

SITE NAME: MINNISSALE HOMES CORP
BUILDER: GREENPARK HOMESOPT BED 4
TYPE: HEMLOCK 3

GFA: 1928

DATE: Aug-18
LO# 79573WINTER NATURAL AIR CHANGE RATE 0.367
SUMMER NATURAL AIR CHANGE RATE 0.115HEAT LOSS AT °F. 74
HEAT GAIN AT °F. 11CSA-F280-12
SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS	GAIN	MBR	ENS	BED-2	BED-3	BED-4	BATH
EXP. WALL	28					23		22	44	13	11
CLG. HT.	9					9		9	9	9	9
GRS.WALL AREA	252					207		198	396	117	99
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	LOSS	LOSS	LOSS	LOSS
NORTH	20.8	15.5	0	0	0	0	0	0	0	0	0
EAST	20.8	41.0	0	0	0	0	0	18	374	739	30
SOUTH	20.8	24.4	0	0	0	0	0	0	0	0	0
WEST	20.8	41.0	18	374	739	14	291	0	0	0	0
SKYLT.	36.4	100.7	0	0	0	0	0	0	0	0	0
DOORS	24.7	3.7	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.4	0.6	234	1020	151	193	841	180	784	116	366
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	210	263	117	112	140	100	125	56	183
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	84	209	31	0
BASEMENT/CRAWL HEAT LOSS	0							0	0	0	0
SLAB ON GRADE HEAT LOSS	0							0	0	0	0
SUBTOTAL HT LOSS	1657					1272		1493	2576	1148	855
SUB TOTAL HT GAIN			1007			762		942	1627	787	507
LEVEL FACTOR / MULTIPLIER	0.20	0.29				0.20	0.29	0.20	0.29	0.20	0.29
AIR CHANGE HEAT LOSS	483					371		435	751	335	249
AIR CHANGE HEAT GAIN	65					49		61	106	51	33
DUCT LOSS	0					0		193	0	0	110
DUCT GAIN	0					0		177	0	0	54
HEAT GAIN PEOPLE	240	2	480	0	0	0		1	240	1	240
HEAT GAIN APPLIANCES/LIGHTS	524					0		524	524	524	524
TOTAL HT LOSS BTU/H	2139					1643		2120	3327	1483	1215
TOTAL HT GAIN x 1.3 BTU/H	2699					1055		2527	3246	2083	772

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS	GAIN	LIV	KT/FM	WIR	FOY	WOO	BAS
EXP. WALL	60					10	51	11	12	36	132
CLG. HT.	10						10	10	10	9	9
GRS.WALL AREA	600						510	110	120	324	1008
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	LOSS	LOSS	LOSS	LOSS
NORTH	20.8	15.5	0	0	0	0	0	0	0	0	0
EAST	20.8	41.0	26	540	1067	50	1039	0	0	0	0
SOUTH	20.8	24.4	21	436	512	0	0	0	0	0	0
WEST	20.8	41.0	0	0	0	46	956	0	0	0	0
SKYLT.	36.4	100.7	0	0	0	0	0	0	0	0	0
DOORS	24.7	3.7	0	0	0	20	493	20	493	73	20
NET EXPOSED WALL	4.4	0.6	553	2409	357	394	1717	90	392	58	97
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	55	148	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	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	3386					4352		885	978	862	4664
SUB TOTAL HT GAIN			1937			4324		131	259	356	362
LEVEL FACTOR / MULTIPLIER	0.30	0.41				0.30	0.41	0.30	0.41	0.50	0.99
AIR CHANGE HEAT LOSS	1388					1784		363	401	6558	47
AIR CHANGE HEAT GAIN	126					282		9	17	0	0
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	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	524					524		0	0	0	0
TOTAL HT LOSS BTU/H	4774					6135		1248	1379	862	12314
TOTAL HT GAIN x 1.3 BTU/H	3362					6681		182	358	462	1212

