

SITE NAME: RUSSEL GARDENS PH 4				LOT 592				DATE: Oct-21				WINTER NATURAL AIR CHANGE RATE 0.365				HEAT LOSS AT °F. 71				CSA-F280-12							
BUILDER: GREENPARK HOMES				TYPE: GRANDVILLE 9				GFA: 5181				LOF: 93131				SUMMER NATURAL AIR CHANGE RATE 0.130				HEAT GAIN AT °F. 13				SB-12 PACKAGE A1			
ROOM USE		MBR		ENS		WIC		BED-2		BED-3		BED-4		ENS-2		ENS-3		ENS-4		ENS-5		LAUN		BED-5			
EXP. WALL		35		20		7		15		32		28		0		6		5		6		8		15			
CLG. HT.		9		9		9		9		9		9		9		9		9		9		9		9			
FACTORS																											
GRS.WALL AREA		LOSS GAIN		315		180		63		135		288		252		0		54		45		54		135			
GLAZING		LOSS GAIN		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	16.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
EAST		19.8	41.6	0	0	0	0	0	0	0	0	63	1245	2618	48	949	1994	0	0	0	0	0	0	0	0		
SOUTH		19.8	24.9	0	0	0	0	0	0	0	0	0	0	0	15	297	373	0	0	0	0	7	138	174	15		
WEST		19.8	41.6	32	833	1330	22	435	914	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		
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		
NET EXPOSED WALL		4.1	0.8	283	1173	213	158	655	119	63	261	47	119	493	89	225	933	169	189	784	142	0	0	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	0	0		
EXPOSED CLG		1.2	0.6	357	426	210	220	262	129	140	167	82	278	331	163	175	209	103	226	269	133	81	97	48	84		
NO ATTIC EXPOSED CLG		2.6	1.3	0	0	0	0	0	0	0	0	0	0	0	23	59	29	22	56	28	0	0	0	0	0		
EXPOSED FLOOR		2.4	0.4	0	0	0	0	0	0	0	0	0	0	0	198	469	85	0	0	0	23	54	10	63			
BASEMENT/CRAWL HEAT LOSS																											
SLAB ON GRADE HEAT LOSS																											
SUBTOTAL HT LOSS				2231		1352		428		1141		2915		2355		151		598		416		441		595			
SUB TOTAL HT GAIN					1752		1162		130		508		3004		2671		57		239		262		263		315		
LEVEL FACTOR / MULTIPLIER		0.20	0.37			0.20	0.37			0.20	0.37		0.20	0.37		0.20	0.37		0.20	0.37		0.20	0.37		0.20		
AIR CHANGE HEAT LOSS				821		498		158		420		1072		866		56		220		153		162		219			
AIR CHANGE HEAT GAIN					141		93		10		41		242		215		5		19		21		25		55		
DUCT LOSS				0		0		0		0		399		0		21		82		0		0		0			
DUCT GAIN					0		0		0		0		456		0		6		26		0		0		0		
HEAT GAIN PEOPLE		240		2		480		0		0		1		240		1		240		1		240		1		240	
HEAT GAIN APPLIANCES/LIGHTS						1072		0		0				1072				1072		0		0		1072			
TOTAL HT LOSS BTU/H				3052		1850		586		1561		4386		3221		227		900		570		603		814		1659	
TOTAL HT GAIN x 1.3 BTU/H					4478		1632		182		2419		6517		5456		89		369		368		389		1836		2669

