

LOT 15

SITE NAME: MINNISALE HOMES CORP

BUILDER: GREENPARK HOMES

TYPE: MILLWOOD 6

GFA: 3114

DATE: Aug-18

LO# 79587

WINTER NATURAL AIR CHANGE RATE 0.354

HEAT LOSS AT °F. 74

CSA-F280-12

SUMMER NATURAL AIR CHANGE RATE 0.115

HEAT GAIN AT °F. 11

SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-3	WIC-2	ENS-4	ENS-2		
FACTORS	34	9	24	9	12	32	36	14	9	6	9	9		
GRS.WALL AREA	LOSS	GAIN	306	216	188	288	324	126	81	54	54	90		
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN		
NORTH	20.8	15.5	0	0	0	7	145	108	0	0	0	0	7	145
EAST	20.8	41.9	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	20.8	24.4	0	0	0	0	0	0	0	0	0	0	0	0
WEST	20.8	41.9	32	655	1314	21	436	862	0	0	0	0	0	0
SKYLT.	36.4	100.7	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	24.7	3.7	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.4	0.5	274	1194	177	188	819	121	101	440	65	252	1058	163
NET EXPOSED BMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.5	280	351	156	144	180	80	171	214	56	155	155	87
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	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	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			2209		1581		766		2745		2306		1163	
SUB TOTAL HT GAIN				1647		1172		254		1877		1758		617
LEVEL FACTOR / MULTIPLIER	0.20	0.30		0.20	0.30		0.20	0.30		0.20	0.30		0.20	0.30
AIR CHANGE HEAT LOSS			647		477		231		828		696		351	
AIR CHANGE HEAT GAIN				126		90		19		144		138		47
DUCT LOSS			0		0		0		357		0		0	
DUCT GAIN			0		0		0		310		0		0	
HEAT GAIN PEOPLE	240		2	480	0	0	0	0	1	240	1	240	1	240
HEAT GAIN APPLIANCES/LIGHTS				843	0	0	0	0		843		843		843
TOTAL HT LOSS BTU/H			2876		2059		997		3930		3002		1513	
TOTAL HT GAIN x 1.3 BTU/H				4624		1640		365		4438		3925		3925

ROOM USE	EXP. WALL	CLG. HT.	LVDN	OFF	KIT	FAM	LAUN	WIR	FOY										
FACTORS	19	10	27	10	40	39	30	13	18										
GRS.WALL AREA	LOSS	GAIN	190	270	400	390	300	130	180										
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	20.8	15.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	20.8	41.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	20.8	24.4	40	831	976	16	332	390	6	125	246	6	125	246	6	125	246	6	125
WEST	20.8	41.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SKYLT.	36.4	100.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	24.7	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.4	0.5	150	654	97	254	1107	164	367	1699	237	362	1577	234	273	1189	176	121	627
NET EXPOSED BMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	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	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			1485		1439		2328		2106		1828		714		1695		479		479
SUB TOTAL HT GAIN				1073		554		1611		1395		368		448		479		479	
LEVEL FACTOR / MULTIPLIER	0.30	0.51		0.30	0.51		0.30	0.51		0.30	0.51		0.30	0.51		0.30	0.51		0.30
AIR CHANGE HEAT LOSS			762		738		1194		1121		938		366		865		865		865
AIR CHANGE HEAT GAIN				82		42		123		107		27		34		37		37	
DUCT LOSS			0		0		0		0		0		0		0		0		0
DUCT GAIN			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	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				843		843		843		843		843		843		843		843	
TOTAL HT LOSS BTU/H			2246		2177		3522		3307		2766		1081		2664		670		670
TOTAL HT GAIN x 1.3 BTU/H				2597		1872		3350		3048		1596		626		670		670	

**CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
JAN 22 2019**

ATTACHED NOTES ARE PART
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TOTAL HEAT GAIN BTU/H: 35101

TONS: 2.33

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 54513

TOTAL COMBINED HEAT LOSS BTU/H: 56106

SITE NAME: MINNISALE HOMES CORP
BUILDER: GREENPARK HOMES

TYPE: MILLWOOD 5

DATE: Aug-18

GFA: 3114 LO# 79587

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 54,513 TOTAL HEAT GAIN 34,864
AIR FLOW RATE CFM 20.75 AIR FLOW RATE CFM 32.44

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

plenium pressure s/a 0.18
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.16

r/a pressure 0.17
r/a grille press. Loss 0.02
adjusted pressure r/a 0.15

#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 @ 6" E.S.P.

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	13	9	4
R/A	0	0	4	2	1

All S/A diffusers 4"x10" unless noted otherwise on layout.
All S/A runs 5'0" 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	ENS-3	WIC-2	ENS-4	MBR	ENS-2	LV/DN	OFF	KIT	KIT	FAM	LAUN	WIR	FOY	FAM	BAS	BAS	BAS	BAS
RM LOSS MBH	1.44	2.06	1.00	1.97	1.50	1.51	0.81	0.98	0.64	1.44	0.86	2.25	2.18	1.76	1.76	1.65	2.77	1.08	2.56	1.65	4.80	4.80	4.80	4.80
CFM PER RUN HEAT	30	43	21	41	31	31	17	20	13	30	18	47	45	37	37	34	57	22	53	34	100	100	100	100
RM GAIN MBH	2.01	1.64	0.36	2.22	1.96	2.27	0.40	0.67	0.37	2.01	0.32	2.60	1.87	1.68	1.68	1.52	1.60	0.63	0.67	1.52	0.67	0.67	0.67	0.67
CFM PER RUN COOLING	65	53	12	72	64	74	13	22	12	65	10	84	61	54	54	49	52	20	22	49	22	22	22	22
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	51	48	28	53	67	34	46	48	53	36	40	38	55	29	39	39	33	66	46	27	38	32	23	45
EQUIVALENT LENGTH	160	160	170	180	190	150	190	180	190	170	190	170	190	190	170	170	190	190	190	170	190	190	190	210
TOTAL EFFECTIVE LENGTH	211	208	198	233	257	184	236	228	243	206	230	208	245	219	209	209	223	256	236	197	228	222	213	255
ADJUSTED PRESSURE	0.08	0.08	0.09	0.07	0.07	0.09	0.07	0.08	0.07	0.08	0.07	0.08	0.07	0.08	0.08	0.08	0.08	0.07	0.07	0.09	0.07	0.07	0.08	0.06
ROUND DUCT SIZE	5	5	4	6	5	5	4	4	4	5	4	6	5	5	5	5	5	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	220	316	241	209	228	228	195	229	149	220	207	240	330	272	272	250	419	252	389	390	510	510	510	510
COOLING VELOCITY (ft/min)	477	389	138	367	470	543	149	252	138	477	115	428	448	396	360	360	382	229	162	562	112	112	112	112
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	B	A	B	D	C	B	D	D	D	A	E	E	D	A	A	A	E	C	C	A	B	E	C	C

RUN #	27	28
ROOM NAME	BED-2	BED-3
RM LOSS MBH	1.97	1.50
CFM PER RUN HEAT	41	31
RM GAIN MBH	2.22	1.96
CFM PER RUN COOLING	72	64
ADJUSTED PRESSURE	0.17	0.17
ACTUAL DUCT LGH	61	64
EQUIVALENT LENGTH	200	170
TOTAL EFFECTIVE LENGTH	261	234
ADJUSTED PRESSURE	0.07	0.07
ROUND DUCT SIZE	6	5
HEATING VELOCITY (ft/min)	209	228
COOLING VELOCITY (ft/min)	367	470
OUTLET GRILL SIZE	4X10	3X10
TRUNK	D	C

