	0.30	0.42								
AIR CHANGE HEAT LOSS			674		1413		2451			
AIR CHANGE HEAT GAIN				66		147		266		
DUCT LOSS										
DUCT GAIN										
HEAT GAIN PEOPLE	240		0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				701		701		701		701
TOTAL HT LOSS BTU/H			2278		4779		8289			
TOTAL HT GAIN x 1.3 BTU/H				2317		4656		7877		

ATTACHED NOTES ARE PART
OF REVIEWED DRAWINGS
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JAN 26 2019
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TOTAL HEAT GAIN BTU/H: 36506

TONS: 3.64

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 56859

TOTAL COMBINED HEAT LOSS BTU/H: 58462

Michael O'Rourke

SITE NAME: MINNISSALE HOMES CORP
BUILDER: GREENPARK HOMES

LOT 1
TYPE: GRANDBROOKE 12

DATE: Nov-18

GFA: 3025 LO# 80604

HEATING CFM 1122 COOLING CFM 1122
TOTAL HEAT LOSS 56,859 TOTAL HEAT GAIN 36,272
AIR FLOW RATE CFM 19.73 AIR FLOW RATE CFM 30.93

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

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

#GOODMAN
GMCC960803BNA 80
FAN SPEED
LOW
MEDLOW
MEDIUM
MEDIUM HIGH
HIGH 1122

AFUE = 96 %
INPUT (BTU/H) = 80,000
OUTPUT (BTU/H) = 76,800
DESIGN CFM = 1122
CFM @ .6" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	13	8	5
R/A	0	0	4	3	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	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	ENS	BED-3	MBR	ENS-4	OFF	OFF	KT/FM	KT/FM	KT/FM	LAUN	WR	FOY	BED-4	LVIDN	BAS	BAS	BAS
RM LOSS MBH	1.62	1.46	0.65	3.09	1.71	1.22	1.57	1.46	1.71	1.62	0.58	2.39	2.39	2.76	2.76	2.76	0.90	2.25	2.30	1.22	2.28	3.64	3.64	3.64
CFM PER RUN HEAT	32	29	13	61	34	24	31	29	34	32	11	47	47	55	55	55	18	44	45	24	45	72	72	72
RM GAIN MBH	1.93	1.30	0.37	3.01	2.09	1.38	1.01	1.30	2.09	1.93	0.35	2.33	2.33	2.56	2.56	2.56	1.20	0.32	0.89	1.38	2.32	0.21	0.21	0.21
CFM PER RUN COOLING	60	40	11	93	65	43	31	40	65	60	11	72	72	79	79	79	37	10	27	43	72	7	7	7
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	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	0.17	0.17
ACTUAL DUCT LGH	44	54	58	87	84	62	82	42	71	32	44	62	68	21	46	42	32	11	56	49	41	13	30	52
EQUIVALENT LENGTH	110	170	180	140	180	180	150	150	190	180	150	180	150	130	150	170	120	190	130	140	130	140	160	110
TOTAL EFFECTIVE LENGTH	154	224	238	227	244	242	232	192	261	212	194	242	218	151	196	212	152	201	186	189	171	153	190	162
ADJUSTED PRESSURE	0.11	0.08	0.07	0.07	0.07	0.07	0.07	0.09	0.07	0.08	0.09	0.07	0.08	0.11	0.09	0.08	0.11	0.09	0.09	0.09	0.1	0.11	0.09	0.11
ROUND DUCT SIZE	5	4	4	6	5	5	4	4	5	5	4	6	5	5	5	5	4	4	4	4	5	5	5	5
HEATING VELOCITY (ft/min)	235	333	149	311	250	176	356	333	250	235	126	240	345	404	404	404	207	505	516	275	330	529	529	529
COOLING VELOCITY (ft/min)	441	459	126	474	477	316	356	459	477	441	126	367	529	580	580	580	424	115	310	493	529	51	51	51
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	E	D	B	A	A	B	A	D	A	E	C	A	A	E	E	D	D	C	A	B	B	E	C	B

