

SITE NAME: RUSSEL GARDENS PHASE 3

LOT 16

DATE: Aug-20

WINTER NATURAL AIR CHANGE RATE 0.356

HEAT LOSS AT °F. 71

CSA-F280-12

BUILDER: GREENPARK HOMES

TYPE: MOUNTAINASH 5

GFA: 3323

LO# 87363

SUMMER NATURAL AIR CHANGE RATE 0.127

HEAT GAIN AT °F. 13

SB-12 PACKAGE A1

SOLDIER, GREENPARK HOMES				TYPE: MOUNTAINASH 5				GFA: 3323				LO# 87363				SUMMER NATURAL AIR CHANGE RATE 0.000				HEAT LOSS AT °F. 71				CSA-F200																							
ROOM USE				MBR				ENS				WIC				BED-2				BED-3				BED-4				ENS-2				FLEX				WIC-3				S-ENS							
EXP. WALL				33				30				7				27				37				12				6				11				6				5							
CLG. HT.				9				9				9				9				9				9				9				9				9				9							
FACTORS																																															
GRS.WALL AREA				LOSS GAIN				297				270				63				243				333				108				54				99				46				54			
GLAZING				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN			
NORTH				19.8	13.9	0	0	0	14	277	195	0	0	0	13	267	181	0	0	0	0	0	0	7	138	97	16	316	223	0	0	0	0	0	0												
EAST				19.8	35.2	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													
SOUTH				19.8	21.3	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													
WEST				19.8	35.2	36	712	1268	18	356	634	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0												
SKYL.T.				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	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	0	0	0	0													
NET EXPOSED WALL				4.1	0.8	261	1082	196	238	987	179	63	261	47	182	755	137	271	1123	204	92	381	69	47	195	35	83	344	62	36	149	27	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	0	0	0													
EXPOSED CLG				1.2	0.6	267	318	167	221	263	130	140	167	82	252	300	148	228	272	134	180	215	106	66	79	39	209	249	123	40	48	24	72	86	42												
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													
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													
BASEMENT/CRAWL HEAT LOSS						0			0				0				0			0			68	161	29	59	163	30	40	98	17	0	0	0													
SLAB ON GRADE HEAT LOSS						0			0				0				0			0			0			0			0			0		0													
SUBTOTAL HT LOSS									0				0				0			0			0			0			0			0		0													
SUB TOTAL HT GAIN						2112			1883			428		2832		2621		912		516			573			1073		470			419																
LEVEL FACTOR / MULTIPLIER				0.20	0.28		0.20	0.28	1138			130		2260		2522				516			201			437		365			227																
AIR CHANGE HEAT LOSS						581			516			119		779		721				251			158			296		129			116																
AIR CHANGE HEAT GAIN							133		93			11		186		207				42			16			36		32			19																
DUCT LOSS						0			0				361		0					0			73			137		60			0																
DUCT GAIN						0			0			0		329		0			0		0		73			137		60			0																
HEAT GAIN PEOPLE				240		2			480	0	0	0	0	1		240	1		240	1		240	0		22		47		42			0															
HEAT GAIN APPLIANCES/LIGHTS									608	0	0	0	0	1		608			608			608	0		0		0		0		0		0														
TOTAL HT LOSS BTU/H						2893			2401			546		3972		3342			1163			804			1505		659			534																	
TOTAL HT GAIN x 1.3 BTU/H						3695			1800			182		4710		4650			1830			311			677		595			319																	

