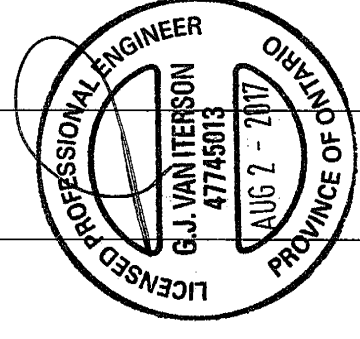


SITE NAME: RUSSEL GARDEN  
BUILDER: GREENPARK HOMES  
DATE: Jul-17  
LO# 75067  
GFA: 2816  
TYPE: DEWBERRY 12  
WINTER NATURAL AIR CHANGE RATE 0.488  
SUMMER NATURAL AIR CHANGE RATE 0.165  
HEAT LOSS AT °F. 71  
HEAT GAIN AT °F. 16  
CSA-F280-12  
SB-12 PACKAGE A4

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	LAUN	
GRS.WALL AREA	126		14	22	6	12	24	13	0	10	
GLAZING	19.8	16.8	0	0	0	0	0	0	0	0	
NORTH	0	0	0	0	0	0	0	0	0	0	
EAST	19.8	42.4	10	198	424	18	356	763	0	0	
SOUTH	19.8	25.7	0	17	336	438	9	178	232	0	
WEST	19.8	42.4	0	0	0	0	0	18	356	763	
SKYLT.	34.6	103.6	0	0	0	0	0	0	0	0	
DOORS	23.5	5.2	20	469	105	0	0	0	0	0	
NET EXPOSED WALL	3.3	0.7	96	317	71	163	538	120	45	148	
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.7	0	0	0	0	0	0	0	0	
EXPOSED CLG	1.2	0.6	200	238	128	120	143	77	72	86	
EXPOSED FLOOR	2.6	1.4	0	0	0	0	0	0	0	0	
BASEMENT/CRAWL HEAT LOSS	2.4	0.5	0	0	0	0	0	0	0	0	
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	
SUBTOTAL HT LOSS	1222		0	1373	412	944	1472	1287	86	832	
LEVEL FACTOR / MULTIPLIER	0.10	0.31	0.10	0.31	0.10	0.31	0.10	0.31	0.10	0.31	
AIR CHANGE HEAT LOSS	380		0	427	128	294	458	400	27	828	
AIR CHANGE HEAT GAIN	86		0	164	0	98	170	182	5	22	
DUCT LOSS	0		0	0	0	0	0	0	0	0	
DUCT GAIN	0		0	0	0	0	0	0	0	0	
HEAT GAIN PEOPLE	240		2	480	0	1	240	1	0	0	
HEAT GAIN APPLIANCES/LIGHTS	443		0	0	0	0	443	443	0	443	
TOTAL HT LOSS BTU/H	1602		0	1799	540	1238	1930	1687	113	1660	
TOTAL HT GAIN x 1.3 BTU/H	2256		0	2030	540	2095	2992	3135	67	846	

ROOM USE	EXP. WALL	CLG. HT.	DIN	FAM	KIT	GRT	TECH	WIR	FOY	WIC-2	BAS
GRS.WALL AREA	190		19	40	35	38	12	9	14	14	83
GLAZING	19.8	16.8	0	0	0	0	0	0	0	0	9
NORTH	0	0	0	0	0	0	0	0	0	0	
EAST	19.8	42.4	0	0	48	949	2035	0	3	59	158
SOUTH	19.8	25.7	36	712	927	21	415	541	0	0	339
WEST	19.8	42.4	0	55	1087	2332	0	0	0	0	0
SKYLT.	34.6	103.6	0	0	0	0	0	0	0	0	0
DOORS	23.5	5.2	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	3.3	0.7	154	508	114	331	1092	244	281	927	40
NET EXPOSED BSMT WALL ABOVE GR	3.3	0.7	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.2	0.6	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	1.4	0	18	46	25	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS	2.4	0.5	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS	1220		0	2502	2882	2661	841	445	961	627	2313
LEVEL FACTOR / MULTIPLIER	0.20	0.66	0.20	0.66	0.20	0.66	0.30	1.00	0.30	1.00	0.40
AIR CHANGE HEAT LOSS	805		0	1651	1770	2650	837	443	956	624	206
AIR CHANGE HEAT GAIN	122		0	348	445	301	90	34	39	61	8451
DUCT LOSS	0		0	0	0	0	0	0	0	0	0
DUCT GAIN	0		0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240		0	480	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	443		0	443	443	443	443	443	0	0	0
TOTAL HT LOSS BTU/H	2025		0	4153	4897	5311	1677	888	1917	1250	12564
TOTAL HT GAIN x 1.3 BTU/H	2087		0	4877	5220	4298	1685	423	478	755	1823



SITE NAME: RUSSEL GARDEN  
BUILDER: GREENPARK HOMES  
TYPE: DEWBERRY 12  
DATE: Jul-17  
GFA: 2816  
LO# 75067  
BCIN# 19669  
PAGE 2 of 3