RUN #	25	26
ROOM NAME	BAS	BAS
RM LOSS MBH	3.64	3.64
CFM PER RUN HEAT	72	72
RM GAIN MBH	0.21	0.21
CFM PER RUN COOLING	7	7
ADJUSTED PRESSURE	0.17	0.17
ACTUAL DUCT LGH	69	15
EQUIVALENT LENGTH	140	120
TOTAL EFFECTIVE LENGTH	209	135
ADJUSTED PRESSURE	0.08	0.13
ROUND DUCT SIZE	5	5
HEATING VELOCITY (ft/min)	529	529
COOLING VELOCITY (ft/min)	51	51
OUTLET GRILL SIZE	3X10	3X10
TRUNK	A	E

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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	371	0.07	10	14	x	8	477		
TRUNK B	178	0.07	7.6	8	x	8	401		
TRUNK C	676	0.07	12.5	18	x	8	676		
TRUNK D	131	0.08	6.5	6	x	8	393		
TRUNK E	449	0.08	10.4	13	x	8	622		
TRUNK F	0	0.00	0	0	x	8	0		
TRUNK G	0	0.00	0	0	x	8	0		
TRUNK H	0	0.00	0	0	x	8	0		
TRUNK I	0	0.00	0	0	x	8	0		
TRUNK J	0	0.00	0	0	x	8	0		
TRUNK K	0	0.00	0	0	x	8	0		
TRUNK L	0	0.00	0	0	x	8	0		

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	135	95	130	135	155	155	155	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
ACTUAL DUCT LGH	33	53	65	75	38	36	54	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	135	145	185	230	225	185	185	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	168	198	250	305	263	221	239	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.09	0.07	0.06	0.05	0.06	0.07	0.06	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	6.4	6	7	7.5	7.5	7.2	7.5	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	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
INLET GRILL SIZE	14	14	14	14	14	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: GRANDBROOKE 12
SITE NAME: MINNISSALE HOMES CORP

LO # 80604
LOT 1

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	5 @ 10.6 cfm	53.0 cfm
Table 9.32.3.A		
TOTAL		180.2 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	180.2	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	100.7	cfm

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

PRINCIPAL EXHAUST HEAT LOSS CALCULATION	
CFM	ΔT °F
79.5 CFM	74 F
X	X
FACTOR	% LOSS
1.08	0.25

SUPPLEMENTAL FANS		PANASONIC
Location	Model	cfm HVI Sones
ENS	FV-05-11VK1	50 ✓ 0.3
BATH	FV-05-11VK1	50 ✓ 0.3
ENS-4	FV-05-11VK1	50 ✓ 0.3
WIR	FV-05-11VK1	50 ✓ 0.3

HEAT RECOVERY VENTILATOR		9.32.3.11
Model:	VANEE 65H	
155 cfm high	64 cfm low	
75 % Sensible Efficiency	☒ HVI Approved	
@ 32 deg F (0 deg C)		

LOCATION OF INSTALLATION	
Lot:	Concession
Township:	Plan:
Address:	
Roll #	
BUILDER:	GREENPARK HOMES
Name:	
Address:	
City:	
Telephone #:	

CITY OF BRAMPTON
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INSTALLING CONTRACTOR	
Name:	
Address:	
City:	
Telephone #:	

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>
HRAJ #	001820
Date:	November-18

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

LO#: 80604

Model: GRANDBROOKE 12

Builder: GREENPARK HOMES

Date: 11/2/2018

Volume Calculation
House Volume

Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)
Bsmt	1392	9	12528
First	1392	10	13920
Second	1633	9	14697
Third	0	9	0
Fourth	0	9	0
Total:			41,145.0 ft ³
Total:			1165.1 m ³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.359
SUMMER NATURAL AIR CHANGE RATE	0.102

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

5.2.3.1 Heat Loss due to Air Leakage

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

0.359 x 323.64 x 41 °C x 1.2 = 5746 W

= 19606 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

0.102 x 323.64 x 6 °C x 1.2 = 243 W

= 829 Btu/h

5.2.3.2 Heat Loss due to Mechanical 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

6.2.7 Sensible heatGain due to Ventilation

$$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

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)

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

Level	Level Factor (LF)	HL _{airbv} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{cleve})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{cleve})
1	0.5	19,606	8,383	1.169
2	0.3		14,007	0.420
3	0.2		14,441	0.272
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

