

SITE NAME: RUSSEL GARDENS PHASE 3

LOT 227

DATE: Nov-20

WINTER NATURAL AIR CHANGE RATE 0.306

HEAT LOSS AT °F. 71

CSA-F280-12

BUILDER: GREENPARK HOMES

TYPE: MOUNTAINASH 4

GFA: 3190

LO# 88161

SUMMER NATURAL AIR CHANGE RATE 0.109

HEAT GAIN AT °F. 13

SB-12 PACKAGE A1

ROOM USE	MBR	ENS	FLEX	BED-2	BED-3	BED-4	ENS-2	BED-5	S-ENS
EXP. WALL	43	22	44	13	12	11	10	11	21
CLG. HT.	9	9	9	9	9	9	9	9	9
FACTORS									
GRS.WALL AREA	357	198	396	117	108	99	90	99	189
GLAZING	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN
NORTH	19.8 14.9	0 0 0	0 0 0	16 316 239	16 316 239	0 0 0	0 0 0	0 0 0	0 0 0
EAST	19.8 38.4	0 0 0	0 0 0	73 1443 2802	0 0 0	34 672 1305	0 0 0	0 0 0	23 456 883
SOUTH	19.8 23.1	0 0 0	7 138 162	0 0 0	0 0 0	0 0 0	13 257 301	7 138 162	13 257 301
WEST	19.8 38.4	32 633 1228	14 277 537	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
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
NET EXPOSED WALL	4.1 0.8	355 1472 267	177 734 133	307 1273 231	101 419 76	74 307 56	36 357 65	83 344 62	86 357 65
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
EXPOSED CLG	1.2 0.6	316 377 186	120 143 71	189 225 111	260 310 153	142 169 83	200 238 118	150 179 88	143 170 84
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
EXPOSED FLOOR	2.4 0.4	0 0 0	0 0 0	20 47 9	69 163 30	216 512 53	0 0 0	0 0 0	0 0 0
BASEMENT/CRAWL HEAT LOSS		0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS		0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS		2481	1292	3381	1208	1711	852	661	784
SUB TOTAL HT GAIN			1681	903	3430	497	1562	483	312
LEVEL FACTOR / MULTIPLIER	0.20 0.23	0.20 0.23	0.20 0.23	0.20 0.23	0.20 0.23	0.20 0.23	0.20 0.23	0.20 0.23	0.20 0.23
AIR CHANGE HEAT LOSS		581	302	792	283	401	199	155	184
AIR CHANGE HEAT GAIN			124	67	253	37	115	36	23
DUCT LOSS		0	0	417	149	211	0	0	0
DUCT GAIN		0	0	417	126	240	0	0	0
HEAT GAIN PEOPLE	240	2	480	0	0	1	240	0	1
HEAT GAIN APPLIANCES/LIGHTS			486	0	486	486	486	486	486
TOTAL HT LOSS BTU/H		3062	1694	4590	1640	2323	1051	816	968
TOTAL HT GAIN x 1.3 BTU/H		3602	1260	5960	1801	3436	1817	436	1570

ROOM USE	FAM	L/D	K/B	L/H	LND	WR	FDY	BAS
EXP. WALL	34	24	37	18	0	26	42	176
CLG. HT.	11	11	11	11	9	12	11	8
FACTORS								
GRS.WALL AREA	360	254	392	191	0	302	445	1056
GLAZING	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN
NORTH	19.8 14.9	8 158 120	0 0 0	9 178 134	0 0 0	0 0 0	0 0 0	5 99 75
EAST	19.8 38.4	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	6 119 230	7 138 289
SOUTH	19.8 23.1	0 0 0	33 652 763	0 0 0	12 237 277	0 0 0	0 0 0	10 198 231
WEST	19.8 38.4	40 791 1536	0 0 0	71 1404 2725	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	12 281 51	0 0 0	20 469 85	40 938 170	20 469 85
NET EXPOSED WALL	4.1 0.8	312 1295 235	221 918 166	300 1245 226	179 741 134	0 0 0	275 1138 206	399 1655 300
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
EXPOSED CLG	1.2 0.6	0 0 0	0 0 0	0 0 0	0 0 0	73 87 43	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
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
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		2244	1570	3107	978	37	1746	2712
SUB TOTAL HT GAIN			1890	929	3137	412	395	700
LEVEL FACTOR / MULTIPLIER	0.30 0.40	0.30 0.40	0.30 0.40	0.30 0.40	0.20 0.23	0.30 0.40	0.30 0.40	0.50 1.12
AIR CHANGE HEAT LOSS		896	520	1228	387	20	690	1071
AIR CHANGE HEAT GAIN			139	89	231	30	29	52
DUCT LOSS		0	0	0	0	0	0	0
DUCT GAIN		0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			486	486	486	486	486	486
TOTAL HT LOSS BTU/H		3130	2190	4335	1365	107	2436	3783
TOTAL HT GAIN x 1.3 BTU/H		3269	1929	5010	1206	691	553	978

