Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information

Building number, street name			Unit no.	Lot/con.
Municipality	**Postal code**	**Plan number/ other description**		
BRAMPTON				

B. Individual who reviews and takes responsibility for design activities

Name		Firm		
MICHAEL O'ROURKE		**HVAC DESIGNS LTD.**		
Street address			Unit no.	Lot/con.
375 FINLEY AVE			**202**	**N/A**
Municipality	Postal code	Province	E-mail	
AJAX	**L1S 2E2**	**ONTARIO**	**info@hvacdesigns.ca**	
Telephone number	Fax number		Cell number	
(**905**) **619-2300**	(**905**) **619-2375**		( )	

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]

❑ House	☒ HVAC – House	❑ Building Structural
❑ Small Buildings	❑ Building Services	❑ Plumbing – House
❑ Large Buildings	❑ Detection, Lighting and Power	❑ Plumbing – All Buildings
❑ Complex Buildings	❑ Fire Protection	❑ On-site Sewage Systems

Description of designer's work	
HEAT LOSS / GAIN CALCULATIONS **DUCT SIZING** **RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY** **RESIDENTIAL SYSTEM DESIGN per CSA-F280-12**	**Model:** DENTON 12 UNFIN BSMT **Project:** OSTIENSE

D. Declaration of Designer

I **MICHAEL O'ROURKE** declare that (choose one as appropriate):
(print name)

❑ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4.of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: _____
Firm BCIN: _____

☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5.of Di vision C, of the Building Code.

Individual BCIN: 19669
Basis for exemption from registration and qualification: O.B.C SENTENCE 3.2.4.1 (4)

❑ The design work is exempt from the registration and qualification requirements of the Building Code.
Basis for exemption from registration and qualification: _____

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have submitted this application with the knowledge and consent of the firm.

August 1, 2017
Date

Michael O'Rourke
Signature of Designer

NOTE:

1. For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d).of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
2. Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

HVAC DESIGNS LTD.
375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

SITE NAME: OSTIENSE | UNFIN BSMT | DATE: Aug-17 | WINTER NATURAL AIR CHANGE RATE 0.325 | HEAT LOSS ΔT °F. 74 | CSA-F280-12
BUILDER: GREENYORK HOMES | TYPE: DENTON 12 | GFA: 4015 | LO# 75362 | SUMMER NATURAL AIR CHANGE RATE 0.115 | HEAT GAIN ΔT °F. 14 | SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			BATH			HERS			LOFT			ENS-2		
EXP. WALL			38			18			14			17			31			30			15			0			22			10		
CLG. HT.			10			10			9			10			11			10			10			9			10			9		
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	380			180			126			170			341			300			150			0			220			90		
GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN
NORTH	20.8	16.3	39	810	636	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	166	130
EAST	20.8	41.9	33	686	1382	26	540	1089	0	0	0	0	0	0	0	0	0	12	249	503	18	374	754	0	0	0	0	0	0	0	0	0
SOUTH	20.8	25.2	0	0	0	0	0	0	0	0	0	0	0	0	25	519	631	36	748	908	0	0	0	0	0	0	0	0	0	0	0	0
WEST	20.8	41.9	0	0	0	0	0	0	0	0	0	42	873	1759	25	519	1047	0	0	0	0	0	0	0	0	0	45	935	1885	0	0	0
SKYLT.	36.4	102.1	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	0
DOORS	24.7	4.7	0	0	0	0	0	0	0	0	0	0	0	0	20	493	93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.4	0.8	308	1342	253	154	671	127	126	549	104	128	558	105	271	1181	223	252	1098	207	132	575	109	0	0	0	175	762	144	82	357	67
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.7	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	0
EXPOSED CLG	1.3	0.6	336	421	204	234	293	142	48	60	29	160	200	97	146	183	89	201	252	122	195	244	119	119	149	72	418	524	254	140	175	85
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0	0	0	0	50	134	65	50	134	65	20	54	26	0	0	0	0	0	0	100	268	130	0	0	0
EXPOSED FLOOR	2.5	0.5	0	0	0	0	0	0	48	120	23	210	523	99	0	0	0	0	0	0	0	0	0	42	105	20	0	0	0	140	349	66
BASEMENT/CRAWL HEAT LOSS				0			0			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				3259			1504			729			2288			3030			2401			1193			254			2489			1047	
SUB TOTAL HT GAIN					2476			1358			155			2126			2148			1767			981			92			2413			349
LEVEL FACTOR / MULTIPLIER			0.20	0.26		0.20	0.26		0.20	0.26		0.20	0.26		0.20	0.26		0.20	0.26		0.20	0.26		0.20	0.26		0.20	0.26		0.20	0.26	
AIR CHANGE HEAT LOSS				842			389			188			591			783			620			308			66			643			271	
AIR CHANGE HEAT GAIN					175			96			11			151			152			125			70			7			171			25
DUCT LOSS				0			0			92			288			0			0			0			32			0			132	
DUCT GAIN					0			0			17			351			0			0			0			10			0			37
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0	0		0	0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					995			0			0			995			995			995			0			0			0			0
TOTAL HT LOSS BTU/H				4101			1893			1009			3167			3812			3021			1502			351			3133			1450	
TOTAL HT GAIN x 1.3 BTU/H					5364			1890			238			5021			4595			4065			1366			141			3359			534