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: GRANDBROOKE 12	LOT 1	BUILDER: GREENPARK HOMES
SFQT: 3025	LO# 80604	SITE: MINNISSALE HOMES CORP

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

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:	UNSHelterED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft ³):	41145.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.5 ft
LENGTH: 38.0 ft	WIDTH: 52.0 ft	EXPOSED PERIMETER:	151.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	29.0 ft

2012 OBC - COMPLIANCE PACKAGE**Component**

Ceiling with Attic Space Minimum RSI (R)-Value	
Ceiling Without Attic Space Minimum RSI (R)-Value	
Exposed Floor Minimum RSI (R)-Value	
Walls Above Grade Minimum RSI (R)-Value	
Basement Walls Minimum RSI (R)-Value	
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	
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	
Windows and Sliding Glass Doors Maximum U-Value	
Skylights Maximum U-Value	
Space Heating Equipment Minimum AFUE	
HRV Minimum Efficiency	
Domestic Hot Water Heater Minimum EF	

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**Compliance Package
A1**

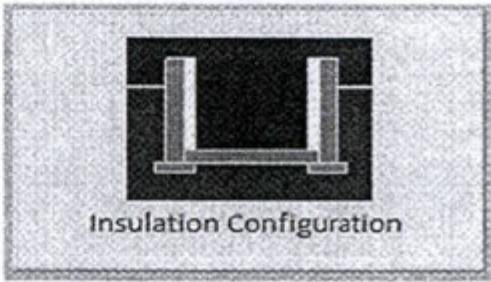
Nominal	Min. Eff.
60	59.22
31	27.65
31	29.80
22	17.03
20 ci	21.12
-	-
10	10
10	11.13
0.28	-
0.49	-
0.96	-
75%	-
0.8	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

Michael O'Rourke

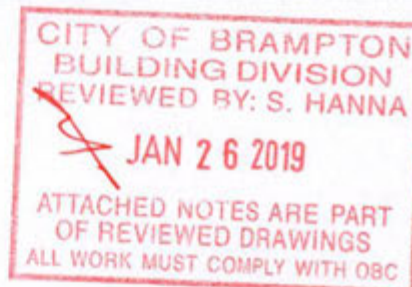
Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	5.2	 Insulation Configuration
Floor Width (m):	15.8	
Exposed Perimeter (m):	46.0	
Wall Height (m):	2.9	
Depth Below Grade (m):	1.58	
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):		1245 ✓

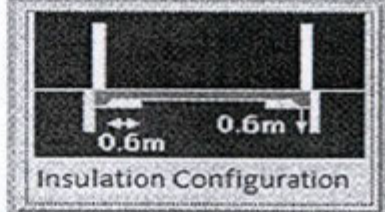
TYPE: GRANDBROOKE 12
LO# 80604

LOT 1



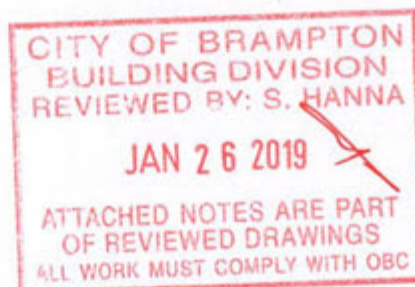
Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Length (m):	2.1	
Width (m):	4.6	
Exposed Perimeter (m):	8.8	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		81

