

SITE NAME: RUSSEL GARDENS PHASE 3										LOT 312				DATE: Sep-20				WINTER NATURAL AIR CHANGE RATE 0.319				HEAT LOSS ΔT °F. 71		CSA-F280-12							
BUILDER: GREENPARK HOMES										TYPE: MOUNTAINASH 4				GFA: 3190				LO# 87571				SUMMER NATURAL AIR CHANGE RATE 0.114				HEAT GAIN ΔT °F. 13		SB-12 PACKAGE A1			
ROOM USE				MBR		ENS		FLEX		BED-2		BED-3		BED-4		ENS-3						S-ENS									
EXP. WALL				40		28		44		14		30		13		6						6									
CLG. HT.				9		9		9		9		9		9		9						9									
FACTORS																															
GRS.WALL AREA		LOSS GAIN		360		262		396		126		270		117		54															
GLAZING				LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN															
NORTH		19.8	15.1	0	0	0	14	277	212	0	0	0	16	316	242	0	0	0	0	0	0	0	0	0	0	7	138	106			
EAST		19.8	39.0	0	0	0	0	0	0	72	1423	2809	0	0	0	57	1127	2224	0	0	0	0	0	0	0	0	0	0			
SOUTH		19.8	23.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	316	376	7	138	164	0	0	0	0			
WEST		19.8	39.0	32	633	1249	14	277	546	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
SKYLT.		34.6	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
DOORS		23.5	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
NET EXPOSED WALL		4.1	0.8	328	1360	247	224	329	169	324	1343	244	110	456	83	213	883	160	101	419	76	47	195	35			47	195	35		
NET EXPOSED BSMT WALL ABOVE GR		3.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
EXPOSED CLG		1.2	0.6	384	456	226	192	229	113	189	225	111	251	299	147	196	234	115	200	238	118	96	114	56			114	136	67		
NO ATTIC EXPOSED CLG		2.6	1.3	0	0	0	0	0	0	30	77	38	0	0	0	20	51	25	0	0	0	0	0	0	0	0	0	0	0		
EXPOSED FLOOR		2.4	0.4	0	0	0	0	0	0	20	47	9	69	163	30	216	512	93	0	0	0	0	0	0			114	270	49		
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				2450				1711				3116		1235				2806		973		448				739		257			
SUB TOTAL HT GAIN						1721				1040				502		2617				569		256						257			
LEVEL FACTOR / MULTIPLIER				0.20		0.25		0.20		0.25		0.20		0.25		0.20		0.25		0.20		0.25				0.20		0.25			
AIR CHANGE HEAT LOSS				601				420				765		303				689		239		110						181			
AIR CHANGE HEAT GAIN						126				76				235		37				192		42		19				19			
DUCT LOSS				0				0				388		154				349		0		0						92			
DUCT GAIN				0		0		0				398		131				358		0		0						28			
HEAT GAIN PEOPLE		240		2	480	0	0	0	0	0	1	240	1	240	1	240	1	240	0	0	0	0	0	0	0	0	0	0	0		
HEAT GAIN APPLIANCES/LIGHTS				530				0				530		530				530		530		530						0			
TOTAL HT LOSS BTU/H				3051				2131				4268		1692				3844		1212		558						1013			
TOTAL HT GAIN x 1.3 BTU/H				3714				1450				5685		1871		5118		1796		357		357						395			