TOTAL HEAT GAIN BTU/H:

24874

TONS: 2.07

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 38640

TOTAL COMBINED HEAT LOSS BTU/H: 40232

Michael O'Rourke

SITE NAME: MINNISALE HOMES CORP
BUILDER: GREENPARK HOMES

OPT BED 4
TYPE: HEMLOCK 3

DATE: Aug-18

GFA: 1928 LO# 79573

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 38,640 TOTAL HEAT GAIN 24,638
AIR FLOW RATE CFM 29.27 AIR FLOW RATE CFM 45.9

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) = 57,600

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

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	9	7	4
R/A	0	0	3	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	4	5	6	7	8	10	12	13	14	15	16	17	18	19	21	22	23	24
ROOM NAME	MBR	ENS	BED-2	BED-3	BED-2	BATH	BED-3	MBR	LIV	LIV	KT/FM	KT/FM	KT/FM	BED-4	W/R	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH	1.07	1.64	1.06	1.66	1.06	1.22	1.66	1.07	2.39	2.39	2.05	2.05	2.05	1.48	1.25	1.38	3.29	3.29	3.29	3.29
CFM PER RUN HEAT	31	48	31	49	31	36	49	31	70	70	60	60	60	43	37	40	96	96	96	96
RM GAIN MBH	1.35	1.05	1.26	1.62	1.26	0.77	1.62	1.35	1.68	1.68	2.23	2.23	2.23	2.08	0.18	0.36	0.42	0.42	0.42	0.42
CFM PER RUN COOLING	62	48	58	74	58	35	74	62	77	77	102	102	102	96	8	16	19	19	19	19
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	30	47	36	63	39	24	56	35	38	50	38	31	22	50	25	48	26	15	45	28
EQUIVALENT LENGTH	120	190	150	180	150	140	180	160	90	150	140	170	110	130	140	160	150	110	150	150
TOTAL EFFECTIVE LENGTH	150	237	186	243	189	164	236	195	128	200	178	201	132	180	165	208	176	125	195	178
ADJUSTED PRESSURE	0.11	0.07	0.09	0.07	0.09	0.1	0.07	0.09	0.13	0.09	0.09	0.08	0.12	0.09	0.1	0.08	0.09	0.13	0.08	0.09
ROUND DUCT SIZE	5	5	5	5	5	4	5	5	5	5	6	6	6	6	4	4	6	6	6	6
HEATING VELOCITY (ft/min)	228	352	228	360	228	413	360	228	514	514	306	306	306	219	424	459	489	489	489	489
COOLING VELOCITY (ft/min)	455	352	426	543	426	402	543	455	565	565	520	520	520	489	92	184	97	97	97	97
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	D	B	D	A	D	D	A	D	B	A	C	C	D	B	B	A	C	D	A	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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ATTACHED NOTES ARE PART
OF REVIEWED DRAWINGS
ALL WORK MUST COMPLY WITH O.C.
MAR 05 2019
CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI

SUPPLY AIR TRUNK SIZE

TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	304	0.07	9.3	10	x 8 547
TRUNK B	598	0.07	12	16	x 8 673
TRUNK C	216	0.08	7.9	8	x 8 486
TRUNK D	1130	0.07	15.2	26	x 8 782
TRUNK E	0	0.00	0	0	x 8 0
TRUNK F	0	0.00	0	0	x 8 0

RETURN AIR TRUNK SIZE

TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
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
TRUNK O	0	0.05	0	0	x 8 0
TRUNK P	0	0.05	0	0	x 8 0
TRUNK Q	0	0.05	0	0	x 8 0
TRUNK R	0	0.05	0	0	x 8 0
TRUNK S	0	0.05	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	1131	0.05	16.5	30	x 8 679
TRUNK Y	0	0.05	0	0	x 8 0
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	8	9	10	11	12	13	14	15	16	17	18	19	20
AIR VOLUME	115	125	125	345	240	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
ACTUAL DUCT LGH	46	51	70	12	42	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	260	215	175	145	255	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	306	266	245	157	297	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.05	0.06	0.06	0.09	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
ROUND DUCT SIZE	7	6.9	6.9	9.1	9.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	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	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: HEMLOCK 3
SITE NAME: MINNISSALE HOMES CORP