ROOM USE	FAM		DN/LV		KIT		LB/OFF		FOY		MUD		FLEX		WIC-2		WOB		BAS	
EXP. WALL	46		29		47		28		40		35		26		25		56		170	
CLG. HT.	10		10		10		10		11		12		10		9		9		9	
FACTORS	LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
GRS.WALL AREA	19.8	16.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GLAZING	19.8	41.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH	19.8	24.9	0	0	0	43	850	1071	14	277	349	0	0	0	0	7	138	174	0	0
EAST	19.8	41.6	40	791	1862	0	0	0	67	1324	2784	0	0	0	0	0	0	0	78	1502
SOUTH	34.6	101.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST	23.5	4.3	0	0	0	0	0	0	15	352	64	0	0	0	0	0	0	0	0	0
SKYL.T.	4.1	0.8	420	1741	316	247	1024	186	374	1550	281	216	895	162	30	704	128	20	469	85
DOORS	3.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	1.2	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED BSMT WALL ABOVE GR	2.6	1.3	10	26	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	2.4	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG																				
EXPOSED FLOOR																				
BASEMENT/CRAWL HEAT LOSS																				
SLAB ON GRADE HEAT LOSS																				
SUBTOTAL HT LOSS			2557		1874		3503		2161		5522		4252		2721		1192		4496	
SUB TOTAL HT GAIN				1990		1256		3477		1411		1733		1471		1001		439		344
LEVEL FACTOR / MULTIPLIER	0.30	0.65			0.30	0.65			0.30	0.65		0.30	0.65		0.20	0.37		0.20	0.37	
AIR CHANGE HEAT LOSS			1670		1224		2288		1411		1733		1471		1001		439		33	
AIR CHANGE HEAT GAIN				160		101		280		1411		1733		1471		1001		439		344
DUCT LOSS			0		0		0		0		0		0		0		0		0	
DUCT GAIN				0		0		0		0			0		0		0		0	
HEAT GAIN PEOPLE	240		0		0		0		0		0		0		0		0		0	
HEAT GAIN APPLIANCES/LIGHTS					1072		1072		1072		1072		1072		1072		1072		1072	
TOTAL HT LOSS BTU/H			4227		3098		5791		3571		4982		3723		3722		1631		4496	
TOTAL HT GAIN x 1.3 BTU/H			4189		3158		6278		4982		6517		5456		89		369		368	

TOTAL HEAT GAIN BTU/H: 59687 TONS: 4.97 LOSS DUE TO VENTILATION LOAD BTU/H: 1455 STRUCTURAL HEAT LOSS: 75845 TOTAL COMBINED HEAT LOSS BTU/H: 77300

SITE NAME: RUSSEL GARDENS PH 4
BUILDER: GREENPARK HOMES

LOT 592
TYPE: GRANDVILLE 9

DATE: Oct-21

GFA: 5181 LO# 93131

HEATING CFM 1818 COOLING CFM 1818
TOTAL HEAT LOSS 75,845 TOTAL HEAT GAIN 59,423
AIR FLOW RATE CFM 23.97 AIR FLOW RATE CFM 30.59

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

~GOODMAN
GMVC961005CNA 100
FAN SPEED

AFUE = 96 %
INPUT (BTU/H) = 100,000
OUTPUT (BTU/H) = 96,000

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	20	11	7
R/A	0	0	6	4	1

plenium 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

LOW 1360
MEDLOW 1818
MEDIUM 1870
MEDIUM HIGH 1910
HIGH 1957

DESIGN CFM = 1818
CFM @ .6" E.S.P.

TEMPERATURE RISE 49 °F

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	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-2	ENS-3	ENS-4	MBR	ENS-5	FAM	DN/LV	KIT	KIT	LB/OFF	LB/OFF	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.53	0.92	0.59	1.56	1.46	1.61	0.23	0.90	0.57	1.53	0.60	2.11	1.55	1.93	1.93	1.79	1.79	4.39	3.72	3.75	3.75	3.75	3.75
CFM PER RUN HEAT	37	22	14	37	35	39	5	22	14	37	14	51	37	46	46	43	43	105	89	90	90	90	90
RM GAIN MBH	2.24	0.82	0.18	2.42	2.17	2.73	0.09	0.37	0.37	2.24	0.37	2.09	1.58	2.09	2.09	2.49	2.49	1.53	0.71	0.86	0.86	0.86	0.86
CFM PER RUN COOLING	68	25	6	74	66	83	3	11	11	68	11	64	48	64	64	76	76	47	22	26	26	26	26
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	62	42	46	75	88	67	67	85	59	74	48	51	13	37	43	49	49	54	63	45	55	75	47
EQUIVALENT LENGTH	160	150	170	160	160	160	170	160	190	170	200	160	210	120	110	140	140	160	180	150	110	150	140
TOTAL EFFECTIVE LENGTH	222	192	216	235	248	227	237	245	249	244	248	211	223	157	153	189	189	214	243	195	165	225	187
ADJUSTED PRESSURE	0.08	0.09	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.11	0.11	0.09	0.09	0.08	0.07	0.08	0.1	0.07	0.09
ROUND DUCT SIZE	6	5	5	6	6	6	5	5	5	6	5	5	5	5	5	5	5	6	6	6	6	6	6
HEATING VELOCITY (ft/min)	189	162	103	189	178	199	37	162	103	189	103	374	272	338	338	316	316	535	454	459	459	459	459
COOLING VELOCITY (ft/min)	347	184	44	377	337	423	22	81	81	347	81	470	352	470	470	558	558	240	112	133	133	133	133
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10
TRUNK	B	C	B	A	B	D	B	A	D	A	D	F	H	G	G	H	H	H	F	G	G	F	F