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	FAM	L/D	K/B	L/H	LND	WR	FOY	MUD	WOB	BAS
GRS.WALL AREA	LOSS	GAIN		360	300	370	180	108	180	180	330	368	816
GLAZING	LOSS	GAIN		LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
NORTH	19.8	13.9	0	0	0	0	0	0	0	0	0	0	0
EAST	19.8	35.2	0	0	0	0	0	0	0	0	0	0	0
SOUTH	19.8	21.3	0	0	0	0	0	0	0	0	0	0	0
WEST	19.8	35.2	48	949	1691	0	0	0	0	0	0	0	0
SKYL.T.	34.6	101.5	0	0	0	0	0	0	0	0	0	0	0
DOORS	23.6	4.3	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.1	0.8	312	1293	235	260	1078	195	310	1285	233	177	734
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	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
NO ATTIC EXPOSED CLG	2.6	1.3	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
BASEMENT/CRAWL HEAT LOSS													
SLAB ON GRADE HEAT LOSS													
SUBTOTAL HT LOSS				2242		1869		2545		991		772	
SUB TOTAL HT GAIN					1925		1049		1727		411		331
LEVEL FACTOR / MULTIPLIER	0.30	0.49		0.30	0.49	0.30	0.49	0.30	0.49	0.30	0.49	0.30	0.49
AIR CHANGE HEAT LOSS			1103		919		1251		487		212		538
AIR CHANGE HEAT GAIN				150		86		142		34		27	
DUCT LOSS			0		0		0		0		0		0
DUCT GAIN			0		0		0		0		0		0
HEAT GAIN PEOPLE	240		0		0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				608		608		608		608		608	
TOTAL HT LOSS BTU/H				3345		2787		3796		1478		984	
TOTAL HT GAIN x 1.3 BTU/H				3499		2257		3220		1369		1257	

TOTAL HEAT GAIN BTU/H:

36582

TONS: 3.05

LOSS DUE TO VENTILATION LOAD BTU/H: 1515

STRUCTURAL HEAT LOSS: 53187

TOTAL COMBINED HEAT LOSS BTU/H: 54702

Michael O'Rourke

SITE NAME: RUSSEL GARDENS PHASE 3
 BUILDER: GREENPARK HOMES

 LOT 16
 TYPE: MOUNTAINASH 5

DATE: Aug-20

GFA: 3323 LO# 87363

 HEATING CFM 1131 COOLING CFM 1131
 TOTAL HEAT LOSS 53,187 TOTAL HEAT GAIN 38,308
 AIR FLOW RATE CFM 21.26 AIR FLOW RATE CFM 31.15

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

 #GOODMAN
 GMEC980603BNA 80
 FAN SPEED LOW

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	15	8	4
R/A	0	0	6	2	1

 plenum pressure s/a 0.18
 max s/a dif 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

 MEDLOW
 MEDIUM 928
 MEDIUM HIGH 1017
 HIGH 1131

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

TEMPERATURE RISE 47 °F

 All S/A diffusers 4"x10" unless noted otherwise on layout.
 All S/A runs 5"x0" 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-2	FLEX	WIC-3	MBR	S-ENS	FAM	L/D	K/B	K/B	L/H	LND	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.35	1.20	0.55	1.99	1.67	1.16	0.80	1.50	0.66	1.35	0.53	3.34	2.79	1.90	1.90	1.48	0.98	1.63	2.41	2.20	4.24	4.24	4.24	4.24
CFM PER RUN HEAT	29	26	12	42	36	25	17	32	14	29	11	71	59	40	40	31	21	35	51	47	90	90	90	90
RM GAIN MBH	1.85	0.80	0.18	2.36	2.33	1.83	0.31	0.68	0.60	1.85	0.32	3.50	2.27	1.61	1.61	1.37	1.26	1.26	0.68	0.48	0.93	0.93	0.93	0.93
CFM PER RUN COOLING	58	25	6	73	72	57	10	21	19	58	10	109	71	50	50	43	39	39	21	15	29	29	29	29
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.15	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.	37	56	39	59	56	34	34	51	45	39	22	10	40	31	27	20	33	41	44	56	33	5	31	31
EQUIVALENT LENGTH	190	180	150	130	170	200	220	160	110	130	150	140	130	150	160	140	180	110	90	140	130	140	140	130
TOTAL EFFECTIVE LENGTH	227	216	189	189	226	234	254	211	155	169	189	162	140	190	191	167	200	143	131	184	173	145	161	161
ADJUSTED PRESSURE	0.08	0.08	0.09	0.09	0.08	0.07	0.07	0.08	0.11	0.1	0.09	0.09	0.12	0.09	0.09	0.1	0.09	0.12	0.13	0.09	0.09	0.11	0.1	0.1
ROUND DUCT SIZE	5	4	4	5	6	5	4	4	4	5	4	6	5	5	5	4	4	4	4	5	6	6	6	6
HEATING VELOCITY (ft/min)	213	298	138	308	184	184	195	367	161	213	126	362	433	294	294	356	241	402	585	345	459	459	459	459
COOLING VELOCITY (ft/min)	426	287	69	536	367	419	115	241	218	426	115	556	521	367	367	493	447	447	241	110	148	148	148	148
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	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	C	C	A	D	B	D	B	D	A	A	C	B	C	C	A	A	B	D	C