UNIT OUTPUT @ 130 °F MEDIAN OUTLETS for UNIT BTU/H per OUTLET HEATING	53500 25 2140	BTU/H	CFM / OUTLET = 31.733	Water Heater Make & Model # Input Storage capacity Efficiency	GSW 6GS076NVC-02 76000 50 90.0 %	Air Max MaxAir 100e P2 - 2 ZONE	OUTPUT 53500 BTUH @ 130 °F CFM @1.5" E.S.P.
UNIT OUTPUT COOLING MEDIAN OUTLETS for UNIT BTU/H per OUTLET COOLING	36000 25 1440	BTU/H				RUNS/ZONE: 12-14	DESIGN CFM = 952
							A/C SIZE 3 TONS A/C SIZE 36000 BTU/H

FLOOR	ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	DIN	FAM	KIT	GRT	TECH	W/R	FOY	WIC-2	BAS	LAUN	
1	ROOM LOSS MBH.	1.60	1.80	0.54	1.24	1.93	1.69	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	# of RUNS red'd HEATING	0.7	0.8	0.3	0.6	0.9	0.8	0.1	0.0	0.0	0.0	2.3	2.5	0.8	0.9	0.6	5.9	0.8	0.0
3	RM GAIN MBH.	2.26	2.03	0.45	2.10	2.99	3.14	0.07	0.00	0.00	0.00	4.88	5.22	4.30	0.42	0.48	1.82	0.85	0.00
4	# of RUNS red'd COOLING	1.6	1.4	0.3	1.5	2.1	2.2	0.0	0.0	0.0	0.0	3.6	3.0	1.2	0.3	0.5	1.3	0.6	0.0
5	# of OUTLETS INSTALLED	2.0	1.0	1.0	2.0	2.0	2.0	1.0	1.0	2.0	3.0	3.0	3.0	1.0	1.0	1.0	6.0	1.0	0.0

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	BR	Total Runs
FLOOR	3	3	3	3	3	2	1								B	30
AIR VOLUME	115	85	85	85	120	120	260	0	0	0	0	0	0	0	82	
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	
ACTUAL DUCT LGH.	68	59	54	52	51	28	24	1	1	1	1	1	1	1	13	
EQUIVALENT LENGTH	220	145	185	215	215	150	220	0	0	0	0	0	0	0	185	
TOTAL EFFECTIVE LH	288	204	239	267	266	178	244	1	1	1	1	1	1	1	198	
ADJUSTED PRESSURE	0.05	0.07	0.06	0.06	0.06	0.08	0.06	15	15	15	15	15	15	15	0.08	
ROUND DUCT SIZE	7	5.8	6	6	6.8	6.3	9.1	0	0	0	0	0	0	0	5.5	
INLET GRILL SIZE	8	4	4	4	8	8	8	0	0	0	0	0	0	0	4	
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
INLET GRILL SIZE	14	10	10	10	14	14	30	0	0	0	0	0	0	0	10	

INSTALLATION OF COMBO HEATING SYSTEM  
TO COMPLY WITH UNIFIED CANADIAN  
GUIDELINE FOR INTEGRATED (COMBINATION)  
HEATING SYSTEMS LATEST ADDITION

MAXIMUM TEMPERATURE OF HOT WATER SYSTEM  
SUPPLIED TO PLUMBING FIXTURES SHALL  
NOT EXCEED 120 ° F or 49° C

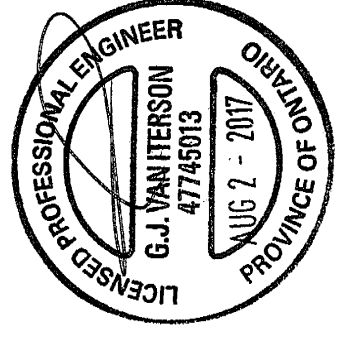
EXHAUST & COMBUSTION  
AIR INTAKES SHALL  
COMPLY WITH ALL LOCAL  
CODES & AUTHORITIES

TOTAL COMBINED HEAT LOSS BTU/H 47901  
TOTAL HEAT GAIN BTU/H 36113  
+10% 52691

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*



TYPE: DEWBERRY 12  
SITE NAME: RUSSEL GARDEN

LO # 75067

**RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY**

COMBUSTION APPLIANCES		9.32.3.1(1)
a)	<input checked="" type="checkbox"/> Direct vent (sealed combustion) only	
b)	<input type="checkbox"/> Positive venting induced draft (except fireplaces)	
c)	<input type="checkbox"/> Natural draft, B-vent or induced draft gas fireplace	
d)	<input type="checkbox"/> Solid Fuel (including fireplaces)	
e)	<input type="checkbox"/> No Combustion Appliances	

HEATING SYSTEM	
<input checked="" type="checkbox"/> Forced Air	<input type="checkbox"/> Non Forced Air
<input type="checkbox"/> Electric Space Heat	

