

SITE NAME: MINNISSALE HOMES CORP
BUILDER: GREENPARK HOMES

TYPE: CLOVER 12A

GFA: 2233

DATE: Aug-16
LO# 79569

WINTER NATURAL AIR CHANGE RATE 0.336
SUMMER NATURAL AIR CHANGE RATE 0.155

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

CSA-F280-12
SB-12 PACKAGE A1

ROOM USE	MBR	ENS	WIC	BED-2	BED-3	BATH
EXP. WALL	39	8	0	11	38	19
CLG. HT.	10	9	9	9	9	9
FACTORS						
GRS.WALL AREA	390	72	0	99	342	171
GLAZING	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN
NORTH	20.8 15.5 0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
EAST	20.8 41.0 0 0 0	0 0 0	0 0 0	21 436 862	36 748 1478	0 0 0
SOUTH	20.8 24.4 30 623 732	0 0 0	0 0 0	0 0 0	32 665 781	18 374 439
WEST	20.8 41.0 32 665 1314	16 332 657	0 0 0	0 0 0	0 0 0	0 0 0
SKYL.T.	36.4 100.7 0 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 0
NET EXPOSED WALL	4.4 0.6 328 1429 212	56 244 36	0 0 0	78 340 50	274 1194 177	153 667 99
NET EXPOSED BENT WALL ABOVE GR	3.5 0.5 0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
EXPOSED CLG	1.3 0.6 290 363 162	120 150 67	77 96 43	165 287 92	225 282 125	227 284 126
NO ATTIC EXPOSED CLG	2.7 1.2 40 107 48	0 0 0	0 0 0	0 0 0	0 0 0	28 75 33
EXPOSED FLOOR	2.5 0.4 0 0 0	0 0 0	44 110 16	165 411 61	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	3188	727	206	1394	2889	1490
SUB TOTAL HT GAIN	2467	760	59	1065	2561	698
LEVEL FACTOR / MULTIPLIER	0.20 0.28	0.20 0.28	0.20 0.28	0.20 0.28	0.20 0.28	0.20 0.28
AIR CHANGE HEAT LOSS	880	201	57	385	798	387
AIR CHANGE HEAT GAIN	124	38	3	53	128	35
DUCT LOSS	0	0	26	178	0	0
DUCT GAIN	0	0	6	205	0	0
HEAT GAIN PEOPLE	240	2	480	0	1	240
HEAT GAIN APPLIANCES/LIGHTS	689	689	689	689	689	689
TOTAL HT LOSS BTU/H	4068	927	289	1956	3686	1787
TOTAL HT GAIN x 1.3 BTU/H	6888	1933	89	2929	4704	953

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. HANNA
JAN 10 2019
ATTACHED NOTES ARE PART
OF REVIEWED DRAWINGS
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ROOM USE	LIV	KT/PM	WIR	FOY	WOD	BAS
EXP. WALL	45	57	5	24	0	133
CLG. HT.	10	10	10	10	9	10
FACTORS						
GRS.WALL AREA	450	570	50	240	0	865
GLAZING	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN
NORTH	20.8 15.5 0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
EAST	20.8 41.0 44 914 1806	0 0 0	0 0 0	6 125 246	0 0 0	0 0 0
SOUTH	20.8 24.4 41 852 1000	41 852 1000	13 270 317	0 0 0	0 0 0	3 62 73
WEST	20.8 41.0 0 0 0	83 1309 2586	0 0 0	0 0 0	12 249 493	0 0 0
SKYL.T.	36.4 100.7 0 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	10 247 37	0 0 0	40 586 146	0 0 0	20 493 73
NET EXPOSED WALL	4.4 0.6 365 1590 236	466 1987 295	37 161 24	194 845 125	0 0 0	0 0 0
NET EXPOSED BENT WALL ABOVE GR	3.5 0.5 0 0 0	0 0 0	0 0 0	0 0 0	-12 -42 -6	399 1402 208
EXPOSED CLG	1.3 0.6 0 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 28 74 33	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 0
BASEMENT/CRAWL HEAT LOSS	0	0	0	0	0	4829
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0
SUBTOTAL HT LOSS	3430	4394	431	1956	0	5586
SUB TOTAL HT GAIN	3076	3917	341	518	207	354
LEVEL FACTOR / MULTIPLIER	0.30 0.40	0.30 0.40	0.30 0.40	0.30 0.40	0.50 1.00	6768
AIR CHANGE HEAT LOSS	1364	1747	172	778	0	42
AIR CHANGE HEAT GAIN	154	196	17	26	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
HEAT GAIN APPLIANCES/LIGHTS	689	689	689	689	689	689
TOTAL HT LOSS BTU/H	4794	6141	603	2734	207	13354
TOTAL HT GAIN x 1.3 BTU/H	5094	6244	466	707	632	515

