

SITE NAME: RUSSEL GARDENS PH 4

BUILDER: GREENPARK HOMES

WUB
TYPE: SPRINGFIELD 11

GFA: 3625

DATE: Apr-21
LO# 90172

WINTER NATURAL AIR CHANGE RATE 0.310
SUMMER NATURAL AIR CHANGE RATE 0.111

HEAT LOSS AT °F. 71
HEAT GAIN AT °F. 13

CSA-F280-12
SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS	GAIN	MBR	ENS	BED-2	BED-3	BED-4	ENS-2	HALL	FLB-5	ENS-3	SB-12 PACKAGE A1
GRS.WALL AREA				360			270								
GLAZING				LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
NORTH	19.8	16.0	0	0	0	7	138	112							
EAST	19.8	41.6	0	0	0	0	0	0							
SOUTH	19.8	24.9	24	474	598	0	0	0							
WEST	19.8	41.6	48	949	1994	28	554	1163							
SKYLT.	34.6	101.5	0	0	0	0	0	0							
DOORS	23.5	4.3	0	0	0	0	0	0							
NET EXPOSED WALL	4.1	0.8	288	1194	215	235	974	177							
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	0	0	0	0	0	0							
EXPOSED CLG	1.2	0.6	375	447	220	191	228	112							
NO ATTIC EXPOSED CLG	2.6	1.3	0	0	0	0	0	0							
EXPOSED FLOOR	2.4	0.4	0	0	0	0	0	0							
BASEMENT/CRAWL HEAT LOSS															
SLAB ON GRADE HEAT LOSS															
SUBTOTAL HT LOSS				3064			1894								
SUB TOTAL HT GAIN					3029			1564							
LEVEL FACTOR / MULTIPLIER			0.20	0.24		0.20	0.24								
AIR CHANGE HEAT LOSS				743			459								
AIR CHANGE HEAT GAIN					177			91							
DUCT LOSS				0			0								
DUCT GAIN					0		0								
HEAT GAIN PEOPLE	240			2		480	0								
HEAT GAIN APPLIANCES/LIGHTS						667	0								
TOTAL HT LOSS BTU/H				3807			2353								
TOTAL HT GAIN x 1.3 BTU/H					5658		2152								

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS	GAIN	FAM	LV/DN	KT/BF	LB/HF	LND	WR	FOY	MUD	WUB	BAS
GRS.WALL AREA				340										20	172
GLAZING				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
EAST	19.8	41.6	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	19.8	24.9	32	633	797	68	1344	1693	0	0	0	0	0	0	0
WEST	19.8	41.6	63	1245	2618	0	0	0	79	1562	3283	0	0	0	0
SKYLT.	34.6	101.5	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
NET EXPOSED WALL	4.1	0.8	245	1016	184	182	755	137	306	1269	230	341	1414	256	73
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.6	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	0
NO ATTIC EXPOSED CLG	2.6	1.3	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
BASEMENT/CRAWL HEAT LOSS															
SLAB ON GRADE HEAT LOSS															
SUBTOTAL HT LOSS				2894			2099		3182		2778		632		
SUB TOTAL HT GAIN					3589			1839		3576		2890		632	
LEVEL FACTOR / MULTIPLIER			0.30	0.38		0.30	0.38		0.30	0.38		0.30	0.38		
AIR CHANGE HEAT LOSS				1113			807		1224		1059		163		
AIR CHANGE HEAT GAIN					210			107		209		169			
DUCT LOSS				0			0		0		0		0		
DUCT GAIN					0		0		0		0		0		
HEAT GAIN PEOPLE	240			0		0	0		0		0		0		
HEAT GAIN APPLIANCES/LIGHTS						667	667		667		667		667		
TOTAL HT LOSS BTU/H				4007			2906		4406		3846		786		
TOTAL HT GAIN x 1.3 BTU/H					5818		3384		5787		4843		1234		

TOTAL HEAT GAIN BTU/H: 48472

TONS: 4.04

LOSS DUE TO VENTILATION LOAD BTU/H: 1819

STRUCTURAL HEAT LOSS: 59757

TOTAL COMBINED HEAT LOSS BTU/H: 81576

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.

Michael O'Rourke

INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

SITE NAME: RUSSEL GARDENS PH 4
BUILDER: GREENPARK HOMES

WUB
TYPE: SPRINGFIELD 11

DATE: Apr-21

GFA: 3625 LO# 90172

HEATING CFM 1504 COOLING CFM 1504
TOTAL HEAT LOSS 59,757 TOTAL HEAT GAIN 48,142
AIR FLOW RATE CFM 25.17 AIR FLOW RATE CFM 31.24

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

#GOODMAN

GMEC960804CNA 80

FAN SPEED

LOW 868

MEDLOW 978

MEDIUM 1112

MEDIUM HIGH 1504

HIGH 1615

AFUE = 96 %
INPUT (BTU/H) = 80,000
OUTPUT (BTU/H) = 76,800

DESIGN CFM = 1504
CFM @ 6" E.S.P.

