19- 444464 000 00 RR

Energy Efficiency Design Summary: Prescriptive Method

(Building Code Part 9, Residential)

This form is used by a designer to demonstrate that the energy efficiency design of a house complies with the building code using the prescriptive method described in Subsection 3.1.1. of SB-12. This form is applicable where the ratio of gross area of windows/sidelights/skylights/glazing in doors and sliding glass doors to the gross area of peripheral walls is not more than 22%.

For use by Principal Authority	
Application No:	Model/Certification Number: AMELIA 2 , EL-1

A. Project Information

Building number, street name		Unit number	Lot/Con
			8
Municipality: City of Brampton	Postal code	Reg. Plan number / other description: 43M-2057	

B. Prescriptive Compliance [indicate the building code compliance package being employed in this house design]

SB-12 Prescriptive (input design package): Package: A1 Table: _____

C. Project Design Conditions

Climatic Zone (SB-1):	Heating Equipment Efficiency	Space Heating Fuel Source		
□ Zone 1 (< 5000 degree days)	□ ≥ 92% AFUE	□ Gas	□ Propane	□ Solid Fuel
□ Zone 2 (≥ 5000 degree days)	□ ≥ 84% < 92% AFUE	□ Oil	□ Electric	□ Earth Energy
Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area		**Other Building Characteristics**		
Area of walls = 343.30 m^2 or _____ ft^2	W, S & G % = 8.56%	□ Log/Post&Beam □ ICF Above Grade □ ICF Basement □ Slab-on-ground □ Walkout Basement □ Air Conditioning □ Combo Unit □ Air Sourced Heat Pump (ASHP) □ Ground Sourced Heat Pump (GSHP)		
Area of W, S & G = 29.40 m^2 or _____ ft^2	Utilize window averaging: □Yes □No			

D. Building Specifications [provide values and ratings of the energy efficiency components proposed]

Energy Efficiency Substitutions		
□ ICF (3.1.1.2.(5) & (6) / 3.1.1.3.(5) & (6))		
□ Combined space heating and domestic water heating systems (3.1.1.2.(7) / 3.1.1.3.(7))		
□ Airtightness substitution(s)		
Airtightness test required (Refer to Design Guide Attached)	□ Table 3.1.1.4.B Required: _____	Permitted Substitution: _____
	□ Table 3.1.1.4.C Required: _____	Permitted Substitution: _____
	Required: _____	Permitted Substitution: _____

Building Component	Minimum RSI / R values or Maximum U-Value[1]		Building Component	Efficiency Ratings	
Thermal Insulation	Nominal	Effective	**Windows & Doors** Provide U-Value[1] or ER rating		
Ceiling with Attic Space	10.57	10.43	Windows/Sliding Glass Doors	1.6	
Ceiling without Attic Space	5.46	4.87	Skylights/Glazed Roofs	2.8	
Exposed Floor	5.46	5.25	**Mechanicals**		
Walls Above Grade	4.22	3.00	Heating Equip.(AFUE)	96%	
Basement Walls	3.52	3.72	HRV Efficiency (SRE% at 0° C)	75%	
Slab (all >600mm below grade)	-	-	DHW Heater (EF)	0.83	
Slab (edge only ≤600mm below grade)	1.76	1.76	DWHR (CSA B55.1 (min. 42% efficiency))	42	# Showers 2
Slab (all ≤600mm below grade, or heated)	1.76	1.96	Combined Heating System	N/A	

(1) U value to be provided in either W/(m^2•K) or Btu/(h•ft^2•F) but not both.

E. Designer(s) [name(s) & BCIN(s), if applicable, of person(s) providing information herein to substantiate that design meets the building code]

Qualified Designer Declaration of designer to have reviewed and take responsibility for the design work.		
Name: Walter Botter, Jardin Design Group Inc.	BCIN: 21031, 27763	Signature

Form authorized by OHBA, OBOA, LMCBO. Revised December 1, 2016.

HVA DESIGNS LTD.

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SITE NAME: GRANELLI HOME CORP
BUILDER: GREENYORK HOMES
TYPE: AMELIA 2
GFA: 2818
DATE: Jun-18
LO# 78988
WINTER NATURAL AIR CHANGE RATE 0.335
SUMMER NATURAL AIR CHANGE RATE 0.112
HEAT LOSS ΔT °F. 74
HEAT GAIN ΔT °F. 12
CSA-F280-12
SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			ENS-2						ENS-3/4					
EXP. WALL			33			24			12			37			30			13			10						7					
CLG. HT.			9			9			9			9			9			9			9						9					
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	297			216			108			333			270			117			90						63					
GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN					LOSS	GAIN			
NORTH	20.8	15.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0			
EAST	20.8	41.3	0	0	0	0	0	0	0	0	0	45	935	1860	26	540	1075	0	0	0	0	0	0				0	0	0			
SOUTH	20.8	24.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	312	370	0	0	0				7	145	173			
WEST	20.8	41.3	26	540	1075	13	270	537	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0			
SKYLT.	36.4	101.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0			
DOORS	24.7	4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0			
NET EXPOSED WALL	4.4	0.7	271	1181	191	203	884	143	108	471	76	288	1255	203	244	1063	172	102	444	72	90	392	63				56	244	39			
NET EXPOSED BSMT WALL ABOVE GR	3.5	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			
EXPOSED CLG	1.3	0.6	303	390	174	141	177	81	89	112	51	300	376	172	209	262	120	150	188	86	164	205	94				103	129	59			
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	0	0			
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0	0	0	300	747	121	0	0	0	0	0	0	0	0	0				0	0	0			
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			0			0			0						0				
SLAB ON GRADE HEAT LOSS				0			0			0			0			0			0			0						0				
SUBTOTAL HT LOSS				2101			1331			582			3313			1865			944			598						518				
SUB TOTAL HT GAIN					1439			761			127			2356			1366			528			168						271			
LEVEL FACTOR / MULTIPLIER			0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31					0.20	0.31				
AIR CHANGE HEAT LOSS				648			411			180			1022			575			291			184						160				
AIR CHANGE HEAT GAIN					115			61			10			169			109			42			13						22			
DUCT LOSS				0			0			0			433			0			0			0						0				
DUCT GAIN					0			0			0			336			0			0			0						0			
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0				0		0			
HEAT GAIN APPLIANCES/LIGHTS					573			0			0			573			573			573			0						0			
TOTAL HT LOSS BTU/H				2749			1742			762			4768			2440			1235			782						678				
TOTAL HT GAIN x 1.3 BTU/H					3390			1069			179			4801			2976			1769			221						381			

