

LOT 14

 SITE NAME: MINNISALE HOMES CORP
 BUILDER: GREENPARK HOMES

TYPE: GRANDBROOKE 1

GFA: 2312

 DATE: Aug-18
 LO# 79577

 WINTER NATURAL AIR CHANGE RATE 0.364
 SUMMER NATURAL AIR CHANGE RATE 0.115

 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	WIC	BED-2	BED-3	BED-4	BATH					
FACTORS			32	25	5	12	29	31	9					
GRS.WALL AREA	LOSS	GAIN	320	226	45	108	261	279	81					
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN				
NORTH	20.8	15.5	0	0	0	0	0	0	0	0				
EAST	20.8	41.9	32	665	1214	14	291	575	0	0				
SOUTH	20.8	24.4	0	0	0	0	0	0	0	0				
WEST	20.8	41.9	0	0	0	0	0	0	0	0				
SKYL.	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	288	1255	185	211	919	136	45	196	29	92	401	59
NET EXPOSED BENT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0		0	0	0
EXPOSED CLG	1.3	0.6	252	316	140	136	170	76	75	94	42	192	241	107
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0		30	81	36
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	0	0		0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	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			2235		1381		290		974		2264		2431	
SUB TOTAL HT GAIN				1648		787		71		557		2325		1208
LEVEL FACTOR / MULTIPLIER	0.20	0.26			0.20	0.26			0.20	0.26				0.20
AIR CHANGE HEAT LOSS			583		360		76		254		590		634	
AIR CHANGE HEAT GAIN				123		59		5		42		174		90
DUCT LOSS			0		0		0		0		0		306	
DUCT GAIN			0		0		0		0		0		214	
HEAT GAIN PEOPLE	240		2	480	0	0	0	0	1	240	1	240	1	240
HEAT GAIN APPLIANCES/LIGHTS				604	0	0	0	0		604		604		604
TOTAL HT LOSS BTU/H			2818		1740		366		1228		2854		3371	
TOTAL HT GAIN x 1.3 BTU/H				3700		1099		89		1875		4345		3063

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ROOM USE	EXP. WALL	CLG. HT.	LVIDN	KT/FM	LAUN	WIR	FOY	WOD	BAS
FACTORS			36	92	15	13	18	38	158
GRS.WALL AREA	LOSS	GAIN	360	920	135	130	198	342	1176
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	20.8	15.5	0	0	0	0	0	0	0
EAST	20.8	41.9	0	0	0	0	0	0	0
SOUTH	20.8	24.4	22	457	537	10	208	244	6
WEST	20.8	41.9	0	0	0	0	0	0	0
SKYL.	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	338	1473	218	820	3573	530	135
NET EXPOSED BENT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0
SUBTOTAL HT LOSS			1930		5755		3732		6755
SUB TOTAL HT GAIN				765		3732		491	491
LEVEL FACTOR / MULTIPLIER	0.30	0.44			0.30	0.44			0.30
AIR CHANGE HEAT LOSS			841		2508		258		258
AIR CHANGE HEAT GAIN				56		279		37	37
DUCT LOSS			0		0		0		0
DUCT GAIN			0		0		0		0
HEAT GAIN PEOPLE	240		0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				604	0	0	0	0	0
TOTAL HT LOSS BTU/H			2771		8263		1352		813
TOTAL HT GAIN x 1.3 BTU/H				1840		5999		117	117

TOTAL HEAT GAIN BTU/H:

25211

TONS: 2.10

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 43935

TOTAL COMBINED HEAT LOSS BTU/H: 45628

Michael O'Sourke

SITE NAME: MINNISALE HOMES CORP
BUILDER: GREENPARK HOMES

TYPE: GRANDBROOKE 1

DATE: Aug-18

GFA: 2312 LO# 79577

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 43,935 TOTAL HEAT GAIN 24,974
AIR FLOW RATE CFM 25.74 AIR FLOW RATE CFM 45.29

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
MEDIUM HIGH
HIGH 1131

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,800
DESIGN CFM = 1131
CFM @ 8" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	11	6	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.