HOUSE TYPE		9.32.1(2)
<input checked="" type="checkbox"/> I	Type a) or b) appliance only, no solid fuel	
<input type="checkbox"/> II	Type I except with solid fuel (including fireplaces)	
<input type="checkbox"/> III	Any Type c) appliance	
<input type="checkbox"/> IV	Type I, or II with electric space heat	
<input type="checkbox"/>	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
<input type="checkbox"/> 1	Exhaust only/Forced Air System	
<input type="checkbox"/> 2	HRV with Ducting/Forced Air System	
<input checked="" type="checkbox"/> 3	HRV Simplified/connected to forced air system	
<input type="checkbox"/> 4	HRV with Ducting/non forced air system	
<input type="checkbox"/>	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	6 @ 10.6 cfm	63.6 cfm
Table 9.32.3.A. TOTAL		190.8 cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4.(1)
1 Bedroom	31.8 cfm	
2 Bedroom	47.7 cfm	
3 Bedroom	63.6 cfm	
4 Bedroom	79.5 cfm	
5 Bedroom	95.4 cfm	
TOTAL		79.5 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	190.8	cfm
Less Principal Ventil. Capacity	139	cfm
Required Supplemental Capacity	51.8	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 60H-V+	Location: BSMT
139.0 cfm	3.0 sones <input checked="" type="checkbox"/> HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	$\Delta T$ °F	FACTOR	% LOSS	
139.0 CFM	71 F	1.08	X	0.25

SUPPLEMENTAL FANS		NUTONE	
Location	Model	cfm	Sones
ENS	QTXEN050C	50	✓ 0.3
BATH	QTXEN050C	50	✓ 0.3
W/R	QTXEN050C	50	✓ 0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 60H-V+		
139 cfm high	50 cfm low	
75 % Sensible Efficiency	<input checked="" type="checkbox"/> 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:	July-17





375 Finley Ave, Suite 202  
 Ajax, Ontario L1S 2E2  
 Tel-905-619-2300 Fax-905-619-2375  
 Web: www.hvacdesigns.ca E-mail info@hvacdesigns.ca

INTERGRATED COMBO HEATING SYSTEM  
 EQUIPMENT SELECTION SUMMARY AND APPLICATION FORM  
 THIS FORM SHALL BE COMPLETED IN FULL AND SUBMITTED WITH PERMIT APPLICATION

DATE: July-17

BCIN# 19669

PROJECT LOCATION RUSSEL GARDEN

BUILDER: GREENPARK HOMES

MODEL: DEWBERRY 12

0

SYSTEM DESIGNER

PRINT NAME

Micahel O'Rourke

HRAI Certificate Number

001820

COMPANY NAME



SECTION I

Building heating load summary

Total Calculated Heat Loss 47901 btu/r

Heat Loss Calculation Attached



Total Design Load (Heat Loss + 10%) 52691 btu/h

(see HVAC drawings)

SECTION II

Domestic hot water demand summary

Total Calculated Hot Water Demand 27 US/gal.

Hot Water Demand Calculation Attached



Demand load includes fixtures listed in schedule A

SECTION III

Equipment selection summary

Water Heater GSW  
 Make & Model # 6G5076NVC-02  
 Input 76,000 Btu/H  
 Storage capacity 50 US/gal.  
 Recovery 90%

Air Handler  
 Make & Model #  
 Coil rating 53,500  
 HRAI HWT/Coil sizing form attached

Air Max  
 MaxAir 100e  
 Btu/H @ 130 °F

NOTICE TO APPLICATION/ OWNER Re: System operation and limitations

The system described on this form has been designed to accommodate the specific domestic hot water and comfort heating demands of this building at the time of application as specified in schedule A. Any additional demands (such as adding a washroom) placed on the combo system must be evaluated to determine if the system is capable of supplying the additional load. Additional demands that have not been properly evaluated can have a severe effect on the proper operation of the system.

Schedule A

Proposed number of occupants	4	# of shower heads	2	# of bathrooms	4
High demand fixtures	No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/>	If yes - list		

I hereby acknowledge I have read and understand the above notice concerning the limitations of the combo system and acknowledge the information. I have provided on this form is accurate to the best of my understanding.

Signature of Applicant

*Michael O'Rourke*

Also print name

Michael O'Rourke

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

BCIN# 19669

MODEL: DEWBERRY 12

Table 2

	A		X	B	=	C
Activity	Avg. Hot Water per			Times used in		Liters Used
	Usage (liters)			Peak Hour		Peak Hour
	Hi-Flow	Low-Flow				
	(Old)	(New)				
Shower ~ 5 min	54	15	X		=	0
~ 10 min	110	27	X	2	=	54
~ 15 min	160	40	X		=	0
Reg. Bath ~ 1/2 full	76		X		=	0
Whirlpool ~ sm.	*		X		=	
~ Med.	*		X		=	
~ Lge.	*		X		=	
Personal Use	10		X	2	=	20
Shampooing Hair	15		X	2	=	30
Clothes Washing						
~ Hot / Warm	121		X		=	0
~ Warm / Warm	90		X		=	0
~ Warm / Cold	60		X		=	0
~ Cold / Cold	Nil		X		=	
Hand Dishwashing	15		X		=	0
Automatic						
Dishwasher	53		X		=	0
Food Preparation	19		X		=	0
				Total	=	104

Total usgal 27.456

\* Special sizing consideration are required; consult whirlpool manufacturer's specifications.

#### 4.2.2 Space Heating Requirements

The maximum available energy for space heating is equal to the effective water heater output (**EWHO**). For proper system operation, the water heater should have an effective output that is at least 20% greater than the air handler output.