RUN #	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
ROOM NAME	BAS	BAS	BAS	ENS	BED-3	BED-3	BED-4	LAUN	BED-5	FLEX	FLEX	WIC-2	FAM	DN/LV	KIT
RM LOSS MBH	3.75	3.75	3.75	0.92	1.46	1.46	1.61	0.81	1.66	1.86	1.86	1.63	2.11	1.55	1.93
CFM PER RUN HEAT	90	90	90	22	35	35	39	20	40	45	45	39	51	37	46
RM GAIN MBH	0.86	0.86	0.86	0.82	2.17	2.17	2.73	1.84	2.67	2.80	2.80	0.58	2.09	1.58	2.09
CFM PER RUN COOLING	26	26	26	25	66	66	83	56	82	86	86	18	64	48	64
ADJUSTED PRESSURE	0.16	0.16	0.16	0.17	0.17	0.17	0.16	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH	28	45	44	47	93	98	56	17	69	80	71	30	64	34	18
EQUIVALENT LENGTH	170	150	150	140	130	160	140	160	150	180	190	180	130	160	160
TOTAL EFFECTIVE LENGTH	198	195	194	187	223	258	196	177	219	260	261	210	194	194	178
ADJUSTED PRESSURE	0.08	0.08	0.08	0.09	0.08	0.07	0.08	0.1	0.07	0.06	0.06	0.08	0.09	0.09	0.1
ROUND DUCT SIZE	6	6	6	5	6	6	6	5	6	6	6	5	5	5	5
HEATING VELOCITY (ft/min)	459	459	459	162	178	178	199	147	204	229	229	286	374	272	338
COOLING VELOCITY (ft/min)	133	133	133	184	337	337	423	411	418	438	438	132	470	352	470
OUTLET GRILL SIZE	4X10	4X10	4X10	3X10	4X10	4X10	4X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10
TRUNK	H	H	H	C	B	A	D	C	C	D	D	C	F	H	G

SUPPLY AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	282	0.07	9	10	x 8 508
TRUNK B	456	0.07	10.8	16	x 8 513
TRUNK C	862	0.07	13.7	22	x 8 705
TRUNK D	420	0.06	10.9	14	x 8 540
TRUNK E	1281	0.06	16.5	26	x 10 709
TRUNK F	386	0.07	10.2	12	x 8 579

RETURN AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK O	0	0.05	0	0	x 8 0
TRUNK P	0	0.05	0	0	x 8 0
TRUNK Q	0	0.05	0	0	x 8 0
TRUNK R	0	0.05	0	0	x 8 0
TRUNK S	0	0.05	0	0	x 8 0
TRUNK T	0	0.05	0	0	x 8 0
TRUNK U	445	0.05	11.6	16	x 8 501
TRUNK V	675	0.05	13.6	22	x 8 552
TRUNK W	1010	0.05	15.8	28	x 8 649
TRUNK X	1818	0.05	19.7	32	x 12 682
TRUNK Y	495	0.06	11.6	16	x 8 557
TRUNK Z	215	0.05	8.9	10	x 8 387
DROP	1818	0.05	19.7	24	x 16 682

RETURN AIR #

	1	2	3	4	5	6	7	8	9	10	BR
AIR VOLUME	115	115	115	85	105	260	330	175	75	130	313
PLENUM PRESSURE	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	65	74	96	72	52	61	61	25	72	51	14
EQUIVALENT LENGTH	215	205	205	185	145	195	180	185	225	190	135
TOTAL EFFECTIVE LH	280	279	301	257	197	256	241	210	297	241	149
ADJUSTED PRESSURE	0.05	0.05	0.05	0.06	0.08	0.06	0.06	0.07	0.05	0.06	0.10
ROUND DUCT SIZE	7	7	7	6	6	9.1	9.9	7.5	6	7	8.6
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	8	8
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	30	30	14	14	14	30