TYPE: GRANDBROOKE 12
LO# 80604

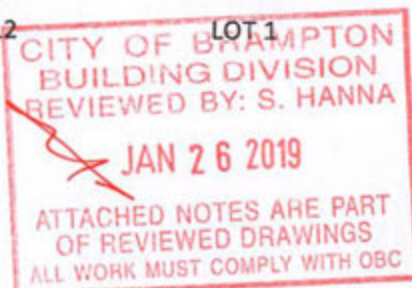
LOT 1



Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

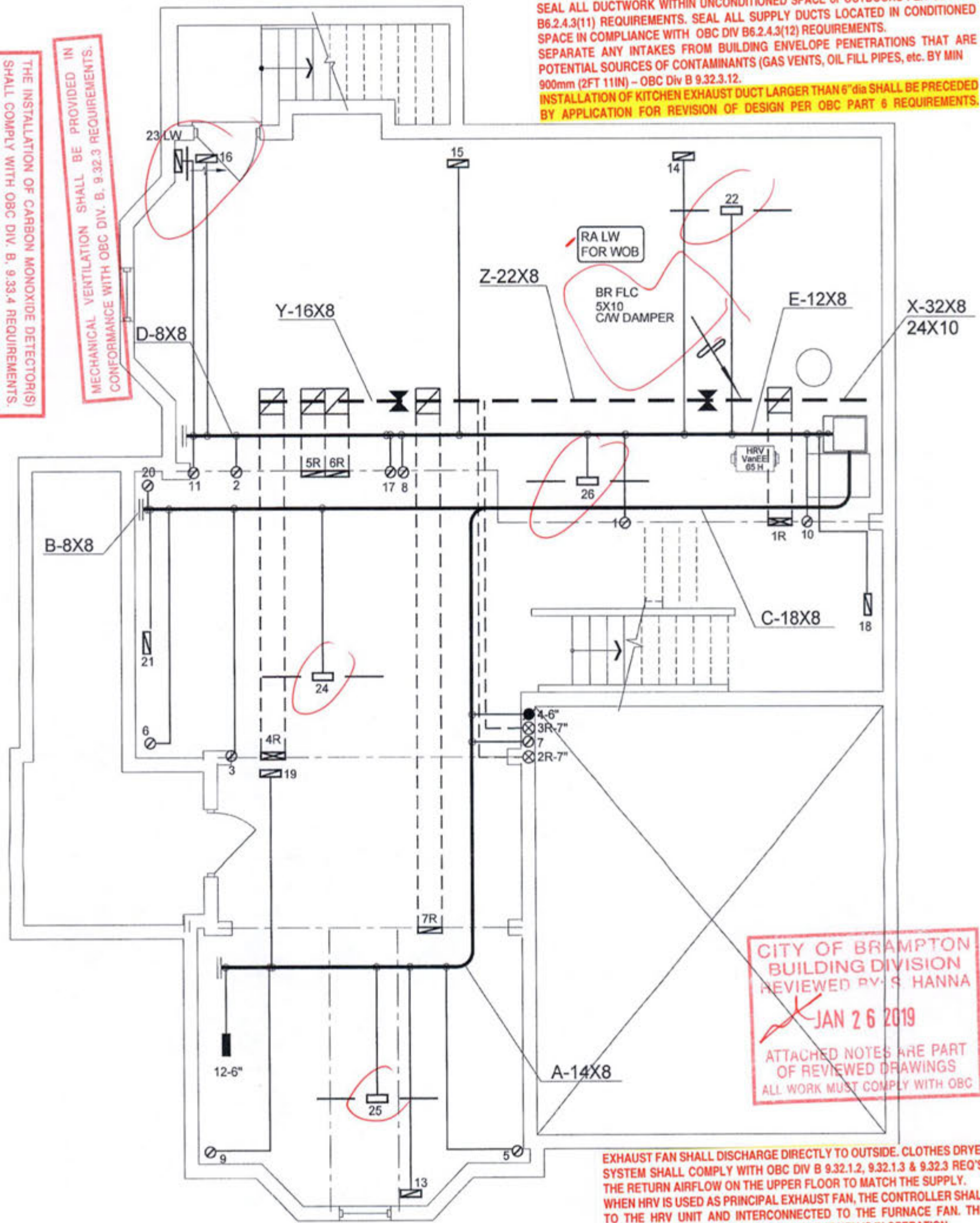
Weather Station Description				
Province:	Ontario			
Region:	Brampton			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Very heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	8.53			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1165.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH) ✓			
Custom BDT Data:	ELA @ 10 Pa. 3.57	1553.1 cm ² ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply 37.5	Total Exhaust 37.5		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.359 ✓			
Cooling Air Leakage Rate (ACH/H):	0.102			