LO # 79573
OPT BED 4

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	4.2	@ 10.6 cfm	44.5	cfm
Table 9.32.3.A.		TOTAL	161.1	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	80	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	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
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 ☒ HVI Approved
@ 32 deg F (0 deg C)

LOCATION OF INSTALLATION
Lot: _____
Township: _____
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: _____
HRAJ #: 001820
Date: August-18

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

LO#: 79573

Model: HEMLOCK 3

Builder: GREENPARK HOMES

Date: 8/3/2018

Volume Calculation
Air Change & Delta T Data
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	969	9	8721
First	959	10	9590
Second	959	9	8631
Third	0	9	0
Fourth	0	9	0
Total:			26,942.0 ft³
Total:			762.9 m³

WINTER NATURAL AIR CHANGE RATE	0.367
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
6.2.6 Sensible Gain due to Air Leakage

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

$$0.367 \times 211.92 \times 41^\circ\text{C} \times 1.2 = 3844 \text{ W}$$

$$= 13116 \text{ Btu/h}$$

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

$$0.115 \times 211.92 \times 6^\circ\text{C} \times 1.2 = 179 \text{ W}$$

$$= 609 \text{ Btu/h}$$

5.2.3.2 Heat Loss due to Mechanical Ventilation
6.2.7 Sensible heat Gain due to Ventilation

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

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

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

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

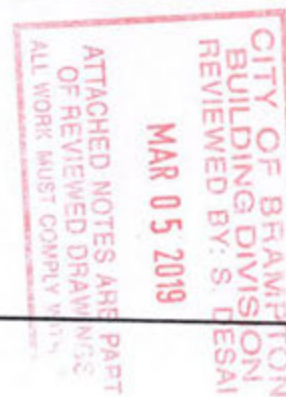
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

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

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	13,116	6,618	0.991
2	0.3		9,601	0.410
3	0.2		9,001	0.291
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: HEMLOCK 3	OPT BED 4	BUILDER: GREENPARK HOMES
SFQT: 1928	LO# 79573	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:	ATTACHED	# 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):	26942.0	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: 50.0 ft	WIDTH: 26.0 ft	EXPOSED PERIMETER:	132.0 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**

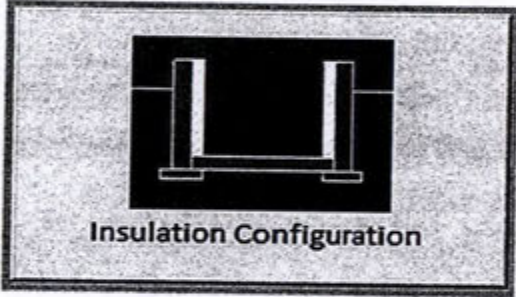
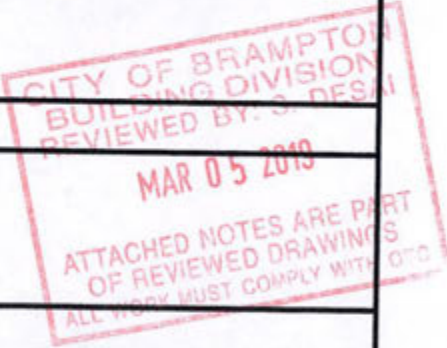
Nominal	Min. Eff.
60 ✓	59.22
31 ✓	27.65
31 ✓	29.80
22 ✓	17.03
20 ci ✓	21.12
-	-
10 ✓	10
10 ✓	11.13
0.28 ✓	-
0.49 ✓	-
0.96 ✓	-
75% ✓	-
0.8	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