TOTAL HEAT GAIN BTU/H: 29342

TONS: 2.45

LOSS DUE TO VENTILATION LOAD BTU/H: 1274

STRUCTURAL HEAT LOSS: 48547

TOTAL COMBINED HEAT LOSS BTU/H: 41821

Michael O'Rourke

SITE NAME: MINNISSALE HOMES CORP
BUILDER: GREENPARK HOMES

TYPE: CLOVER 12A

DATE: Aug-18

GFA: 2233 LO# 79569

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 40,547 TOTAL HEAT GAIN 29,153
AIR FLOW RATE CFM 27.89 AIR FLOW RATE CFM 38.8

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

#GOODMAN
GMCC960603BNA 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.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	8	7	5
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.

plenium pressure s/a 0.18
max s/a diff press. loss 0.03
min adjusted pressure s/a 0.15
r/a pressure 0.17
r/a grille press. Loss 0.02
adjusted pressure r/a 0.15

TEMPERATURE RISE 47 °F

RUN #	1	2	3	4	5	7	8	10	12	13	14	15	16	18	19	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BATH	BED-3	MBR	LIV	LIV	KT/FM	KT/FM	KT/FM	W/R	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH	2.03	0.93	0.29	1.96	1.84	1.79	1.84	2.03	2.40	2.40	2.05	2.05	2.05	0.60	2.73	2.71	2.71	2.71	2.71
CFM PER RUN HEAT	57	26	8	55	51	50	51	57	67	67	57	57	57	17	76	76	76	76	76
RM GAIN MBH	2.44	1.93	0.09	2.93	2.35	0.95	2.35	2.44	2.55	2.55	2.08	2.08	2.08	0.47	0.71	0.23	0.23	0.23	0.23
CFM PER RUN COOLING	95	75	3	114	91	37	91	95	99	99	81	81	81	18	27	9	9	9	9
ADJUSTED PRESSURE	0.16	0.17	0.17	0.15	0.16	0.17	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH	23	39	63	48	34	10	59	43	28	40	45	22	17	3	7	34	19	19	34
EQUIVALENT LENGTH	130	130	180	170	130	150	165	170	150	150	140	140	140	150	140	140	130	100	140
TOTAL EFFECTIVE LENGTH	153	169	243	218	164	160	224	213	178	190	185	162	157	153	147	174	149	119	174
ADJUSTED PRESSURE	0.11	0.1	0.07	0.07	0.1	0.11	0.07	0.08	0.09	0.09	0.09	0.1	0.1	0.11	0.12	0.1	0.12	0.14	0.1
ROUND DUCT SIZE	6	5	4	6	6	4	6	6	6	6	5	5	5	4	5	5	5	5	5
HEATING VELOCITY (ft/min)	291	191	92	280	260	574	260	291	342	342	419	419	419	195	558	558	558	558	558
COOLING VELOCITY (ft/min)	484	551	34	581	464	424	464	484	505	505	595	595	595	207	198	66	66	66	66
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	4X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	D	A	B	B	B	C	B	A	B	B	A	A	D	C	C	A	A	C	B

RUN #	25
ROOM NAME	BAS
RM LOSS MBH	2.71
CFM PER RUN HEAT	76
RM GAIN MBH	0.23
CFM PER RUN COOLING	9
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH	24
EQUIVALENT LENGTH	100
TOTAL EFFECTIVE LENGTH	124
ADJUSTED PRESSURE	0.14
ROUND DUCT SIZE	5
HEATING VELOCITY (ft/min)	558
COOLING VELOCITY (ft/min)	66
OUTLET GRILL SIZE	3X10
TRUNK	A