TYPE: GRANDBROOKE 12
LO# 80604

ENSURE THAT MIN THERMAL PERFORMANCE OF BLDG ENVELOPE AND EQUIPMENT SHALL CONFORM TO OBC SB-12, 3.1.1.2 TABLES REQUIREMENTS.
FURNACE SHALL BE EQUIPPED WITH BRUSHLESS DIRECT CURRENT MOTOR OBC DIV B 12.3.1.5.
SEAL ALL DUCTWORK WITHIN UNCONDITIONED SPACE or OUTDOORS PER OBC DIV B6.2.4.3(11) REQUIREMENTS. SEAL ALL SUPPLY DUCTS LOCATED IN CONDITIONED SPACE IN COMPLIANCE WITH OBC DIV B6.2.4.3(12) REQUIREMENTS.
SEPARATE ANY INTAKES FROM BUILDING ENVELOPE PENETRATIONS THAT ARE POTENTIAL SOURCES OF CONTAMINANTS (GAS VENTS, OIL FILL PIPES, etc. BY MIN 900mm (2FT 11IN) - OBC Div B 9.32.3.12.
INSTALLATION OF KITCHEN EXHAUST DUCT LARGER THAN 6" dia SHALL BE PRECEDED BY APPLICATION FOR REVISION OF DESIGN PER OBC PART 6 REQUIREMENTS.

THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH OBC DIV. B. 9.33.4 REQUIREMENTS.

MECHANICAL VENTILATION SHALL BE PROVIDED IN CONFORMANCE WITH OBC DIV. B. 9.32.3 REQUIREMENTS.



CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. HANNA
JAN 26 2019
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EXHAUST FAN SHALL DISCHARGE DIRECTLY TO OUTSIDE. CLOTHES DRYER EXHAUST SYSTEM SHALL COMPLY WITH OBC DIV B 9.32.1.2, 9.32.1.3 & 9.32.3 REQ'S. BALANCE THE RETURN AIRFLOW ON THE UPPER FLOOR TO MATCH THE SUPPLY.
WHEN HRV IS USED AS PRINCIPAL EXHAUST FAN, THE CONTROLLER SHALL BE WIRED TO THE HRV UNIT AND INTERCONNECTED TO THE FURNACE FAN. THE FURNACE BLOWER MUST BE IN OPERATION WHEN THE HRV IS IN OPERATION.
INSTALL ADDITIONAL S/A REGISTER AS REQUIRED IN ORDER TO ENSURE MIN 72degF - OBC DIV B 9.33.3.1(1).
UNDERCUT BY MIN 1" THE DOOR TO ANY ROOM WITHOUT RETURN AIR GRILLE. ENSURE RETURN AIR INTAKE SHALL BE CONNECTED TO THE MAIN R/A DUCT AT A HORIZONTAL DISTANCE OF MIN 6FT FROM THE CASING OF THE UNIT (HRAI DIGEST).

INSTALLATION OF HVAC EQUIPMENT SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS AND MANUALS

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
HVAC DESIGNS LTD.

18-410956 00000000

CSA-F280-12

LOT 1 PACKAGE A1

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

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Client

GREENPARK HOMES

Project Name

**MINNISALE HOMES CORP
BRAMPTON, ONTARIO**

LOT 1
GRANDBROOKE 12 3025sqft

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 58452 BTU/H
UNIT DATA

MAKE GOODMAN

MODEL GMCE960803BNA

INPUT 80 MBTUH

OUTPUT 76.8 MBTUH

COOLING 3.0 TONS

FAN SPEED 1122 cfm @ 0.5" w.c.