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):	15.2	 Insulation Configuration
Floor Width (m):	7.9	
Exposed Perimeter (m):	40.2	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.3	
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):		1308

TYPE: HEMLOCK 3
LO# 79573

OPT BED 4

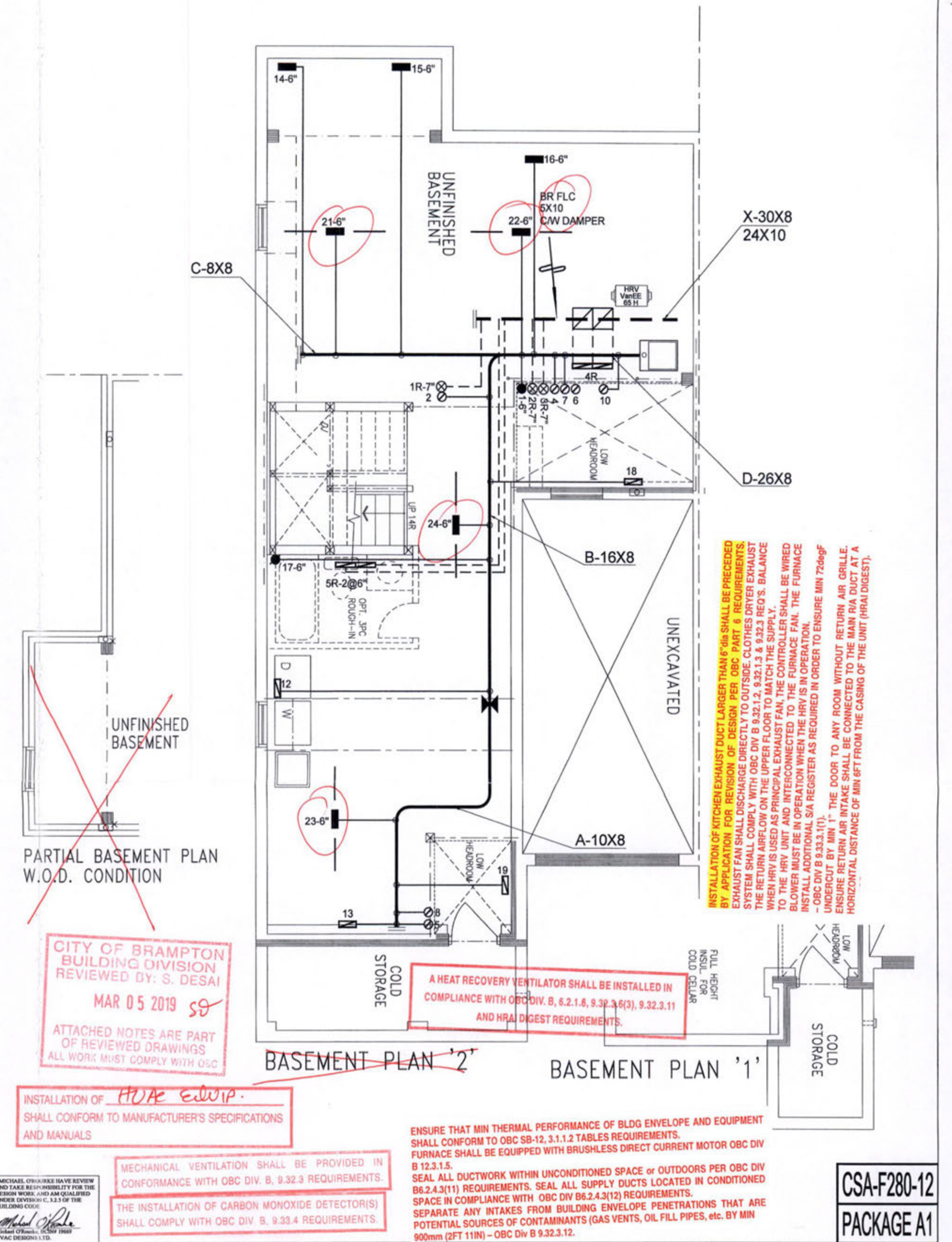
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280 --

