

18-413518

LOT 8

 SITE NAME: MINNISALE HOMES CORP
 BUILDER: GREENPARK HOMES

TYPE: MILLWOOD 1

GFA: 2194

 DATE: Aug-18
 LOF: 79563

 WINTER NATURAL AIR CHANGE RATE 0.354
 SUMMER NATURAL AIR CHANGE RATE 0.115

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

 CSA-F280-12
 SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MER	ENS	WIC	BED-2	BED-3	BATH					
			29	22	7	26	26	10					
			10	9	9	9	10	9					
GRS.WALL AREA	LOSS	GAIN	290	198	63	234	260	90					
GLAZING	LOSS	GAIN											
NORTH	20.8	15.5	0	0	0	0	0	0					
EAST	20.8	41.0	32	665	1314	16	332	657					
SOUTH	20.8	24.4	0	0	0	0	0	0					
WEST	20.8	41.0	0	0	0	0	0	0					
SKYL.T.	36.4	100.7	0	0	0	0	0	0					
DOORS	24.7	3.7	0	0	0	0	0	0					
NET EXPOSED WALL	4.4	0.5	258	1124	167	182	793	118					
NET EXPOSED BENT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0					
EXPOSED CLG	1.3	0.6	286	357	109	120	150	67					
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0					
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0					
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0					
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0					
SUBTOTAL HT LOSS			2146	1276	380	2303	2250	984					
SUB TOTAL HT GAIN				1639	841		1566	2183				570	
LEVEL FACTOR / MULTIPLIER	0.20	0.29		0.20	0.29	0.20	0.29	0.20				0.29	
AIR CHANGE HEAT LOSS			612	364	108	657	642	281					
AIR CHANGE HEAT GAIN				103	53		99	138				36	
DUCT LOSS			0	0	0	296	0	127					
DUCT GAIN			0	0	0	294	0	61					
HEAT GAIN PEOPLE	240		2	480	0	1	240	0				0	
HEAT GAIN APPLIANCES/LIGHTS				1035	0		1035	0				0	
TOTAL HT LOSS BTUH			2758	1640	488	3255	2892	1392					
TOTAL HT GAIN x 1.3 BTUH			4235	1162	121	4204	4681	866					

ROOM USE	EXP. WALL	CLG. HT.	LVDN	KT/FM	LAUN	WIR	FOY	WOD	BAS
			37	58	7	29	20	36	152
			10	10	9	11	11	9	9
GRS.WALL AREA	LOSS	GAIN	370	680	63	319	220	324	1128
GLAZING	LOSS	GAIN							
NORTH	20.8	15.5	0	0	0	0	0	0	0
EAST	20.8	41.0	0	0	0	0	0	0	0
SOUTH	20.8	24.4	0	0	0	0	0	0	0
WEST	20.8	41.0	27	561	1108	0	0	0	0
SKYL.T.	36.4	100.7	0	0	0	0	0	0	0
DOORS	24.7	3.7	0	0	0	0	0	0	0
NET EXPOSED WALL	4.4	0.6	343	1494	222	600	2614	388	
NET EXPOSED BENT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	
SUBTOTAL HT LOSS			2055	4303	441	1937	2003	880	
SUB TOTAL HT GAIN				1330		115	456	565	
LEVEL FACTOR / MULTIPLIER	0.30	0.41		0.30	0.41	0.30	0.41	0.30	
AIR CHANGE HEAT LOSS			836	1751	126	784	815	36	
AIR CHANGE HEAT GAIN				84	232	7	29		
DUCT LOSS			0	0	0	0	0	0	
DUCT GAIN			0	0	0	0	0	0	
HEAT GAIN PEOPLE	240		0	0	0	0	0	0	
HEAT GAIN APPLIANCES/LIGHTS				1035	0	0	0	0	
TOTAL HT LOSS BTUH			2892	6054	567	2711	2818	880	
TOTAL HT GAIN x 1.3 BTUH			3184	6436	1505	630	780	615	

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 ATTACHED NOTES ARE PART
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TOTAL HEAT GAIN BTUH: 28879

TONS: 2.41

LOSS DUE TO VENTILATION LOAD BTUH: 1274

STRUCTURAL HEAT LOSS: 41892

TOTAL COMBINED HEAT LOSS BTUH: 43166

SITE NAME: MINNISSALE HOMES CORP
 BUILDER: GREENPARK HOMES

TYPE: MILLWOOD 1

DATE: Aug-18

GFA: 2194 LO# 79583

 HEATING CFM 1131 COOLING CFM 1131
 TOTAL HEAT LOSS 41,892 TOTAL HEAT GAIN 28,690
 AIR FLOW RATE CFM 27 AIR FLOW RATE CFM 39.42

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

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

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

 DESIGN CFM = 1131
 CFM @ .6" E.S.P.