ROOM USE			LIV			DIN			KIT/FM				LAUN			W/R			FOY			OFF						WUB			BAS	
EXP. WALL			24			20			83				27			13			8			29						15			202		
CLG. HT.			11			10			10				11			10			11			10						9			9		
	FACTORS																																
GRS.WALL AREA	LOSS	GAIN	264			200			830				297			130			88			290						135			1212		
GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN				LOSS	GAIN		LOSS	GAIN
NORTH	20.8	16.3	0	0	0	0	0	0	0	0	0		8	166	130	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0
EAST	20.8	41.9	0	0	0	0	0	0	139	2888	5822		0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	15	312	628
SOUTH	20.8	25.2	32	665	808	43	893	1085	30	623	757		0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	10	208	252
WEST	20.8	41.9	32	665	1340	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	55	1143	2304				0	0	0	5	104	209
SKYLT.	36.4	102.1	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	24.7	4.7	0	0	0	0	0	0	0	0	0		20	493	93	0	0	0	45	1109	209	0	0	0				20	493	93	20	493	93
NET EXPOSED WALL	4.4	0.8	200	871	164	157	684	129	661	2880	543		269	1172	221	130	566	107	43	187	35	235	1024	193				115	501	95	0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.7	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0				0	0	0	606	2129	402
EXPOSED CLG	1.3	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
NO ATTIC EXPOSED CLG	2.7	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
EXPOSED FLOOR	2.5	0.5	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
BASEMENT/CRAWL HEAT LOSS				0			0			0				0			0			0			0							7043		
SLAB ON GRADE HEAT LOSS				0			0			0				0			0			0			0					0				
SUBTOTAL HT LOSS				2201			1577			6391				1831			566			1297			2167					994			10288	
SUB TOTAL HT GAIN					2312			1214			7123				445			107			245			2497					188			1585
LEVEL FACTOR / MULTIPLIER			0.30	0.44		0.30	0.44		0.30	0.44			0.30	0.44		0.30	0.44		0.30	0.44		0.30	0.44								0.50	1.04	
AIR CHANGE HEAT LOSS				968			694			2810				805			249			570			953									11749	
AIR CHANGE HEAT GAIN					164			86			505				32			8			17			177									126
DUCT LOSS				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		0	0		0	0		0				0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					995			995			995				995			0			0			995					0				995
TOTAL HT LOSS BTU/H				3169			2271			9202				2637			815			1867			3119					994			22037	
TOTAL HT GAIN x 1.3 BTU/H					4513			2984			####				1913			149			341			4770					244				3517

TOTAL HEAT GAIN BTU/H: 56738 TONS: 4.73 LOSS DUE TO VENTILATION LOAD BTU/H: 2785 STRUCTURAL HEAT LOSS: 69547 TOTAL COMBINED HEAT LOSS BTU/H: 72332

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

HVAC DESIGNS LTD.