ROOM USE			FAM		L/D		K/B		L/H		LND		W/R		FOY														BAS				
EXP. WALL			34		24		37		18		8		26		42														176				
CLG. HT.			11		11		11		11		9		12		11														8				
FACTORS																																	
GRS.WALL AREA	LOSS	GAIN	374		264		407		198		72		312		462														880				
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN											LOSS GAIN				
NORTH	19.8	15.1	8	158	121	0	0	0	0	0	0	0	0	0	7	138	106	0	0	0									5		99	76	
EAST	19.8	39.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	119	234									7		138	273	
SOUTH	19.8	23.5	0	0	0	33	652	775	0	0	0	12	237	282	7	138	164	0	0	0									10		198	235	
WEST	19.8	39.0	40	791	1561	0	0	0	74	1463	2888	0	0	0	0	0	0	0	0	0									0		0	0	
SKYLT.	34.6	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									0		0	0	
DOORS	23.5	4.3	0	0	0	0	0	0	0	0	0	0	0	0	20	469	85	40	938	170									20		469	85	
NET EXPOSED WALL	4.1	0.8	326	1351	245	231	958	174	333	1380	250	186	771	140	65	269	49	285	1182	214	416	1725	313							20		0	0
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							528		1765	320	
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	0	0	0	0	0	0	120	143	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0	0	0	0	0	0	0	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		0		0		0		0												5839		
SLAB ON GRADE HEAT LOSS			0		0		0		0		0		0		0		0		0														
SUBTOTAL HT LOSS			2300		1610		2843		1008		561		1789		2781																8508		
SUB TOTAL HT GAIN					1927		948		3138		422		284		405						717										989		
LEVEL FACTOR / MULTIPLIER			0.30		0.42		0.30		0.42		0.30		0.42		0.20		0.25		0.30		0.42		0.30		0.42				0.50		1.01		
AIR CHANGE HEAT LOSS			963		674		1191		422		135		749		1165																8607		
AIR CHANGE HEAT GAIN					141		69		230		31		21		30		53														72		
DUCT LOSS			0		0		0		0		0		0		0		0		0												0		
DUCT GAIN			0		0		0		0		0		0		0		0		0												0		
HEAT GAIN PEOPLE	240		0		0		0		0		0		0		0		0		0										0		0		
HEAT GAIN APPLIANCES/LIGHTS			530		530		530		530		530		530		530		530		530												530		
TOTAL HT LOSS BTU/H			3264		2284		4034		1431		686		2538		3946																17115		
TOTAL HT GAIN x 1.3 BTU/H			3377		2012		5067		1277		1084		565		1000																2068		

TOTAL HEAT GAIN BTU/H: 37111

TONS: 3.09

LOSS DUE TO VENTILATION LOAD BTU/H: 1515

SITE NAME: RUSSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMES

LOT 312
TYPE: MOUNTAINASH 4

DATE: Sep-20

GFA: 3190 LO# 87571

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 53,066 TOTAL HEAT GAIN 36,836
AIR FLOW RATE CFM 21.3 AIR FLOW RATE CFM 30.7

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

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

#GOODMAN
GMEC960603BNA 60
FAN SPEED LOW
MED LOW 928
MEDIUM 1017
MEDIUM HIGH 1131

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

DESIGN CFM = 1131
CFM @ .8" E.S.P.

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	13	7	4
R/A	0	0	5	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	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24
ROOM NAME	MBR	ENS	FLEX	BED-2	BED-3	BED-4	ENS-3	FLEX	BED-3	MBR	S-ENS	FAM	L/D	K/B	K/B	L/H	LND	W/R	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH	1.53	2.13	2.13	1.69	1.92	1.21	0.56	2.13	1.92	1.53	0.51	3.26	2.28	2.02	2.02	1.43	0.69	2.54	3.95	4.28	4.28	4.28	4.28
CFM PER RUN HEAT	33	45	45	36	41	26	12	45	41	33	11	70	49	43	43	30	15	54	84	91	91	91	91
RM GAIN MBH	1.86	1.45	2.84	1.87	2.56	1.79	0.36	2.84	2.56	1.86	0.20	3.38	2.01	2.53	2.53	1.28	1.08	0.57	1.00	0.52	0.52	0.52	0.52
CFM PER RUN COOLING	57	45	87	57	79	55	11	87	79	57	6	104	62	78	78	39	33	17	31	16	16	16	16
ADJUSTED PRESSURE	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	32	63	51	56	61	46	49	58	49	38	46	26	25	38	44	40	23	47	48	34	20	24	41
EQUIVALENT LENGTH	130	150	160	140	100	210	200	130	190	100	130	130	140	120	120	140	160	130	110	120	100	130	130
TOTAL EFFECTIVE LENGTH	162	213	211	196	161	256	249	188	239	138	176	156	165	158	164	180	183	177	158	154	120	154	171
ADJUSTED PRESSURE	0.11	0.08	0.08	0.09	0.11	0.07	0.07	0.09	0.07	0.12	0.1	0.1	0.1	0.11	0.1	0.1	0.09	0.1	0.1	0.11	0.14	0.11	0.09
ROUND DUCT SIZE	5	5	6	5	6	5	4	6	6	5	4	6	5	5	5	4	4	5	6	6	6	6	6
HEATING VELOCITY (ft/min)	242	330	229	264	209	191	138	229	209	242	126	357	360	316	344	344	172	396	428	464	464	464	464
COOLING VELOCITY (ft/min)	419	330	444	419	403	404	126	444	403	419	69	530	455	573	573	447	379	125	158	82	82	82	82
OUTLET GRILL SIZE	3X10	3X10	4X10	3X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10
TRUNK	C	A	D	A	E	D	D	D	D	C	E	C	E	B	B	D	C	A	D	B	C	E	D