ROOM USE			FAM			LV/DN			KT/BR				LAUN			PWD			FOY						WUB			BAS		
EXP. WALL			31			29			42				19			8			29						16			147		
CLG. HT.			11			11			11				12			11			11						9			9		
	FACTORS																													
GRS.WALL AREA	LOSS	GAIN	341			319			462				228			88			319						135			882		
GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN					LOSS	GAIN		LOSS	GAIN
NORTH	20.8	15.8	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0				0	0	0	0	0	0
EAST	20.8	41.3	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	7	145	289				0	0	0	0	0	0
SOUTH	20.8	24.7	0	0	0	39	810	962	0	0	0		0	0	0	7	145	173	0	0	0				0	0	0	9	187	222
WEST	20.8	41.3	46	956	1901	0	0	0	56	1163	2314		0	0	0	0	0	0	0	0	0				3	62	124	0	0	0
SKYLT.	36.4	101.2	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0				0	0	0	0	0	0
DOORS	24.7	4.0	0	0	0	0	0	0	0	0	0		20	493	80	0	0	0	40	986	159				20	493	80	20	493	80
NET EXPOSED WALL	4.4	0.7	295	1285	208	280	1220	197	406	1769	286		208	906	147	81	353	57	272	1185	192				112	488	79	0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.6	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0				0	0	0	441	1549	251
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
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0				0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0	0	0		27	67	11	0	0	0	0	0	0				0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS				0			0			0				0			0			0									4981		
SLAB ON GRADE HEAT LOSS				0			0			0				0			0			0											
SUBTOTAL HT LOSS				2241			2030			2932				1467			498			2317						1136			7210	
SUB TOTAL HT GAIN					2109			1160			2600				237			230			640						283			552
LEVEL FACTOR / MULTIPLIER			0.30	0.45		0.30	0.45		0.30	0.45			0.30	0.45		0.30	0.45		0.30	0.45								0.50	1.04	
AIR CHANGE HEAT LOSS				1016			920			1329				665			226			1050									5675	
AIR CHANGE HEAT GAIN					169			93			208				19			18			51									67
DUCT LOSS				0			0			0				213			0			0									0	
DUCT GAIN					0			0			0				83			0			0									0
HEAT GAIN PEOPLE	240		0		0	0		0	0		0		0		0	0		0	0		0				0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					573			573			573				573			0			0						0			573
TOTAL HT LOSS BTU/H				3257			2950			4261				2344			724			3366						1136			15885	
TOTAL HT GAIN x 1.3 BTU/H					3706			2373			4397				1186			323			899						367			1650

TOTAL HEAT GAIN BTU/H: 29865
TONS: 2.49
LOSS DUE TO VENTILATION LOAD BTU/H: 1529
STRUCTURAL HEAT LOSS: 49080
TOTAL COMBINED HEAT LOSS BTU/H: 50609

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

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
MAR 2 6 2019
ATTACHED NOTES ARE PART OF REVIEWED DRAWINGS
ALL WORK MUST COMPLY WITH OBC

M-2057 LOT 8

19-444464 000 00RR

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SITE NAME: GRANELLI HOME CORP
BUILDER: GREENYORK HOMES

TYPE: AMELIA 2 DATE: Jun-18 GFA: 2818 LO# 78988

HEATING CFM	970	COOLING CFM	970	furnace pressure	0.6
TOTAL HEAT LOSS	49,080	TOTAL HEAT GAIN	29,618	furnace filter	0.05
AIR FLOW RATE CFM	19.76	AIR FLOW RATE CFM	32.75	a/c coil pressure	0.2
				available pressure for s/a & r/a	0.35

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	10	8	4
R/A	0	0	5	2	1

plenum 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

#CARRIER
59SP5A-60-12 60

FAN SPEED	
LOW	0
MEDLOW	785
MEDIUM	845
MEDIUM HIGH	970
HIGH	1030

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 58,000
DESIGN CFM = 970
CFM @ .6" E.S.P.
TEMPERATURE RISE 55 °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	10	11	12	13	14	15	16	17	18	19	21	22	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-2	BED-2	MBR	ENS-3/4	FAM	LV/DN	KT/BR	KT/BR	FAM	LAUN	PWD	FOY	BAS	BAS	BAS
RM LOSS MBH.	1.37	1.74	0.76	2.38	2.44	1.24	0.78	2.38	1.37	0.68	1.63	2.95	2.13	2.13	1.63	2.34	0.72	3.37	4.26	4.26	4.26
CFM PER RUN HEAT	27	34	15	47	48	24	15	47	27	13	32	58	42	42	32	46	14	67	84	84	84
RM GAIN MBH.	1.70	1.07	0.18	2.40	2.98	1.80	0.22	2.40	1.70	0.38	1.85	2.37	2.20	2.20	1.85	1.19	0.32	0.90	0.48	0.48	0.48
CFM PER RUN COOLING	56	35	6	79	97	59	7	79	56	12	61	78	72	72	61	39	11	29	16	16	16
ADJUSTED PRESSURE	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	0.17	0.17	0.16	0.16	0.16
ACTUAL DUCT LGH.	48	38	32	67	70	45	35	64	41	65	40	33	26	18	30	29	47	48	36	13	35
EQUIVALENT LENGTH	180	160	160	180	170	150	130	170	180	210	160	110	120	120	150	140	130	100	90	100	100
TOTAL EFFECTIVE LENGTH	228	198	192	247	240	195	165	234	221	275	200	143	146	138	180	169	177	148	126	113	135
ADJUSTED PRESSURE	0.08	0.09	0.09	0.07	0.07	0.09	0.1	0.07	0.08	0.06	0.09	0.12	0.12	0.12	0.1	0.1	0.1	0.12	0.13	0.14	0.12
ROUND DUCT SIZE	5	4	4	6	6	6	4	6	5	4	5	5	5	5	5	4	4	5	6	6	6
HEATING VELOCITY (ft/min)	198	390	172	240	245	122	172	240	198	149	235	426	308	308	235	528	161	492	428	428	428
COOLING VELOCITY (ft/min)	411	402	69	403	495	301	80	403	411	138	448	573	529	529	448	447	126	213	82	82	82
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10
TRUNK	A	A	B	C	C	B	D	C	A	C	A	D	A	A	A	D	C	C	B	B	D