RUN #	25	26	27
ROOM NAME	BED-2	BED-3	ENS
RM LOSS MBH	1.99	1.67	1.20
CFM PER RUN HEAT	42	36	26
RM GAIN MBH	2.36	2.33	0.80
CFM PER RUN COOLING	73	72	25
ADJUSTED PRESSURE	0.17	0.17	0.17
ACTUAL DUCT LGH.	52	48	52
EQUIVALENT LENGTH	120	170	130
TOTAL EFFECTIVE LENGTH	172	218	182
ADJUSTED PRESSURE	0.1	0.08	0.09
ROUND DUCT SIZE	6	5	4
HEATING VELOCITY (ft/min)	214	264	298
COOLING VELOCITY (ft/min)	372	529	287
OUTLET GRILL SIZE	4X10	3X10	3X10
TRUNK	D	C	A

SUPPLY AIR TRUNK SIZE														RETURN AIR TRUNK SIZE													
	TRUNK	STATIC	ROUND	RECT			VELOCITY		TRUNK	STATIC	ROUND	RECT			VELOCITY		TRUNK	STATIC	ROUND	RECT			VELOCITY				
	CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT			(ft/min)				
TRUNK A	301	0.08	8.9	10	X	8	542	TRUNK G	0	0.00	0	0	X	8	0	TRUNK O	0	0.05	0	0	X	8	0				
TRUNK B	553	0.08	11.2	14	X	8	711	TRUNK H	0	0.00	0	0	X	8	0	TRUNK P	0	0.05	0	0	X	8	0				
TRUNK C	321	0.07	9.5	10	X	8	578	TRUNK I	0	0.00	0	0	X	8	0	TRUNK Q	0	0.05	0	0	X	8	0				
TRUNK D	579	0.07	11.8	16	X	8	651	TRUNK J	0	0.00	0	0	X	8	0	TRUNK R	0	0.05	0	0	X	8	0				
TRUNK E	0	0.00	0	0	X	8	0	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	1041	0.05	16	30	X	8	625				
																TRUNK Y	695	0.05	13.8	22	X	8	569				
																TRUNK Z	445	0.05	11.6	16	X	8	501				
																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	0	0	0	0	171
AIR VOLUME	90	85	90	90	85	75	360	85	0	0	0	0	0	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	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	41	52	53	58	53	59	45	41	1	1	1	1	1	1	1	1	1	1	1	1	1	15	
EQUIVALENT LENGTH	185	195	165	165	215	265	165	190	0	0	0	0	0	0	0	0	0	0	0	0	0	150	
TOTAL EFFECTIVE LH	226	247	218	223	268	324	210	231	1	1	1	1	1	1	1	1	1	1	1	1	1	165	
ADJUSTED PRESSURE	0.07	0.06	0.07	0.07	0.06	0.05	0.07	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	0.09	
ROUND DUCT SIZE	5.9	6	5.9	5.9	6	6	9.9	6	0	0	0	0	0	0	0	0	0	0	0	0	0	7	
INLET GRILL SIZE	8	8	8	8	8	8	8	8	0	0	0	0	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	X	X	X	X	
INLET GRILL SIZE	14	14	14	14	14	14	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	14	

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	90	85	90	90	85	75	360	85	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.	41	52	53	58	53	59	45	41	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	185	195	165	165	215	265	165	190	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	226	247	218	223	268	324	210	231	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.07	0.06	0.07	0.07	0.06	0.05	0.07	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	14.80	14.80	14.80
ROUND DUCT SIZE	5.9	6	5.9	5.9	6	6	9.9	6	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	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	X	X	X	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	14	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: MOUNTAINASH 5
 SITE NAME: RUSSEL GARDENS PHASE 3

 LO # 87363
 LOT 16

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	7 @ 10.6 cfm	74.2 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	FACTOR	% LOSS
79.5 CFM	X 71 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		PANASONIC		
Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	☒	0.3
ENS-2	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	64 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:	August-20