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	11	7	4
R/A	0	0	4	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	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-2	BATH	BED-3	MBR	LAUN	LV/DN	LV/DN	KT/FM	KT/FM	KT/FM	LAUN	W/R	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH	1.38	1.64	0.49	1.63	1.45	1.63	1.39	1.45	1.38	0.28	1.45	1.45	2.02	2.02	2.02	0.28	2.71	2.82	3.61	3.61	3.61	3.61
CFM PER RUN HEAT	37	44	13	44	39	44	38	39	37	8	39	39	54	54	54	8	73	76	97	97	97	97
RM GAIN MBH	2.12	1.16	0.12	2.10	2.34	2.10	0.87	2.34	2.12	0.75	1.59	1.59	2.15	2.15	2.15	0.75	0.63	0.78	0.22	0.22	0.22	0.22
CFM PER RUN COOLING	83	46	5	83	92	83	34	92	83	30	63	63	85	85	85	30	25	31	9	9	9	9
ADJUSTED PRESSURE	0.16	0.17	0.17	0.16	0.16	0.16	0.17	0.16	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	36	35	34	29	42	37	31	38	51	21	20	23	19	28	31	31	31	25	30	26	10	17
EQUIVALENT LENGTH	150	150	190	130	170	140	150	140	130	160	150	160	130	120	140	190	130	120	140	140	140	170
TOTAL EFFECTIVE LENGTH	186	185	224	159	212	177	181	178	181	181	170	183	149	148	171	221	161	145	170	166	150	187
ADJUSTED PRESSURE	0.09	0.09	0.08	0.1	0.08	0.09	0.1	0.09	0.09	0.1	0.1	0.09	0.11	0.11	0.09	0.08	0.11	0.12	0.1	0.1	0.11	0.09
ROUND DUCT SIZE	6	4	4	6	6	6	4	6	6	4	5	5	6	6	6	4	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	189	505	149	224	199	224	436	199	189	92	286	286	275	275	275	92	536	558	495	495	495	495
COOLING VELOCITY (ft/min)	423	528	57	423	469	423	390	469	423	344	463	463	433	433	433	344	184	228	46	46	46	46
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	4X10	4X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	A	A	C	B	C	B	B	D	C	C	B	D	D	A	A	D	B	D	A	C	B

 RUN #
 ROOM NAME
 RM LOSS MBH
 CFM PER RUN HEAT
 RM GAIN MBH
 CFM PER RUN COOLING
 ADJUSTED PRESSURE
 ACTUAL DUCT LGH.
 EQUIVALENT LENGTH
 TOTAL EFFECTIVE LENGTH
 ADJUSTED PRESSURE
 ROUND DUCT SIZE
 HEATING VELOCITY (ft/min)
 COOLING VELOCITY (ft/min)
 OUTLET GRILL SIZE
 TRUNK

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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)	
253	0.08	8.4	8	X	8	569	TRUNK G	0	0.00	0	0	X	8	0
328	0.08	9.2	10	X	8	590	TRUNK H	0	0.00	0	0	X	8	0
560	0.08	11.3	16	X	8	630	TRUNK I	0	0.00	0	0	X	8	0
315	0.09	8.8	10	X	8	567	TRUNK J	0	0.00	0	0	X	8	0
813	0.08	13	20	X	8	732	TRUNK K	0	0.00	0	0	X	8	0
0	0.00	0	0	X	8	0	TRUNK L	0	0.00	0	0	X	8	0