RUN #	25
ROOM NAME	S-ENS
RM LOSS MBH	0.51
CFM PER RUN HEAT	11
RM GAIN MBH	0.20
CFM PER RUN COOLING	6
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	46
EQUIVALENT LENGTH	140
TOTAL EFFECTIVE LENGTH	186
ADJUSTED PRESSURE	0.09
ROUND DUCT SIZE	4
HEATING VELOCITY (ft/min)	126
COOLING VELOCITY (ft/min)	69
OUTLET GRILL SIZE	3X10
TRUNK	E

SUPPLY AIR TRUNK SIZE											RETURN AIR TRUNK SIZE										
TRUNK	STATIC	ROUND	RECT	VELOCITY							TRUNK	STATIC	ROUND	RECT	VELOCITY						
CFM	PRESS.	DUCT	DUCT								CFM	PRESS.	DUCT	DUCT							
TRUNK A	135	0.08	6.6	8	x	8	304				TRUNK G	0	0.00	0	0	x	8	0			
TRUNK B	177	0.10	6.9	8	x	8	398				TRUNK H	0	0.00	0	0	x	8	0			
TRUNK C	554	0.08	11.2	14	x	8	712				TRUNK I	0	0.00	0	0	x	8	0			
TRUNK D	374	0.07	10	12	x	8	561				TRUNK J	0	0.00	0	0	x	8	0			
TRUNK E	577	0.07	11.8	16	x	8	649				TRUNK K	0	0.00	0	0	x	8	0			
TRUNK F	0	0.00	0	0	x	8	0				TRUNK L	0	0.00	0	0	x	8	0			
RETURN AIR #	1	2	3	4	5	6	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR VOLUME	85	95	95	85	75	360	175	0	0	0	0	0	0	0	0	0	0	0	0	0	161
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
ACTUAL DUCT LGH.	51	42	51	53	63	26	26	1	1	1	1	1	1	1	1	1	1	1	1	1	15
EQUIVALENT LENGTH	205	165	155	205	210	185	190	0	0	0	0	0	0	0	0	0	0	0	0	0	185
TOTAL EFFECTIVE LH	256	207	206	258	273	211	216	1	1	1	1	1	1	1	1	1	1	1	1	1	200
ADJUSTED PRESSURE	0.06	0.07	0.07	0.06	0.05	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	0.07
ROUND DUCT SIZE	6	6	6	6	6	9.9	7.5	0	0	0	0	0	0	0	0	0	0	0	0	0	7.3
INLET GRILL SIZE	8	8	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	X	X
INLET GRILL SIZE	14	14	14	14	14	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	14

TYPE: MOUNTAINASH 4
SITE NAME: RUSSEL GARDENS PHASE 3

LO # 87571
LOT 312

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	5 @ 10.6 cfm 53 cfm
Other Rooms	8 @ 10.6 cfm 84.8 cfm
Table 9.32.3.A.	TOTAL 212.0 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	212 cfm
Less Principal Ventil. Capacity	79.5 cfm
Required Supplemental Capacity	132.5 cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
79.5 cfm	3.0 sones ☒ HVI Approved
PRINCIPAL EXHAUST HEAT LOSS CALCULATION	
CFM 79.5 CFM	$\Delta T \cdot F$ 71 F
X	FACTOR 1.08 X
	% LOSS 0.25

SUPPLEMENTAL FANS PANASONIC				
Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	☒	0.3
ENS-3	FV-05-11VK1	50	☒	0.3
S-ENS	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	84 cfm low
75 % Sensible Efficiency	☒ HVI Approved
@ 32 deg F (0 deg C)	

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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	September-20