RUN #	25
ROOM NAME	BAS
RM LOSS MBH.	4.26
CFM PER RUN HEAT	84
RM GAIN MBH.	0.48
CFM PER RUN COOLING	16
ADJUSTED PRESSURE	0.16
ACTUAL DUCT LGH.	52
EQUIVALENT LENGTH	110
TOTAL EFFECTIVE LENGTH	162
ADJUSTED PRESSURE	0.1
ROUND DUCT SIZE	6
HEATING VELOCITY (ft/min)	428
COOLING VELOCITY (ft/min)	82
OUTLET GRILL SIZE	4X10
TRUNK	C

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
MAR 26 2019
ATTACHED NOTES ARE PART OF REVIEWED DRAWINGS
ALL WORK MUST COMPLY WITH OBC

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	236	0.08	8.2	10	x	8	425	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	443	0.08	10.3	14	x	8	570	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	320	0.06	9.8	12	x	8	480	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	523	0.06	11.8	16	x	8	588	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	0	0.00	0	0	x	8	0	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	8	0	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	970	0.06	14.9	26	x	8	672
TRUNK Y	0	0.06	0	0	x	8	0
TRUNK Z	0	0.06	0	0	x	8	0
DROP	970	0.06	14.9	24	x	10	582

RETURN AIR #	1	2	3	4	5	6										BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	85	95	95	95	85	350	0	0	0	0	0	0	0	0	0	165
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.	46	63	62	50	46	29	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	220	135	140	175	215	175	0	0	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	266	198	202	225	261	204	1	1	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.06	0.07	0.07	0.07	0.06	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10
ROUND DUCT SIZE	6	6	6	6	6	9.8	0	0	0	0	0	0	0	0	0	6.8
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	30	0	0	0	0	0	0	0	0	0	14

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

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

TYPE: AMELIA 2 LO # 78988
SITE NAME: GRANELLI HOME CORP

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES 9.32.3.1(1)

- a) [✓] Direct vent (sealed combustion) only
- b) [ ] Positive venting induced draft (except fireplaces)
- c) [ ] Natural draft, B-vent or induced draft gas fireplace
- d) [ ] Solid Fuel (including fireplaces)
- e) [ ] No Combustion Appliances

HEATING SYSTEM

[✓] Forced Air [ ] Non Forced Air

[ ] Electric Space Heat

HOUSE TYPE 9.32.1(2)

- [✓] I Type a) or b) appliance only, no solid fuel
- [ ] II Type I except with solid fuel (including fireplaces)
- [ ] III Any Type c) appliance
- [ ] IV Type I. or II with electric space heat
- [ ] Other: Type I, II or IV no forced air

SYSTEM DESIGN OPTIONS O.N.H.W.P.

- [ ] 1 Exhaust only/Forced Air System
- [ ] 2 HRV with Ducting/Forced Air System
- [✓] 3 HRV Simplified/connected to forced air system
- [ ] 4 HRV with Ducting/non forced air system
- [ ] Part 6 Design

TOTAL VENTILATION CAPACITY 9.32.3.3(1)

Basement + Master Bedroom	2	@ 21.2 cfm	42.4	cfm
Other Bedrooms	3	@ 10.6 cfm	31.8	cfm
Kitchen & Bathrooms	5	@ 10.6 cfm	53	cfm
Other Rooms	5	@ 10.6 cfm	53.0	cfm
Table 9.32.3.A.		TOTAL	180.2	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	180.2	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	100.7	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: LIFEBREATH RNC5-HEX Location: BSMT

79.5 cfm 3.0 sones [✓] HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		FACTOR		% LOSS
79.5 CFM	X	74 F	X	1.08	X	0.24

SUPPLEMENTAL FANS NUTONE

Location	Model	cfm	HVI	Sones
ENS	QTXEN050C	50	✓	0.3
ENS-2	QTXEN050C	50	✓	0.3
ENS-3/4	QTXEN050C	50	✓	0.3
PWD	QTXEN050C	50	✓	0.3

HEAT RECOVERY VENTILATOR 9.32.3.11.

Model: LIFEBREATH RNC5-HEX

108 cfm high 59 cfm low

76 % 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 #:

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
MAR 2 6 2019
ATTACHED NOTES ARE PART OF REVIEWED DRAWINGS
ALL WORK MUST COMPLY WITH OBC

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: June-18

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

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

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: AMELIA 2 **BUILDER:** GREENYORK HOMES
SFQT: 2818 **LO#** 78988 **SITE:** GRANELLI HOME CORP

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-2	OUTDOOR DESIGN TEMP.	86
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	74

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 (ft^3):	39046.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 51.0 ft	WIDTH: 30.0 ft	EXPOSED PERIMETER:	147.0 ft

2012 OBC - COMPLIANCE PACKAGE

Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
MAR 2 6 2019
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INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

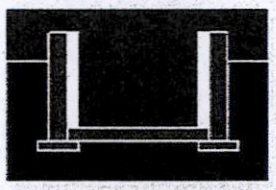
Michael O'Rourke.

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 sand, loam, clay
Water Table:	Normal (7-10 m, 23-33 ft)
Foundation Dimensions	
Floor Length (m):	15.5
Floor Width (m):	9.1
Exposed Perimeter (m):	44.8
Wall Height (m):	2.7
Depth Below Grade (m):	1.83
Window Area (m^2):	1.1
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):	**1459**



Insulation Configuration

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
MAR 2 6 2019
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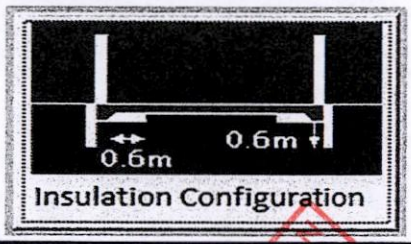
TYPE: AMELIA 2
LO# 78988

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 sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Length (m):	4.0	
Width (m):	0.6	
Exposed Perimeter (m):	4.6	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):	**27**	

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
MAR 2 6 2019
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TYPE: AMELIA 2
LO# 78988

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):	7.01	
Building Configuration		
Type:	Detached	
Number of Stories:	Two	
Foundation:	Full	
House Volume (m^3):	1105.7	
Air Leakage/Ventilation		
Air Tightness Type:	Present (1961-) (3.57 ACH)	
Custom BDT Data:	ELA @ 10 Pa.	1473.9 cm^2
	3.57	ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust
	37.5	37.5
Flue Size		
Flue #:	#1 #2 #3 #4	
Diameter (mm):	0 0 0 0	
Natural Infiltration Rates		
Heating Air Leakage Rate (ACH/H):	**0.335**	
Cooling Air Leakage Rate (ACH/H):	**0.112**	