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	15	11	5
R/A	0	0	6	3	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	MBR	ENS	ENS	BED-2	BED-3	BED-4	ENS-2	HALL	FL/B-5	MBR	ENS-3	FAM	LV/DN	KT/BF	KT/BF	LB/HF	LND	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.90	1.18	1.18	1.85	1.51	1.17	0.54	1.24	1.60	1.90	1.39	2.00	1.45	2.20	2.20	1.92	0.79	0.50	2.77	2.20	3.80	3.80	3.80	3.80
CFM PER RUN HEAT	48	30	30	46	38	29	14	31	40	48	35	50	37	55	55	48	20	12	70	55	96	96	96	96
RM GAIN MBH	2.83	1.08	1.08	2.52	2.18	2.26	0.40	0.63	2.58	2.83	1.25	2.91	1.69	2.89	2.89	2.42	1.23	0.21	0.50	0.52	0.22	0.22	0.22	0.22
CFM PER RUN COOLING	88	34	34	79	68	71	13	20	81	88	39	91	53	90	90	76	39	7	16	7	7	7	7	7
ADJUSTED PRESSURE	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.16	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	52	30	32	64	75	70	56	20	46	43	86	39	36	24	15	64	25	8	57	18	14	13	41	35
EQUIVALENT LENGTH	120	200	140	160	160	200	140	110	150	180	170	180	130	80	110	110	160	100	170	100	90	100	160	130
TOTAL EFFECTIVE LENGTH	172	230	172	224	235	270	196	130	196	223	236	219	166	104	125	174	185	108	227	118	104	113	201	165
ADJUSTED PRESSURE	0.09	0.07	0.1	0.08	0.07	0.06	0.09	0.13	0.08	0.07	0.07	0.07	0.1	0.16	0.13	0.1	0.09	0.16	0.08	0.15	0.16	0.14	0.08	0.1
ROUND DUCT SIZE	6	4	5	6	6	6	4	4	6	6	6	6	6	6	6	5	4	4	6	5	6	6	6	6
HEATING VELOCITY (ft/min)	245	344	220	235	194	148	161	356	204	245	257	255	189	280	280	352	229	138	357	404	489	489	489	489
COOLING VELOCITY (ft/min)	449	390	250	403	347	362	149	229	413	449	286	464	270	459	459	558	447	80	82	117	36	36	36	36
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	4X10	4X10	4X10	4X10
TRUNK	C	E	E	B	A	A	B	E	C	C	B	C	C	D	D	A	E	E	A	E	D	D	C	C

RUN #	25	26	27	28	29	30	31
ROOM NAME	BAS	BED-2	BED-3	FAM	LV/DN	LB/HF	ENS-2
RM LOSS MBH	3.80	1.85	1.51	2.00	1.45	1.92	0.54
CFM PER RUN HEAT	96	46	38	50	37	48	14
RM GAIN MBH	0.22	2.52	2.18	2.91	1.69	2.42	0.40
CFM PER RUN COOLING	7	79	68	91	53	76	13
ADJUSTED PRESSURE	0.16	0.17	0.17	0.16	0.17	0.17	0.17
ACTUAL DUCT LGH	48	70	83	39	47	56	54
EQUIVALENT LENGTH	100	170	180	150	180	120	170
TOTAL EFFECTIVE LENGTH	148	240	263	189	227	176	224
ADJUSTED PRESSURE	0.11	0.07	0.07	0.09	0.08	0.1	0.08
ROUND DUCT SIZE	6	6	6	6	6	5	4
HEATING VELOCITY (ft/min)	489	235	194	255	189	352	161
COOLING VELOCITY (ft/min)	36	403	347	464	270	558	149
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	4X10	3X10	3X10
TRUNK	B	B	A	C	C	A	B

SUPPLY AIR TRUNK SIZE

TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	271	0.06	9.2	12	407
TRUNK B	522	0.06	11.8	18	522
TRUNK C	502	0.07	11.2	16	565
TRUNK D	1326	0.06	16.8	32	746
TRUNK E	178	0.07	7.6	10	320
TRUNK F	0	0.00	0	0	0

RETURN AIR TRUNK SIZE

TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK G	0	0.00	0	0	0
TRUNK H	0	0.00	0	0	0
TRUNK I	0	0.00	0	0	0
TRUNK J	0	0.00	0	0	0
TRUNK K	0	0.00	0	0	0
TRUNK L	0	0.00	0	0	0