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SUPPLY AIR TRUNK SIZE

TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	315	0.07	9.4	12	473
TRUNK B	497	0.07	11.2	16	559
TRUNK C	237	0.06	8.8	10	427
TRUNK D	414	0.06	10.8	14	532
TRUNK E	636	0.06	12.7	18	636
TRUNK F	1133	0.06	15.8	28	728

RETURN AIR TRUNK SIZE

TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK G	0	0.05	0	0	8
TRUNK H	0	0.05	0	0	8
TRUNK I	0	0.05	0	0	8
TRUNK J	0	0.05	0	0	8
TRUNK K	0	0.05	0	0	8
TRUNK L	0	0.05	0	0	8
TRUNK O	0	0.05	0	0	8
TRUNK P	0	0.05	0	0	8
TRUNK Q	0	0.05	0	0	8
TRUNK R	0	0.05	0	0	8
TRUNK S	0	0.05	0	0	8
TRUNK T	0	0.05	0	0	8
TRUNK U	0	0.05	0	0	8
TRUNK V	0	0.05	0	0	8
TRUNK W	0	0.05	0	0	8
TRUNK X	1131	0.05	16.5	32	636
TRUNK Y	650	0.05	13.4	20	585
TRUNK Z	515	0.05	12.3	18	515
DROP	1131	0.05	16.5	24	679

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	145	145	75	85	135	355	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	26	37	66	67	47	42	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	175	135	240	195	175	235	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	201	172	306	262	222	277	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.07	0.09	0.05	0.06	0.07	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	14.80
ROUND DUCT SIZE	7	6.6	6	6	6.8	10.7	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	14	14	14	14	14	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: MILLWOOD 5
 SITE NAME: MINNISALE HOMES CORP

LO # 79587

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	6 @ 10.6 cfm	63.6 cfm
Other Rooms	6 @ 10.6 cfm	63.6 cfm
Table 9.32.3.A.	TOTAL	201.4 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	79.5	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.6.
Total Ventilation Capacity	201.4	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	121.9	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
ENS	FV-05-11VK1	50
ENS-3	FV-05-11VK1	50
ENS-2	FV-05-11VK1	50
W/R	FV-05-11VK1	50

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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	August-18

 I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
 INDIVIDUAL BCIN: 19569 *Michael O'Rourke* MICHAEL O'ROURKE

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

LO#: 79587

Model: MILLWOOD 5

Builder: GREENPARK HOMES

Date: 8/12/2018

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1442	9	12978
First	1442	10	14420
Second	1672	9	15048
Third	0	9	0
Fourth	0	9	0
Total:			42,446.0 ft³
Total:			1201.9 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 x 333.87 x 41 °C x 1.2 = 5851 W

= 19963 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 333.87 x 6 °C x 1.2 = 282 W

= 962 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 heat Gain 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)

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

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	19,963	9,204	1.084
2	0.3		11,674	0.513
3	0.2		13,227	0.302
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 5**SFQT:** 3114**LO#** 79587**BUILDER:** GREENPARK HOMES**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):	42446.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.85	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 59.0 ft	WIDTH: 32.0 ft	EXPOSED PERIMETER:	182.0 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

ATTACHED NOTES ARE PART
OF REVIEWED DRAWINGS
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JAN 22 2019
CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI

**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	-

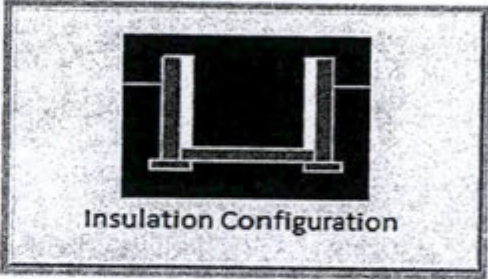
INDIVIDUAL BCIN: 19669

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):	18.0	 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):	2.3	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	CITY OF BRAMPTON BUILDING DIVISION REVIEWED BY: S. DESAI JAN 22 2019 ATTACHED NOTES ARE PART OF REVIEWED DRAWINGS ALL WORK MUST COMPLY WITH OSC
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1850