CITY OF BRAMPTON
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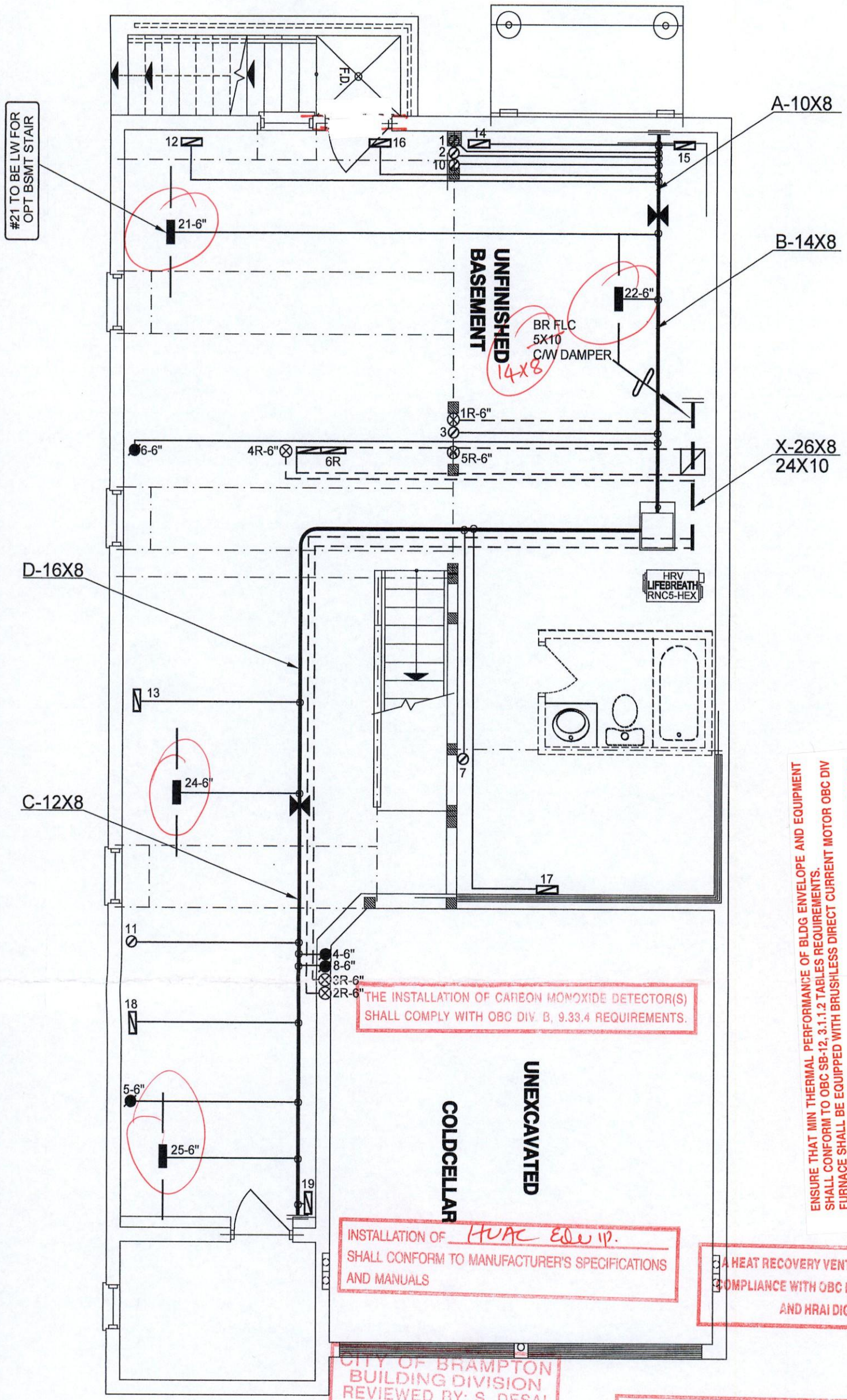
TYPE: AMELIA 2
LO# 78988



THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH OBC DIV. B, 9.33.4 REQUIREMENTS.

INSTALLATION OF HVAC Equip. SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS AND MANUALS

A HEAT RECOVERY VENTILATOR SHALL BE INSTALLED IN COMPLIANCE WITH OBC DIV. B, 6.2.1.6, 9.32.3.6(3), 9.32.3.11 AND HRAI DIGEST REQUIREMENTS.

ENSURE THAT MIN THERMAL PERFORMANCE OF BLDG ENVELOPE AND EQUIPMENT SHALL CONFORM TO OBC SB-12, 3.1.1.2 TABLES REQUIREMENTS.
FURNACE SHALL BE EQUIPPED WITH BRUSHLESS DIRECT CURRENT MOTOR OBC DIV B 12.3.1.5.
SEAL ALL DUCTWORK WITHIN UNCONDITIONED SPACE or OUTDOORS PER OBC DIV B6.2.4.3(11) REQUIREMENTS. SEAL ALL SUPPLY DUCTS LOCATED IN CONDITIONED SPACE IN COMPLIANCE WITH OBC DIV B6.2.4.3(12) REQUIREMENTS.
SEPARATE ANY INTAKES FROM BUILDING ENVELOPE PENETRATIONS THAT ARE POTENTIAL SOURCES OF CONTAMINANTS (GAS VENTS, OIL FILL PIPES, etc. BY MIN 900mm (2FT 11IN) – OBC Div B 9.32.3.12.
INSTALLATION OF KITCHEN EXHAUST DUCT LARGER THAN 6"dia SHALL BE PRECEDED BY APPLICATION FOR REVISION OF DESIGN PER OBC PART 6 REQUIREMENTS.
EXHAUST FAN SHALL DISCHARGE DIRECTLY TO OUTSIDE. CLOTHES DRYER EXHAUST SYSTEM SHALL COMPLY WITH OBC DIV B 9.32.1.2, 9.32.1.3 & 9.32.3 REQ'S. BALANCE THE RETURN AIRFLOW ON THE UPPER FLOOR TO MATCH THE SUPPLY.
WHEN HRV IS USED AS PRINCIPAL EXHAUST FAN, THE CONTROLLER SHALL BE WIRED TO THE HRV UNIT AND INTERCONNECTED TO THE FURNACE FAN. THE FURNACE BLOWER MUST BE IN OPERATION WHEN THE HRV IS IN OPERATION.
INSTALL ADDITIONAL S/A REGISTER AS REQUIRED IN ORDER TO ENSURE MIN 72degF
– OBC DIV B 9.33.3.1(1).
UNDERCUT BY MIN 1" THE DOOR TO ANY ROOM WITHOUT RETURN AIR GRILLE.
ENSURE RETURN AIR INTAKE SHALL BE CONNECTED TO THE MAIN R/A DUCT AT A HORIZONTAL DISTANCE OF MIN 6FT FROM THE CASING OF THE UNIT (HRAI DIGEST).