To determine the effective water heater output:

$$\text{EWHO} = (\text{Burner input}) \times (\text{Recovery Efficiency}) = 68,400$$

therefore:

$$\text{Energy Available for Space Heating} = \frac{\text{EWHO}}{1.2} = 57,000$$

$$\text{Burner Input required for Space Heating} = \frac{\text{Air Handler Output} \times 1.2}{\text{Recovery Efficiency}}$$

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




**HEAT LOSS AND GAIN SUMMARY SHEET****MODEL:** DEWBERRY 12  
**SFQT:** 2816**LO#** 75067**BUILDER:** GREENPARK HOMES  
**SITE:** RUSSEL GARDEN**DESIGN ASSUMPTIONS**

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	1	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	72

**BUILDING DATA**

ATTACHMENT:	ATTACHED	# OF STORIES (+BASEMENT):	4
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	4.55	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	UNSHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	34282.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.35	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.8 ft
LENGTH: 38.0 ft	WIDTH: 24.0 ft	EXPOSED PERIMETER:	83.0 ft

**2012 OBC - COMPLIANCE PACKAGE****Component**

Ceiling with Attic Space Minimum RSI (R)-Value  
Ceiling Without Attic Space Minimum RSI (R)-Value  
Exposed Floor Minimum RSI (R)-Value  
Walls Above Grade Minimum RSI (R)-Value  
Basement Walls Minimum RSI (R)-Value  
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  
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value  
Windows and Sliding Glass Doors Maximum U-Value  
Skylights Maximum U-Value  
Space Heating Equipment Minimum AFUE  
HRV Minimum Efficiency  
Domestic Hot Water Heater Minimum EF

**Compliance Package  
A4**

Nominal	Min. Eff.
60	59.22
31	27.65
31	29.80
22 + 5 ci	21.40
20 ci	21.12
-	-
10	10
10	11.13
0.28	-
0.49	-
0.96	-
75%	-
0.67	-