 TYPE: MILLWOOD 5
 LO# 79587

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):	1201.9		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1602.2 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: MILLWOOD 5
LO# 79587CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
JAN 22 2019
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INSTALLATION OF KITCHEN EXHAUST DUCT LARGER THAN 6" dia SHALL BE PRECEDED BY APPLICATION FOR REVISION OF DESIGN PER OBC PART 6 REQUIREMENTS. 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). - OBC DIV B 9.33.3.1(1). THE DOOR TO ANY ROOM WITHOUT RETURN AIR GRILLE. UNDERCUT BY MIN 1" THE 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).

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 UNCONDITIONED 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.

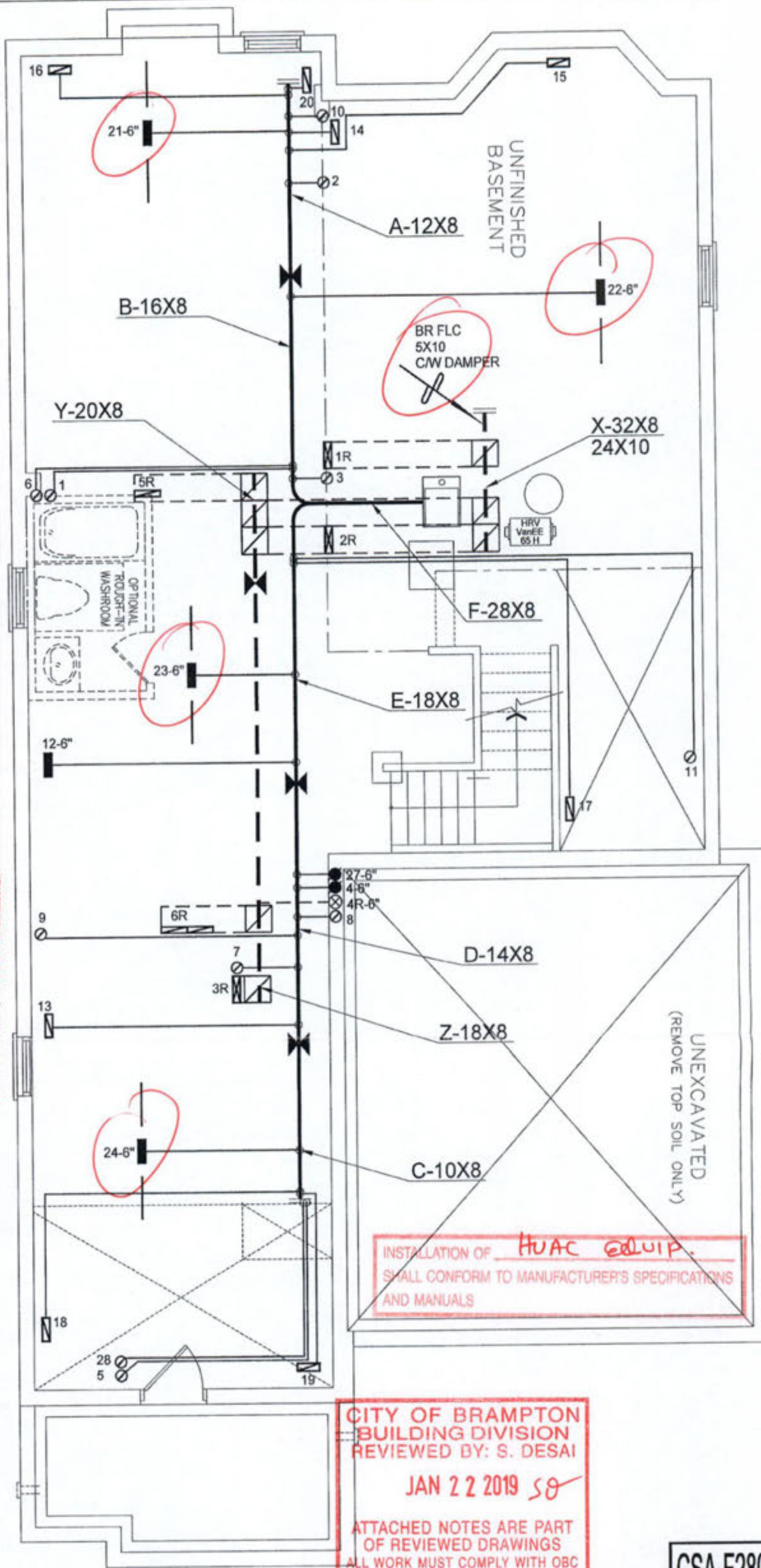