TYPE: GRANDVILLE 9
SITE NAME: RUSSEL GARDENS PH 4

LO # 93131
LOT 592

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	<u>2</u> @ 21.2 cfm	<u>42.4</u> cfm
Other Bedrooms	<u>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Kitchen & Bathrooms	<u>8</u> @ 10.6 cfm	<u>84.8</u> cfm
Other Rooms	<u>8</u> @ 10.6 cfm	<u>84.8</u> cfm
Table 9.32.3.A.	TOTAL	<u>254.4</u> 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		<u>95.4</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>254.4</u>	cfm
Less Principal Ventil. Capacity	<u>95.4</u>	cfm
Required Supplemental Capacity	<u>159.0</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model:	VANEE G2400H ECM
Location:	BSMT
<u>95.4</u> cfm	☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	AT °F	FACTOR	% LOSS	
95.4 CFM	X 71 F	X 1.08	X	0.20

SUPPLEMENTAL FANS		BY INSTALLING CONTRACTOR		
Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-2	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-3	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-4	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE G2400H ECM	
<u>210</u>	cfm high	<u>50</u> cfm low
<u>80</u>	% 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:	October-21

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

LO#: 93131

Model: GRANDVILLE 9

Builder: GREENPARK HOMES

Date: 2021-10-22

Volume Calculation
House Volume

Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)
Bsmt	2425	9	21825
First	2425	10	24250
Second	2756	9	24804
Third	0	9	0
Fourth	0	9	0
Total:			70,879.0 ft ³
Total:			2007.1 m ³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.365
SUMMER NATURAL AIR CHANGE RATE	0.130

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

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

0.365 x 557.52 x 39 °C x 1.2 = 9570 W

= 32652 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.130 x 557.52 x 7 °C x 1.2 = 621 W

= 2118 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

95 CFM x 71 °F x 1.08 x 0.20 = 1455 Btu/h

6.2.7 Sensible heat Gain due to Ventilation

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

95 CFM x 13 °F x 1.08 x 0.20 = 264 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)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	32,652	9,942	1.642
2	0.3		15,001	0.653
3	0.2		17,748	0.368
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

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: GRANDVILLE 9	LOT 592	BUILDER: GREENPARK HOMES
SFQT: 5181	LO# 93131	SITE: RUSSEL GARDENS PH 4

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):	70879.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.55	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 67.0 ft	WIDTH: 46.0 ft	EXPOSED PERIMETER:	170.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	56.0 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	96%	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

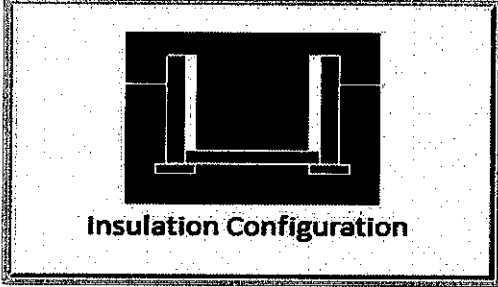
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

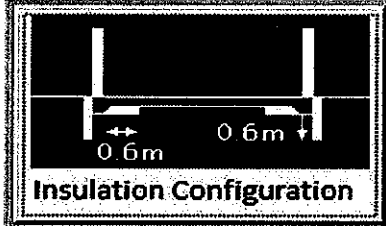
Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	14.0	
Exposed Perimeter (m):	51.8	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.59	
Window Area (m ²):	1.4	
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):		872

TYPE: GRANDVILLE 9
LO# 93131

LOT 592

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):	14.0	
Exposed Perimeter (m):	17.1	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		244