RETURN AIR TRUNK SIZE

	TRUNK	STATIC	ROUND	RECT		VELOCITY
	CFM	PRESS.	DUCT	DUCT		(ft/min)
TRUNK O	0	0.06	0	0	X	8
TRUNK P	0	0.06	0	0	X	8
TRUNK Q	0	0.06	0	0	X	8
TRUNK R	0	0.06	0	0	X	8
TRUNK S	0	0.06	0	0	X	8
TRUNK T	0	0.06	0	0	X	8
TRUNK U	0	0.06	0	0	X	8
TRUNK V	0	0.06	0	0	X	8
TRUNK W	0	0.06	0	0	X	8
TRUNK X	1131	0.06	15.8	30	X	8
TRUNK Y	795	0.06	13.8	22	X	8
TRUNK Z	0	0.06	0	0	X	8
DROP	1131	0.06	15.8	24	X	10

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24
AIR VOLUME	145	95	130	85	310	175	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
ACTUAL DUCT LGH.	43	58	47	57	25	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	175	160	190	185	190	185	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	218	218	237	242	215	209	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.07	0.07	0.06	0.06	0.07	0.07	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	6	7	6	9.4	7.5	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	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
INLET GRILL SIZE	14	14	14	14	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: MILLWOOD 1
SITE NAME: MINNISSALE HOMES CORP

LO # 79583

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	2	@ 10.6 cfm	21.2	cfm
Kitchen & Bathrooms	4	@ 10.6 cfm	42.4	cfm
Other Rooms	4	@ 10.6 cfm	42.4	cfm
Table 9.32.3.A.			TOTAL	148.4 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	63.6	cfm

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	148.4	cfm
Less Principal Ventil. Capacity	63.6	cfm
Required Supplemental Capacity	84.8	cfm

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

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM	ΔT °F	FACTOR	% LOSS
63.6 CFM	X 74 F	X 1.08	X 0.25

SUPPLEMENTAL FANS PANASONIC

Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	☒	0.3
BATH	FV-05-11VK1	50	☒	0.3
W/R	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 @ 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 #:

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: *Michael O'Rourke*
HRAI # 001820
Date: August-18

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

LO#: 79583

Model: MILLWOOD 1

Builder: GREENPARK HOMES

Date: 8/8/2018

Volume Calculation
House Volume

Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)
Bsmt	992	9	8928
First	992	10	9920
Second	1202	9	10818
Third	0	9	0
Fourth	0	9	0
Total:			29,666.0 ft ³
Total:			840.0 m ³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.354
SUMMER NATURAL AIR CHANGE RATE	0.115

Design Temperature Difference				
	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-19	41	74
Summer DTDc	24	30	6	11

5.2.3.1 Heat Loss due to Air Leakage

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

0.354 x 233.35 x 41°C x 1.2 = 4089 W

= 13952 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

0.115 x 233.35 x 6°C x 1.2 = 197 W

= 672 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

64 CFM x 74°F x 1.08 x 0.25 = 1274 Btu/h

6.2.7 Sensible heat Gain due to Ventilation

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

64 CFM x 11°F x 1.08 x 0.25 = 189 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)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{devel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HL _{devel})
1	0.5	13,952	7,449	0.937
2	0.3		10,289	0.407
3	0.2		9,780	0.285
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

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: MILLWOOD 1

BUILDER: GREENPARK HOMES

SFQT: 2194

LO# 79583

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:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	29666.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.95	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 44.0 ft	WIDTH: 32.0 ft	EXPOSED PERIMETER:	152.0 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	-