RETURN AIR

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
AIR VOLUME	135	155	155	75	85	115	155	330	95	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	51	60	68	72	61	62	40	38	58	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	235	195	175	220	175	215	210	205	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	286	255	243	292	236	277	250	243	223	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.05	0.06	0.06	0.05	0.06	0.05	0.06	0.05	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	14.80	14.80
ROUND DUCT SIZE	7.5	7.5	7.5	6	6	7	7.5	9.9	6	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	8	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	14	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: SPRINGFIELD 11
SITE NAME: RUSSEL GARDENS PH 4

LO # 90172
WUB

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	6 @ 10.6 cfm	63.6 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		95.4 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	201.4	cfm
Less Principal Ventil. Capacity	95.4	cfm
Required Supplemental Capacity	106.0	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model:	VANEE V150H
Location:	BSMT
95.4 cfm	☒ HVI Approved

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

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	
W/R	BY INSTALLING CONTRACTOR	50	☒	3.5	

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE V150H	
150	cfm high	35 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:	April-21

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

LO#: 90172

Model: SPRINGFIELD 11

Builder: GREENPARK HOMES

Date: 06/04/2021

Volume Calculation
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1624	9	14616
First	1624	10	16240
Second	2001	9	18009
Third	0	9	0
Fourth	0	9	0
Total:			48,865.0 ft³
Total:			1383.7 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.310
SUMMER NATURAL AIR CHANGE RATE	0.111

Design Temperature Difference				
	T _{in} °C	T _{out} °C	ΔT °C	ΔT °F
Winter DTD _h	22	-17	39	71
Summer DTD _c	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage

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

0.310 x 384.36 x 39 °C x 1.2 = 5601 W

= 19112 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.111 x 384.36 x 7 °C x 1.2 = 364 W

= 1240 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 0.25 = 1819 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 0.25 = 330 Btu/h

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

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

Level	Level Factor (LF)	HL _{airb} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{cleve})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{level})
1	0.5	19,112	9,430	1.013
2	0.3		14,902	0.385
3	0.2		15,766	0.242
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: SPRINGFIELD 11	WUB	BUILDER: GREENPARK HOMES
SFQT: 3625	LO# 90172	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):	48865.0	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: 55.0 ft	WIDTH: 41.0 ft	EXPOSED PERIMETER:	172.0 ft

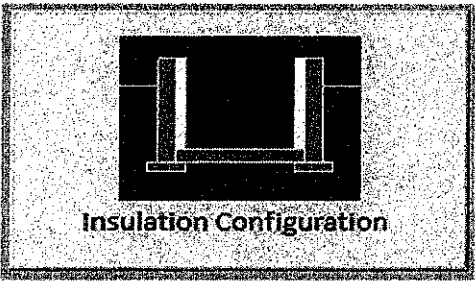
2012 OBC - COMPLIANCE PACKAGE		
Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement 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

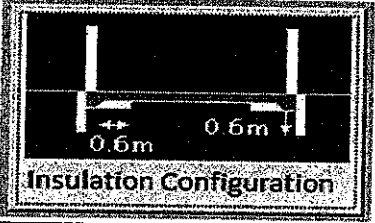
Weather Station Description		
Province:	Ontario	
Region:	Hamilton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	16.8	
Floor Width (m):	12.5	
Exposed Perimeter (m):	52.4	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	0.9	
Door Area (m ²):	3.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1682

TYPE: SPRINGFIELD 11
LO# 90172

WUB

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):	0.9	
Width (m):	4.6	
Exposed Perimeter (m):	6.1	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		48