INDIVIDUAL BCIN: 19669  
MICHAEL O'ROURKE*Michael O'Rourke*

LOCATE CENTER OF OUTLET  
min 8" FROM WALLS

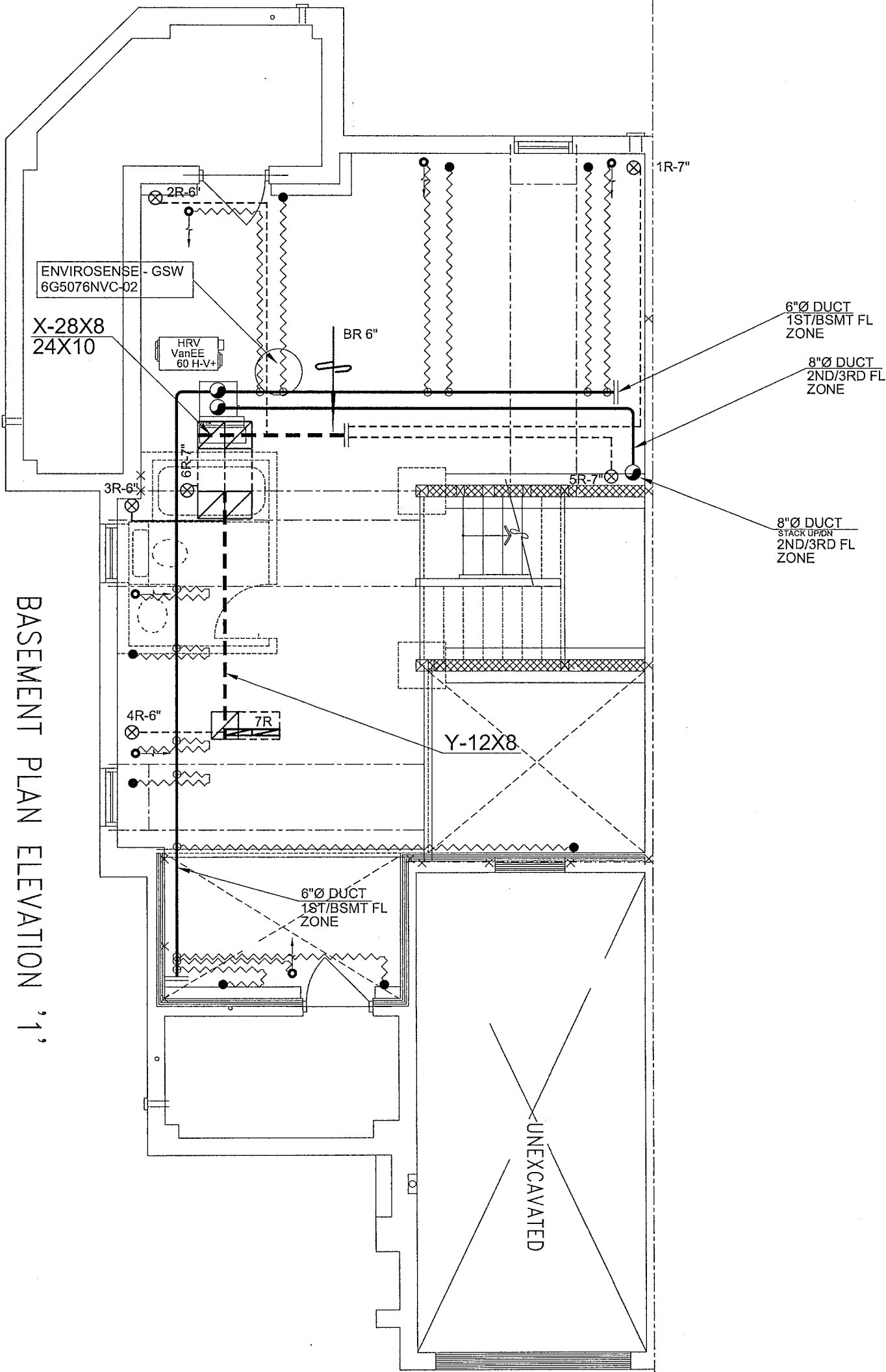
PACKAGE A4  
CSA-F280-12

MAXIMUM ALLOWABLE  
TRUNK DUCT LENGTH

DUCT SIZE	MAXIMUM LENGTH	NO. OF TAKE OFFS
4"	20'	2
5"	30'	4
6"	50'	10
7"	60'	16
8"	70'	24
10"	100'	29

HVAC LEGEND

	OUTLET BY AIRMAX
	DUAL OUTLET BY AIRMAX
	DUCTWORK
	FLEX DUCT
	RETURN AIR GRILLE



- i. INSTALLATION TO COMPLY WITH THE LATEST EDITIONS OF THE ONTARIO BUILDING CODE AND AIRMAX DESIGN AND INSTALLATION MANUALS
- ii. VENT HOT WATER TANK OR BOILER TO MANUFACTURERS SPECS & ALL LOCAL CODES
- iii. COMBUSTION AIR INTAKE (INSTALL per ALL LOCAL CODES)
- iv. MAXIMUM TEMPERATURE of HOT WATER SUPPLIED TO PLUMBING FIXTURES SHALL NOT EXCEED 120°F or 49°C
- v. CONTRACTOR SHALL SEAL SUPPLY DUCT JOINTS AND GORES WITH AN APPROVED SEALANT

UNIT EQUIPMENT SUMMARY

UNIT	HEAT LOSS	REQUIRED HEAT LOSS (HEAT LOSS + 10%)	AIR HANDLER MODEL (AIRMAX)	HEAT OUTPUT (BTU/H @ TEMP)	HEAT SOURCE (HOT WATER TANK / BOILER)	HEAT SOURCE INPUT (BTU/H)	HEAT GAIN LOAD (BTU/H)	A/C SLAB COIL (MODEL) clw TX VALVE	A/C CONDENSER SIZE (TONS)
DEWBERRY 12	47,901	52,691	MAXAIR-100e P2-2 ZONE	53,500 @ 130°F	GSW 6G5076NVC-02	76,000	36,113	MA36-100	3.0

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

Client

**GREENPARK HOMES**

Project Name

**RUSSEL GARDENS  
HAMILTON, ONTARIO**

DEWBERRY 12      2816 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.