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Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

SITE NAME: OSTIENSE
BUILDER: GREENYORK HOMES
UNFIN BSMT
TYPE: DENTON 12
DATE: Aug-17
GFA: 4015 LO# 75362

HEATING CFM	1930	COOLING CFM	1930	furnace pressure	0.6
TOTAL HEAT LOSS	69,547	TOTAL HEAT GAIN	56,212	furnace filter	0.05
AIR FLOW RATE CFM	27.75	AIR FLOW RATE CFM	34.33	a/c coil pressure	0.2
				available pressure for s/a & r/a	0.35

#*CARRIER
59SP5A-80-20 80

FAN SPEED	
LOW	0
MEDLOW	1335
MEDIUM	1140
MEDIUM HIGH	1600
HIGH	1930

AFUE = 97 %
INPUT (BTU/H) = 80,000
OUTPUT (BTU/H) = **78,000**
DESIGN CFM = **1930**
CFM @ .6 " E.S.P.
TEMPERATURE RISE 37 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	17	12	6
R/A	0	0	5	3	1

plenum pressure s/a	0.18	r/a pressure	0.17
max s/a dif press. loss	0.03	r/a grille press. Loss	0.02
min adjusted pressure s/a	0.15	adjusted pressure r/a	0.15

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	WIC	BED-2	BED-3	BED-4	BATH	BED-2	LOFT	MBR	ENS-2	LIV	DIN	KIT/FM	KIT/FM	KIT/FM	LAUN	W/R	FOY	LOFT	BED-3	BATH	BED-4	ENS
RM LOSS MBH.	2.05	0.95	1.01	1.58	1.91	1.51	0.75	1.58	1.57	2.05	1.45	1.58	2.27	2.30	2.30	2.30	2.64	0.82	1.87	1.57	1.91	0.75	1.51	0.95
CFM PER RUN HEAT	57	26	28	44	53	42	21	44	43	57	40	44	63	64	64	64	73	23	52	43	53	21	42	26
RM GAIN MBH.	2.68	0.95	0.24	2.51	2.30	2.03	0.68	2.51	1.68	2.68	0.53	2.26	2.98	2.80	2.80	2.80	1.91	0.15	0.34	1.68	2.30	0.68	2.03	0.95
CFM PER RUN COOLING	92	32	8	86	79	70	23	86	58	92	18	77	102	96	96	96	66	5	12	58	79	23	70	32
ADJUSTED PRESSURE	0.16	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17	0.16	0.17	0.17	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	57	54	59	68	41	48	37	62	47	63	60	33	13	26	29	35	43	21	18	39	40	50	42	35
EQUIVALENT LENGTH	170	190	180	170	150	120	210	120	150	170	140	140	90	150	160	130	140	140	180	170	140	150	120	170
TOTAL EFFECTIVE LENGTH	227	244	239	238	191	168	247	182	197	233	200	173	103	176	189	165	183	161	198	209	180	200	162	205
ADJUSTED PRESSURE	0.07	0.07	0.07	0.07	0.09	0.1	0.07	0.09	0.09	0.07	0.09	0.1	0.16	0.09	0.09	0.1	0.09	0.11	0.09	0.08	0.1	0.09	0.11	0.08
ROUND DUCT SIZE	**6**	4	4	**6**	5	5	4	5	5	**6**	4	5	5	**6**	**6**	**6**	5	4	4	5	5	4	5	4
HEATING VELOCITY (ft/min)	291	298	321	224	389	308	241	323	316	291	459	323	463	326	326	326	536	264	597	316	389	241	308	298
COOLING VELOCITY (ft/min)	469	367	92	438	580	514	264	631	426	469	207	565	749	489	489	489	485	57	138	426	580	264	514	367
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	E	E	D	D	B	C	B	E	B	D	D	A	F	C	E	E	D	B	B	B	A	C	C	C