TYPE: SPRINGFIELD 11
LO# 90172

WUB

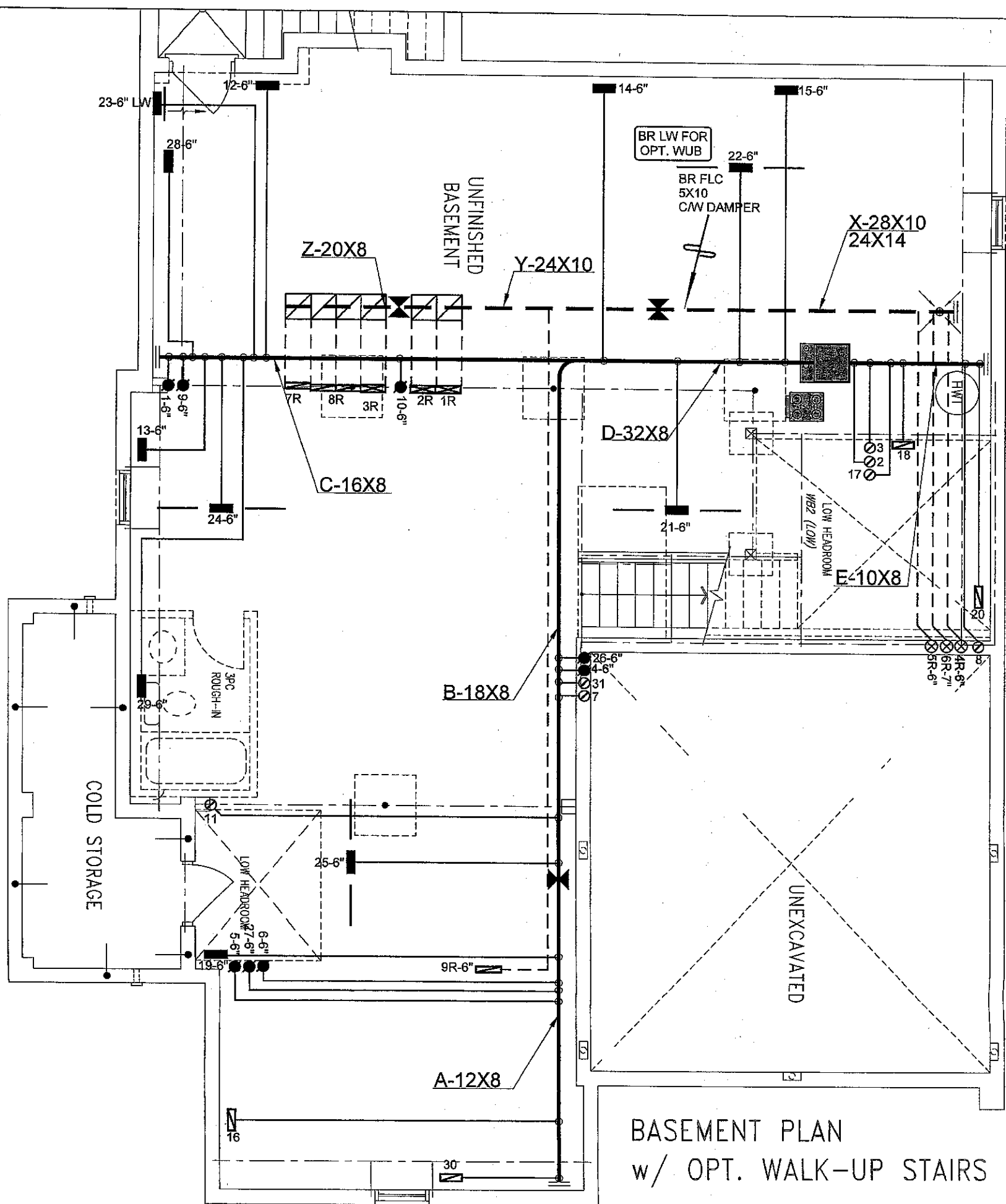
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

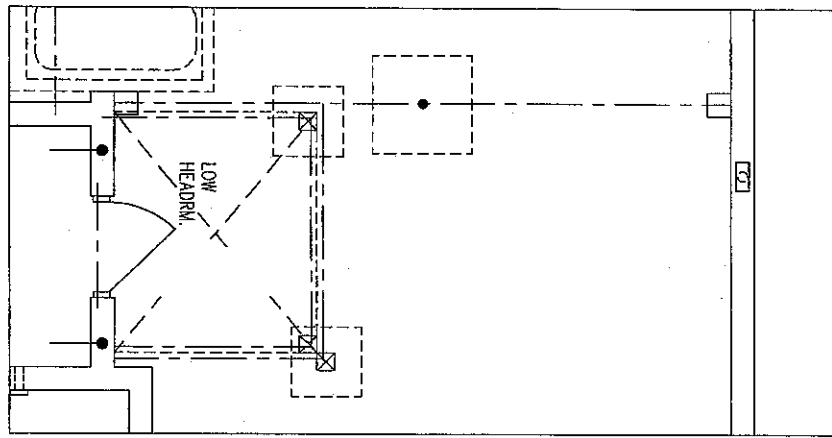
Weather Station Description			
Province:	Ontario		
Region:	Hamilton		
Weather Station Location:	Open flat terrain, grass		
Anemometer height (m):	10		
Local Shielding			
Building Site:	Suburban, forest		
Walls:	Heavy		
Flue:	Heavy		
Highest Ceiling Height (m):	6.71		
Building Configuration			
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	1383.7		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1844.5 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
Diameter (mm):	0	0	0
Natural Infiltration Rates			
Heating Air Leakage Rate (ACH/H):	0.310		
Cooling Air Leakage Rate (ACH/H):	0.111		