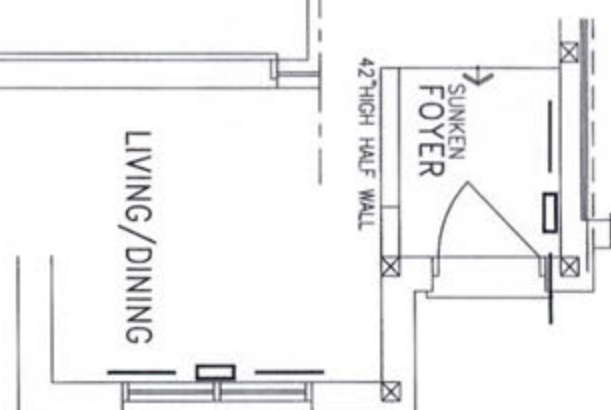
Weather Station Description			
Province:	Ontario		
Region:	Brampton		
Weather Station Location:	Open flat terrain, grass		
Anemometer height (m):	10		
Local Shielding			
Building Site:	Suburban, forest		
Walls:	Heavy		
Flue:	Heavy		
Highest Ceiling Height (m):	7.62		
Building Configuration			
Type:	Semi		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	762.9		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1017.0 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
Diameter (mm):	0	0	0
	#4	0	
Natural Infiltration Rates			
Heating Air Leakage Rate (ACH/H):	0.367		
Cooling Air Leakage Rate (ACH/H):	0.115		