 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* MICHAEL O'ROURKE

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																														
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																														
LO#: 87363	Model: MOUNTAINASH 5	Builder: GREENPARK HOMES	Date: 28/08/2020																																																											
Volume Calculation		Air Change & Delta T Data																																																												
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5.2.3.1 Heat Loss due to Air Leakage		6.2.6 Sensible Gain due to Air Leakage																																																												
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.356 x 339.17 x 39 °C x 1.2 = 5681 W = 19384 Btu/h		$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ 0.127 x 339.17 x 7 °C x 1.2 = 369 W = 1258 Btu/h																																																												
5.2.3.2 Heat Loss due to Mechanical Ventilation		6.2.7 Sensible heat Gain due to Ventilation																																																												
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 71 °F x 1.08 x 0.25 = 1515 Btu/h		$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 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)																																																														
$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclel} + HL_{bgclel})\}$																																																														
Level	Level Factor (LF)	HL _{airbv} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clel})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{clel})																																																										
1	0.5	19,384	7,252	1.336																																																										
2	0.3		11,826	0.492																																																										
3	0.2		14,094	0.275																																																										
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 5	LOT 16	BUILDER: GREENPARK HOMES
SFQT: 3323	LO# 87363	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):	43119.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 55.0 ft	WIDTH: 36.0 ft	EXPOSED PERIMETER:	136.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	46.0 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	-

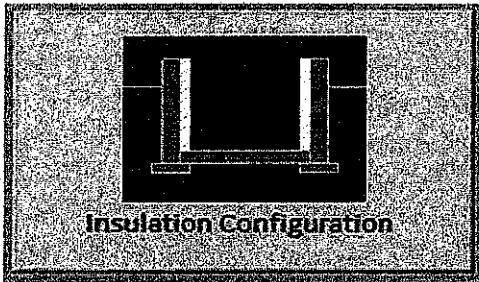
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

Michael O'Rourke

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

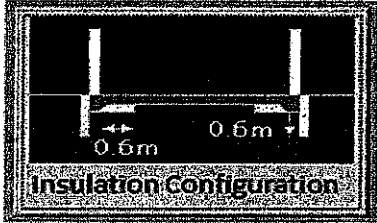
Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	11.0	
Exposed Perimeter (m):	41.5	
Wall Height (m):	2.4	
Depth Below Grade (m):	1.55	
Window Area (m ²):	1.2	
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):	635	

TYPE: MOUNTAINASH 5
LO# 87363

LOT 16

Residential Slab on Grade 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		
Length (m):	1.5	
Width (m):	11.0	
Exposed Perimeter (m):	14.0	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		180