TYPE: SPRINGFIELD 11
LO# 90172

WUB



BASEMENT PLAN
w/ OPT. WALK-UP STAIRS



PART. BSMT. PLAN w/
OPT. SUNKEN FOYER
CONDITION

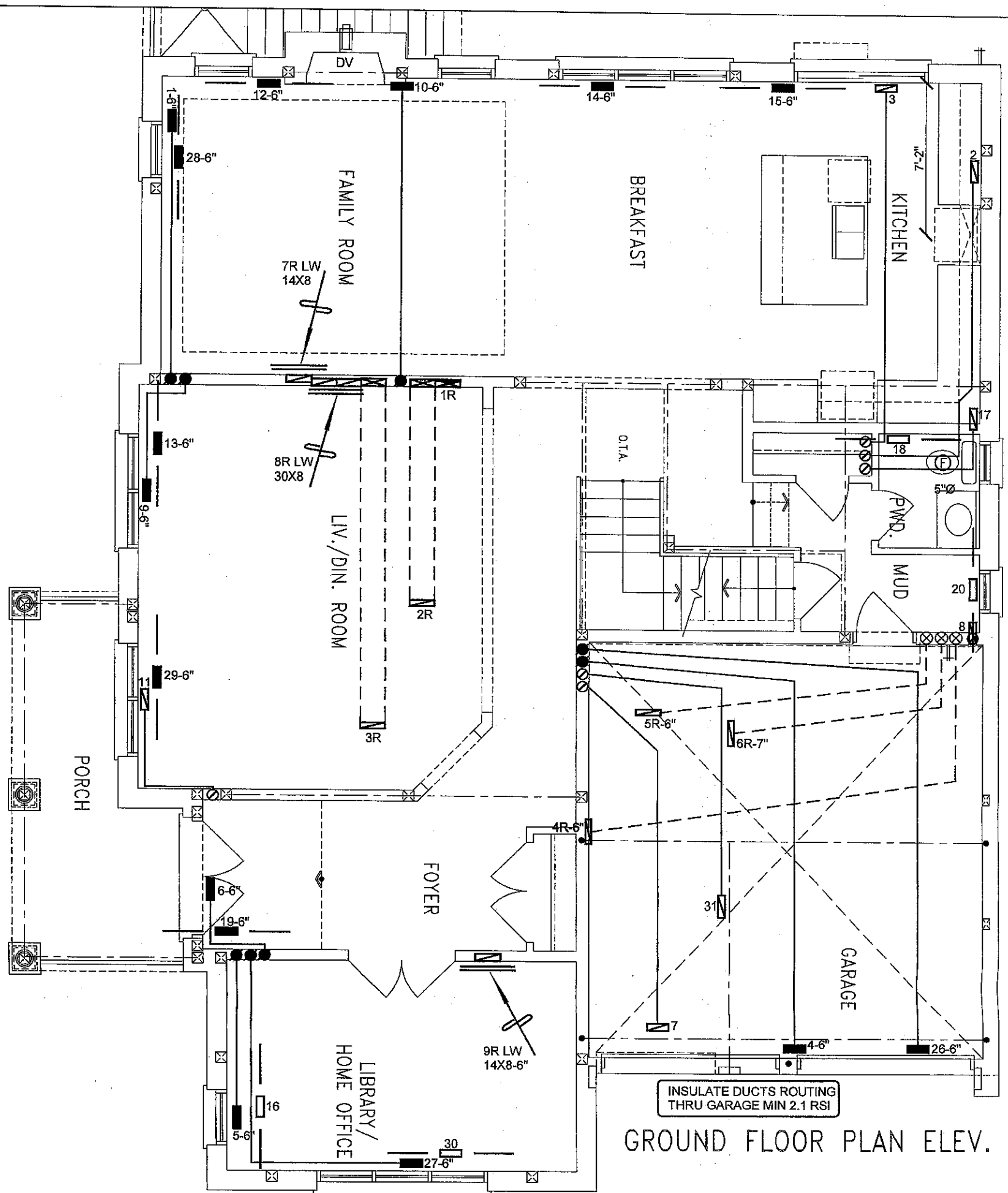
WUB
CSA-F280-12
PACKAGE A1

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

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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@hvacadesigns.ca Web: www.hvacadesigns.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 61576 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title		
GREENPARK HOMES		MAKE GOODMAN			3RD FLOOR			BASEMENT HEATING LAYOUT	
Project Name		MODEL GMEC960804CNA			2ND FLOOR			Date	
RUSSELL GARDENS PH 4 HAMILTON, ONTARIO		INPUT 80 MBTU/H			1ST FLOOR			APR/2021	
WUB SPRINGFIELD 11 3625 sqft	OUTPUT 76.8 MBTU/H			BASEMENT			Scale		
	COOLING 4.0 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			3/16" = 1'-0"		
	FAN SPEED 1504 cfm @ 0.5" w.c.						BCIN# 19669		
							LO# 90172		