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

RUN #	1	2	3	4	5	6	7	8	9	10	12	14	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	BED-4	BED-3	MBR	LV/DN	KT/FM	KT/FM	LAUN	W/R	FOY	KT/FM	BAS	BAS	BAS	BAS
RM LOSS MBH	1.41	1.74	0.37	1.23	1.43	1.69	0.79	1.69	1.43	1.41	2.77	2.75	2.75	1.35	0.81	2.55	2.75	3.76	3.76	3.76	3.76
CFM PER RUN HEAT	36	45	9	32	37	43	20	43	37	36	71	71	71	35	21	66	71	97	97	97	97
RM GAIN MBH	1.85	1.10	0.10	1.87	2.17	1.53	0.40	1.53	2.17	1.85	1.84	2.00	2.00	1.17	0.12	0.69	2.00	0.14	0.14	0.14	0.14
CFM PER RUN COOLING	84	50	4	85	98	69	18	69	98	84	83	91	91	53	5	31	91	7	7	7	7
ADJUSTED PRESSURE	0.16	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	70	57	13	6	52	51	12	50	46	36	7	33	45	21	24	34	40	43	20	19	15
EQUIVALENT LENGTH	150	170	190	170	150	140	140	140	190	130	120	140	160	170	140	170	150	140	140	170	130
TOTAL EFFECTIVE LENGTH	220	227	203	176	202	201	152	190	236	166	127	173	205	191	164	204	190	183	160	189	145
ADJUSTED PRESSURE	0.07	0.08	0.08	0.09	0.08	0.09	0.11	0.09	0.07	0.1	0.13	0.09	0.08	0.09	0.1	0.08	0.09	0.09	0.1	0.09	0.11
ROUND DUCT SIZE	6	5	4	6	6	5	4	5	6	6	6	6	6	5	4	5	6	6	6	6	6
HEATING VELOCITY (ft/min)	184	330	103	163	189	316	229	316	189	184	362	362	362	257	241	485	362	495	495	495	495
COOLING VELOCITY (ft/min)	428	367	46	433	500	507	207	507	500	428	423	464	464	389	57	228	464	36	36	36	36
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10
TRUNK	B	B	B	B	C	C	C	C	C	A	C	A	A	C	C	C	A	A	B	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)
TRUNK A	346	0.08	9.4	10	x	8	623	0	8
TRUNK B	662	0.07	12.4	18	x	8	662	0	8
TRUNK C	470	0.07	10.9	16	x	8	529	0	8
TRUNK D	0	0.00	0	0	x	8	0	0	8
TRUNK E	0	0.00	0	0	x	8	0	0	8
TRUNK F	0	0.00	0	0	x	8	0	0	8
TRUNK G	0	0.00	0	0	x	8	0	0	8
TRUNK H	0	0.00	0	0	x	8	0	0	8
TRUNK I	0	0.00	0	0	x	8	0	0	8
TRUNK J	0	0.00	0	0	x	8	0	0	8
TRUNK K	0	0.00	0	0	x	8	0	0	8
TRUNK L	0	0.00	0	0	x	8	0	0	8

RETURN AIR TRUNK SIZE

TRUNK	STATIC	ROUND	RECT	VELOCITY
CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK O	0	0.06	0	0
TRUNK P	0	0.06	0	0
TRUNK Q	0	0.06	0	0
TRUNK R	0	0.06	0	0
TRUNK S	0	0.06	0	0
TRUNK T	0	0.06	0	0
TRUNK U	0	0.06	0	0
TRUNK V	0	0.06	0	0
TRUNK W	0	0.06	0	0
TRUNK X	1131	0.06	15.8	30
TRUNK Y	145	0.06	7.3	6
TRUNK Z	0	0.06	0	0
DROP	1131	0.06	15.8	24