TYPE: GRANDVILLE 9
LO# 93131

LOT 592

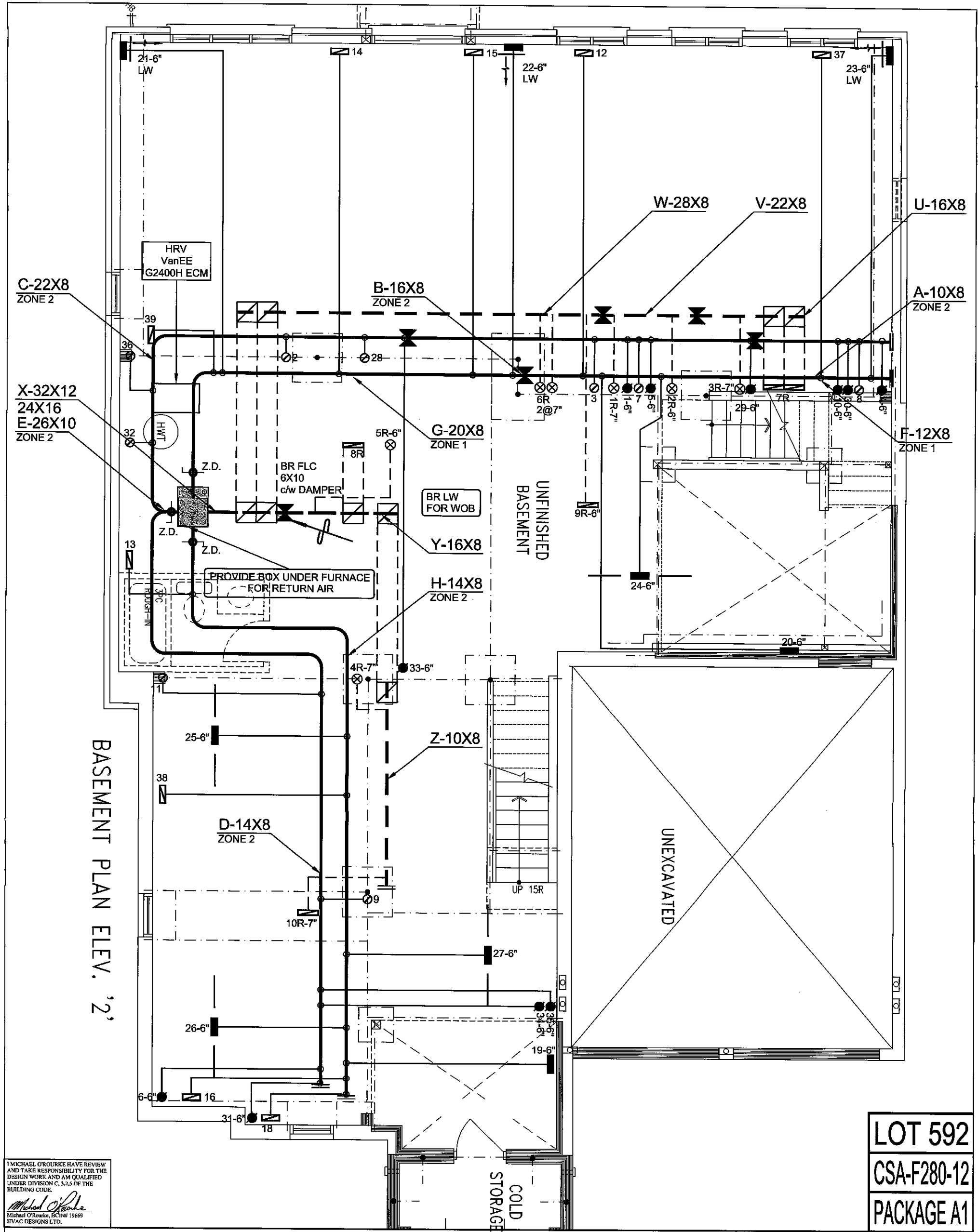
Air Infiltration Residential Load Calculator

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):	8.53		
Building Configuration			
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	2007.1		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	2675.5 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):	0.365		
Cooling Air Leakage Rate (ACH/H):	0.130		

TYPE: GRANDVILLE 9
LO# 93131

LOT 592



I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.3.2.3 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