RUN #	25	26	27	28	29	30	31	32	33	34	36
ROOM NAME	HERS	KIT/FM	OFF	LIV	BAS	BAS	BAS	BAS	BAS	BAS	OFF
RM LOSS MBH.	0.35	2.30	1.56	1.58	3.84	3.84	3.84	3.84	3.84	3.84	1.56
CFM PER RUN HEAT	10	64	43	44	107	107	107	107	107	107	43
RM GAIN MBH.	0.14	2.80	2.38	2.26	0.63	0.63	0.63	0.63	0.63	0.63	2.38
CFM PER RUN COOLING	5	96	82	77	22	22	22	22	22	22	82
ADJUSTED PRESSURE	0.17	0.16	0.16	0.17	0.15	0.15	0.15	0.15	0.15	0.15	0.16
ACTUAL DUCT LGH.	45	44	32	33	46	28	43	15	40	43	26
EQUIVALENT LENGTH	130	140	110	140	140	120	120	150	150	150	120
TOTAL EFFECTIVE LENGTH	175	184	142	173	186	148	163	165	190	193	146
ADJUSTED PRESSURE	0.1	0.09	0.11	0.1	0.08	0.1	0.09	0.09	0.08	0.08	0.11
ROUND DUCT SIZE	4	**6**	5	5	**6**	**6**	**6**	**6**	**6**	**6**	5
HEATING VELOCITY (ft/min)	115	326	316	323	546	546	546	546	546	546	316
COOLING VELOCITY (ft/min)	57	489	602	565	112	112	112	112	112	112	602
OUTLET GRILL SIZE	3X10	4X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10
TRUNK	E	D	A	A	D	E	C	B	A	E	A

SUPPLY AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK A	334	0.08	9.3	10	x	8	601	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	676	0.07	12.5	18	x	8	676	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	302	0.08	9	10	x	8	544	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	413	0.07	10.4	12	x	8	620	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	892	0.07	13.9	22	x	8	730	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	1257	0.07	15.8	28	x	8	808	TRUNK L	0	0.00	0	0	x	8	0

RETURN AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK O	0	0.06	0	0	x	8	0
TRUNK P	0	0.06	0	0	x	8	0
TRUNK Q	0	0.06	0	0	x	8	0
TRUNK R	0	0.06	0	0	x	8	0
TRUNK S	0	0.06	0	0	x	8	0
TRUNK T	0	0.06	0	0	x	8	0
TRUNK U	0	0.06	0	0	x	8	0
TRUNK V	0	0.06	0	0	x	8	0
TRUNK W	0	0.06	0	0	x	8	0
TRUNK X	1930	0.06	19.3	30	x	14	662
TRUNK Y	725	0.06	13.4	20	x	8	653
TRUNK Z	330	0.06	9.9	12	x	8	495
DROP	1930	0.06	19.3	24	x	18	643

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	
AIR VOLUME	340	85	155	175	155	320	300	175	0	0	0	0	0	0	0	225
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
ACTUAL DUCT LGH.	55	56	57	33	44	20	30	22	1	1	1	1	1	1	1	16
EQUIVALENT LENGTH	160	175	175	135	185	140	155	180	0	0	0	0	0	0	0	165
TOTAL EFFECTIVE LH	215	231	232	168	229	160	185	202	1	1	1	1	1	1	1	181
ADJUSTED PRESSURE	0.07	0.06	0.06	0.09	0.06	0.09	0.08	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.08
ROUND DUCT SIZE	9.7	6	7.5	7.1	7.5	8.9	8.9	7.5	0	0	0	0	0	0	0	8
INLET GRILL SIZE	8	8	8	8	8	8	8	8	0	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	30	14	14	14	14	30	30	14	0	0	0	0	0	0	0	24

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 (signature) INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

HVAC DESIGNS LTD.