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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	425	0.08	10.2	12	x	8	638		
TRUNK B	375	0.07	10	14	x	8	482		
TRUNK C	594	0.07	11.9	18	x	8	594		
TRUNK D	1133	0.07	15.2	26	x	8	784		
TRUNK E	0	0.00	0	0	x	8	0		
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 TRUNK SIZE

TRUNK	STATIC	ROUND	RECT	VELOCITY
CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK O	0	0.05	0	0
TRUNK P	0	0.05	0	0
TRUNK Q	0	0.05	0	0
TRUNK R	0	0.05	0	0
TRUNK S	0	0.05	0	0
TRUNK T	0	0.05	0	0
TRUNK U	0	0.05	0	0
TRUNK V	0	0.05	0	0
TRUNK W	0	0.05	0	0
TRUNK X	1131	0.05	16.5	32
TRUNK Y	0	0.05	0	0
TRUNK Z	0	0.05	0	0
DROP	1131	0.05	16.5	24

RETURN AIR

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
AIR VOLUME	185	115	115	375	155	0	0	0	0	0	0	0	0	0	0	0	0	0	186
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
ACTUAL DUCT LGH	32	64	57	21	34	1	1	1	1	1	1	1	1	1	1	1	1	1	16
EQUIVALENT LENGTH	135	225	225	175	230	0	0	0	0	0	0	0	0	0	0	0	0	0	175
TOTAL EFFECTIVE LH	167	289	282	196	264	1	1	1	1	1	1	1	1	1	1	1	1	1	191
ADJUSTED PRESSURE	0.09	0.05	0.05	0.08	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	0.08
ROUND DUCT SIZE	7.2	7	7	9.7	7.5	0	0	0	0	0	0	0	0	0	0	0	0	0	7.5
INLET GRILL SIZE	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
INLET GRILL SIZE	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	14	0	0	0	0	0	0	0	0	0	0	0	0	0	14

TYPE: CLOVER 12A
SITE NAME: MINNISSALE HOMES CORP

LO # 79569

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		9.32.3.6.
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	74 F	1.08	0.25

SUPPLEMENTAL FANS		PANASONIC	HVI	Sones
Location	Model	cfm		
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: 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 #:	
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:	<i>Michael O'Rourke</i>
HRAJ #	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: 19669 MICHAEL O'ROURKE

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

LO#: 79569

Model: CLOVER 12A

Builder: GREENPARK HOMES

Date: 8/3/2018

Volume Calculation
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1024	9	9216
First	1024	10	10240
Second	1209	9	10881
Third	0	9	0
Fourth	0	9	0
Total:			30,337.0 ft³
Total:			859.0 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.336
SUMMER NATURAL AIR CHANGE RATE	0.105

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

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

0.336 x 238.62 x 41 °C x 1.2 = 3967 W

= 13536 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.105 x 238.62 x 6 °C x 1.2 = 184 W

= 628 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

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

6.2.7 Sensible heat Gain due to Ventilation

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

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)

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

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 / HL _{level})
1	0.5	13,536	6,793	0.996
2	0.3		10,211	0.398
3	0.2		9,803	0.276
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:** CLOVER 12A**SFQT:** 2233**LO#** 79569**BUILDER:** GREENPARK HOMES**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):	30337.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.5 ft
LENGTH: 46.0 ft	WIDTH: 36.0 ft	EXPOSED PERIMETER:	133.0 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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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	-