OF RUNS S/A R/A FANS

3RD FLOOR			
2ND FLOOR	13	4	5
1ST FLOOR	8	3	2
BASEMENT	5	1	0

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

Sheet Title

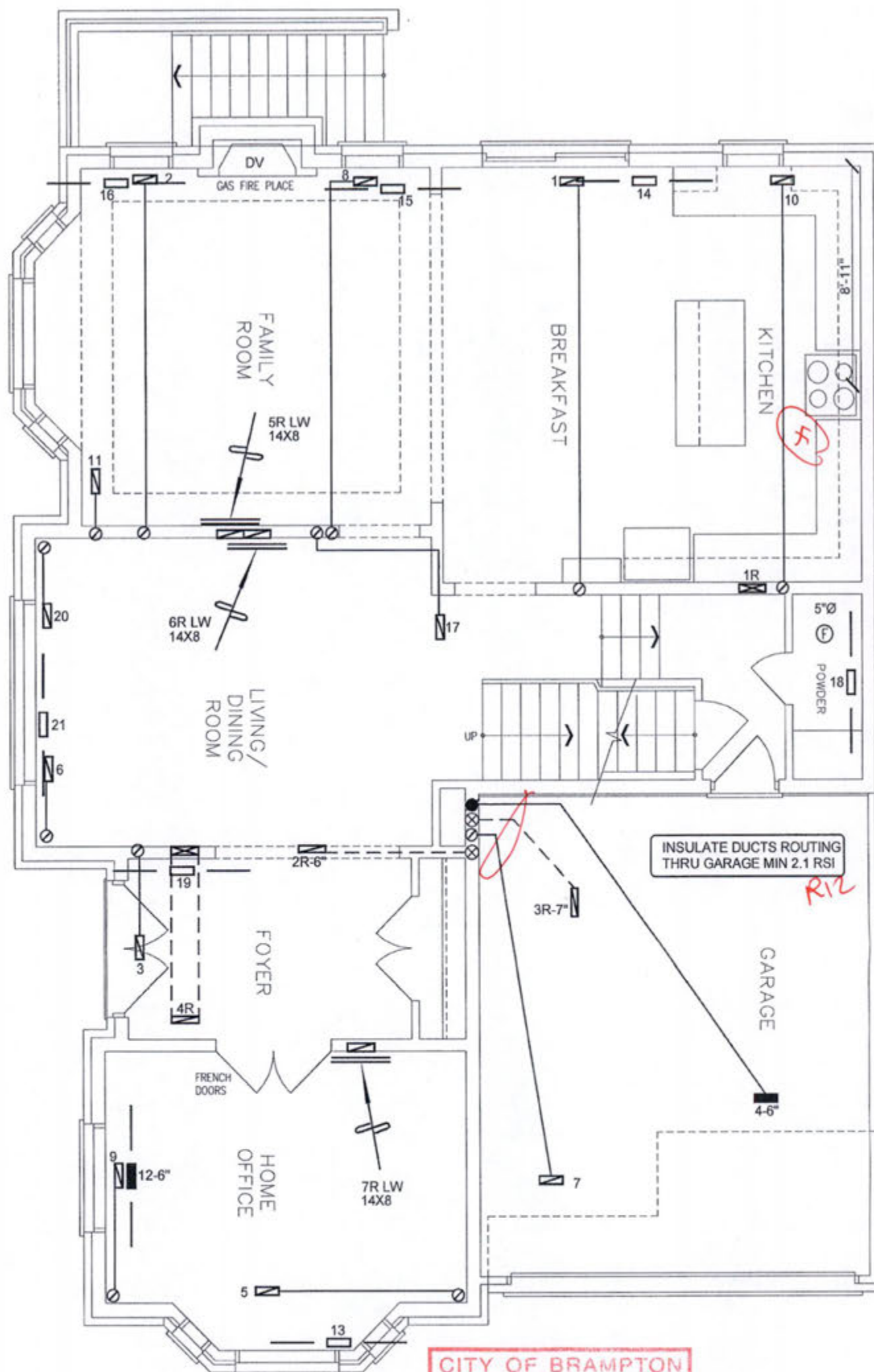
BASEMENT HEATING LAYOUT

Date NOV/2018

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 80604



THIS INSTALLATION OF A GAS FIREPLACE IS REGULATED UNDER THE T.S.S.A. BY C.S.A. B149.1 NATURAL GAS AND PROPANE INSTALLATION CODE CALL ENBRIDGE FOR INSPECTION AT 1-800-785-1314