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	0	0	0	0	0	0	0	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
ACTUAL DUCT LGH	72	39	46	61	29	17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	175	175	175	175	145	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LENGTH	247	214	221	236	174	152	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.07	0.07	0.06	0.09	0.10	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	14.80
ROUND DUCT SIZE	6.9	7.5	6	6	6.6	8.6	0	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	0
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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

LO#: 79577

Model: GRANDBROOKE 1

Builder: GREENPARK HOMES

Date: 8/7/2018

Volume Calculation
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1016	9	9144
First	1016	10	10160
Second	1296	9	11664
Third	0	9	0
Fourth	0	9	0
Total:			30,968.0 ft³
Total:			876.9 m³

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

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

$$0.354 \times 243.59 \times 41^\circ\text{C} \times 1.2 = 4269 \text{ W}$$

$$= 14564 \text{ Btu/h}$$

6.2.6 Sensible Gain due to Air Leakage

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

$$0.115 \times 243.59 \times 6^\circ\text{C} \times 1.2 = 206 \text{ W}$$

$$= 702 \text{ Btu/h}$$

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

$$80 \text{ CFM} \times 74^\circ\text{F} \times 1.08 \times 0.25 = 1593 \text{ Btu/h}$$

6.2.7 Sensible heat Gain due to Ventilation

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

$$80 \text{ CFM} \times 11^\circ\text{F} \times 1.08 \times 0.25 = 236 \text{ Btu/h}$$

5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

$$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) + (HL_{agclevel} + HL_{bgclevel})\}$$

Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	14,564	7,742	0.941
2	0.3		10,024	0.436
3	0.2		11,176	0.261
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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TYPE: GRANDBROOKE 1
SITE NAME: MINNISALE HOMES CORP

LO # 79577

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	4	@ 10.6 cfm	42.4	cfm
Other Rooms	5	@ 10.6 cfm	42.4	cfm
Table 9.32.3.A.	TOTAL		159.0	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	159	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	79.5	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	74 F	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
WIR	FV-05-11VK1	50	✓	0.3

HEAT RECOVERY VENTILATOR 9.32.3.11.
Model: VANE 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 #: 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: August-18

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** GRANDBROOKE 1**BUILDER:** GREENPARK HOMES**SFQT:** 2312**LO#** 79577**SITE:** MINNISALE 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

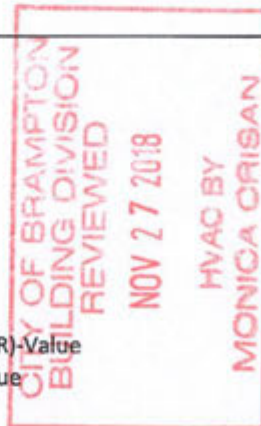
ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	30968.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 53.0 ft	WIDTH: 26.0 ft	EXPOSED PERIMETER:	158.0 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

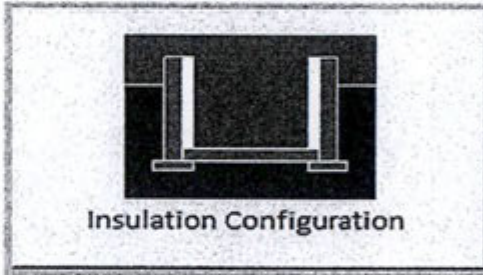
**Compliance Package
A1**

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

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):	16.2	 Insulation Configuration
Floor Width (m):	7.9	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	0.6	
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):	1584	