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
MAR 2 6 2019
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MECHANICAL VENTILATION SHALL BE PROVIDED IN CONFORMANCE WITH OBC DIV. B, 9.32.3 REQUIREMENTS.

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

CSA-F280-12
PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"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

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Client
GREENYORK HOMES

Project Name
GRANELLI HOMES CORP
BRAMPTON, ONTARIO
M-2057 LOT 8
AMELIA 2 2818 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 50609 BTU/H
UNIT DATA

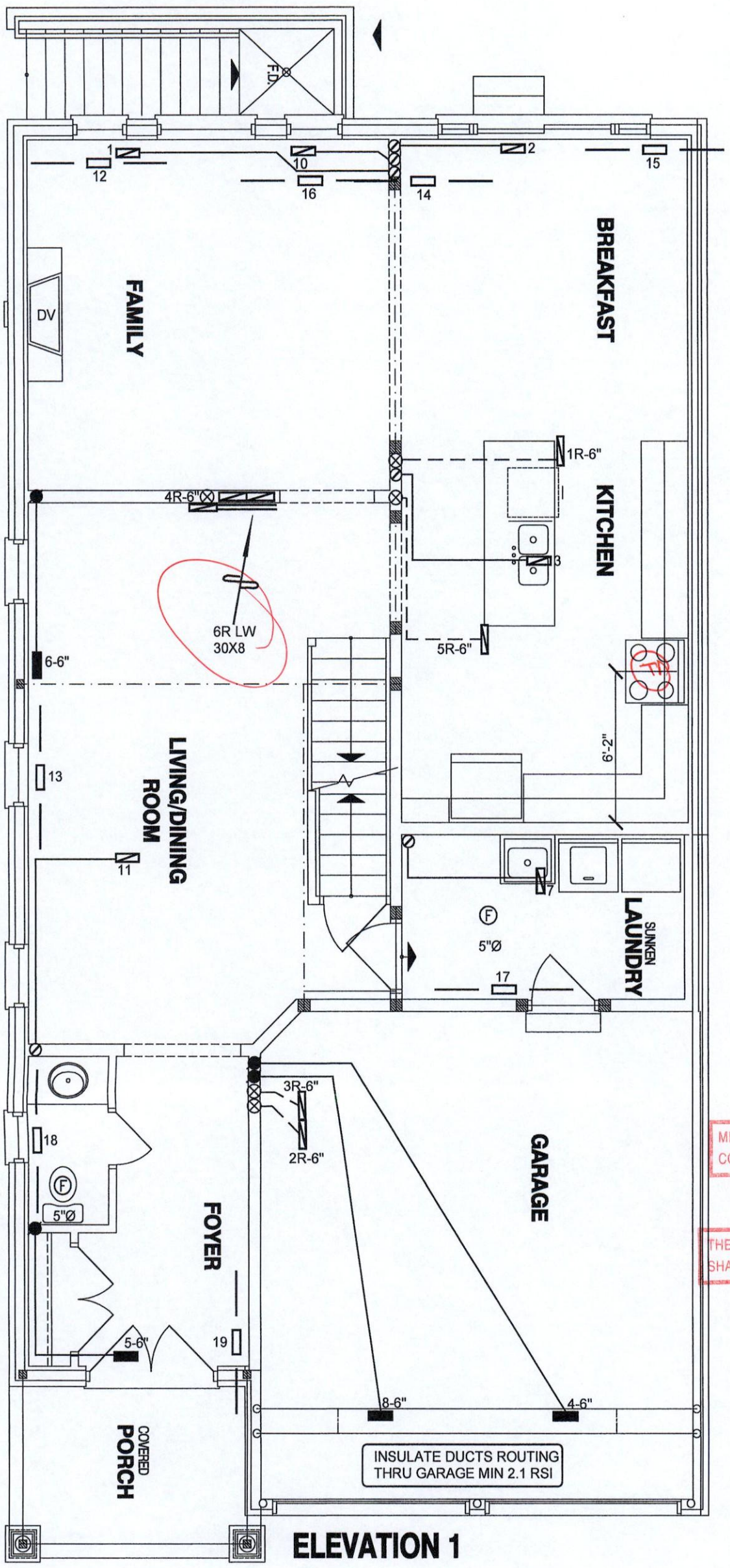
MAKE	CARRIER
MODEL	59SP5A-60-12
INPUT	60 MBTU/H
OUTPUT	58 MBTU/H
COOLING	2.5 TONS
FAN SPEED	970 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	10	5	3
1ST FLOOR	8	2	3
BASEMENT	4	1	0

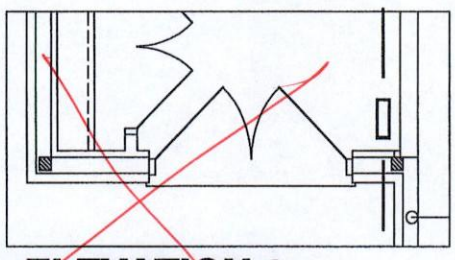
ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

Sheet Title
BASEMENT HEATING LAYOUT

Date JUNE/2018
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 78988



ELEVATION 1



ELEVATION 2

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
MAR 2 6 2019
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MECHANICAL VENTILATION SHALL BE PROVIDED IN CONFORMANCE WITH OBC DIV. B, 9.32.3 REQUIREMENTS.

THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH OBC DIV B, 9.33.4 REQUIREMENTS.

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

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

CSA-F280-12

PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"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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2.		
1.		

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Client
GREENYORK HOMES

Project Name
GRANELLI HOMES CORP
BRAMPTON, ONTARIO
M 2057 LOT 8

AMELIA 2 2818 sqft

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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.