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

LO#: 87571

Model: MOUNTAINASH 4

Builder: GREENPARK HOMES

Date: 11/09/2020

Volume Calculation
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1398	8	11184
First	1398	11	15378
Second	1792	9	16128
Third	0	9	0
Fourth	0	9	0
Total:			42,690.0 ft³
Total:			1208.8 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.319
SUMMER NATURAL AIR CHANGE RATE	0.114

Design Temperature Difference				
	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-17	39	71
Summer DTDc	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage

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

0.319 x 335.79 x 39 °C x 1.2 = 5045 W

= 17213 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

0.114 x 335.79 x 7 °C x 1.2 = 328 W

= 1118 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

80 CFM x 71 °F x 1.08 x 0.25 = 1515 Btu/h

6.2.7 Sensible heat Gain due to Ventilation

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

80 CFM x 13 °F x 1.08 x 0.25 = 275 Btu/h

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

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

Level	Level Factor (LF)	HL _{airv} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{level})
1	0.5	17,213	8,508	1.012
2	0.3		12,332	0.419
3	0.2		14,029	0.245
4	0		0	0.000
5	0		0	0.000

*HL_{airbv} = Air leakage heat loss + ventilation heat loss

*For a balanced or supply only ventilation system HL_{airv} = 0

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: MOUNTAINASH 4	LOT 312	BUILDER: GREENPARK HOMES
SFQT: 3190	LO# 87571	SITE: RUSSEL GARDENS PHASE 3

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	1	OUTDOOR DESIGN TEMP.	88
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):	42690.0	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:	5.0 ft
LENGTH: 52.0 ft	WIDTH: 36.0 ft	EXPOSED PERIMETER:	176.0 ft

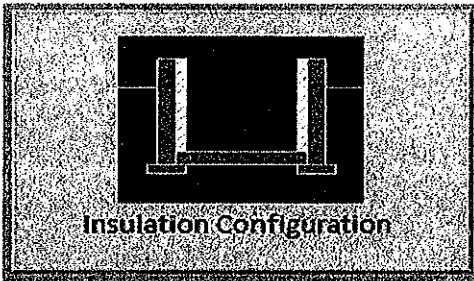
2012 OBC - COMPLIANCE PACKAGE		
Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
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	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	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:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	15.8	
Floor Width (m):	11.0	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.4	
Depth Below Grade (m):	1.52	
Window Area (m ²):	2.0	
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):		1711