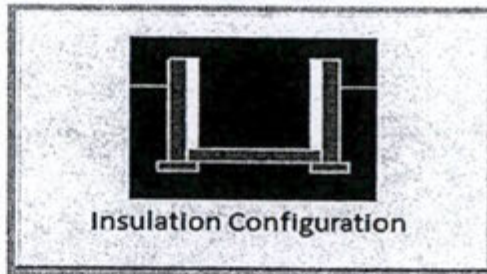
INDIVIDUAL BCIN: 19669

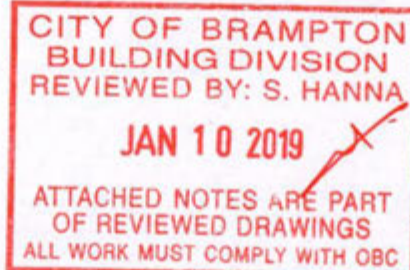
MICHAEL O'ROURKE

Michael O'Rourke

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

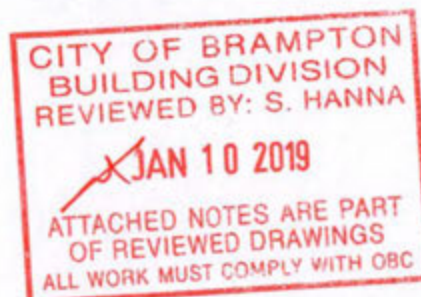
Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	14.0	 Insulation Configuration
Floor Width (m):	11.0	
Exposed Perimeter (m):	40.5	
Wall Height (m):	2.9	
Depth Below Grade (m):	1.98	
Window Area (m ²):	0.3	
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):	1354	

TYPE: CLOVER 12A
LO# 79569

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):	6.71			
Building Configuration				
Type:	Semi			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	859.0			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1145.1 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	30.0	30.0		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.336			
Cooling Air Leakage Rate (ACH/H):	0.105			

TYPE: CLOVER 12A
LO# 79569

WOD CONDITION

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.

See wall sections for Certified Models on the Same block

* A/C unit required not less than 2.4 Ton

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 1.2.5 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

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 AIR FLOW 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 A/C 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).

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. HANNA
JAN 10 2019
ATTACHED NOTES ARE PART
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INSTALLATION OF HVAC EQUIPMENTS
SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS
AND MANUALS

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

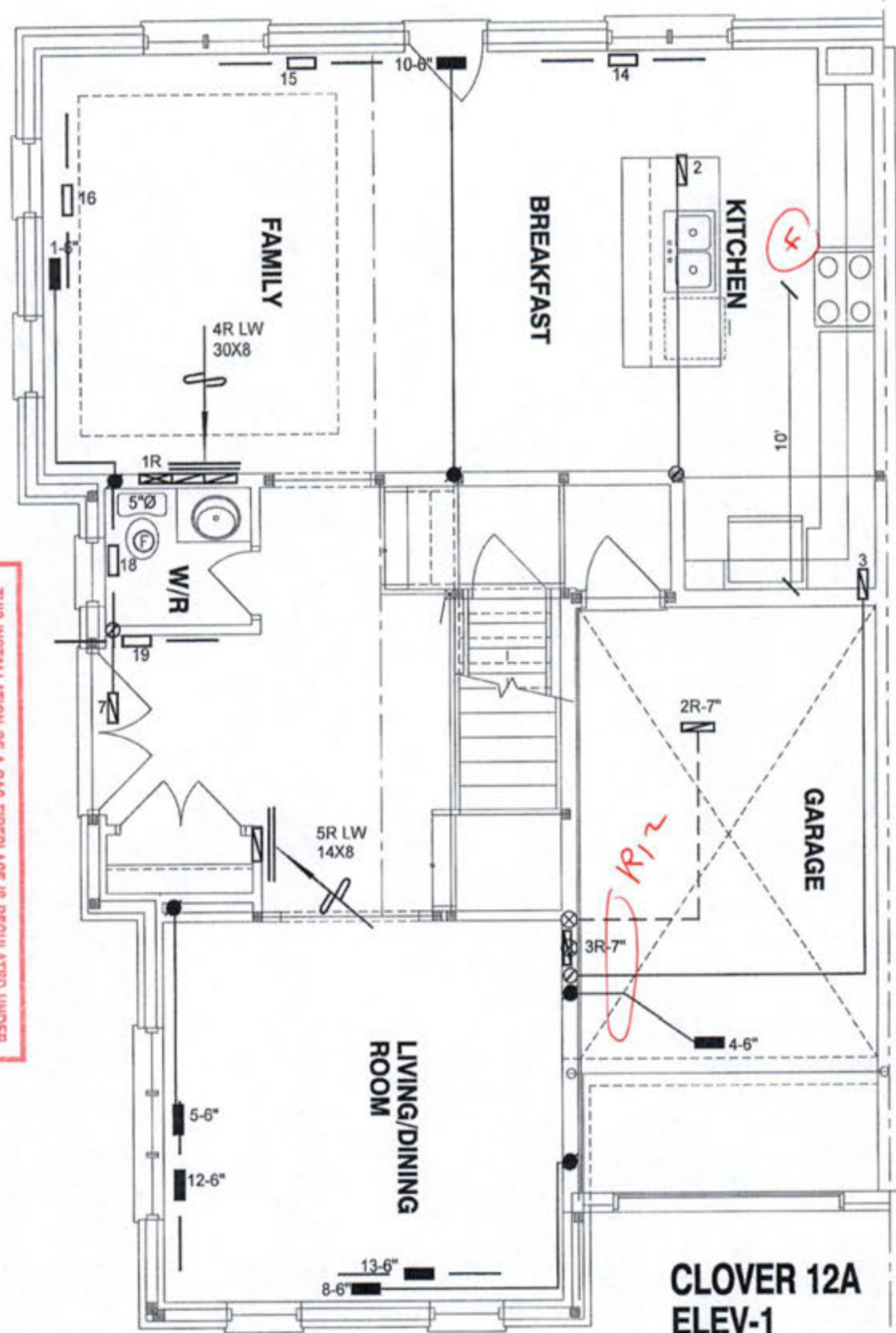
MECHANICAL VENTILATION SHALL BE PROVIDED IN CONFORMANCE WITH OBC DIV. B, 9.32.3 REQUIREMENTS.