GROUND FLOOR PLAN ELEV. '1'

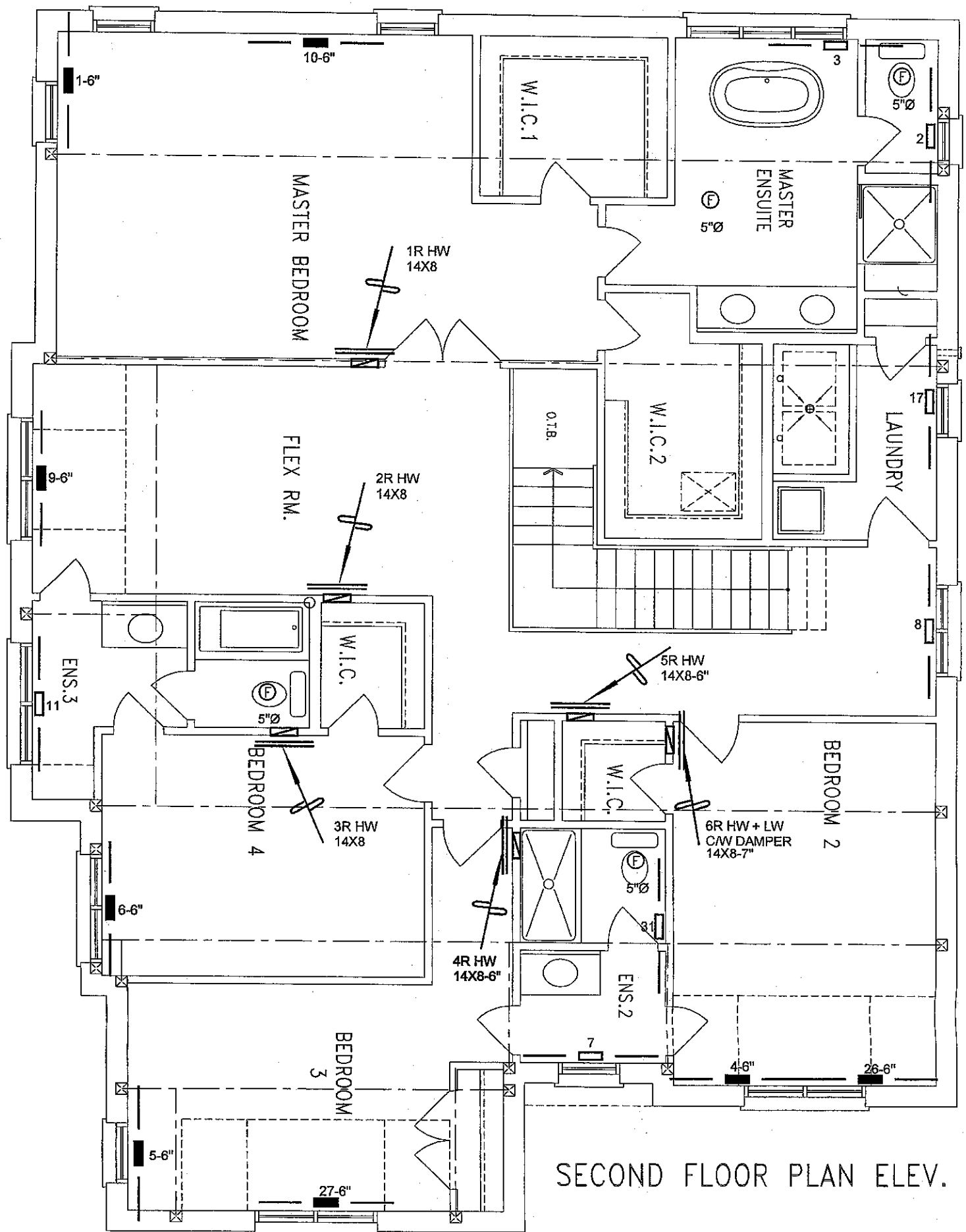
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Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

WUB
CSA-F280-12
PACKAGE A1

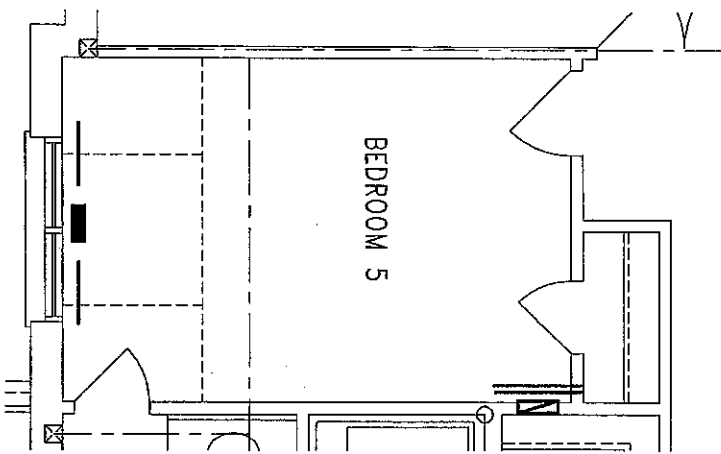
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR 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@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 RUSSELL GARDENS PH 4 HAMILTON, ONTARIO	WUB SPRINGFIELD 11 3625 sqft		Date APR/2021	Scale 3/16" = 1'-0"
		BCIN# 19669		LO# 90172