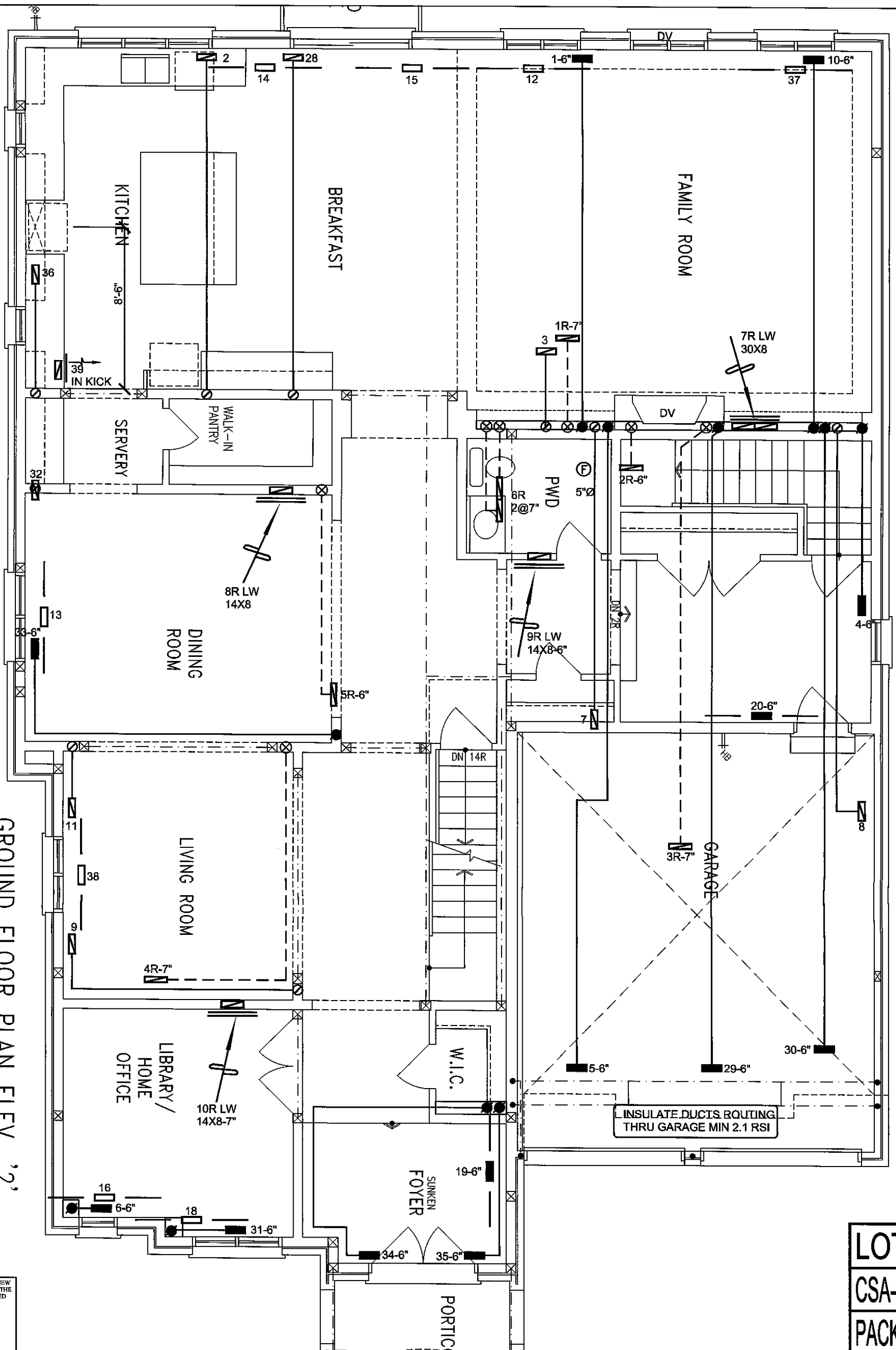
LOT 592
CSA-F280-12
PACKAGE A1

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
	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	Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO	LOT 592 GRANDVILLE 9 5181 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.hvacdsgns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	HEAT LOSS 79330 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS				Sheet Title BASEMENT HEATING LAYOUT				
				MAKE GOODMAN		3RD FLOOR								
				MODEL GMVC961005CNA		2ND FLOOR	20	6	6					
				INPUT 100 MBTU/H		1ST FLOOR	11	4	3					
				OUTPUT 96 MBTU/H		BASEMENT	7	1	0					
				COOLING 5.0 (2 STAGE) 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 OCT/2021				
				FAN SPEED 1818 cfm @ 0.6" w.c.						Scale 3/16" = 1'-0"				
										BCIN# 19669				
										LO# 93131				

GROUND FLOOR PLAN ELEV. '2'