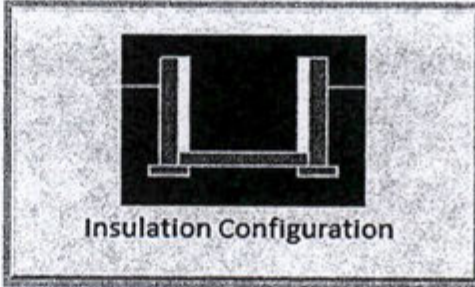
INDIVIDUAL BCIN: 19669

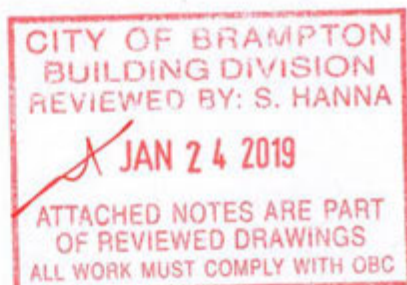
MICHAEL O'ROURKE

Michael O'Rourke

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

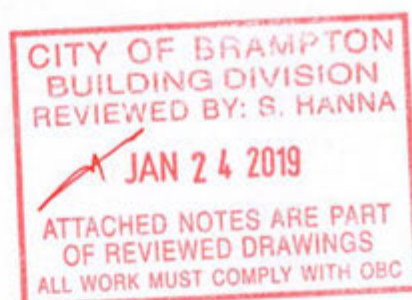
Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	13.4	 Insulation Configuration
Floor Width (m):	9.8	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	0.9	
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):	1518 ✓	

TYPE: MILLWOOD 1
LO# 79583

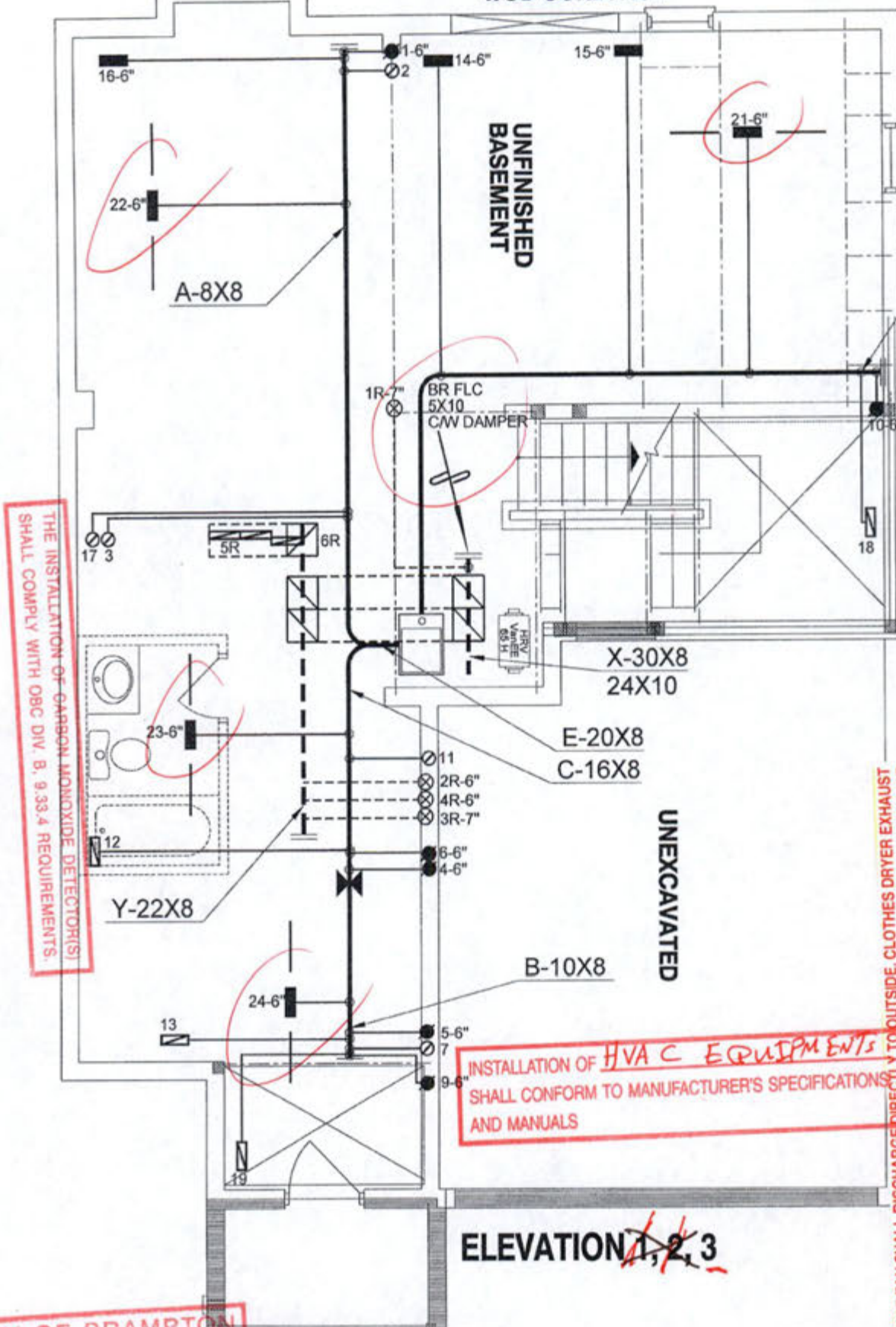
Air Infiltration Residential Load Calculator