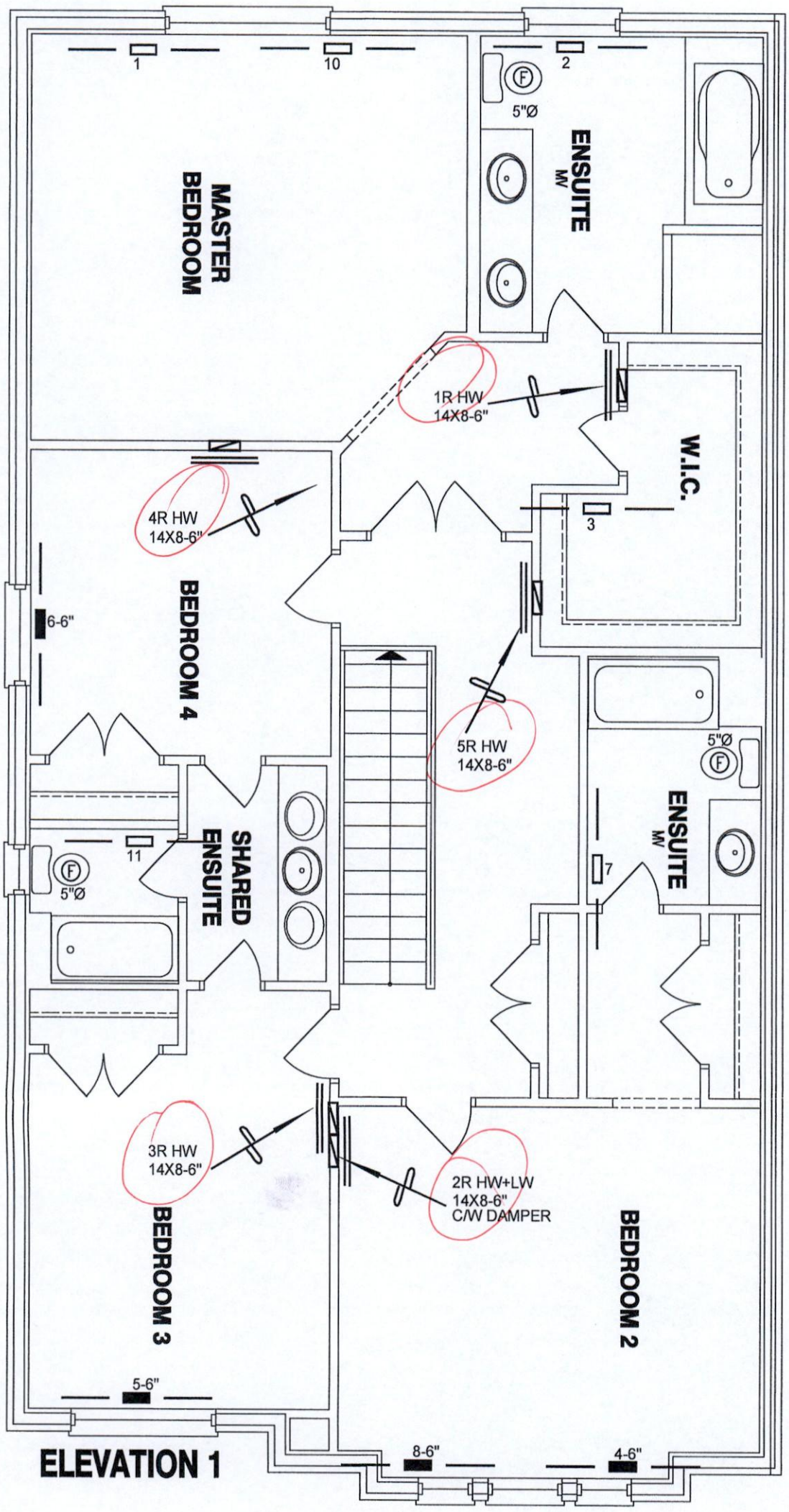
Sheet Title
FIRST FLOOR HEATING LAYOUT

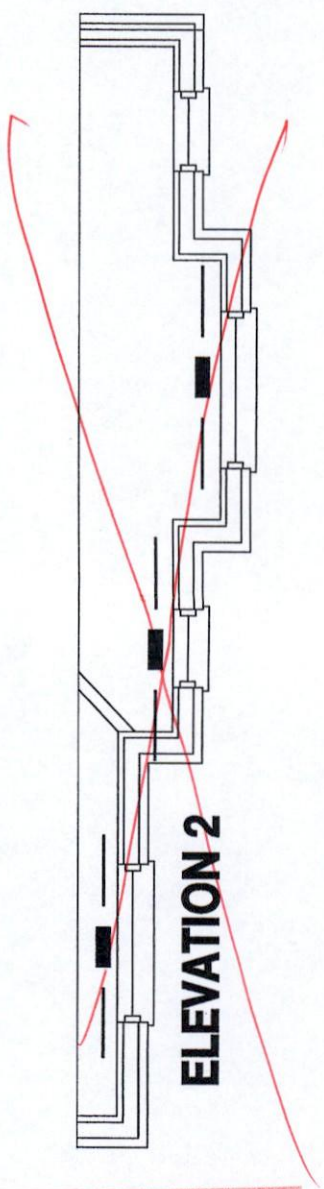
Date JUNE/2018

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 78988





CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
MAR 2 6 2019
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MECHANICAL VENTILATION SHALL BE PROVIDED IN CONFORMANCE WITH OBC DIV. B, 9.32.3 REQUIREMENTS.

THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH OBC DIV. B, 9.33.4 REQUIREMENTS.

I MICHAEL O'ROURKE HAVE REVIEW 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.

CSA-F280-12

PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"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

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Client
GREENYORK HOMES

Project Name
GRANELLI HOMES CORP
BRAMPTON, ONTARIO

M-2057 LOT 8

AMELIA 2 2818 sqft

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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 JUNE/2018
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 78988

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: 34 OSECO WAY		Unit no.	Lot/con. 8
Municipality: BRAMPTON	ostal code	lan number/ other description: 43M-2057	

B. Individual who reviews and takes responsibility for design activities

Name: SANDY WHITE, P.Eng.		Firm: ANDA ENGINEERING LTD.	
Street address: 5125 ARDOCH ROAD		Unit no.	Lot/con.
Municipality: ARDOCH	ostal code: K0H-1C0	Province: ONTARIO	E-mail: design@andaengineering.com
Telephone number: (613)479-0161	Fax number: ( ) N/A		Cell number: (416) 476-1105

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	☑ lumbing – House
☐ Large Buildings	☐ Detection, Lighting and Power	☐ lumbing – ll Buildings
☐ Complex Buildings	☐ Fire Protection	☐ On-site Sewage Systems

Description of designer's work

AMELIA 2 - ELEVATION 1 GRANELLI HOMES CORP.