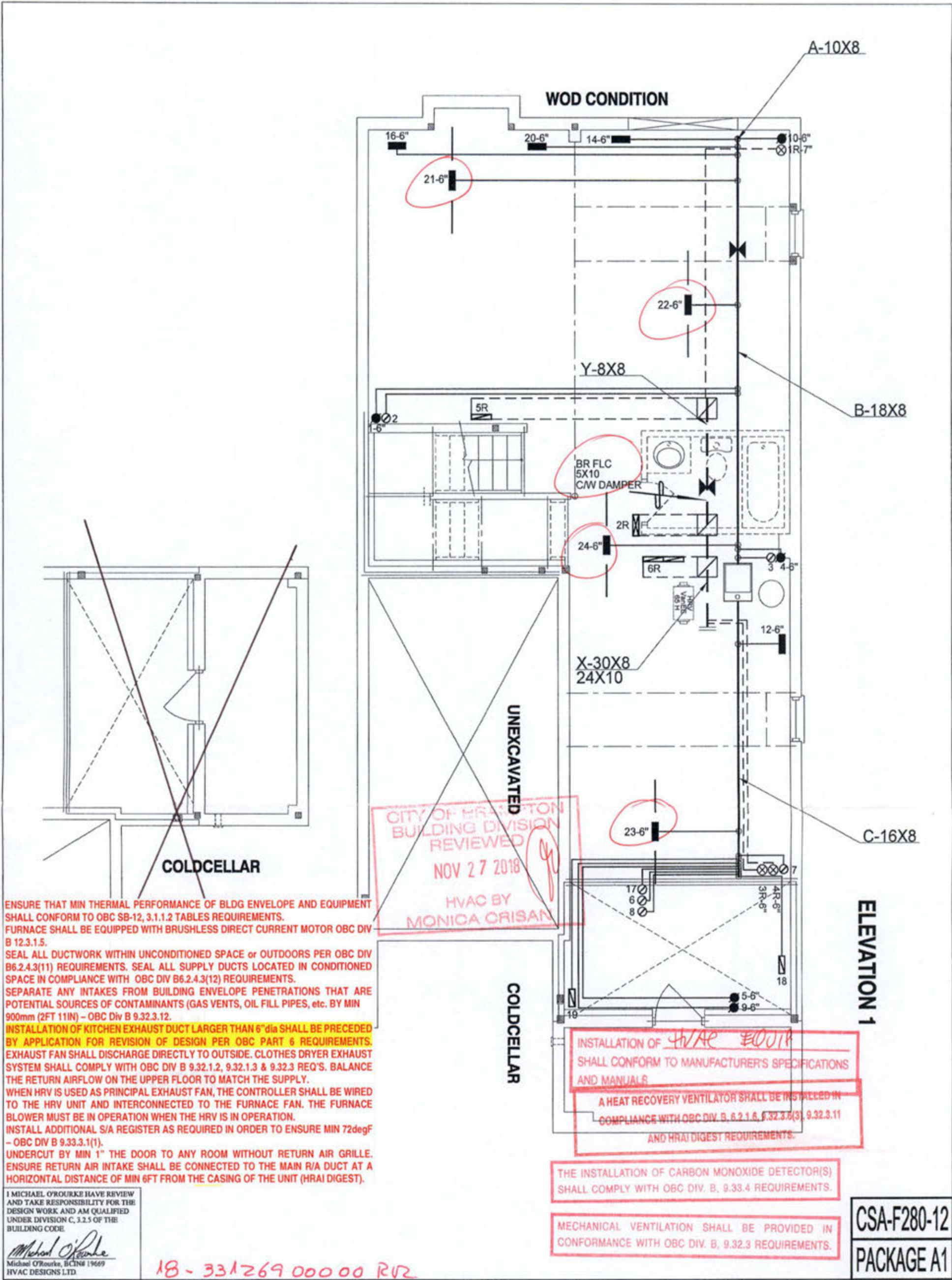
TYPE: GRANDBROOKE 1
LO# 79577CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED
NOV 27 2018
HVAC BY
MONICA CRISAN