WOD CONDITION

A HEAT RECOVERY VENTILATOR SHALL BE INSTALLED IN COMPLIANCE WITH OBC DIV. B, 6.2.1.6, 6.2.12.3.6(3), 9.32.3.11 AND HRAI DIGEST REQUIREMENTS.

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

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

BASEMENT PLAN '2'



BASEMENT PLAN '1'

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
JAN 22 2019
ATTACHED NOTES ARE PART
OF REVIEWED DRAWINGS
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CSA-F280-12
PACKAGE A1

HVAC LEGEND

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

No.	Description	Date
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2.		
1.		
REVISIONS		

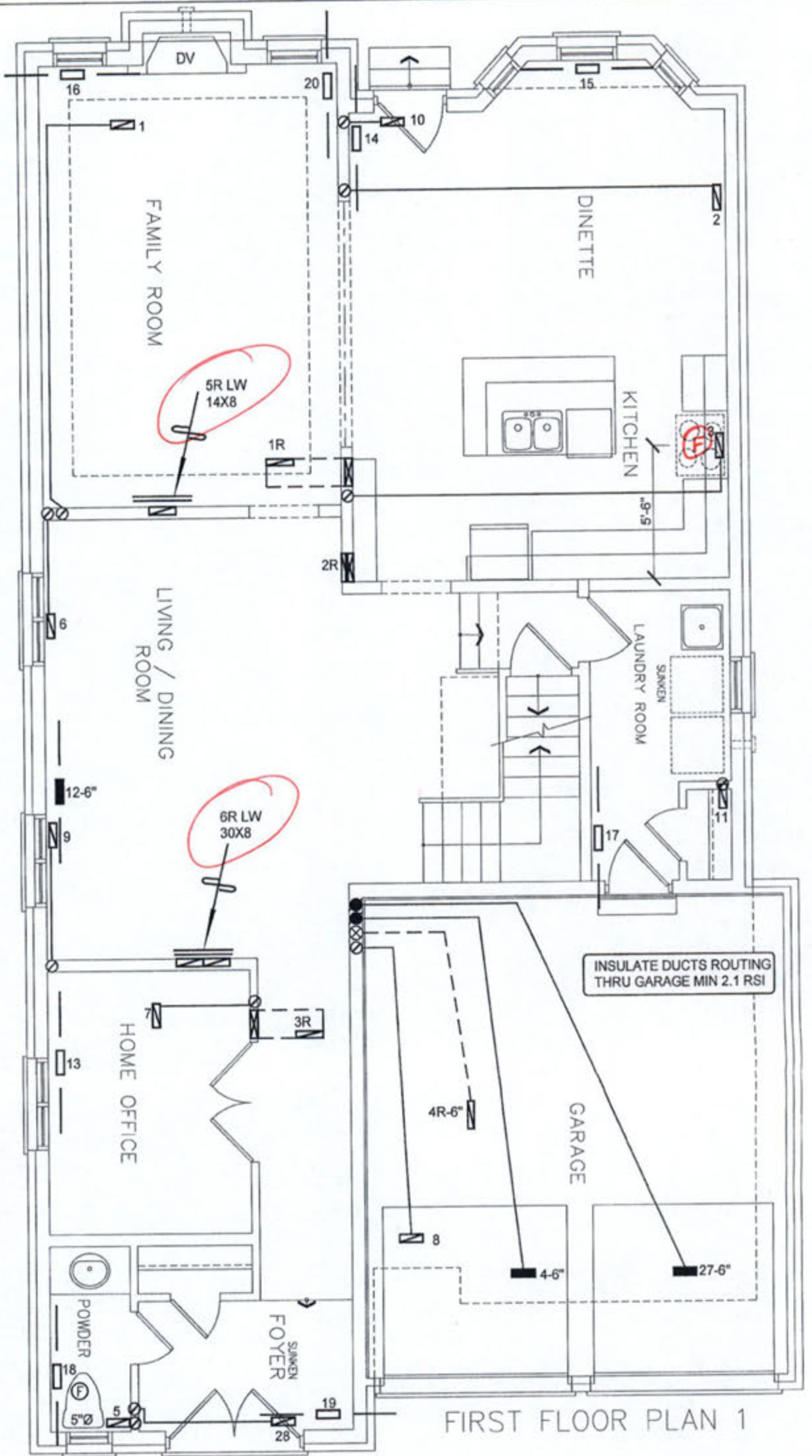
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Client
GREENPARK HOMES
Project Name
MINNISALES HOMES CORP
BRAMPTON, ONTARIO
LOT 15
MILLWOOD 5 **3114 sqft**