TYPE: MOUNTAINASH 5
LO# 87363

LOT 16

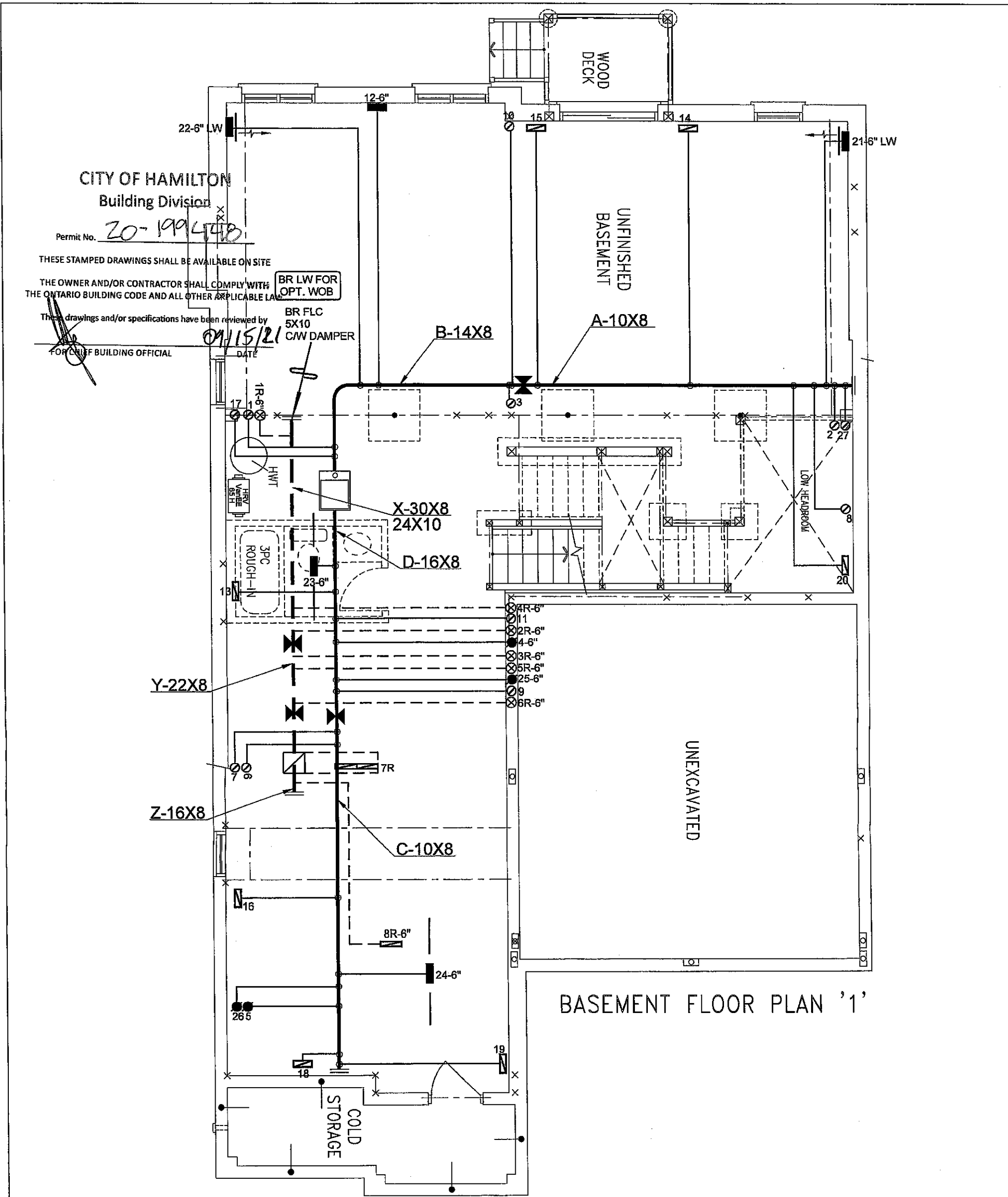
Air Infiltration Residential Load Calculator

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):	8.23		
Building Configuration			
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	1221.0		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1627.6 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):	0.356		
Cooling Air Leakage Rate (ACH/H):	0.127		

TYPE: MOUNTAINASH 5
LO# 87363

LOT 16



BASEMENT FLOOR PLAN '1'