Air Infiltration Residential Load Calculator

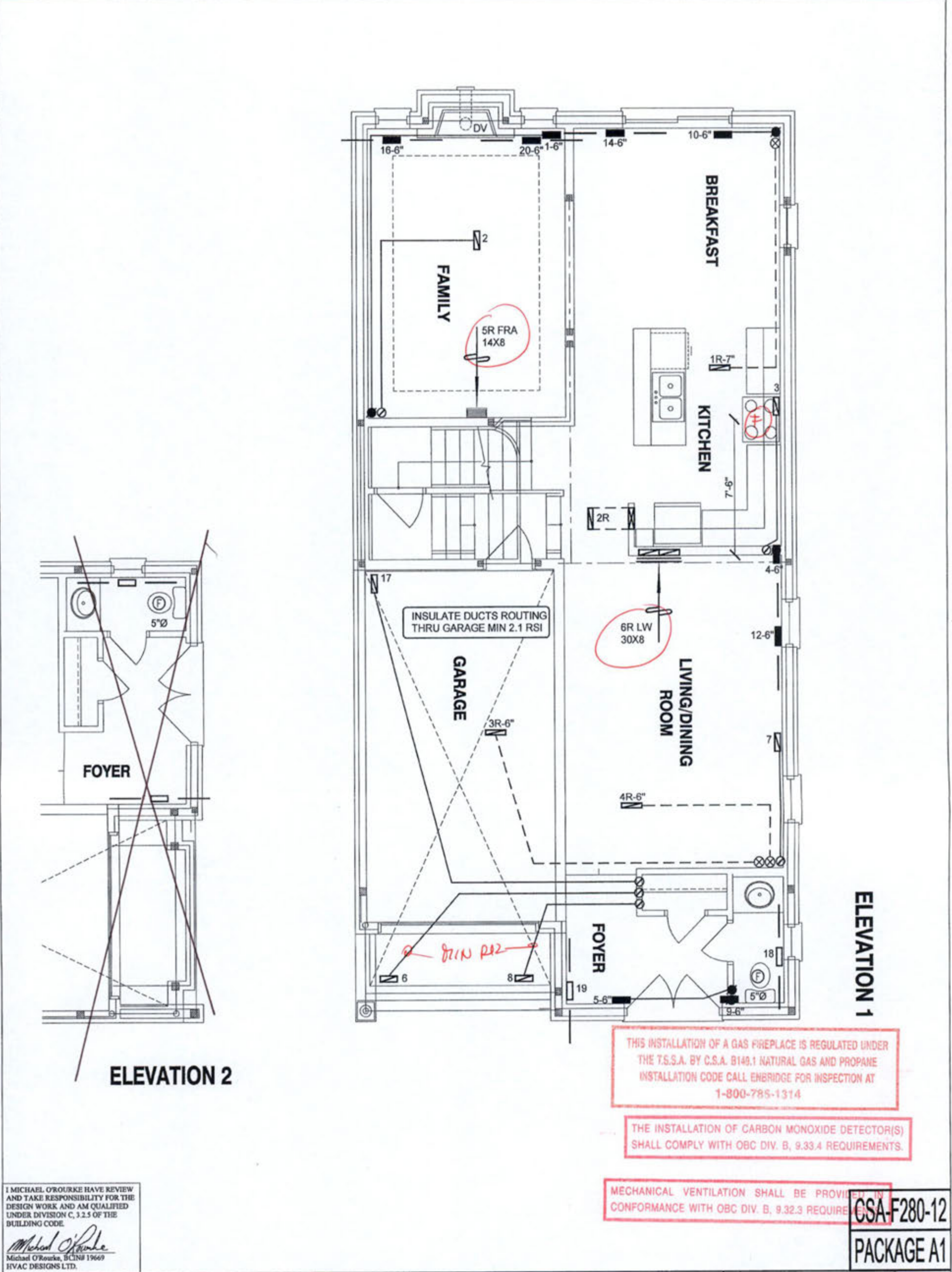
Supplemental tool for CAN/CSA-F280

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):	876.9			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1169.0 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):	0.354			
Cooling Air Leakage Rate (ACH/H):	0.115			