D. Declaration of Designer

I SANDY WHITE, 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 Division C, of the Building Code.

Individual BCIN: _____

Basis for exemption from registration: _____

☑ The design work is exempt from the registration and qualification requirements of the Building Code.
Basis for exemption from registration and qualification: P.Eng. exempt, note 2

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.

SANDY WHITE Digitally signed by SANDY WHITE DN: cn=SANDY WHITE, o=ANDA ENGINEERING LTD., ou=P.Eng., email=design@andaengineering.com, c=CA Date: 2019.01.24 11:56:03 -05'00'

2019/24/01
Date

Signature of Designer

NOTE:

1. For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) (c).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 practice, issued by the Ontario Association o 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.

BRAMPTON Flower City
brampton.ca

Planning and Development Services
Building Division
8850 McLaughlin Road, Unit 1
Brampton, ON L6Y 5T1

PROFESSIONAL ENGINEER
2018/07/16
SANDY WHITE
PROVINCE OF ONTARIO
SWhite

WATER PIPE SIZING AND PLUMBING DATA SHEET

CERTIFIED MODEL WITH ONE DWELLING UNIT

THIS TABLE IS APPLICABLE FOR A HOUSE AFTER DECEMBER 31, 2017

Builder Name: Greenyork Homes
Certified Model Name: AMELIA 2 (LO#78988-P)
Optional Floor Layout:
Application No.:

The Ontario Building Code Div. B, 7.6.3 regulates size and capacity of pipes for a new house. Please enter the number of individual fixtures as listed and bathroom groups(6) or powder room groups(7) per floor. The fixture units and required minimum size of water service will automatically be calculated.

Description	Basement Floor	First Floor	Second Floor	Third Floor
	Qty.	Qty.	Qty.	Qty.
Bathroom group (6)	1		3	
Bidet				
Extra Shower			1	
Lav			1	
Bar Sink				
Powder room (7)		1		
Kitchen Sink		1		
Dishwasher		1		
Laundry Tub		1		
Washing Machine		1		
Hose Bib		2		

Total Fixture Units	**30**
Minimum Diametre of Water Service Pipe Required from the Property Line to the House (Inch)	**1**

Notes:

(1) A potable water system shall be designed, constructed and installed to conform to good engineering practice appropriate to the circumstances, such as that described in the ASHRAE Handbooks and ASPE Data Books.

(2) No water system between the point of connection with the water service pipe or the water meter and the first branch that supplies a water heater that serves more than one fixture shall be less than ¾ in. in size.

(3) The minimum water pressure at the entry to the building is 200 kPa, and the total maximum length of the water system is 90 m.

(4) In a hot water distribution system of a developed length of more than 30 m from the HWT to the farthest fixture or supplying more than 4 storeys, the water temperature shall be maintained by, (a) recirculation, or (b) a self-regulating heat tracing system.

(5) Where piping may be exposed to freezing conditions, it shall be protected from the effects of freezing.

(6) A bathroom group consists of 1 water closet, 1 lavatory, and 1 bathtub (with or without showerhead)

(7) A powder room group consists of 1 water closet and 1 lavatory.