TOTAL HEAT GAIN BTU/H:

37175

TONS: 3.10

LOSS DUE TO VENTILATION LOAD BTU/H: 1819

STRUCTURAL HEAT LOSS: 50741

TOTAL COMBINED HEAT LOSS BTU/H: 52550

Michael O'Rourke

SITE NAME: RUSSEL GARDENS PHASE 3
BUILDER: GREENPARK HOMES

LOT 227
TYPE: MOUNTAINASH 4

DATE: Nov-20

GFA: 3190 LO# 88161

HEATING CFM 1131
TOTAL HEAT LOSS 50,741
AIR FLOW RATE CFM 22.29
COOLING CFM 1131
TOTAL HEAT GAIN 36,847
AIR FLOW RATE CFM 30.69

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 928
MEDIUM HIGH 1017
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	14	7	4
R/A	0	0	6	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	20	21	22	23	24
ROOM NAME	ENS	MBR	FLEX	BED-2	BED-3	BED-4	ENS-2	FLEX	BED-3	MBR	S-ENS	FAM	L/D	K/B	K/B	L/H	BED-5	W/R	FOY	LND	BAS	BAS	BAS	BAS
RM LOSS MBH	1.59	1.53	2.30	1.64	1.16	1.05	0.82	2.30	1.16	1.53	0.98	3.13	2.19	2.17	2.17	1.36	0.97	2.44	3.78	0.11	3.85	3.85	3.85	3.85
CFM PER RUN HEAT	36	34	51	37	26	23	18	51	26	34	22	70	49	48	48	30	22	54	84	2	86	86	86	86
RM GAIN MBH	1.26	1.80	2.98	1.80	1.72	1.62	0.44	2.98	1.72	1.80	0.84	3.27	1.93	2.50	2.50	1.21	1.57	0.55	0.98	0.69	0.46	0.46	0.46	0.46
CFM PER RUN COOLING	39	55	91	55	53	50	13	91	53	55	26	100	59	77	77	37	48	17	30	21	14	14	14	14
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	0.16	0.17	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	27	67	51	56	61	46	49	58	49	40	56	26	25	38	44	40	23	47	48	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	160	120	100	130	130
TOTAL EFFECTIVE LENGTH	157	217	211	196	161	256	249	188	239	140	186	156	165	158	164	180	183	177	158	208	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	0.09	0.1	0.1	0.11	0.1	0.1	0.09	0.1	0.1	0.08	0.11	0.14	0.11	0.09
ROUND DUCT SIZE	4	5	6	6	5	6	4	6	5	5	4	6	5	5	5	4	6	5	6	4	6	6	6	6
HEATING VELOCITY (ft/min)	413	250	260	189	191	117	207	260	191	250	252	357	360	352	352	344	112	396	428	23	438	438	438	438
COOLING VELOCITY (ft/min)	447	404	464	280	389	255	149	464	389	404	298	510	433	565	565	424	245	125	153	241	71	71	71	71
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	3X10	4X10	4X10	4X10	4X10
TRUNK	C	A	D	A	E	D	D	D	D	C	E	C	E	B	B	D	C	A	D	A	B	C	E	D