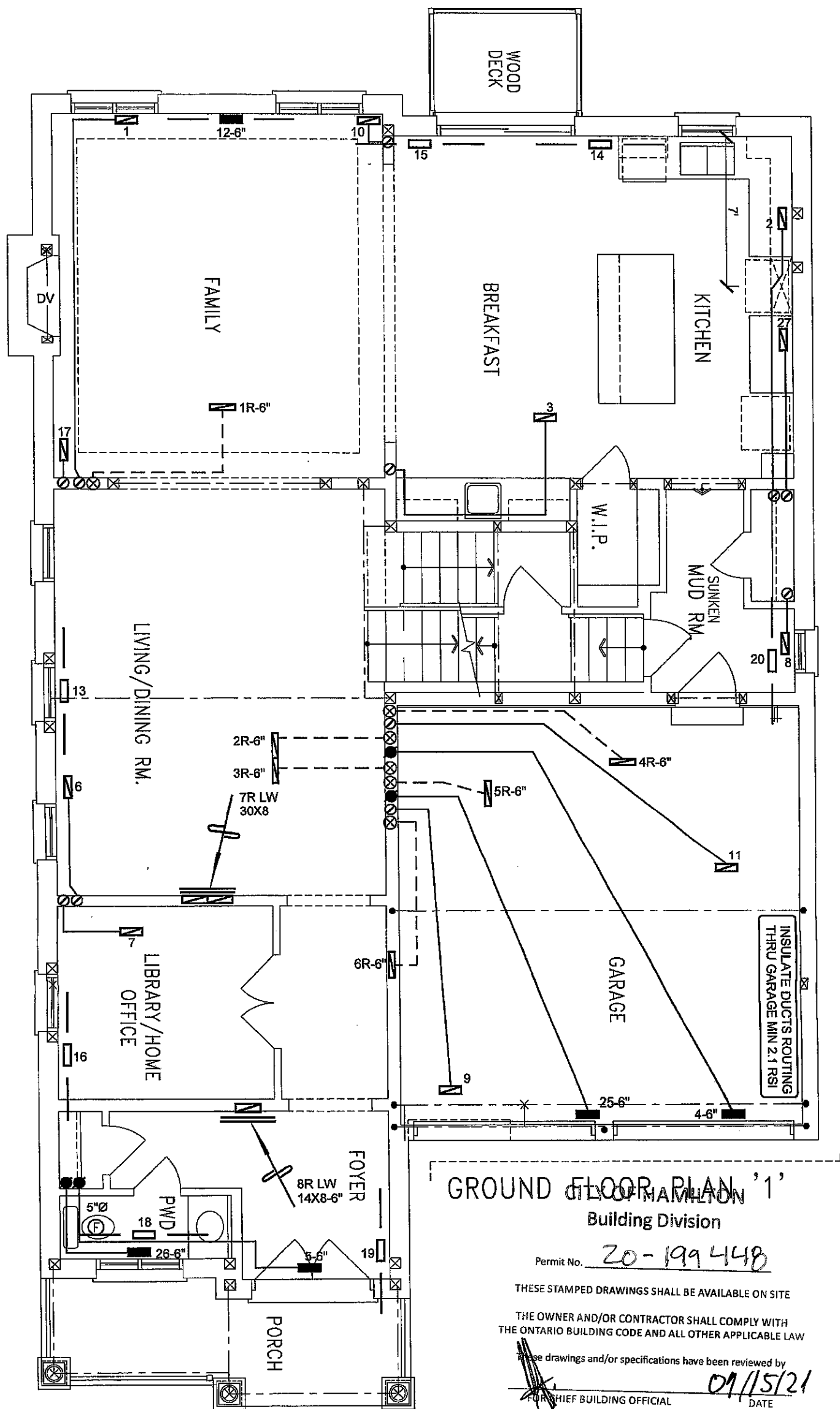
I MICHAEL O'DOURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.32.5 OF THE BUILDING CODE.
Michael O'Dourke
Michael O'Dourke, BCIN# 19669
HVAC DESIGNS LTD.

WOB CSA-F280-12
LOT 16 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"x6" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER
						REVISIONS	
						No.	Description
							Date

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Client GREENPARK HOMES Project Name RUSSEL GARDENS PHASE 3 HAMILTON, ONTARIO LOT 16 MOUNTAINASH 5 3323 sqft	 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 54702 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS				Sheet Title BASEMENT HEATING LAYOUT	
		MAKE GOODMAN		3RD FLOOR					
		MODEL GMEC960603BNA		2ND FLOOR	15	6	4		
		INPUT 60 MBTU/H		1ST FLOOR	8	2	3		
		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"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A				Date AUG/2020	
		FAN SPEED 1131 cfm @ 0.6" w.c.						Scale 3/16" = 1'-0"	
		BCIN# 19669							
								LO#	87363



GROUND FLOOR PLAN '1'
Building Division

Permit No. 20-199448

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/or specifications have been reviewed by

09/15/21
DATE

CHIEF BUILDING OFFICIAL

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

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

WOB CSA-F280-12
LOT 16 PACKAGE A1

HVAC LEGEND

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No.	Description	Date
1.		
2.		
3.		