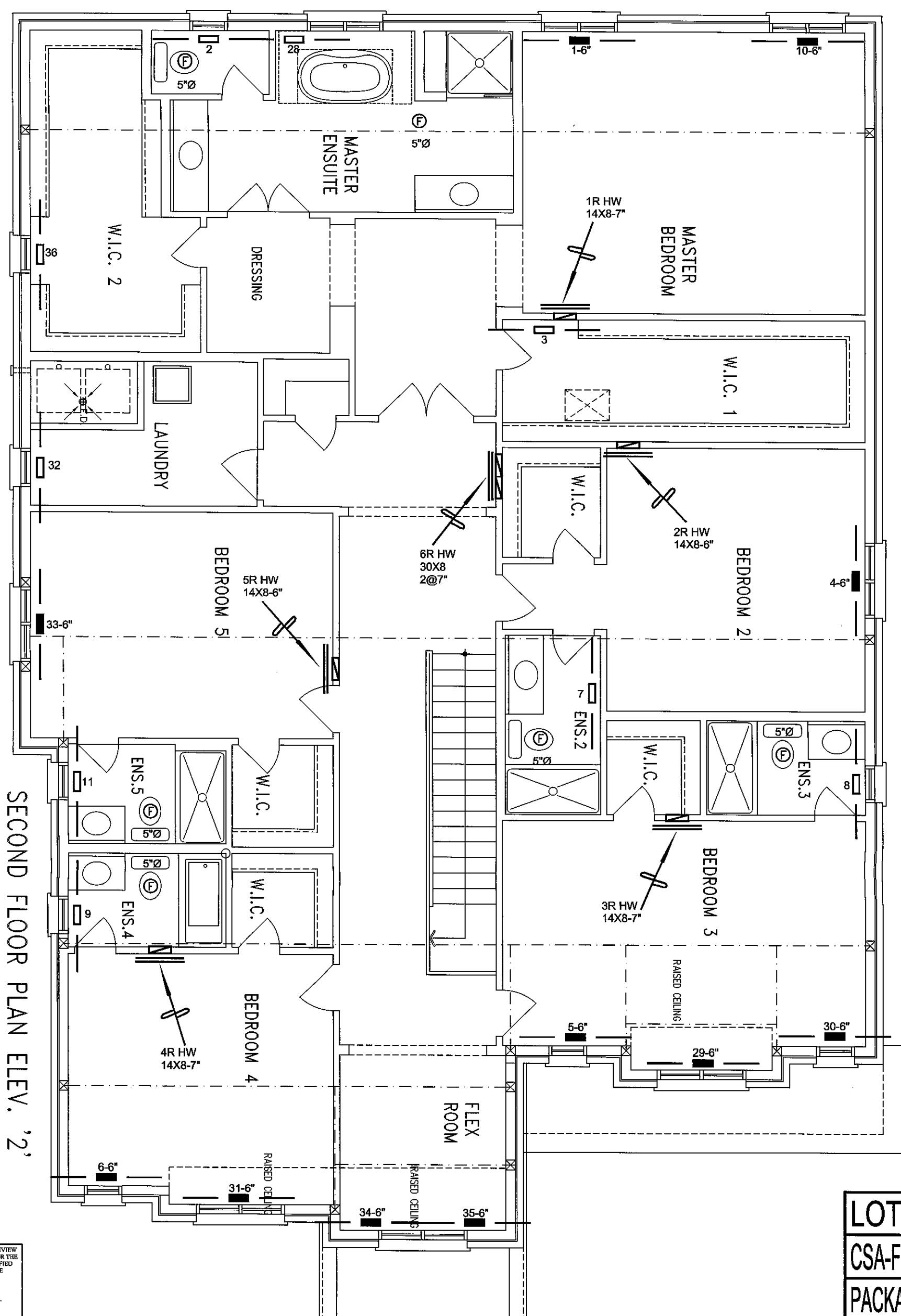
I MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

LOT 592
CSA-F280-12
PACKAGE A1

HVAC LEGEND								3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" 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 Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS	

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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 RUSSELL GARDENS PH 4 HAMILTON, ONTARIO			Date OCT/2021	
LOT 592 GRANDVILLE 9 5181 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669 LO# 93131	



SECOND FLOOR PLAN ELEV. '2'

LOT 592
CSA-F280-12
PACKAGE A1

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" 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	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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Client GREENPARK HOMES	Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO	LOT 592 GRANDVILLE 9 5181 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.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 OCT/2021 Scale 3/16" = 1'-0" BCIN# 19669 LO# 93131
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