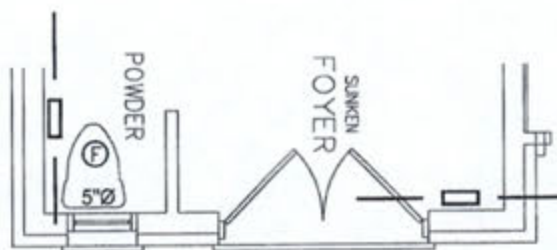
HVACDESIGNS LTD.
375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdsgns.ca
Web: www.hvacdsgns.ca
Specializing in Residential Mechanical Design Services
Installation to comply with the latest Ontario Building Code. All supply branch outlets 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 56106 BTU/H UNIT DATA		# OF RUNS	S/A	R/A	FANS
MAKE	GOODMAN	3RD FLOOR			
MODEL	GMEC960603BNA-60	2ND FLOOR	13	4	4
INPUT	60 MBTUH	1ST FLOOR	9	2	2
OUTPUT	57.6 MBTUH	BASEMENT	4	1	0
COOLING	3.0 TONS	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			
FAN SPEED	1131 cfm @ 0.6" w.c.				

Sheet Title
BASEMENT HEATING LAYOUT
Date
AUG/2018
Scale
3/16" = 1'-0"
BCIN# 19669
LO# 79587



FIRST FLOOR PLAN 1



FIRST FLOOR PLAN 2

CSA-F280-12
PACKAGE A1

HVAC LEGEND

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

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REVISIONS		

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Client
GREENPARK HOMES

Project Name
**MINNISALES HOMES CORP
BRAMPTON, ONTARIO**

LOT 15

MILLWOOD 5 **3114 sqft**

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.