**PROFESSIONAL ENGINEER**  
**G.J. VAN ITERSSEN**  
**47745013**  
**AUG 2 - 2017**  
**PROVINCE OF ONTARIO**

Sheet Title

**BASEMENT  
HEATING  
LAYOUT**

Date

**JULY/2017**

Scale

**3/16" = 1'-0"**

BCIN# 19669

LO#      **75067**

LOCATE CENTER OF OUTLET  
min 8" FROM WALLS



PACKAGE A4  
CSA-F280-12

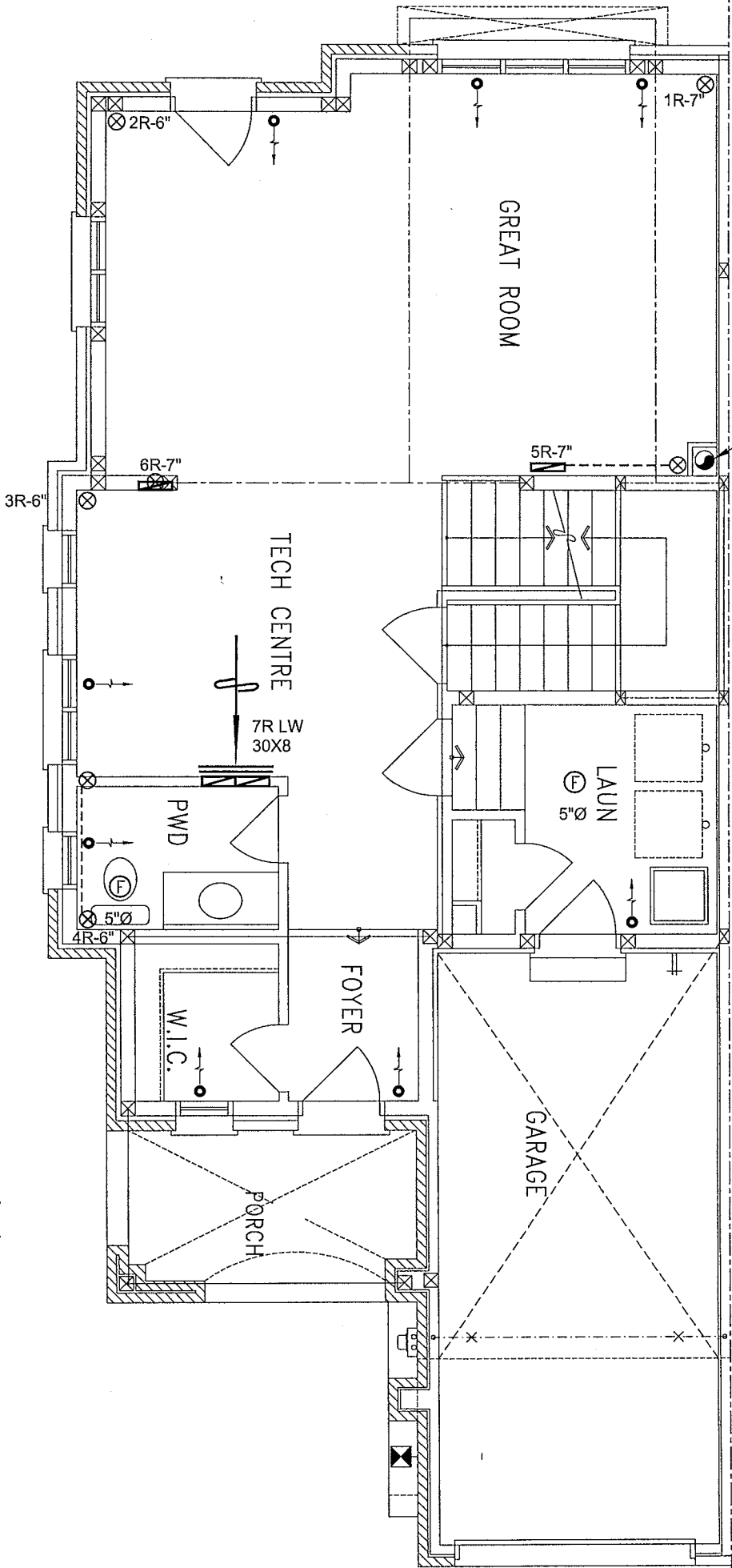
MAXIMUM ALLOWABLE  
TRUNK DUCT LENGTH

DUCT SIZE	MAXIMUM LENGTH	NO. OF TAKE OFFS
4"	20'	2
5"	30'	4
6"	50'	10
7"	60'	16
8"	70'	24
10"	100'	29

HVAC LEGEND

	OUTLET BY AIRMAX
	DUAL OUTLET BY AIRMAX
	DUCTWORK
	FLEX DUCT
	RETURN AIR GRILLE

ENTRY LEVEL PLAN ELEVATION '1'



- i. INSTALLATION TO COMPLY WITH THE LATEST EDITIONS OF THE ONTARIO BUILDING CODE AND AIRMAX DESIGN AND INSTALLATION MANUALS
- ii. VENT HOT WATER TANK OR BOILER TO MANUFACTURERS SPECS & ALL LOCAL CODES
- iii. COMBUSTION AIR INTAKE (INSTALL per ALL LOCAL CODES)
- iv. MAXIMUM TEMPERATURE of HOT WATER SUPPLIED TO PLUMBING FIXTURES SHALL NOT EXCEED 120°F or 49°C
- v. CONTRACTOR SHALL SEAL SUPPLY DUCT JOINTS AND GORES WITH AN APPROVED SEALANT

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

Client  
**GREENPARK HOMES**

Project Name  
**RUSSEL GARDENS  
HAMILTON, ONTARIO**

**DEWBERRY 12      2816 sqft**

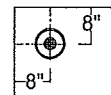
375 Finley Ave. Suite 202 - Ajax, Ontario  
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375  
Email: info@hvacdsgns.ca  
Web: www.hvacdesigns.ca  
Specializing in Residential Mechanical Design Services

Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title	FIRST FLOOR HEATING LAYOUT
Date	JULY/2017
Scale	3/16" = 1'-0"
BCIN#	19669
LO#	75067