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

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Client		HVAC DESIGNS LTD.		HEAT LOSS 41821 BTU/H		# OF RUNS S/A R/A FANS		Sheet Title	
GREENPARK HOMES		375 Finlay Ave. Suite 202 - Ajax, Ontario		UNIT DATA		3RD FLOOR		BASEMENT	
Project Name		L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375		MAKE	GOODMAN	2ND FLOOR	8 3 2	HEATING	LAYOUT
MINNISSALE HOMES CORP.		Email: info@hvacdsgns.ca		MODEL	GMEC960503BNA-60	1ST FLOOR	7 2 2	Date	AUG/2018
OAKVILLE, ONTARIO		Web: www.hvacdsgns.ca		INPUT	60 MBTU/H	BASEMENT	5 1 0	Scale	3/16" = 1'-0"
CLOVER 12A		Specializing in Residential Mechanical Design Services		OUTPUT	57.6 MBTU/H	ALL S/A DIFFUSERS 4" x 10"	UNLESS NOTED OTHERWISE	BCIN# 19669	
2233 sqft		Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper.		COOLING	2.5 TONS	ON LAYOUT. ALL S/A RUNS 5"Ø	UNLESS NOTED OTHERWISE	LO# 79569	
		Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.		FAN SPEED	1131 rpm @ 0.5" w.c.	ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A			