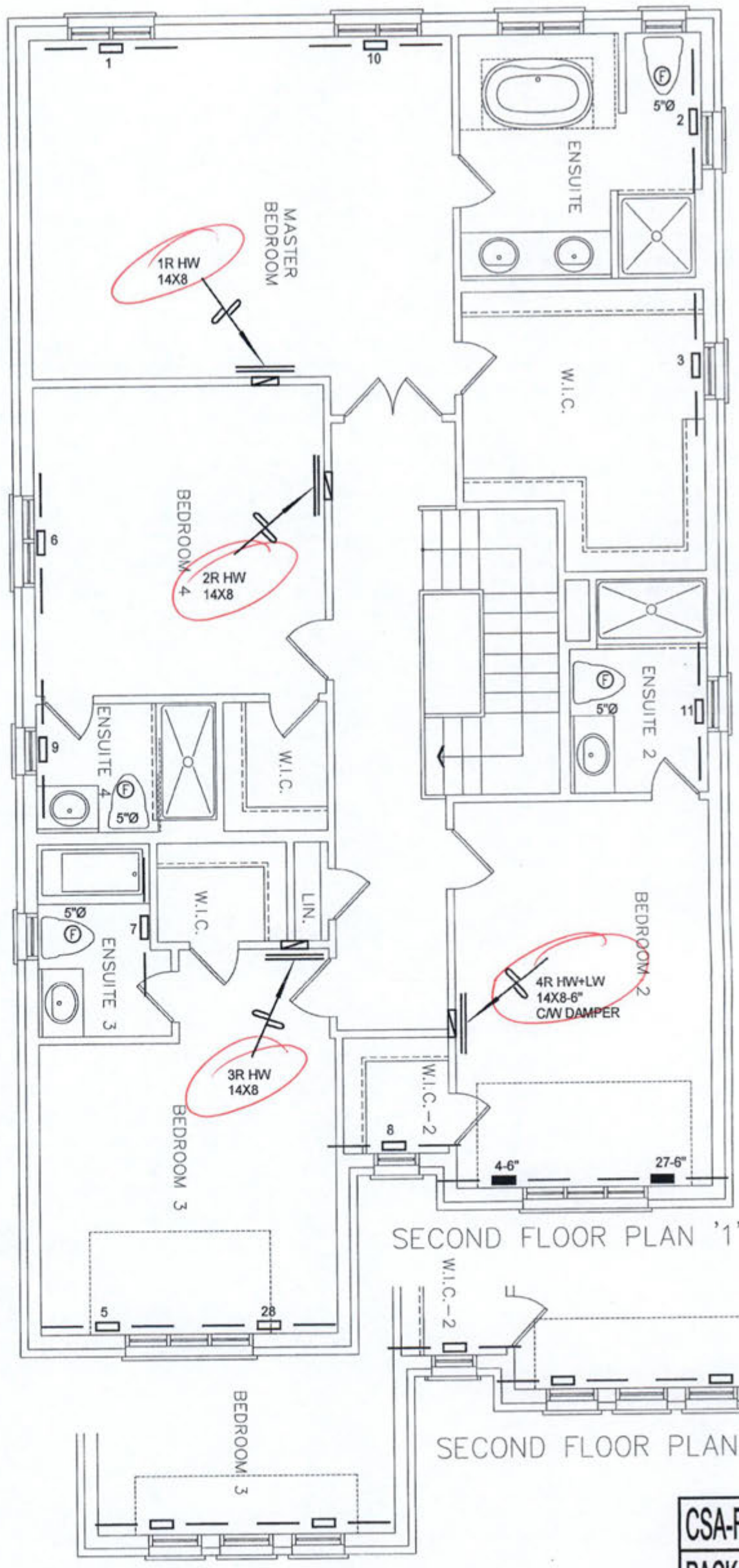
Sheet Title
**FIRST FLOOR
HEATING
LAYOUT**

Date **AUG/2018**

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

BCIN# **19669**

LO# **79587**



SECOND FLOOR PLAN '1'

SECOND FLOOR PLAN '2'

CSA-F280-12
PACKAGE A1

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. DESAI
JAN 22 2019
ATTACHED NOTES ARE PART
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ALL WORK MUST COMPLY WITH OBC

I MICHAEL OROURKE HAVE REVIEWED
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C, 32.3 OF THE
BUILDING CODE.
Michael O'Rourke, BCMA 1969
HVAC DESIGNS LTD.

HVAC LEGEND							
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
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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@hvacdsgns.ca Web: www.hvacdsgns.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# 79587
Project Name MINNISALES HOMES CORP BRAMPTON, ONTARIO <i>LOT 15</i> MILLWOOD 5 3114 sqft			