TYPE: HEMLOCK 3
LO# 79573

OPT BED 4



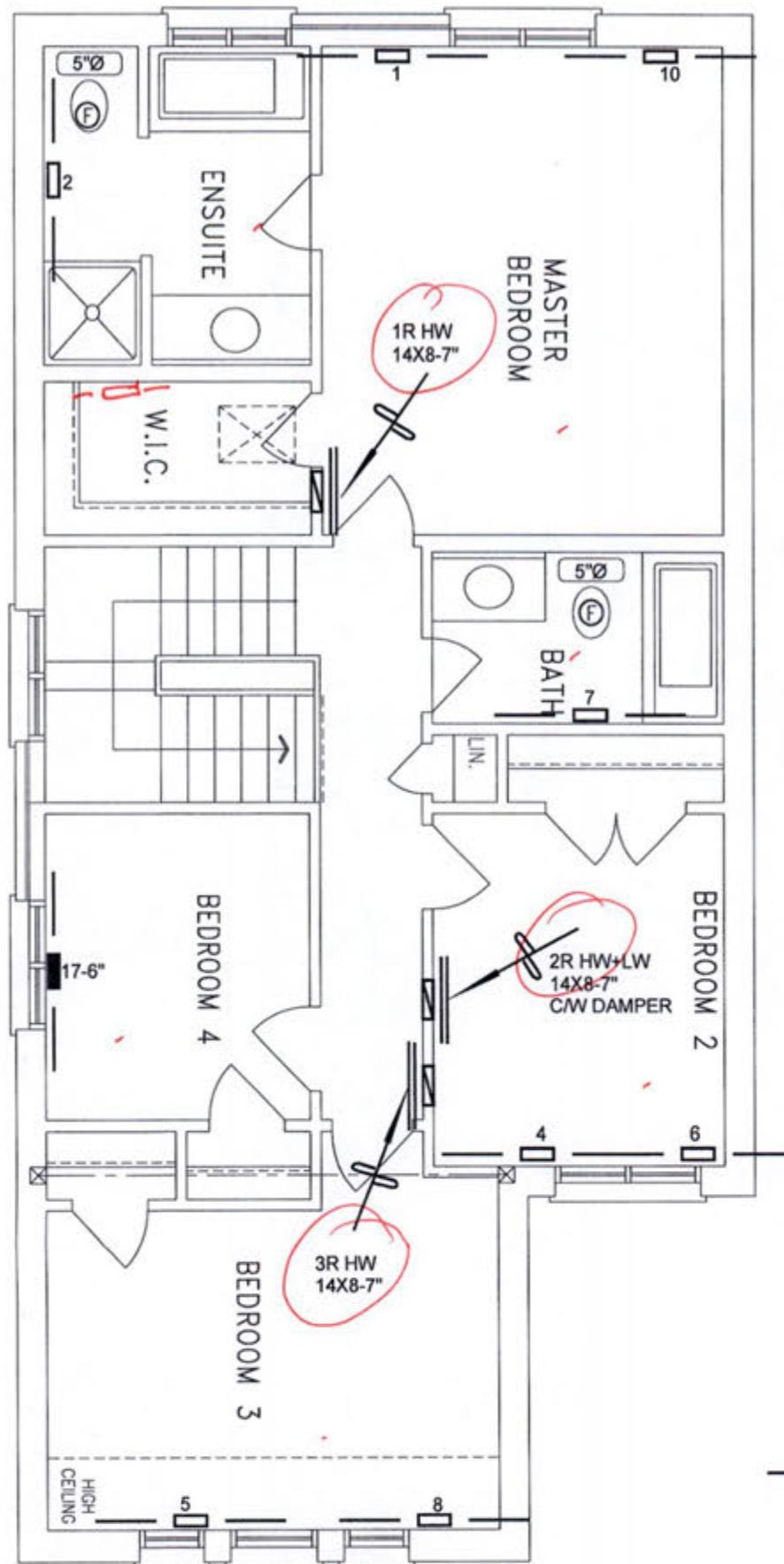
HVAC LEGEND							3.				
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.			
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.			
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description Date		
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS			
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 40232 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		Sheet Title BASEMENT HEATING LAYOUT Date AUG/2018 Scale 3/16" = 1'-0" BCIN# 19669 LO# 79573	
GREENPARK HOMES						MAKE GOODMAN		3RD FLOOR			
Project Name						MODEL GMEC90603BNA-60		2ND FLOOR 9 3 2			
MINNISALE HOMES CORP BRAMPTON, ONTARIO						INPUT 60 MBTU/H		1ST FLOOR 7 2 2			
OPT 4 BED HEMLOCK 3						OUTPUT 57.6 MBTU/H		BASEMENT 4 1 0			
1928 sqft		COOLING 2.0 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							
		FAN SPEED 1131 cfm @ 0.5" w.c.									



GROUND FLOOR PLAN '1'

CSA-F280-12
PACKAGE A1

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	MINNISALE HOMES CORP BRAMPTON, ONTARIO		Date	AUG/2018	
			Scale	3/16" = 1'-0"	
				BCIN# 19669	
OPT 4 BED HEMLOCK 3	1928 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.	LO#	79573	



CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
MAR 05 2019
ATTACHED NOTES ARE PART
OF REVIEWED DRAWINGS
ALL WORK MUST COMPLY WITH OBC

~~OPTIONAL SECOND FLOOR PLAN '2'~~
(4 BEDROOM)

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.

~~OPTIONAL SECOND FLOOR PLAN '1'~~
(4 BEDROOM)

CSA-F280-12
PACKAGE A1

I MICHAEL O'BRIEN HAVE REVIEWED
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C, 3.2.3 OF THE
BUILDING CODE.
Michael O'Brien, M.Sc. 1969
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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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 MINNISALE HOMES CORP BRAMPTON, ONTARIO			
OPT 4 BED HEMLOCK 3	1928 sqft		Date AUG/2018
			Scale 3/16" = 1'-0"
			BCIN# 19669
			LO# 79573