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:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	7.62			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	840.0			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH) ✓			
Custom BDT Data:	ELA @ 10 Pa. 3.57	1119.8 cm ² ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply 30.0	Total Exhaust 30.0		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.354 ✓			
Cooling Air Leakage Rate (ACH/H):	0.115			

TYPE: MILLWOOD 1
LO# 79583

WOD CONDITION



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.

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

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 & 9.32.3.3. 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 SIA REGISTER AS REQUIRED IN ORDER TO ENSURE MIN 72degF - OBC DIV B 9.33.3.1(1). THE DOOR TO ANY ROOM WITHOUT RETURN AIR GRILLE. UNDERCUT BY MIN 1" THE DOOR SHALL BE CONNECTED TO THE MAIN R/A DUCT AT A HORIZONTAL DISTANCE OF MIN 6FT FROM THE CASING OF THE UNIT (HRAI DIGEST).

ELEVATION 1, 2, 3

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. HANNA

JAN 24 2019

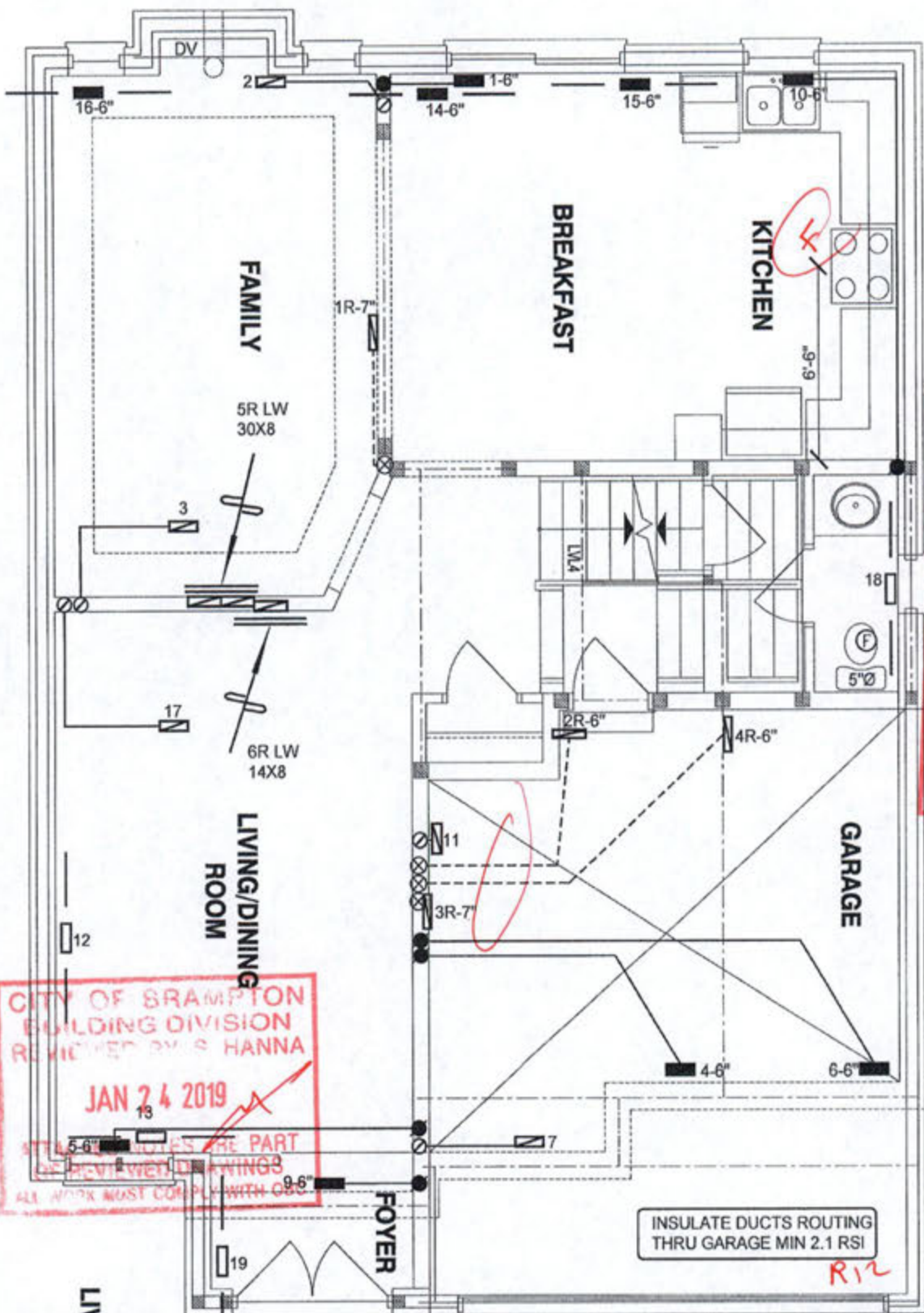
ATTACHED NOTES ARE PART
OF REVIEWED DRAWINGS