SECOND FLOOR PLAN ELEV. '1'



PART. SECOND FLOOR PLAN
W/ OPT. BEDROOM 5

I MICHAEL O'BROURKE 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.

WUB
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	

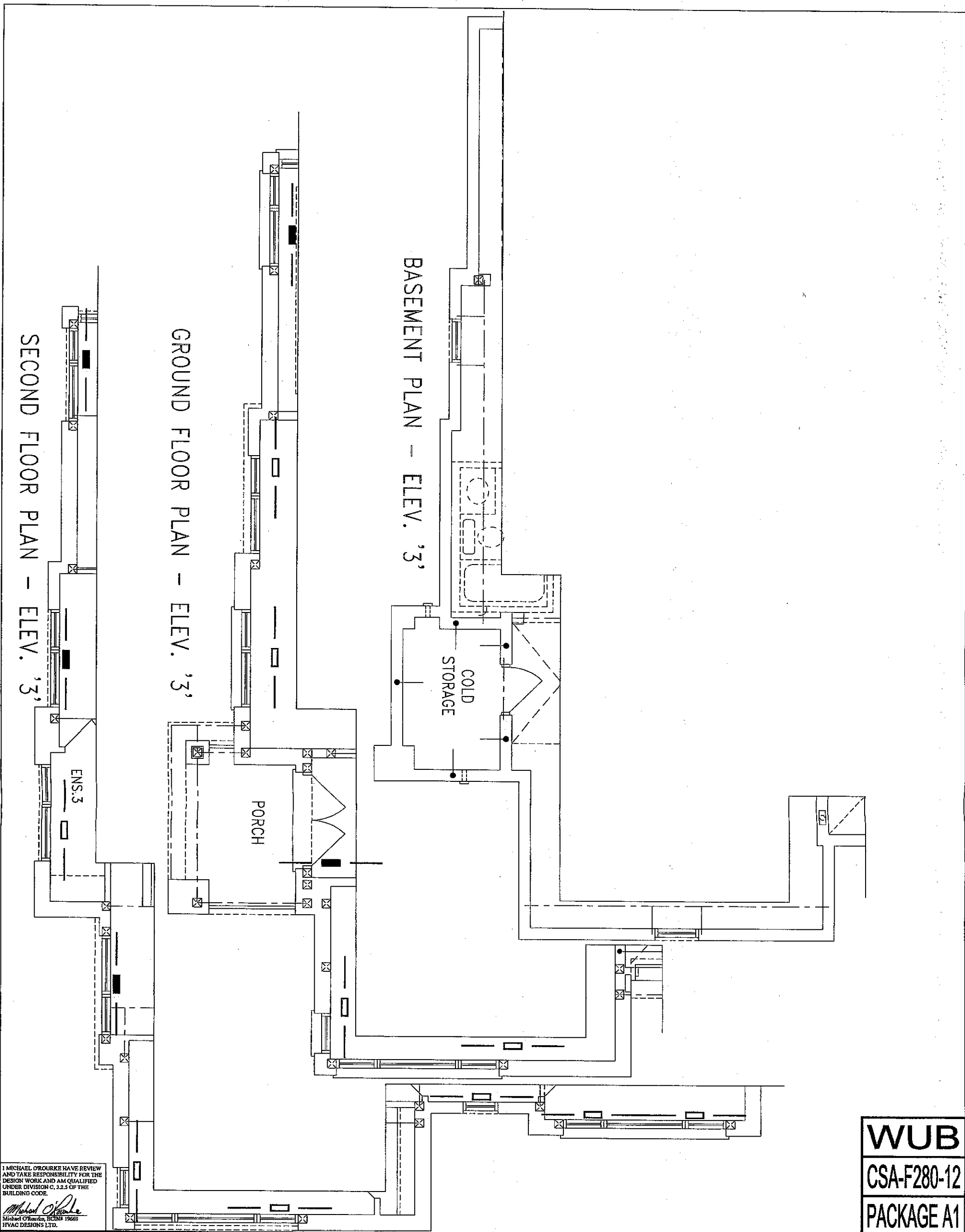
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Client
GREENPARK HOMES
Project Name
**RUSSELL GARDENS PH 4
HAMILTON, ONTARIO**

**WUB
SPRINGFIELD 11 3625 sqft**

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.