RUN #	25
ROOM NAME	S-ENS
RM LOSS MBH	0.98
CFM PER RUN HEAT	22
RM GAIN MBH	0.84
CFM PER RUN COOLING	26
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	51
EQUIVALENT LENGTH	140
TOTAL EFFECTIVE LENGTH	191
ADJUSTED PRESSURE	0.09
ROUND DUCT SIZE	4
HEATING VELOCITY (ft/min)	252
COOLING VELOCITY (ft/min)	298
OUTLET GRILL SIZE	3X10
TRUNK	E

SUPPLY AIR TRUNK SIZE														RETURN AIR TRUNK SIZE													
	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)			TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)			TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)		
TRUNK A	127	0.08	6.5	8	x	8	286			TRUNK G	0	0.00	0	0	x	8	0		TRUNK O	0	0.05	0	0	x	8	0	
TRUNK B	182	0.10	7	8	x	8	410			TRUNK H	0	0.00	0	0	x	8	0		TRUNK P	0	0.05	0	0	x	8	0	
TRUNK C	557	0.08	11.3	14	x	8	716			TRUNK I	0	0.00	0	0	x	8	0		TRUNK Q	0	0.05	0	0	x	8	0	
TRUNK D	369	0.07	10	12	x	8	554			TRUNK J	0	0.00	0	0	x	8	0		TRUNK R	0	0.05	0	0	x	8	0	
TRUNK E	574	0.07	11.8	16	x	8	646			TRUNK K	0	0.00	0	0	x	8	0		TRUNK S	0	0.05	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		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	876	0.05	15	26	x	8	606	
																			TRUNK Y	435	0.05	11.6	16	x	8	489	
																			TRUNK Z	255	0.05	9.5	10	x	8	459	
																			DROP	1131	0.05	16.5	24	x	10	679	

RETURN AIR #	1	2	3	4	5	6	7	8											BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	85	95	95	85	75	280	155	90	0	0	0	0	0	0	0	0	0	171	
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	
ACTUAL DUCT LGH.	51	42	57	53	63	26	26	48	1	1	1	1	1	1	1	1	1	15	
EQUIVALENT LENGTH	205	165	155	205	210	185	190	155	0	0	0	0	0	0	0	0	0	185	
TOTAL EFFECTIVE LH	256	207	212	258	273	211	216	203	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	0.07	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	7.2	5.9	0	0	0	0	0	0	0	0	0	7.5	
INLET GRILL SIZE	8	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	8	
	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	14	0	0	0	0	0	0	0	0	0	14	

TYPE: MOUNTAINASH 4
 SITE NAME: RUSSEL GARDENS PHASE 3

 LO # 88161
 LOT 227

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	4 @ 10.6 cfm 42.4 cfm
Kitchen & Bathrooms	5 @ 10.6 cfm 53 cfm
Other Rooms	8 @ 10.6 cfm 84.8 cfm
Table 9.32.3.A.	TOTAL 222.6 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	95.4 cfm

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.	
Total Ventilation Capacity	222.6 cfm
Less Principal Ventil. Capacity	95.4 cfm
Required Supplemental Capacity	127.2 cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANE 65H	Location: BSMT
95.4 cfm	3.0 sones
☒	HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
95.4 CFM	71 F	1.08	0.25

SUPPLEMENTAL FANS PANASONIC	
Location	Model
ENS	FV-05-11VK1
ENS-2	FV-05-11VK1
S-ENS	FV-05-11VK1
W/R	FV-05-11VK1

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

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

LO#: 88161

Model: MOUNTAINASH 4 ✓

Builder: GREENPARK HOMES

Date: 09/11/2020

Volume Calculation
Air Change & Delta T Data
House Volume

Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)
Bsmt	1398	8	11184
First	1398	11	14818.8
Second	1792	9	16128
Third	0	9	0
Fourth	0	9	0
Total:			42,130.8 ft ³
Total:			1193.0 m ³

WINTER NATURAL AIR CHANGE RATE	0.306
SUMMER NATURAL AIR CHANGE RATE	0.109

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
6.2.6 Sensible Gain due to Air Leakage