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

TYPE: DENTON 12 LO # 75362
SITE NAME: OSTIENSE UNFIN BSMT

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	4	@ 10.6 cfm	42.4	cfm
Other Rooms	5	@ 10.6 cfm	53.0	cfm
Table 9.32.3.A.		TOTAL	169.6	cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED 9.32.3.4.(1)

1	Bedroom	31.8	cfm
2	Bedroom	47.7	cfm
3	Bedroom	63.6	cfm
4	Bedroom	79.5	cfm
5	Bedroom	95.4	cfm
	TOTAL	**79.5**	**cfm**

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	169.6	cfm
Less Principal Ventil. Capacity	139	cfm
Required Supplemental Capacity	30.6	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE 60H-V+ Location: BSMT

139.0 cfm 3.0 sones [✓] HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		FACTOR		% LOSS
139.0 CFM	X	74 F	X	1.08	X	0.25

SUPPLEMENTAL FANS NUTONE

Location	Model	cfm	HVI	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 @ 32 deg F (0 deg C) [✓] HVI Approved

LOCATION OF INSTALLATION

Lot: Concession

Township Plan:

Address

Roll # Building Permit #

BUILDER: GREENYORK 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: Michael O'Rourke.

HRAI # 001820

Date: August-17

I REVIEW AND TAKE RESPONIBILITY 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

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: DENTON 12 UNFIN BSMT **BUILDER:** GREENYORK HOMES
SFQT: 4015 **LO#** 75362 **SITE:** OSTIENSE

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-2	OUTDOOR DESIGN TEMP.	86
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	72

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	SOUTH	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 (ft^3):	54515.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	1.70	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 53.0 ft	WIDTH: 48.0 ft	EXPOSED PERIMETER:	202.0 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	29.8
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

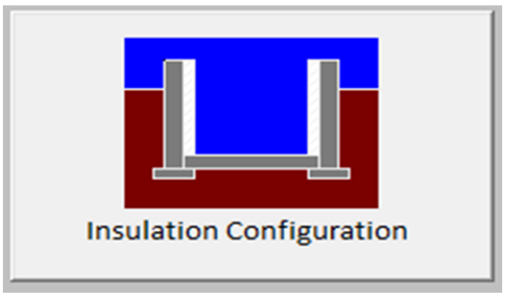
Michael O'Rourke

HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description	
Province:	Ontario
Region:	Brampton
Site Description	
Soil Conductivity:	Normal conductivity: dry dand, loam, clay
Water Table:	Normal (7-10 m, 23-33 ft)

Foundation Dimensions		
Floor Length (m):	**16.2**	 Insulation Configuration
Floor Width (m):	**14.6**	
Exposed Perimeter (m):	**0.0**	
Wall Height (m):	**2.7**	
Depth Below Grade (m):	**1.83**	
Window Area (m^2):	**2.8**	
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):	**2064**	