Sheet Title
**SECOND FLOOR
HEATING
LAYOUT**
Date
APR/2021
Scale
3/16" = 1'-0"
BCIN# 19669
LO# 90172

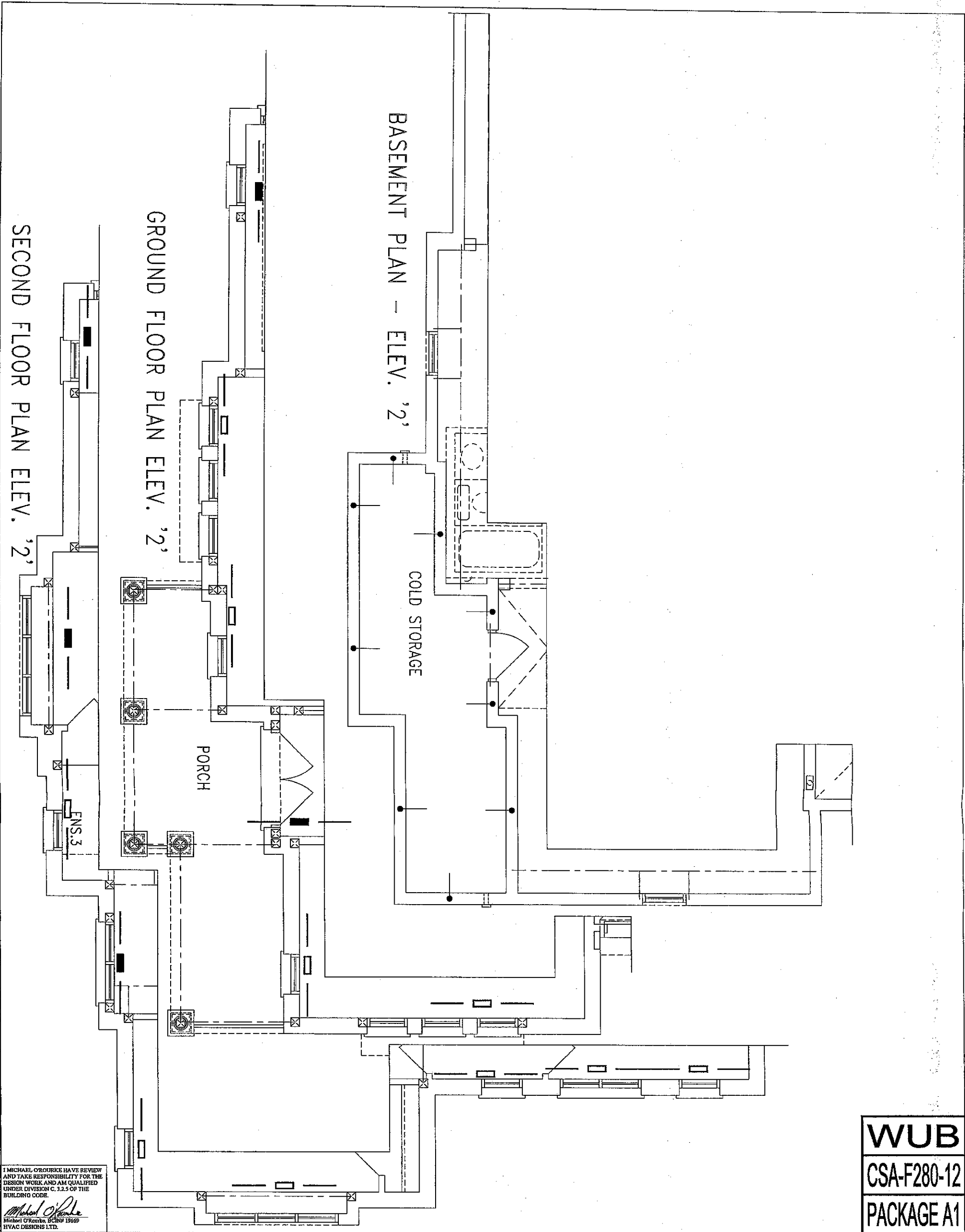


WUB
CSA-F280-12
PACKAGE A1

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

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Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO			Date APR/2021	
WUB SPRINGFIELD 11 3625 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO# 90172	



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	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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Project Name RUSSELL GARDENS PH 4 HAMILTON, ONTARIO		Date APR/2021
WUB SPRINGFIELD 11 3625 sqft		Scale 3/16" = 1'-0"
		BCIN# 19669
		LO# 90172