TYPE: GRANDBROOKE 1
LO# 79577



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"x6" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description Date	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		
ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD. AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.										
Client		375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.			HEAT LOSS 45528 BTU/H		# OF RUNS S/A R/A FANS		Sheet Title	
GREENPARK HOMES					UNIT DATA		3RD FLOOR		BASEMENT HEATING LAYOUT	
Project Name					GOODMAN		2ND FLOOR 11 4 3		Date AUG/2018	
MINNISALE HOMES CORP.					MODEL GMEC960603BNA-60		1ST FLOOR 6 2 2		Scale 3/16" = 1'-0"	
BRAMPTON, ONTARIO					INPUT 60 MBTUH		BASEMENT 4 1 0		BCIN# 19669	
LOT 14		OUTPUT 57.6 MBTUH		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		LO# 79577				
GRANDBROOKE 1 2312 sqft		COOLING 2.0 TONS								
		FAN SPEED 1131 cfm @ 0.6" w.c.								



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.

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

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.

CSA-F280-12
PACKAGE A1

HVAC LEGEND								3.	
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								Date	

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Client

GREENPARK HOMES

Project Name

MINNISALE HOMES CORP.
BRAMPTON, ONTARIO

LOT 14

GRANDBROOKE 1 2312 sqft

HVAC DESIGNS LTD.

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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.