TYPE: DENTON 12 UNFIN BSMT
LO# 75362

HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

Air Infiltration Residential Load Calculator

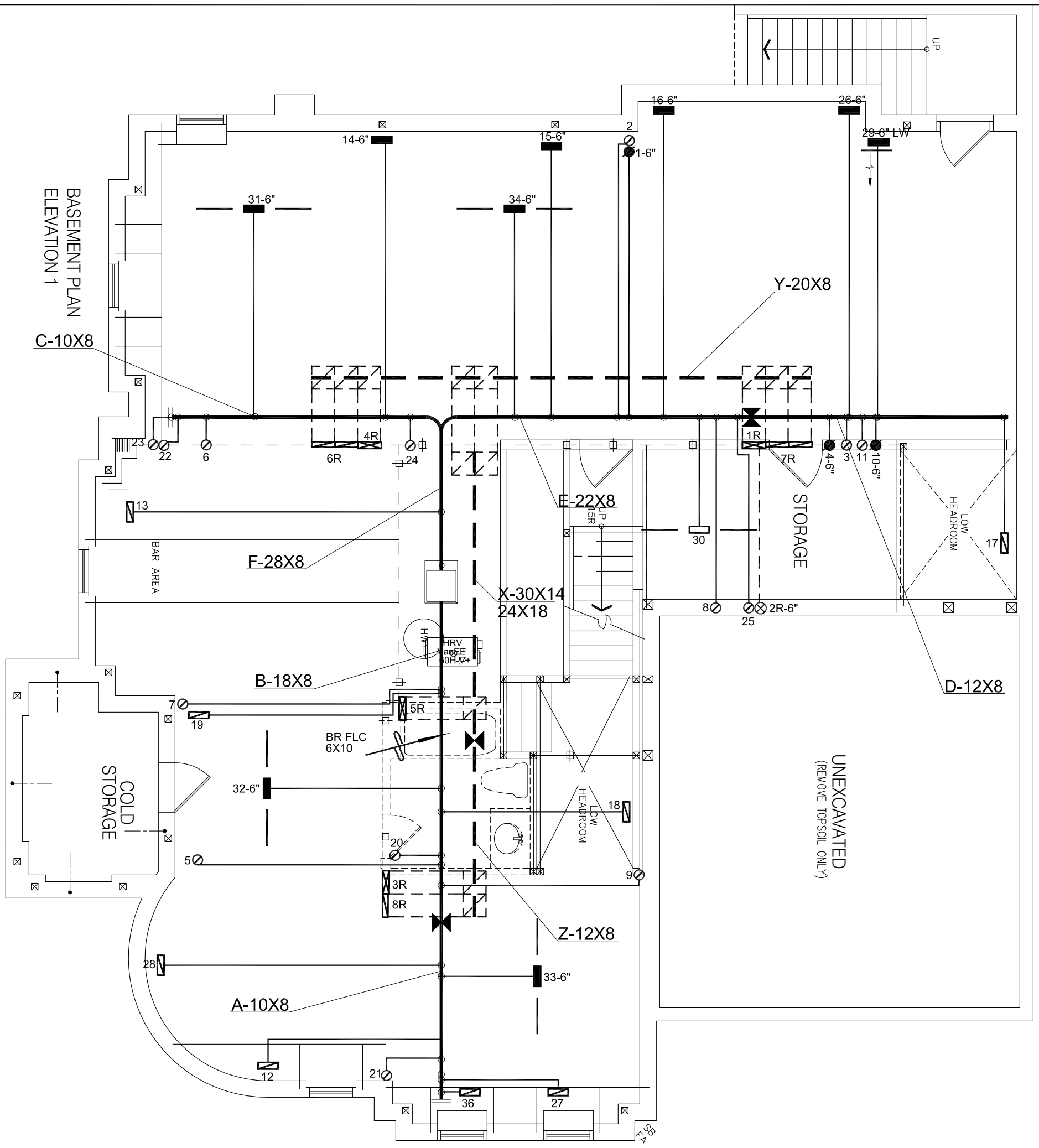
Supplemental tool for CAN/CSA-F280

Weather Station Description	
Province:	Ontario
Region:	Brampton
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):	1543.7
Air Leakage/Ventilation	
Air Tightness Type:	Present (1961-) (3.57 ACH)
Custom BDT Data:	ELA @ 10 Pa. 2057.8 cm^2
	3.57 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply: 65.6 / Total Exhaust: 65.6
Flue Size	
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural Infiltration Rates	
Heating Air Leakage Rate (ACH/H):	**0.325**
Cooling Air Leakage Rate (ACH/H):	**0.115**

TYPE: DENTON 12 UNFIN BSMT

LO# 75362

BASEMENT PLAN
ELEVATION 1



CSA-F280-12

PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
— ▭ —	FLOOR SUPPLY AIR GRILLE	▬	6" SUPPLY AIR BOOT ABOVE	▱	14"x8" RETURN AIR GRILLE	▱	RETURN AIR STACK ABOVE
— ▬ —	FLOOR 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
3.		
2.		
1.		

REVISIONS

Client

ARIA COMFORT SYSTEMS

Project Name

GREENYORK HOMES
OSTIENSE
BRAMPTON, ONTARIO
UNFIN BSMT
DENTON 12 4015 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@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 72332 BTU/H	
UNIT DATA	
MAKE	CARRIER
MODEL	59SP5A-80-20
INPUT	80 MBTU/H
OUTPUT	78 MBTU/H
COOLING	5.0 TONS
FAN SPEED	1930 cfm @ 0.5" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	17	5	4
1ST FLOOR	12	3	2
BASEMENT	6	1	0