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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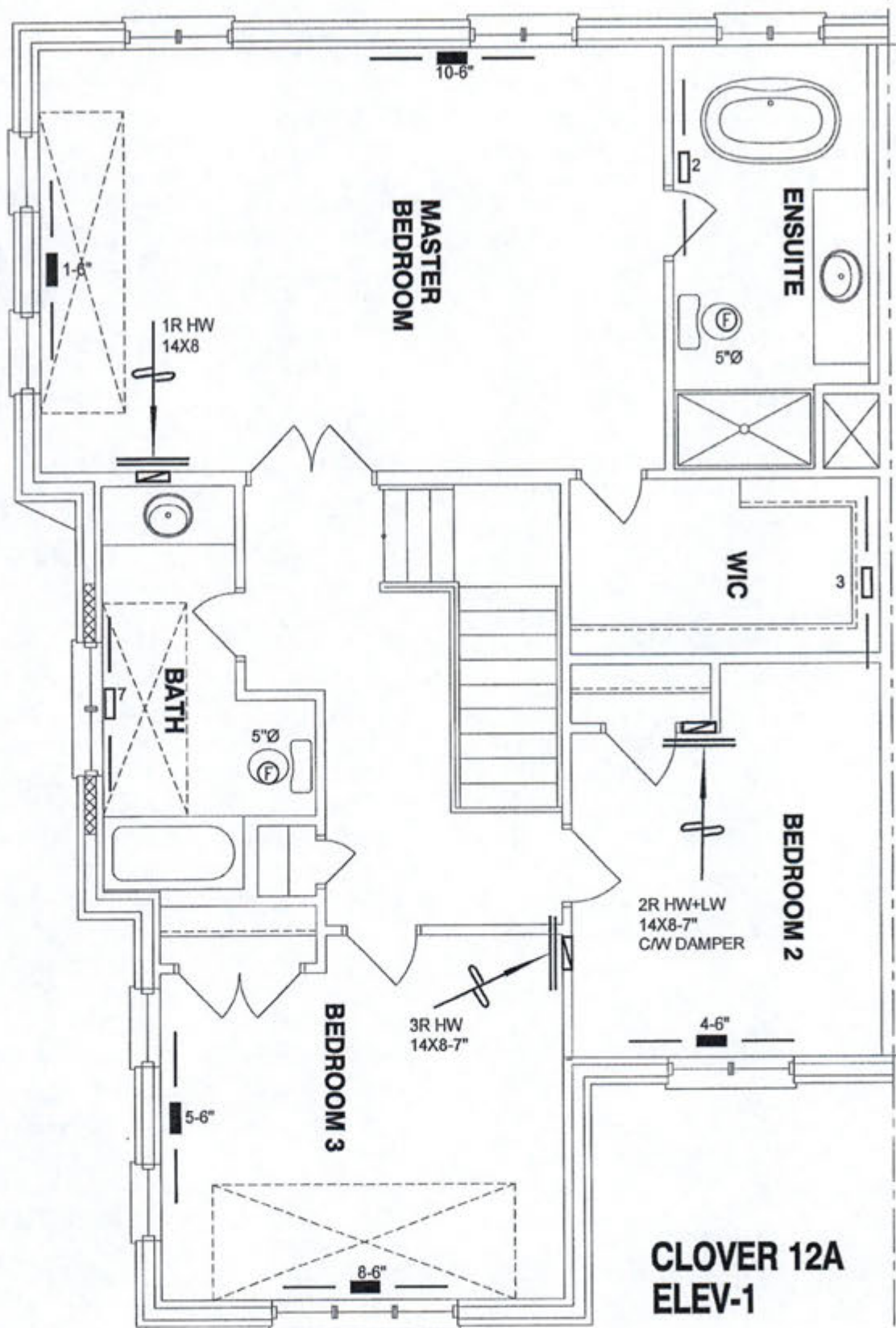
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

HVAC LEGEND						REVISIONS	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	No.	Date
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14" RETURN AIR GRILLE	1.	
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		20" RETURN AIR GRILLE	2.	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE	3.	
					REDUCER		

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CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE		Sheet Title	
Client	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.	FIRST FLOOR HEATING LAYOUT	
Project Name		Date AUG/2018	
MINNISSALE HOMES CORP. OAKVILLE, ONTARIO		Scale 3/16" = 1'-0"	BCIN# 19669
CLOVER 12A	2233 sqft	LO# 79569	



**CLOVER 12A
ELEV-1**

**CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. HANNA**

JAN 10 2019

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**CSA-F280-12
PACKAGE A1**

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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.

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"X8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	FLOOR 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
3.		
2.		
1.		

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GREENPARK HOMES

Project Name
**MINNISSALE HOMES CORP.
OAKVILLE, ONTARIO**

CLOVER 12A 2233 sqft

HVAC DESIGNS LTD.
375 Finley Ave. Suite 202 - Ajax, Ontario
L1B 2E2 Tel: 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdesigns.ca
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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.

Sheet Title
**SECOND FLOOR
HEATING
LAYOUT**

Date **AUG/2018**

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

BCIN# 19669

LO# **79569**