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Client
GREENPARK HOMES

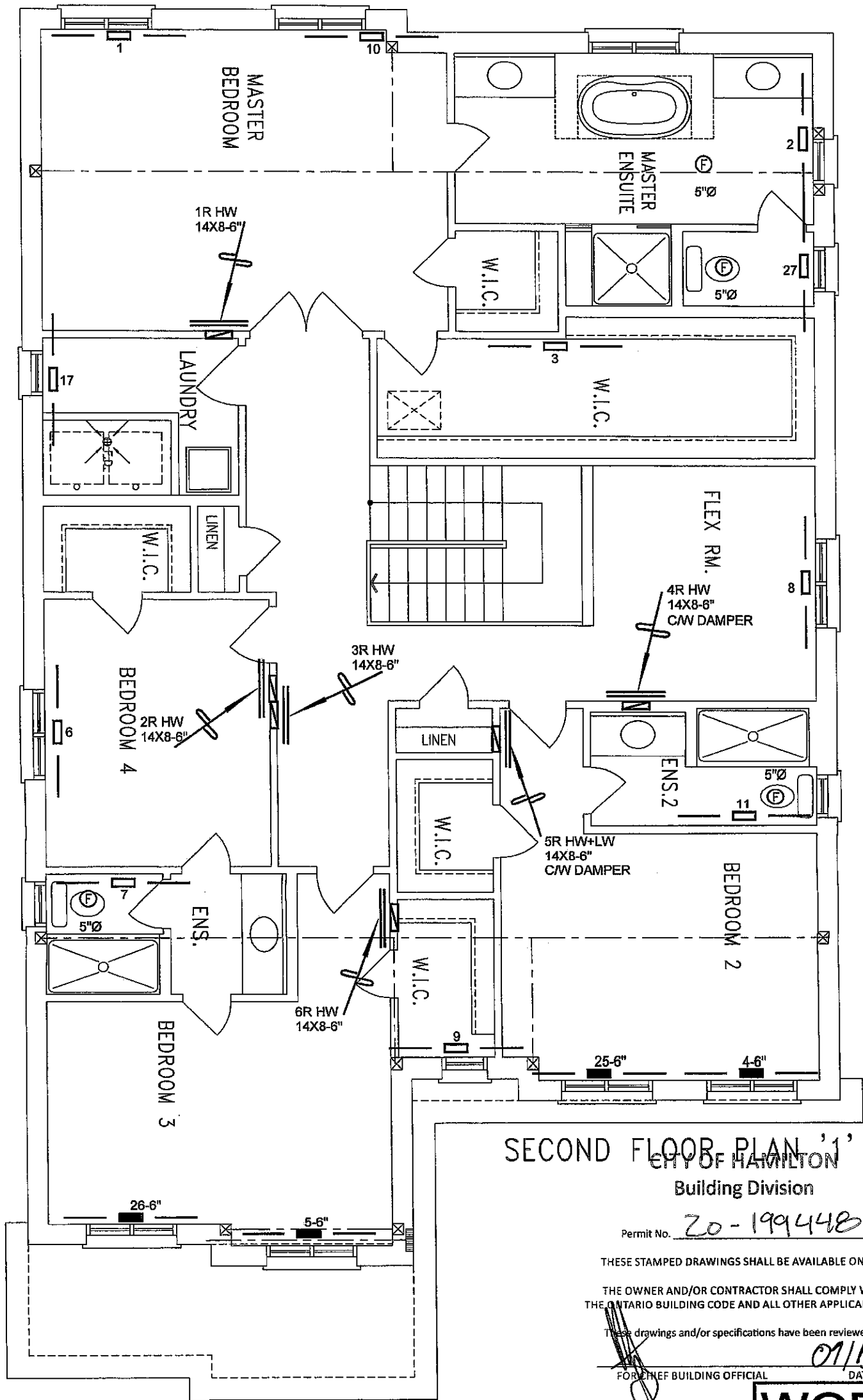
Project Name
**RUSSEL GARDENS PHASE 3
HAMILTON, ONTARIO**

**LOT 16
MOUNTAINASH 5 3323 sqft**

HVAC DESIGNS 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.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/2020**
Scale **3/16" = 1'-0"**
BCIN# 19669
LO# **87363**



SECOND FLOOR PLAN '1'

CITY OF HAMILTON
Building Division
Permit No. 20-199448
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/or specifications have been reviewed by
[Signature] 01/15/21
FOR CHIEF BUILDING OFFICIAL DATE

WOB CSA-F280-12
LOT 16 PACKAGE A1

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3.		
2.		
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No.	Description	Date
REVISIONS		

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Client
GREENPARK HOMES
Project Name
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HAMILTON, ONTARIO**
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