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

Sheet Title

BASEMENT HEATING LAYOUT

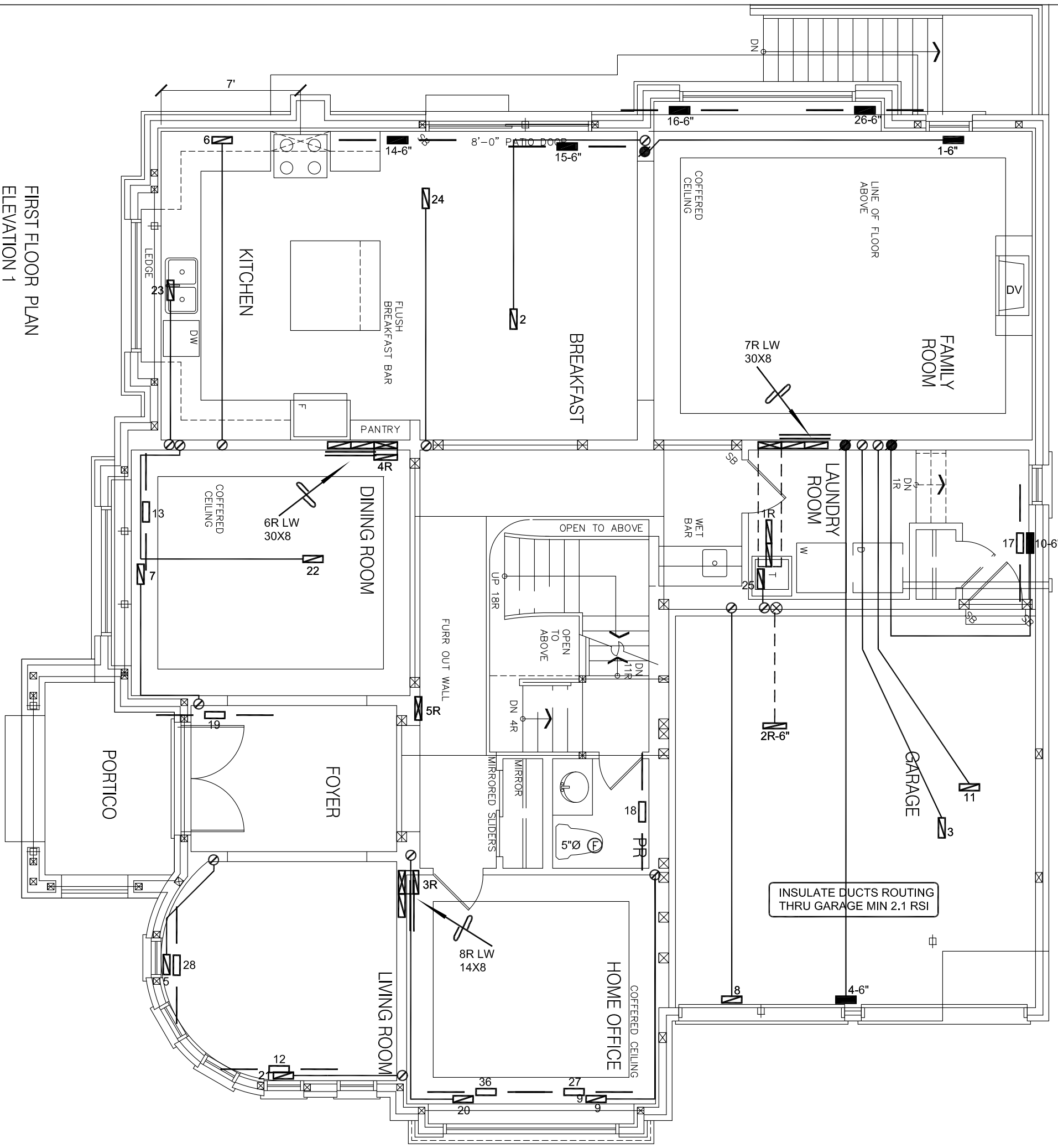
Date AUG/2017

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 75362

FIRST FLOOR PLAN
ELEVATION 1



CSA-F280-12

PACKAGE A1

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Sheet Title

FIRST FLOOR HEATING LAYOUT