SHALL COMPLY WITH OBC

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 AS PER OBC Div B PART 6 REQUIREMENTS.

CSA-F280-12
PACKAGE A1

HVAC LEGEND						3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
—	FLOOR SUPPLY AIR GRILLE	—	8" SUPPLY AIR BOOT ABOVE	—	14"x4" RETURN AIR GRILLE	—	RETURN AIR STACK ABOVE
—	FLOOR SUPPLY AIR GRILLE 8" BOOT	—	30"x6" RETURN AIR GRILLE	—	RETURN AIR STACK 2nd FLOOR	1.	Description
—	SUPPLY AIR BOOT ABOVE	—	8" SUPPLY AIR STACK 2nd FLOOR	—	FRA- FLOOR RETURN AIR GRILLE	2.	Date
—		—		—	REDUCER	REVISIONS	
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Client GREENPARK HOMES		Project Name MINNISALE HOMES CORP. BRAMPTON, ONTARIO		HVAC DESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel: 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdsgns.ca Web: www.hvacdsgns.ca Specializing in Residential Mechanical Design Services		Heat Loss 43166 BTU/H UNIT DATA MAKE GOODMAN MODEL GMCC960603BNA INPUT 60 MBTUH OUTPUT 57.6 MBTUH COOLING 2.5 TONS FAN SPEED 1131 cfm @ 0.8" w.g.	
MILLWOOD 1		2194 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 space shall be adequately insulated and be gas-proofed.		# OF RUNS S/A R/A FANS 3RD FLOOR 2ND FLOOR 11 4 3 1ST FLOOR 7 2 2 BASEMENT 4 1 0 ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5" UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A	
						Sheet Title BASEMENT HEATING LAYOUT Date AUG/2018 Scale 3/16" = 1'-0" BCIN# 19669 LO# 79583	

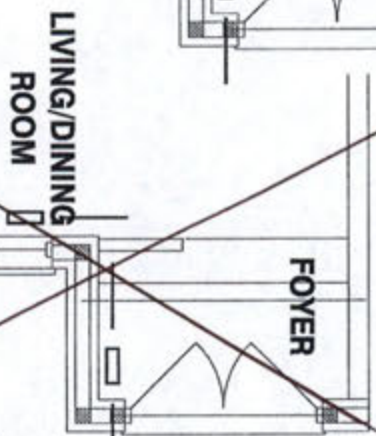


THIS INSTALLATION OF A GAS FIREPLACE IS REGULATED UNDER THE T.S.S.A. BY C.S.A. B149.1 NATURAL GAS AND PROPANE INSTALLATION CODE CALL ENBRIDGE FOR INSPECTION AT 1-800-785-1314