TYPE: MOUNTAINASH 4
LO# 87571

LOT 312

Air Infiltration Residential Load Calculator

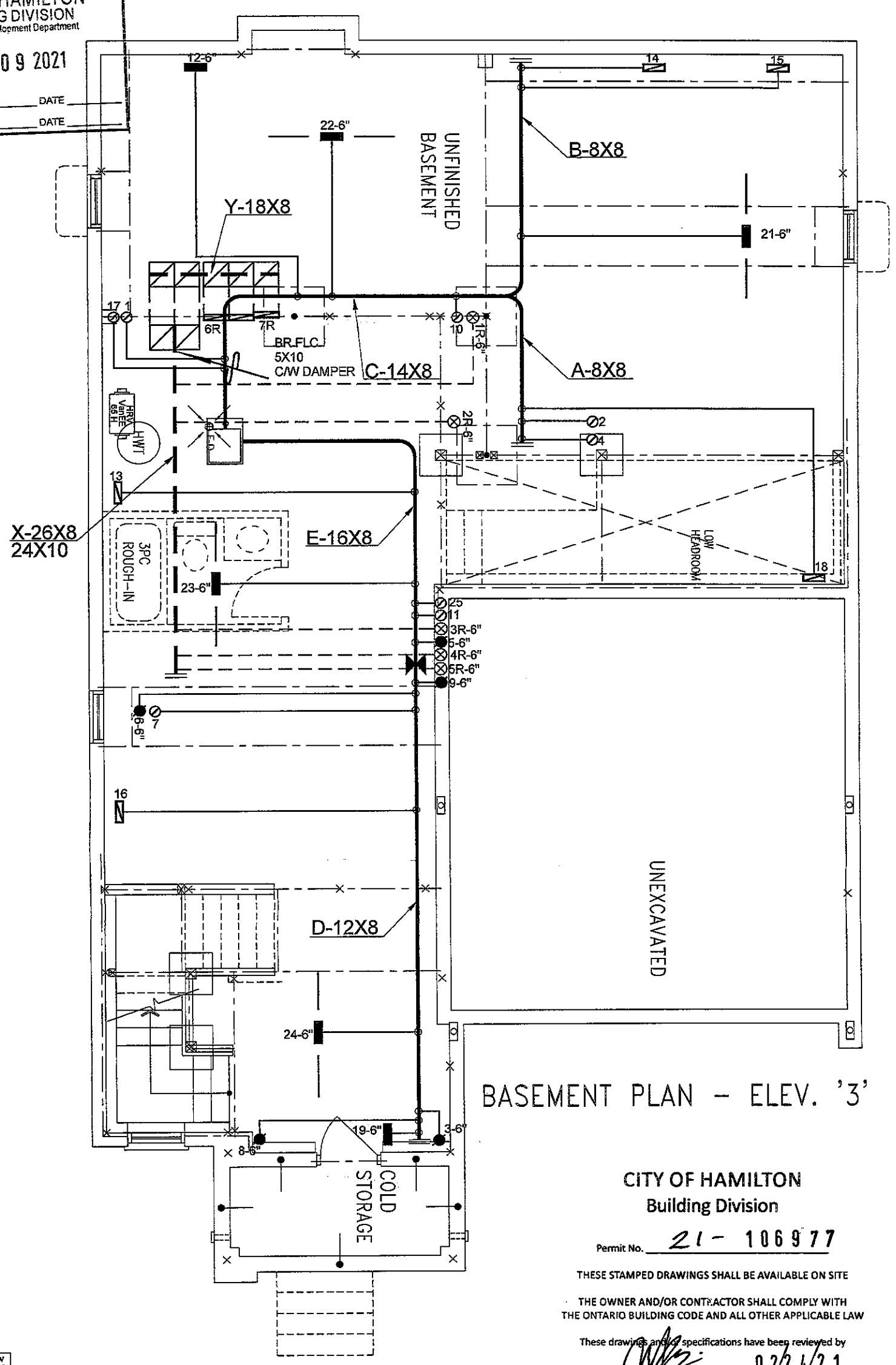
Supplemental tool for CAN/CSA-F280

Weather Station Description			
Province:	Ontario		
Region:	Hamilton		
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):	7.01		
Building Configuration			
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	1208.8		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1611.4 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):	0.319		
Cooling Air Leakage Rate (ACH/H):	0.114		

TYPE: MOUNTAINASH 4
LO# 87571

LOT 312

CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department
FEB 09 2021
REC'D BY _____ DATE _____
REF'D TO _____ DATE _____



BASEMENT PLAN - ELEV. '3'

CITY OF HAMILTON
Building Division

Permit No. 21-106977

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW

These drawings and specifications have been reviewed by
[Signature] 02/24/21
FOR CHIEF BUILDING OFFICIAL DATE

LOT 312
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
3.		
2.		
1.		
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.