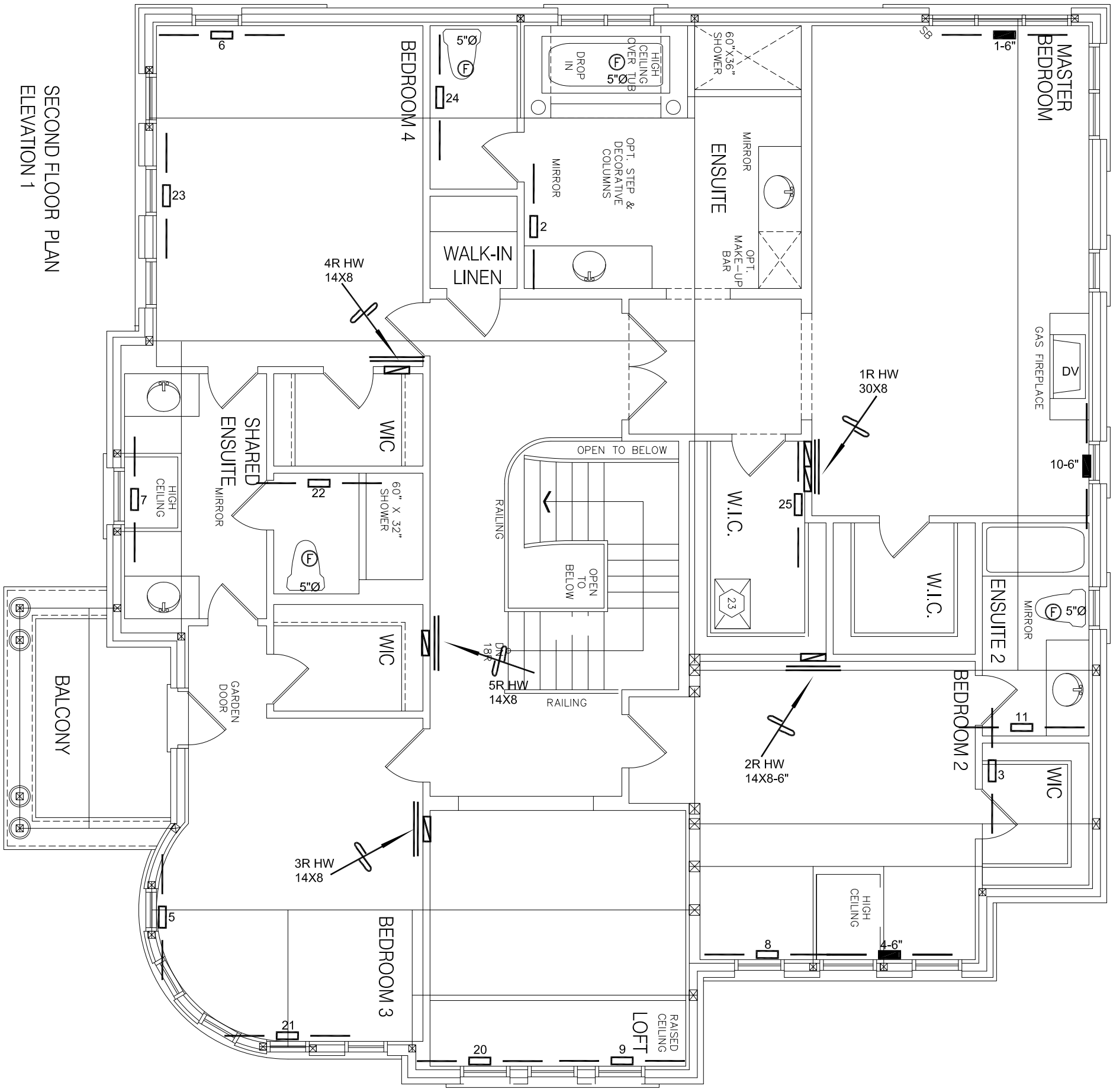
Date AUG/2017

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 75362

SECOND FLOOR PLAN
ELEVATION 1



CSA-F280-12

PACKAGE A1

HVAC LEGEND

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SECOND FLOOR HEATING LAYOUT

Date AUG/2017

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 75362