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

$$0.306 \times 331.39 \times 39^\circ\text{C} \times 1.2 = 4769 \text{ W}$$

$$= 16272 \text{ Btu/h}$$

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

$$= 0.109 \times 331.39 \times 7^\circ\text{C} \times 1.2 = 309 \text{ W}$$

$$= 1056 \text{ Btu/h}$$

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

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

$$95 \text{ CFM} \times 71^\circ\text{F} \times 1.08 \times 0.25 = 1819 \text{ Btu/h}$$

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

$$95 \text{ CFM} \times 13^\circ\text{F} \times 1.08 \times 0.25 = 330 \text{ Btu/h}$$

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

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

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 / HL _{level})
1	0.5	16,272	7,256	1.121
2	0.3		12,358	0.395
3	0.2		13,900	0.234
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 HLairv = 0

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: MOUNTAINASH 4 ✓	LOT 227	BUILDER: GREENPARK HOMES
SFQT: 3190	LO# 88161	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):	42130.8	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
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: 52.0 ft	WIDTH: 36.0 ft	EXPOSED PERIMETER:	176.0 ft

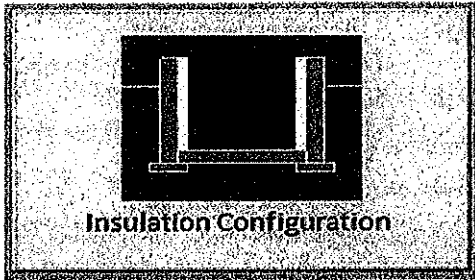
2012 OBC - COMPLIANCE PACKAGE

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	 Insulation Configuration
Floor Width (m):	11.0	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.4	
Depth Below Grade (m):	1.83	
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):		1516

TYPE: MOUNTAINASH 4
LO# 88161

LOT 227

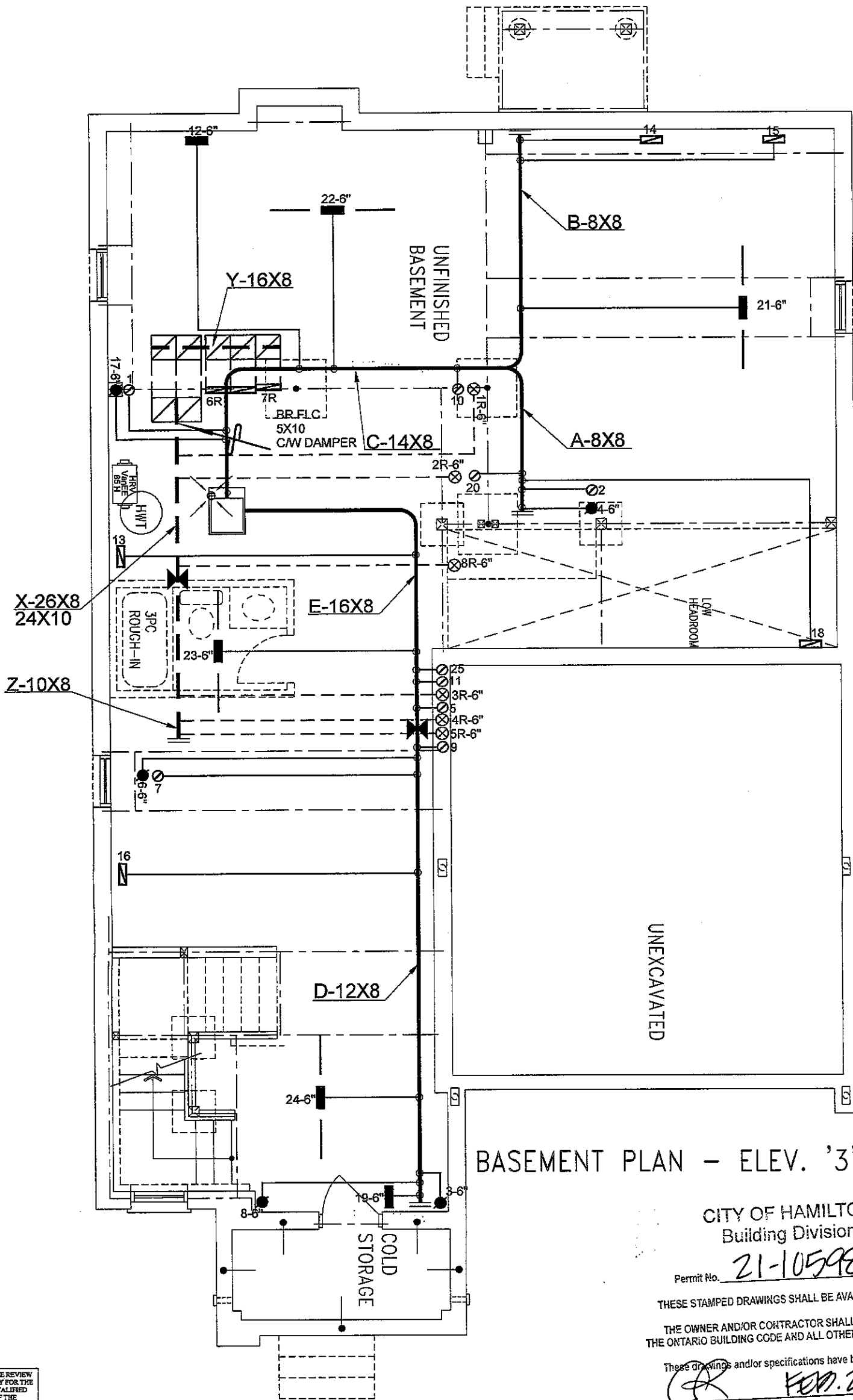
Air Infiltration Residential Load Calculator