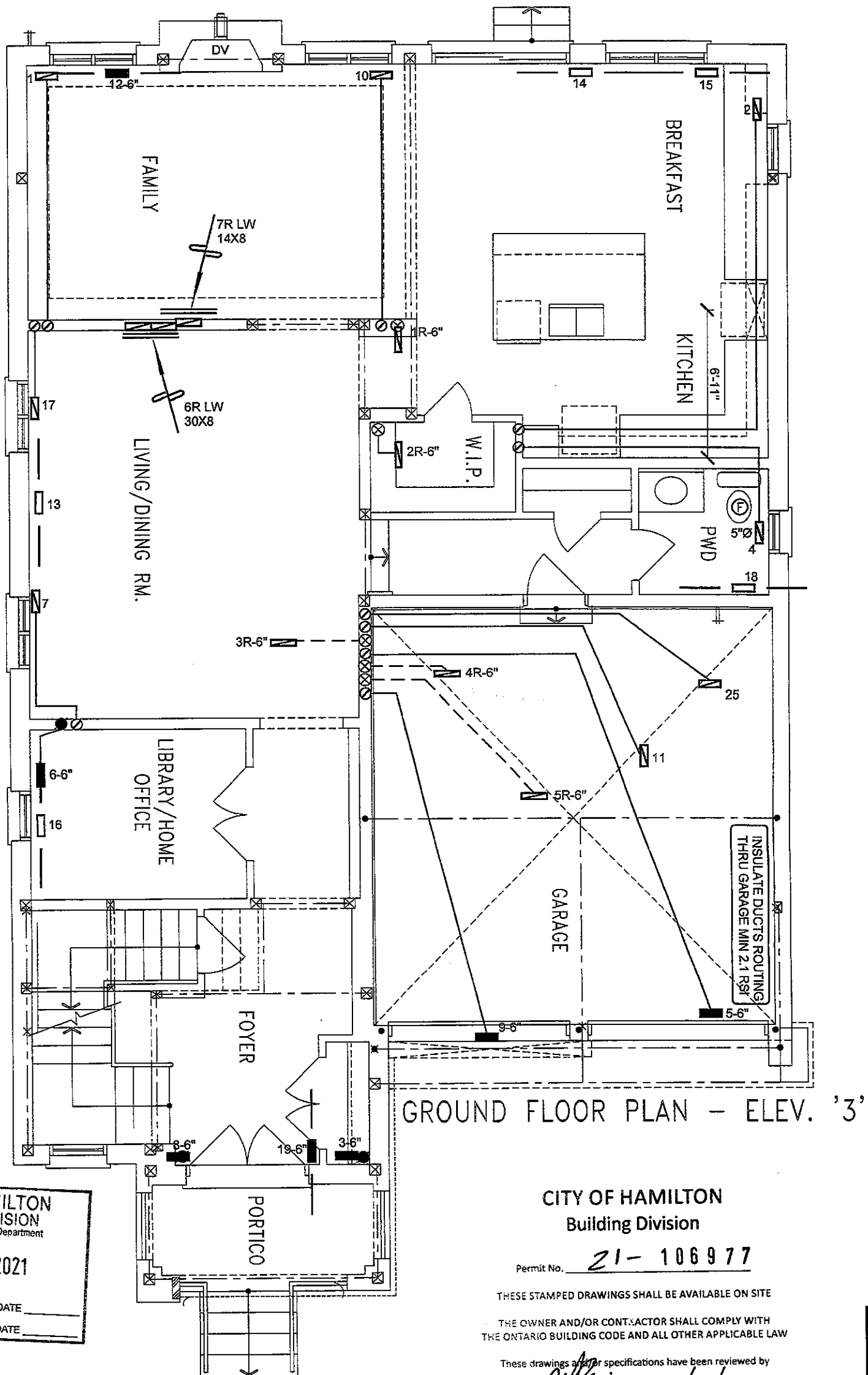
Client
GREENPARK HOMES
Project Name
**RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO**
**LOT 312
MOUNTAINASH 4 3190 sqft**

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.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 54582 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		
MAKE	GOODMAN	3RD FLOOR		
MODEL	GMEC960603BNA	2ND FLOOR	13	5 3
INPUT	60 MBTU/H	1ST FLOOR	7	2 2
OUTPUT	57.6 MBTU/H	BASEMENT	4	1 0
COOLING	3.0 TONS	ALL S/A DIFFUSERS 4"x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5 1/2" UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A		
FAN SPEED	1131 cfm @ 0.5" w.c.			

Sheet Title
**BASEMENT
HEATING
LAYOUT**
Date **SEPT/2020**
Scale **3/16" = 1'-0"**
BCIN# 19669
LO# 87571



CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department

FEB 09 2021

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CITY OF HAMILTON
Building Division