LOCATE CENTER OF OUTLET  
min 8" FROM WALLS



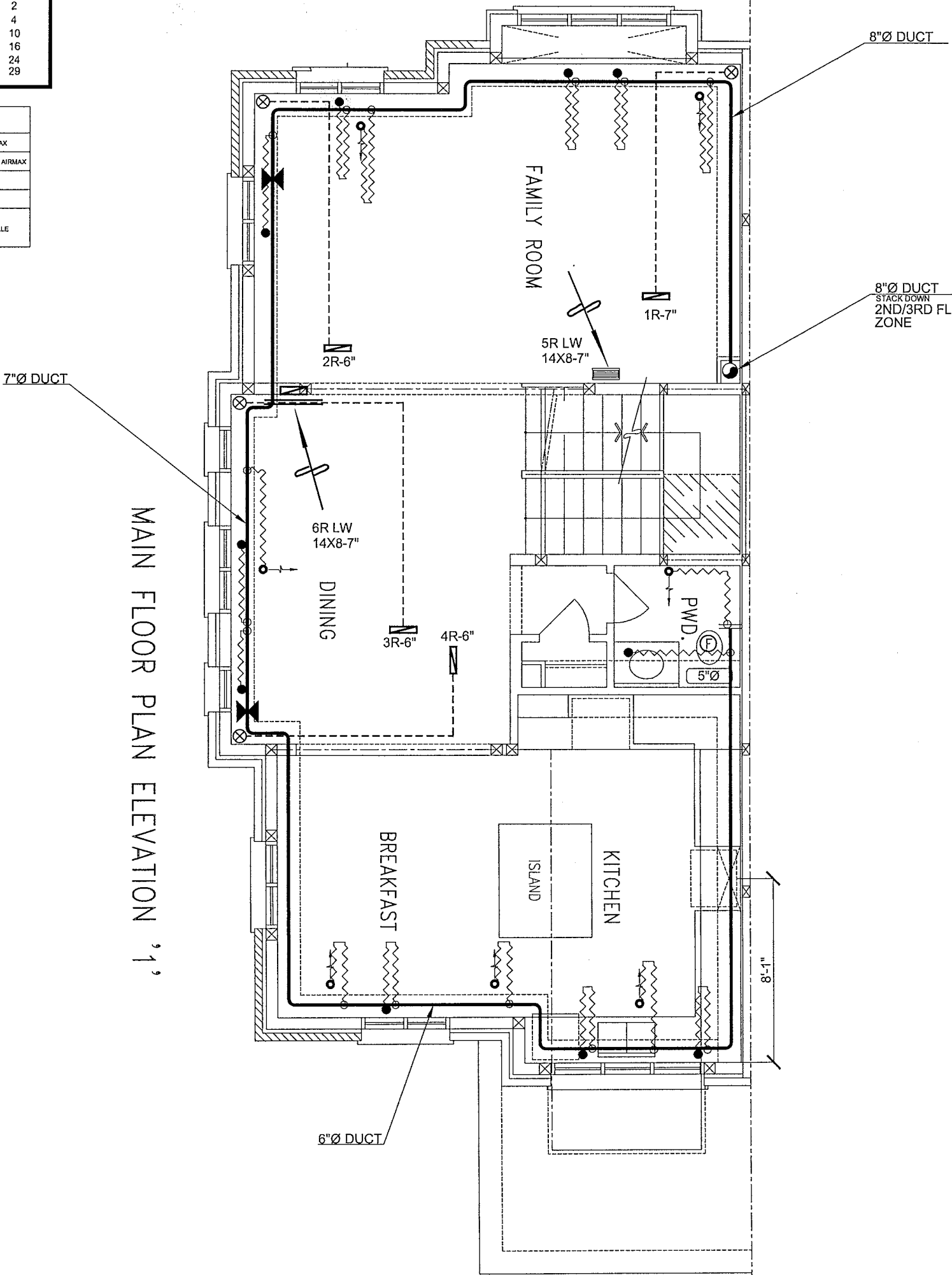
PACKAGE A4  
CSA-F280-12

MAXIMUM ALLOWABLE  
TRUNK DUCT LENGTH

DUCT SIZE	MAXIMUM LENGTH	NO. OF TAKE OFFS
4"	20'	2
5"	30'	4
6"	50'	10
7"	60'	16
8"	70'	24
10"	100'	29

HVAC LEGEND

	OUTLET BY AIRMAX
	DUAL OUTLET BY AIRMAX
	DUCTWORK
	FLEX DUCT
	RETURN AIR GRILLE



- i. INSTALLATION TO COMPLY WITH THE LATEST EDITIONS OF THE ONTARIO BUILDING CODE AND AIRMAX DESIGN AND INSTALLATION MANUALS
- ii. VENT HOT WATER TANK OR BOILER TO MANUFACTURERS SPECS & ALL LOCAL CODES
- iii. COMBUSTION AIR INTAKE (INSTALL per ALL LOCAL CODES)
- iv. MAXIMUM TEMPERATURE of HOT WATER SUPPLIED TO PLUMBING FIXTURES SHALL NOT EXCEED 120°F or 49°C
- v. CONTRACTOR SHALL SEAL SUPPLY DUCT JOINTS AND GORES WITH AN APPROVED SEALANT

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

Client  
**GREENPARK HOMES**

Project Name  
**RUSSEL GARDENS  
HAMILTON, ONTARIO**

**DEWBERRY 12**      2816 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**

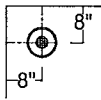
Date  
JULY/2017

Scale  
3/16" = 1'-0"