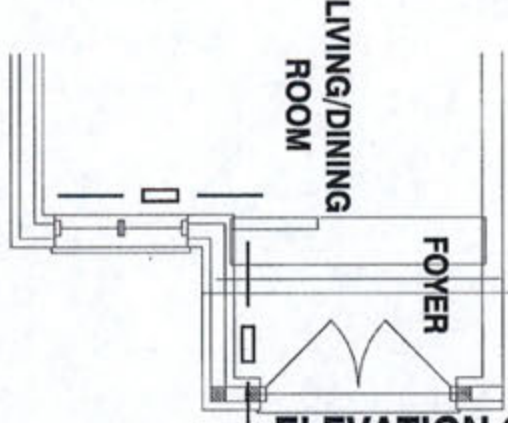
CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY S. HANNA
JAN 24 2019
STAMPED NOTES ARE PART
OF REVIEWED DRAWINGS
ALL WORK MUST COMPLY WITH CBC

INSULATE DUCTS ROUTING
THRU GARAGE MIN 2.1 RSI

ELEVATION 1



ELEVATION 2



ELEVATION 3

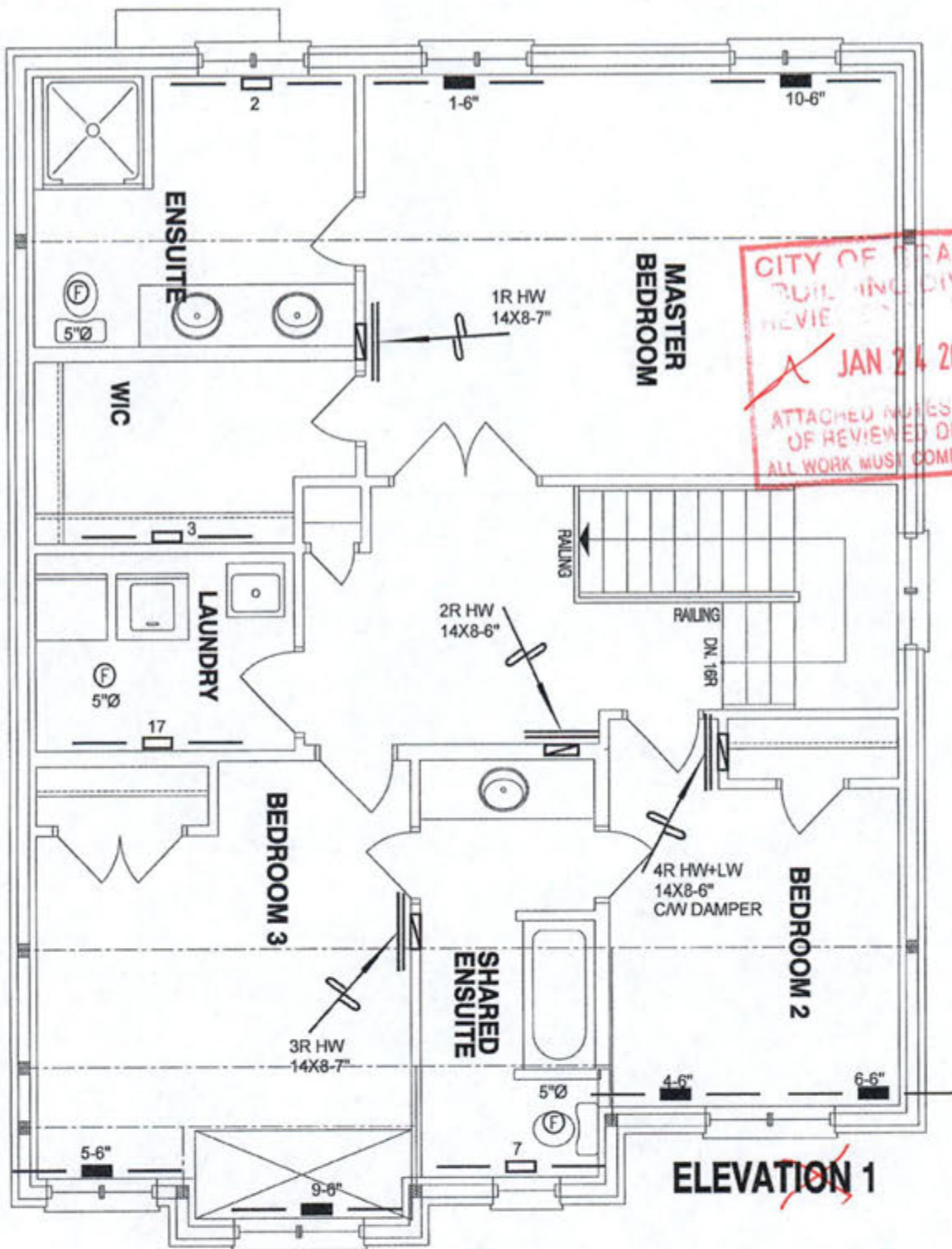
CSA-F280-12
PACKAGE A1

I AND MY TEAM HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION 4, 4.1.1 OF THE BUILDING CODE.
Michael Ormella, B.S.M. 1987
HVAC DESIGNS LTD.

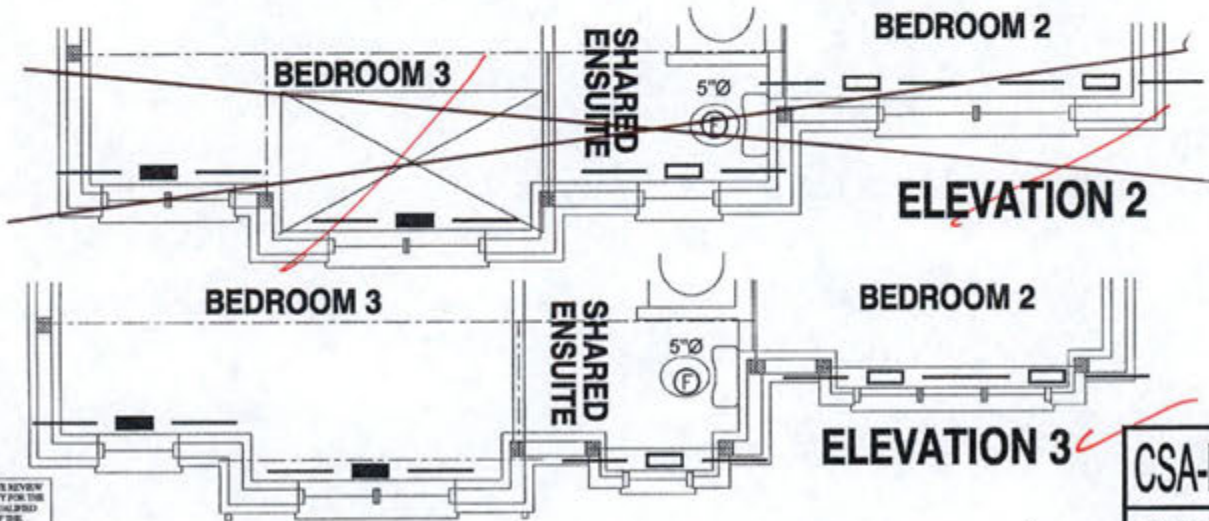
HVAC LEGEND						3.	
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

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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@hvacadesigns.ca Web: www.hvacadesigns.ca Specializing in Residential Mechanical Design Services	Sheet Title FIRST FLOOR HEATING LAYOUT
Project Name MINNISALE HOMES CORP. BRAMPTON, ONTARIO			
LOT 8 MILLWOOD 1 2194 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.	Date AUG/2018 Scale 3/16" = 1'-0" BCIN# 19669 LO# 79583



CITY OF BRAMPTON
BUILDING DIVISION
 REVIEWED BY: [Signature]
JAN 24 2019
 ATTACHED NOTES ARE PART
 OF REVIEWED DRAWINGS
 ALL WORK MUST COMPLY WITH OBC



I, the undersigned, have reviewed
 and take responsibility for the
 design work and am qualified
 under section 12.1 of the
 Building Code.
 [Signature]
 Michael Orsini, B2010 0887
 HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

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

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GREENPARK HOMES Project Name MINNISALE HOMES CORP. BRAMPTON, ONTARIO LOT 8 MILLWOOD 1		HVAC DESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacadesigns.ca Web: www.hvacadesigns.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 Date AUG/2018 Scale 3/16" = 1'-0" BCIN# 19669 LO# 79583	
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2194 sqft