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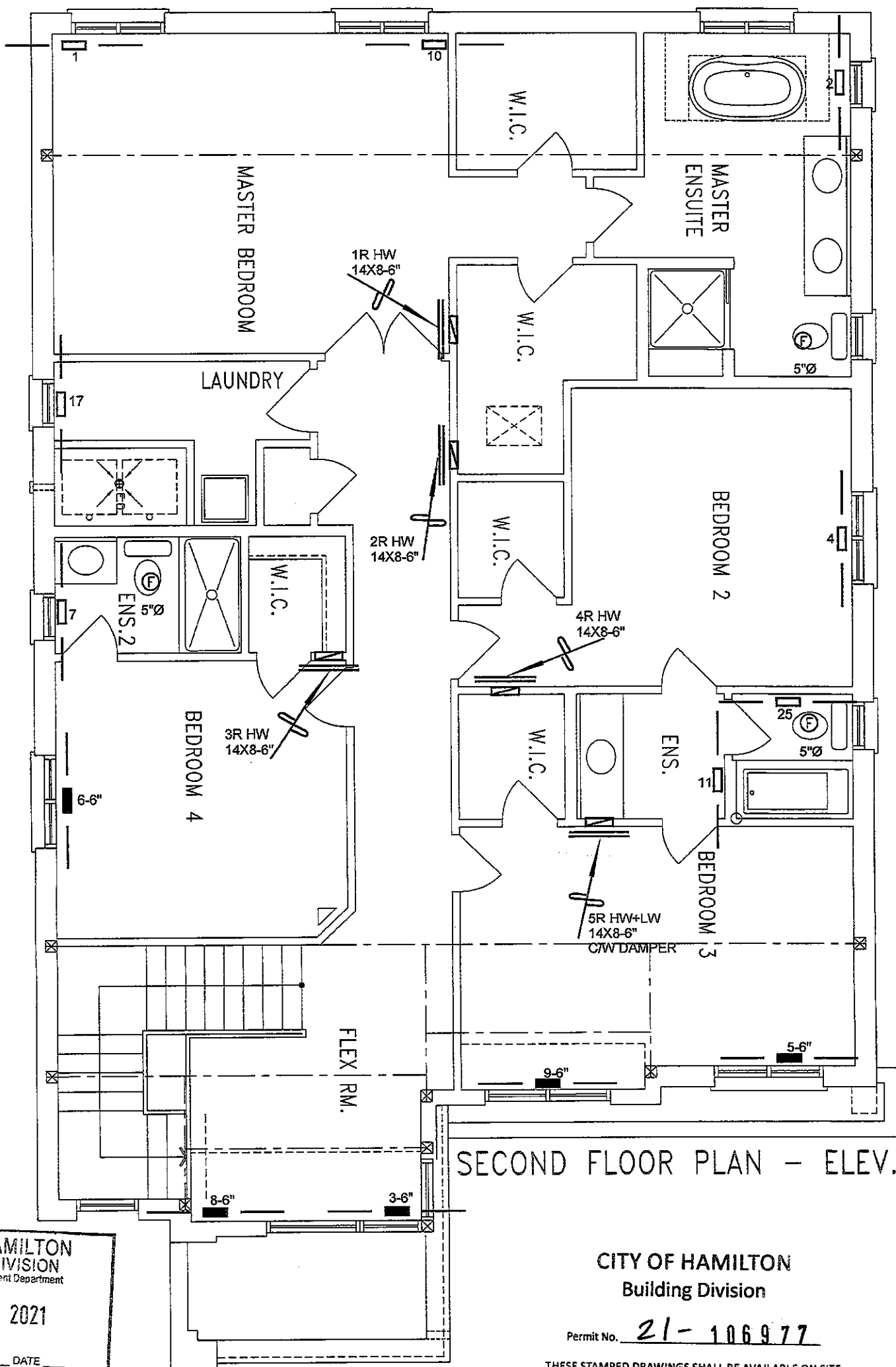
LOT 312
CSA-F280-12
PACKAGE A1

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.
[Signature]
MICHAEL O'ROURKE, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND						3.	
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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	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA - FLOOR RETURN AIR GRILLE		REDUCER
						No.	Description
						Date	

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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@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 FIRST FLOOR HEATING LAYOUT		
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO			Date SEPT/2020		
LOT 312 MOUNTAINASH 4 3190 sqft			Scale 3/16" = 1'-0"		
			BCIN# 19669		
			LO# 87571		



SECOND FLOOR PLAN - ELEV. '3'

CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department

FEB 09 2021

REC'D BY _____ DATE _____
REF'D TO _____ DATE _____

I, MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.32.5 OF THE BUILDING CODE.

Michael O'Rourke
Michael O'Rourke, BCR# 19669
HVAC DESIGNS LTD.

CITY OF HAMILTON
Building Division

Permit No. 21-106977

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These drawings and/or specifications have been reviewed by
[Signature] 07/24/21
FOR CHIEF BUILDING OFFICIAL DATE

LOT 312
CSA-F280-12
PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	3.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	2.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	1.		
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	No.	Description	Date

REVISIONS

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Client
GREENPARK HOMES

Project Name
**RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO**

**LOT 312
MOUNTAINASH 4 3190 sqft**

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Sheet Title
**SECOND FLOOR
HEATING
LAYOUT**

Date
SEPT/2020

Scale
3/16" = 1'-0"

BCIN# 19669

LO# **87571**