BCIN# 19669

LO#      75067

LOCATE CENTER OF OUTLET  
min 8" FROM WALLS



PACKAGE A4  
CSA-F280-12

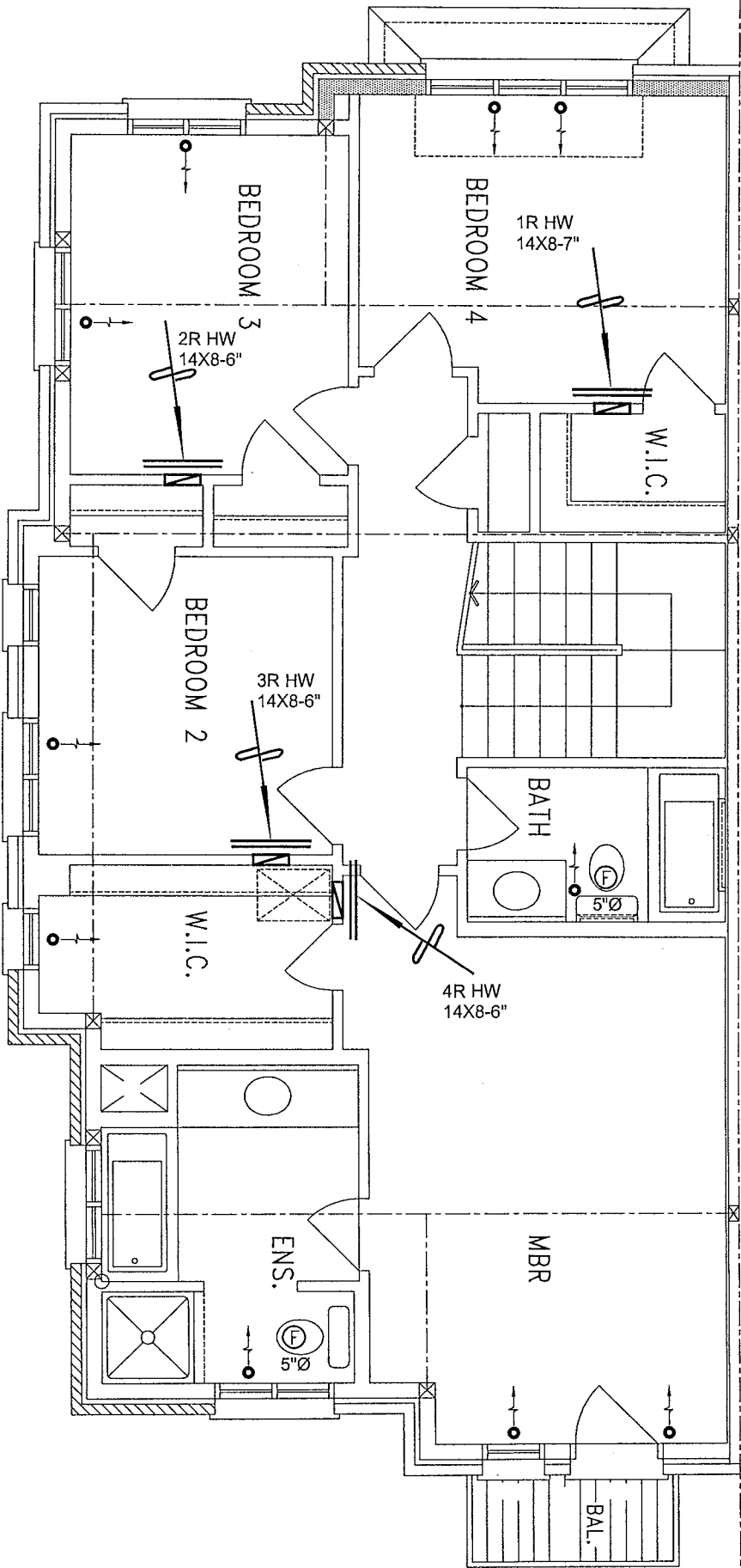
MAXIMUM ALLOWABLE  
TRUNK DUCT LENGTH

DUCT SIZE	MAXIMUM LENGTH	NO. OF TAKE OFFS
4"	20'	2
5"	30'	4
6"	50'	10
7"	60'	16
8"	70'	24
10"	100'	29

HVAC LEGEND

	OUTLET BY AIRMAX
	DUAL OUTLET BY AIRMAX
	DUCTWORK
	FLEX DUCT
	RETURN AIR GRILLE

UPPER FLOOR PLAN ELEVATION '1'



- i. INSTALLATION TO COMPLY WITH THE LATEST EDITIONS OF THE ONTARIO BUILDING CODE AND AIRMAX DESIGN AND INSTALLATION MANUALS
- ii. VENT HOT WATER TANK OR BOILER TO MANUFACTURERS SPECS & ALL LOCAL CODES
- iii. COMBUSTION AIR INTAKE (INSTALL per ALL LOCAL CODES)
- iv. MAXIMUM TEMPERATURE of HOT WATER SUPPLIED TO PLUMBING FIXTURES SHALL NOT EXCEED 120°F or 49°C
- v. CONTRACTOR SHALL SEAL SUPPLY DUCT JOINTS AND GORES WITH AN APPROVED SEALANT

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

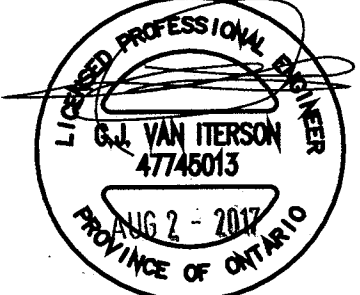
Client  
**GREENPARK HOMES**

Project Name  
**RUSSEL GARDENS  
HAMILTON, ONTARIO**

**DEWBERRY 12**      2816 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  
**THIRD FLOOR  
HEATING  
LAYOUT**

Date      JULY/2017

Scale      3/16" = 1'-0"

BCIN# 19669

LO#      75067