CITY OF BRAMPTON
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REVIEWED BY: S. HANNA
JAN 26 2019
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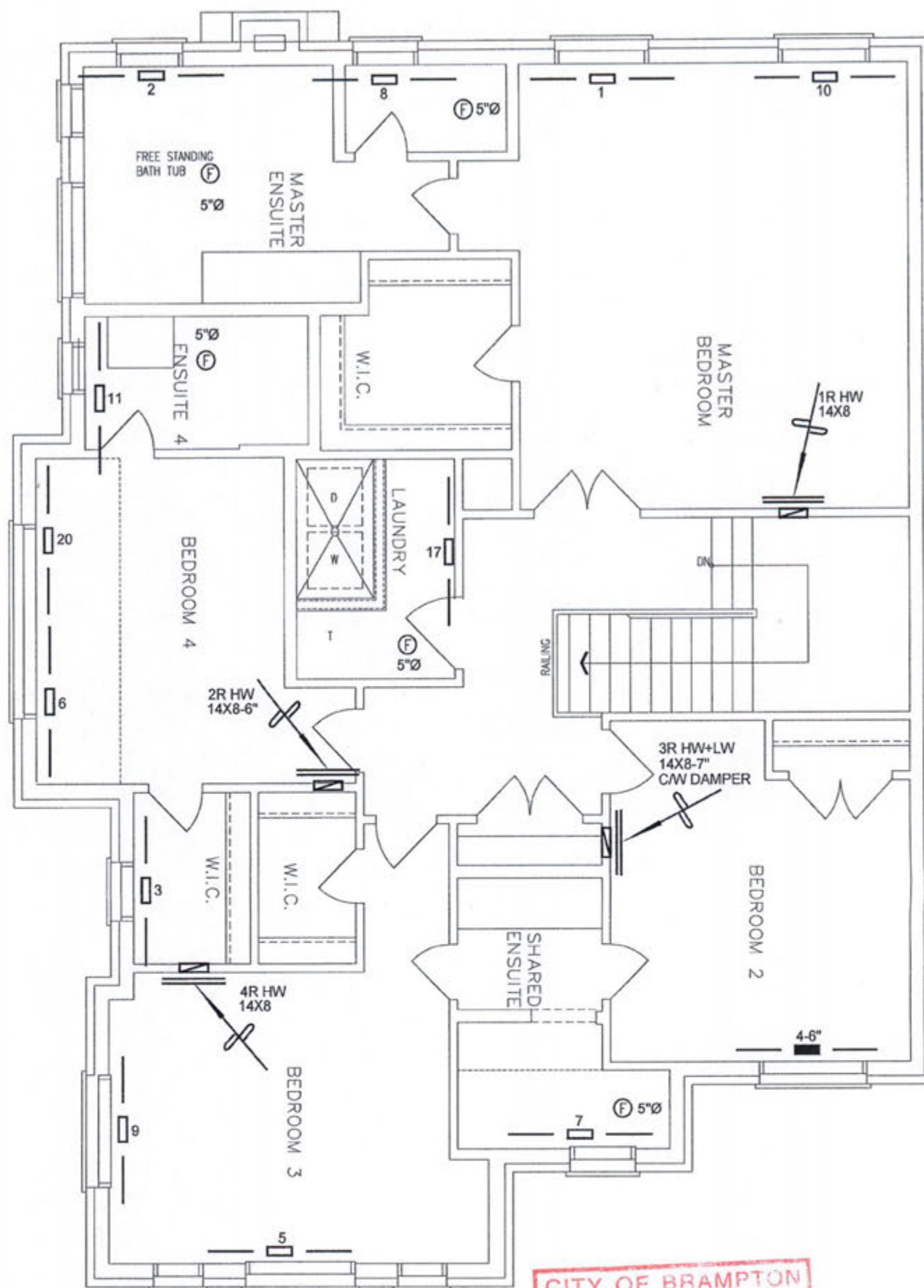
I MICHAEL O'BRIEN HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
Michael O'Brien
Michael O'Brien, OCT 19 1969
HVAC DESIGNS LTD.

CSA-F280-12
LOT 1 PACKAGE A1

HVAC LEGEND								3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	FLOOR 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 FIRST FLOOR HEATING LAYOUT Date NOV/2018 Scale 3/16" = 1'-0" BCIN# 19669 LO# 80604
Project Name MINNISALE HOMES CORP BRAMPTON, ONTARIO		
LOT 1 GRANDBROOKE 12 3025sqft		



CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. HANNA
JAN 26 2019
ATTACHED NOTES ARE PART
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I MICHAEL OROURKE 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, BCDB 1969
HVAC DESIGNS LTD.

CSA-F280-12

LOT 1 PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
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	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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GREENPARK HOMES		SECOND FLOOR HEATING LAYOUT	
Project Name		Date	NOV/2018
MINNISALE HOMES CORP BRAMPTON, ONTARIO		Scale	3/16" = 1'-0"
LOT 1 GRANDBROOKE 12 3025sqft	BCIN# 19669		
	LO#	80604	