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MONICA CRISAN

Sheet Title

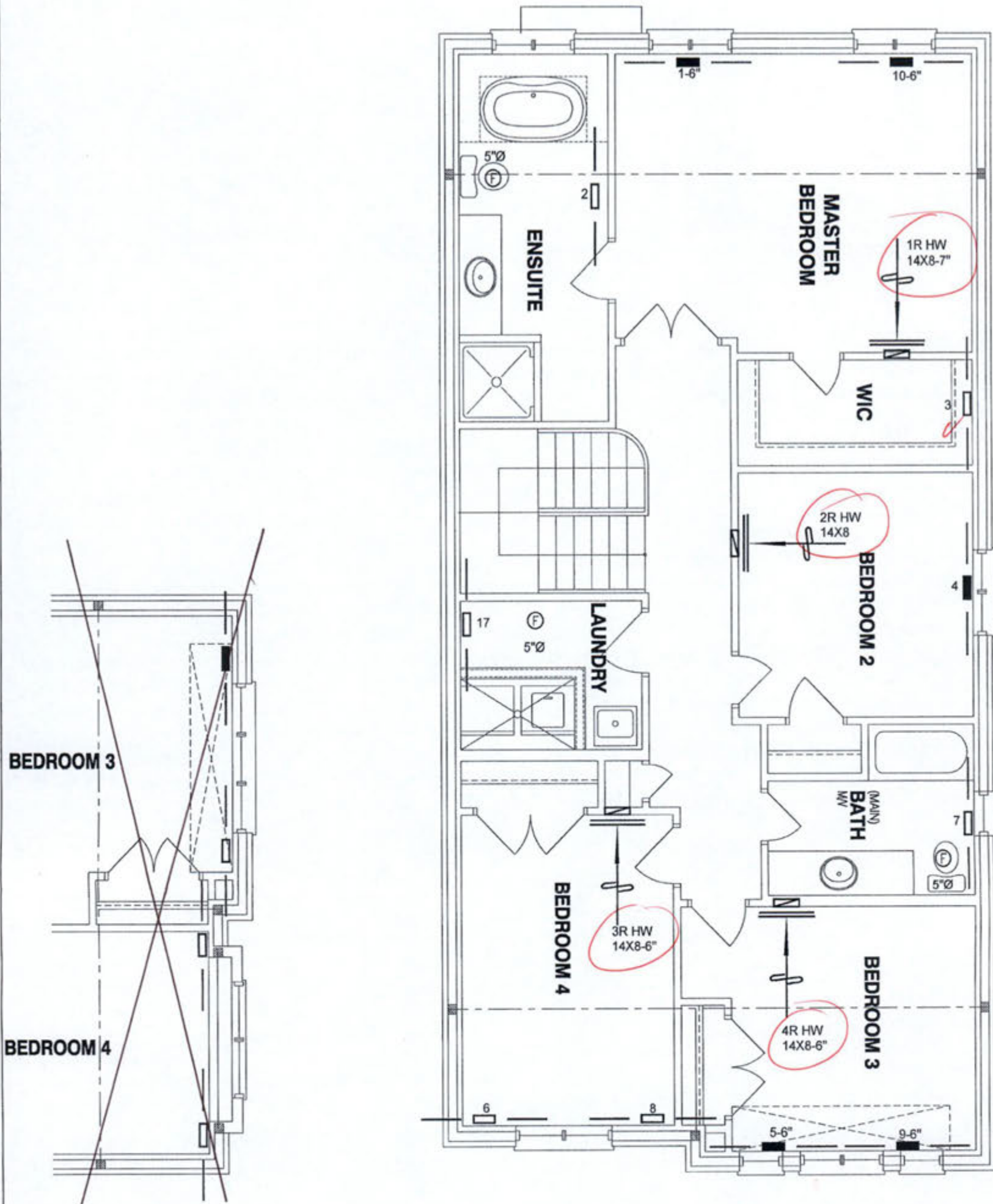
FIRST FLOOR
HEATING
LAYOUT

Date **AUG/2018**

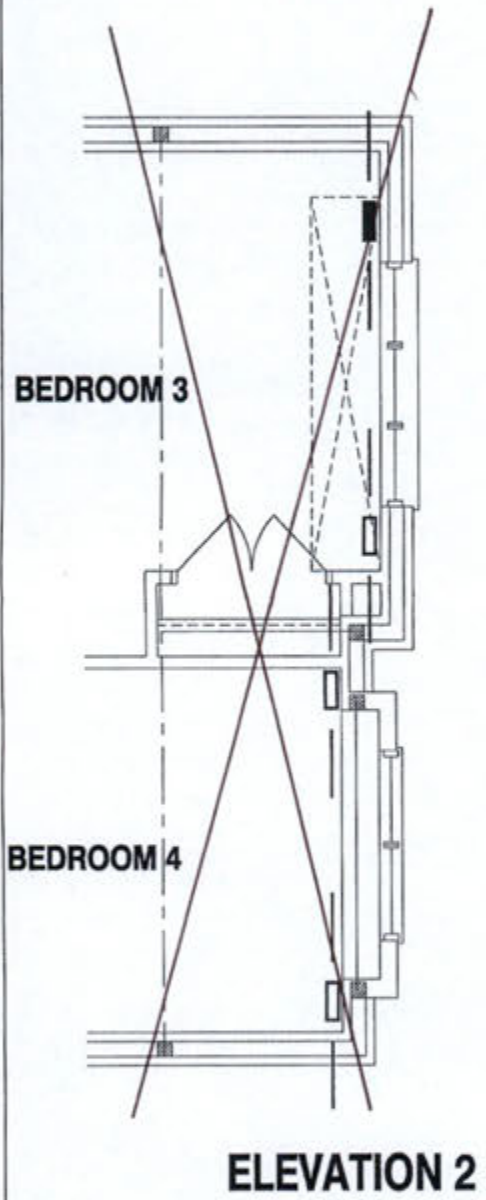
Scale **3/16" = 1'-0"**

BCIN# **19669**

LO# **79577**



ELEVATION 1



ELEVATION 2

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CSA-F280-12
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Sheet Title

SECOND FLOOR
HEATING
LAYOUT

Date **AUG/2018**

Scale **3/16" = 1'-0"**

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LO# **79577**