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):	6.58			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1193.0			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1590.3 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	45.0	45.0		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.306			
Cooling Air Leakage Rate (ACH/H):	0.109			

TYPE: MOUNTAINASH 4
LO# 88161

LOT 227



BASEMENT PLAN - ELEV. '3'

CITY OF HAMILTON
Building Division

Permit No. 21-105985

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
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These drawings and/or specifications have been reviewed by
[Signature] FEB. 23/21
FOR CHIEF BUILDING OFFICIAL DATE

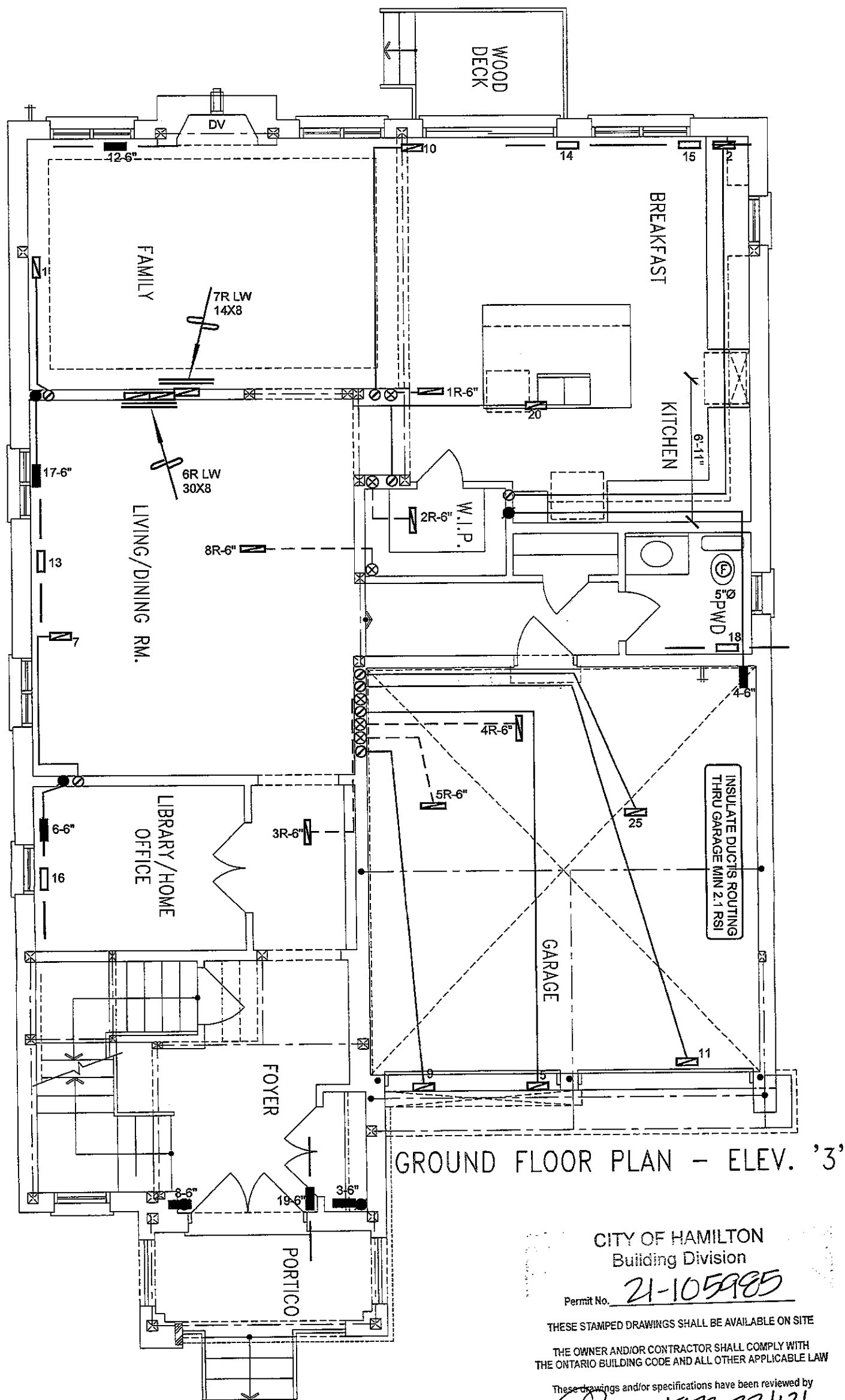
LOT 227
CSA-F280-12
PACKAGE A1

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	2.	
	SUPPLY AIR GRILLE		8" 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
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA - FLOOR RETURN AIR GRILLE		REDUCER	Date	

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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.	HEAT LOSS 52560 BTU/H UNIT DATA	# OF RUNS S/A R/A FANS	Sheet Title			
GREENPARK HOMES		MAKE GOODMAN	3RD FLOOR			BASEMENT HEATING LAYOUT	
Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO		MODEL GMEC960603BNA	2ND FLOOR	14	6		4
		INPUT 60 MBTUH	1ST FLOOR	7	2		2
LOT 227 MOUNTAINASH 4 3190 sqft		OUTPUT 57.6 MBTUH	BASEMENT	4	1	0	Date NOV/2020
	COOLING 3.0 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				Scale 3/16" = 1'-0"	
	FAN SPEED 1131 cfm @ 0.5" w.c.					BCIN# 19669	
						LO# 88161	



I MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORKS AND AM QUALIFIED UNDER DIVISION C.3.2.5 OF THE BUILDING CODE.

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

CITY OF HAMILTON
Building Division
Permit No. 21-105985

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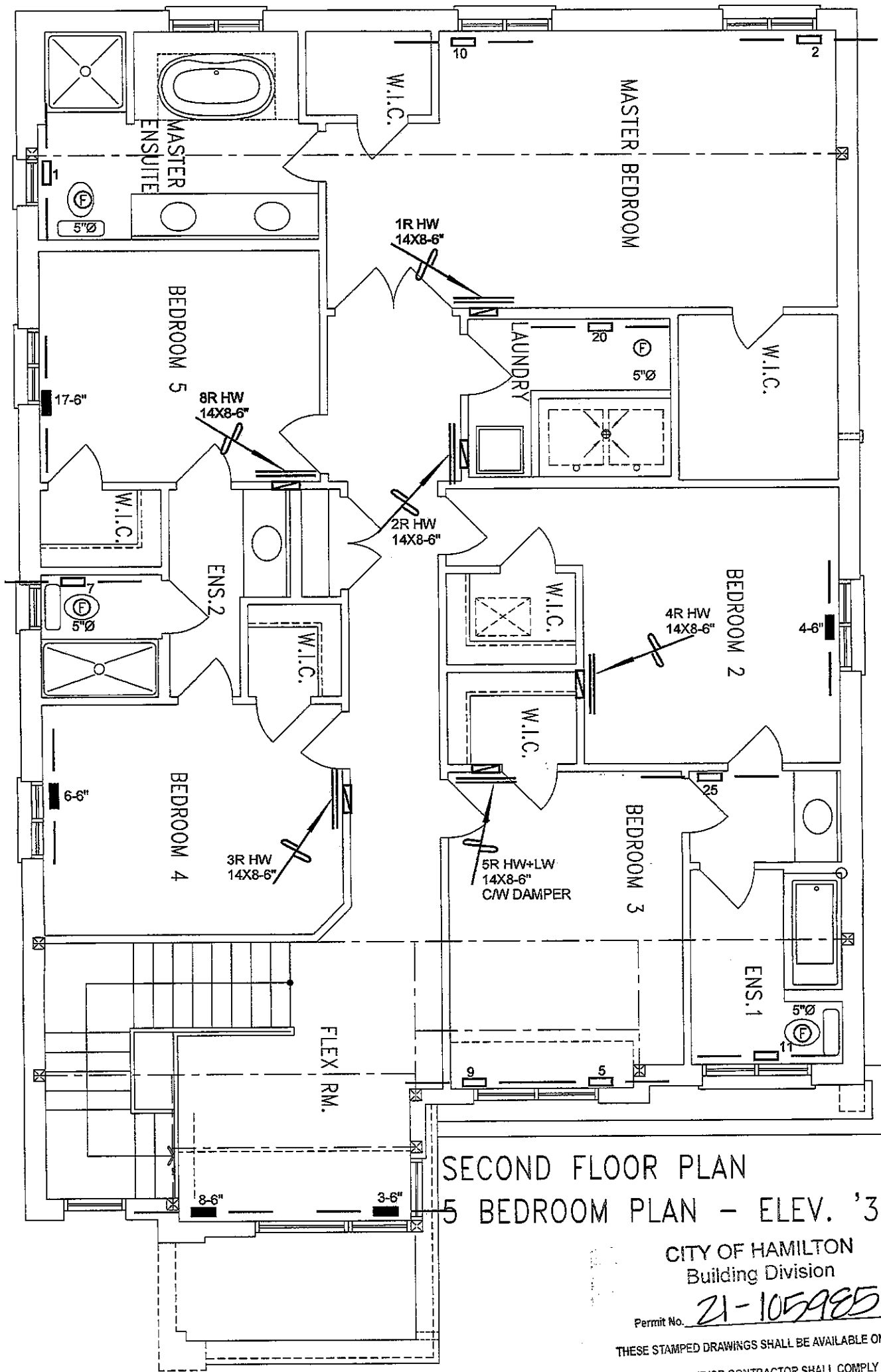
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LOT 227
CSA-F280-12
PACKAGE A1

HVAC LEGEND						3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
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	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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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 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 NOV/2020	
LOT 227			Scale 3/16" = 1'-0"	
MOUNTAINASH 4 3190 sqft			BCIN# 19669	
			LO# 88161	



SECOND FLOOR PLAN
5 BEDROOM PLAN - ELEV. '3'

CITY OF HAMILTON
Building Division

Permit No. 21-105985

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[Signature] FEB. 23/21
FOR CHIEF BUILDING OFFICIAL DATE

LOT 227
CSA-F280-12
PACKAGE A1

I MICHAEL O'BROCK 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'Brock, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	3.	
	SUPPLY AIR GRILLE		8" 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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ONTARIO BUILDING CODE.

Client

GREENPARK HOMES

Project Name

RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO

LOT 227

MOUNTAINASH 4 3190 sqft

HVAC DESIGNS LTD.

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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 NOV/2020

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 88161