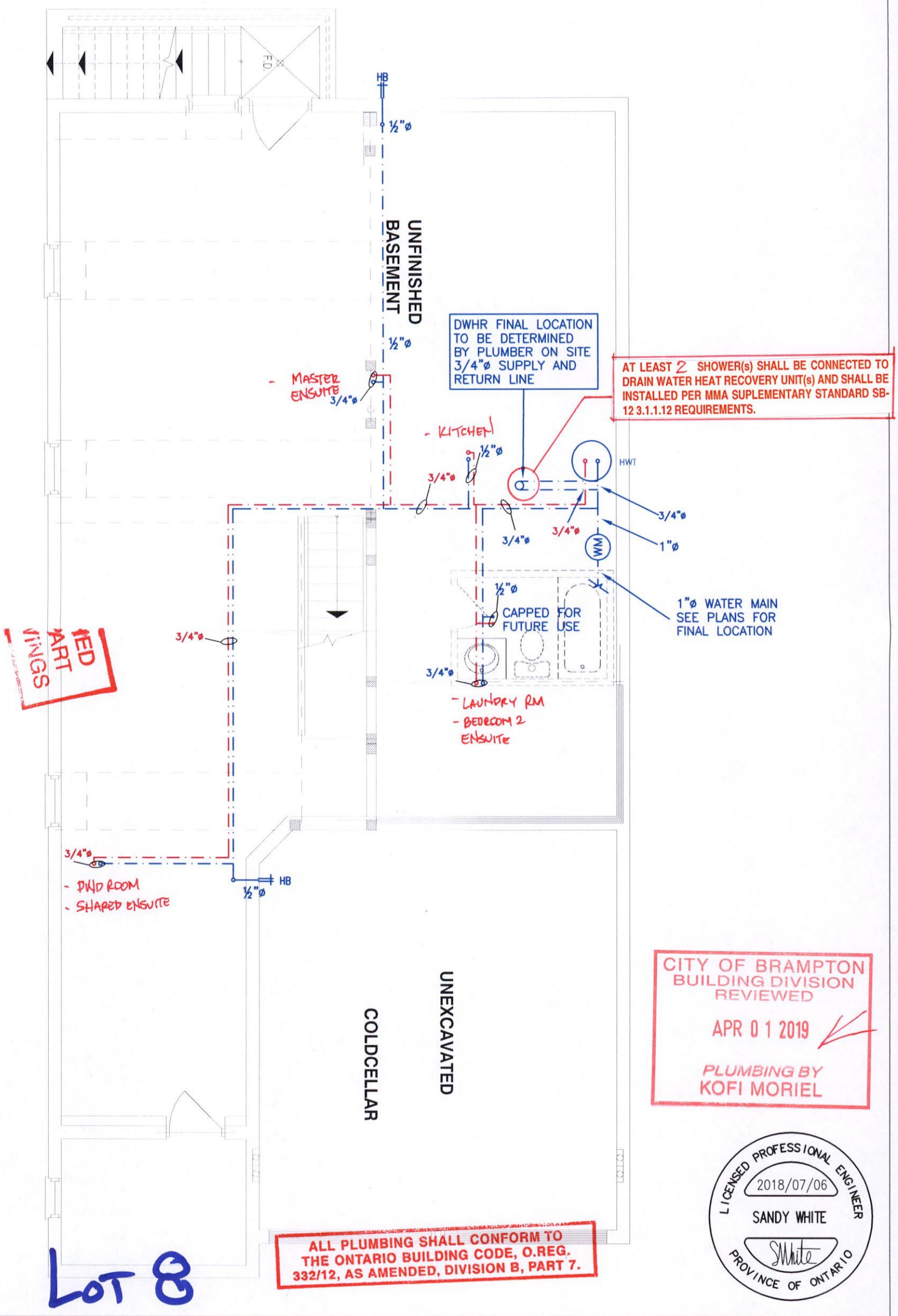
PLEASE SEE THE ATTACH
NOTES AS THEY FORM P
OF THE REVIEWED DRAW

NOTES

1. DRAWINGS ARE TO BE PRINTED IN COLOUR
2. WHERE A 3/4"ø TUB SPOUT/ SPIGOT CONNECTION IS USED ON THE BATHTUB FAUCET THE WATER SUPPLY PIPE SHALL BE 3/4"ø TO THE BRANCH FOR THE BATHTUB
3. BASEMENT BATHROOM ROUGH-IN SHALL BE USED IN SIZING OF WATER PIPE
4. EXACT LOCATION OF ALL PLUMBING PIPING TO BE DETERMINED ON SITE

LEGEND

SYMBOL	DESCRIPTION (SEE PLAN FOR PIPE SIZING)
WM	WATER METER, PROVIDE SUPPLY PIPE SIZE/ ø
HB	HOSE BIB
	PROPOSED COLD WATER LINE & RISER
	PROPOSED HOT WATER LINE & RISER
FD	FLOOR DRAIN



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CITY OF BRAMPTON BUILDING DIVISION REVIEWED
APR 01 2019
PLUMBING BY KOFI MORIEL

LICENSED PROFESSIONAL ENGINEER
2018/07/06
SANDY WHITE
PROVINCE OF ONTARIO

ALL PLUMBING SHALL CONFORM TO THE ONTARIO BUILDING CODE, O.REG. 332/12, AS AMENDED, DIVISION B, PART 7.

Client: GREENYORK HOMES	HVAC DESIGNS LTD.	Sheet Title: BASEMENT PLUMBING LAYOUT
Project Name: GRANELLI HOMES CORP BRAMPTON, ONTARIO	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	Date: JULY 2018
		Scale: 3/16" = 1'-0"
AMELIA 2 2818 sqft		LO# 78988-P

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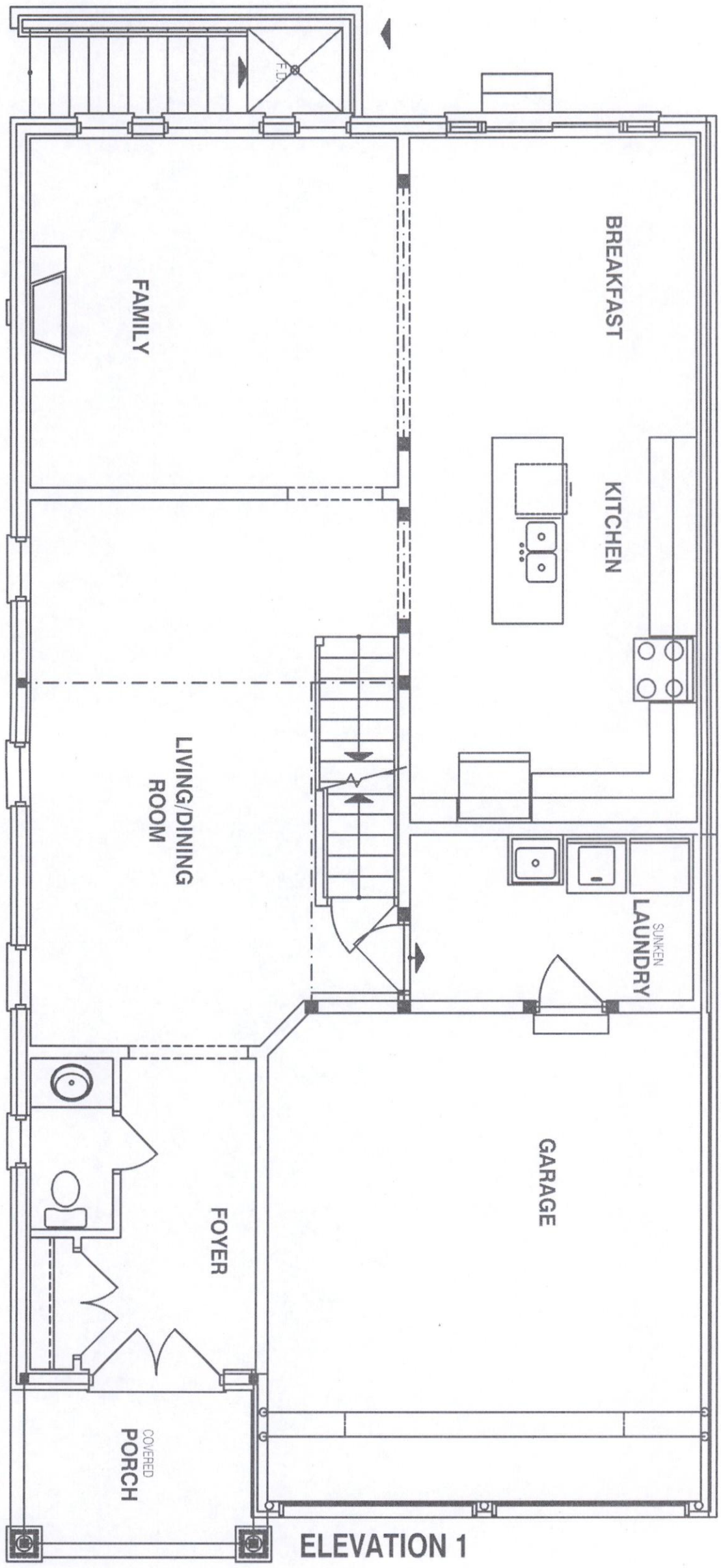

ELEVATION 1

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Client
GREENYORK HOMES

Project Name
GRANELLI HOMES CORP
BRAMPTON, ONTARIO
M-2057 LOT 8

AMELIA 2 2818 sqft

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Sheet Title
FIRST FLOOR PLUMBING LAYOUT

Date JULY 2018
Scale 3/16" = 1'-0"

LO# 78988-P

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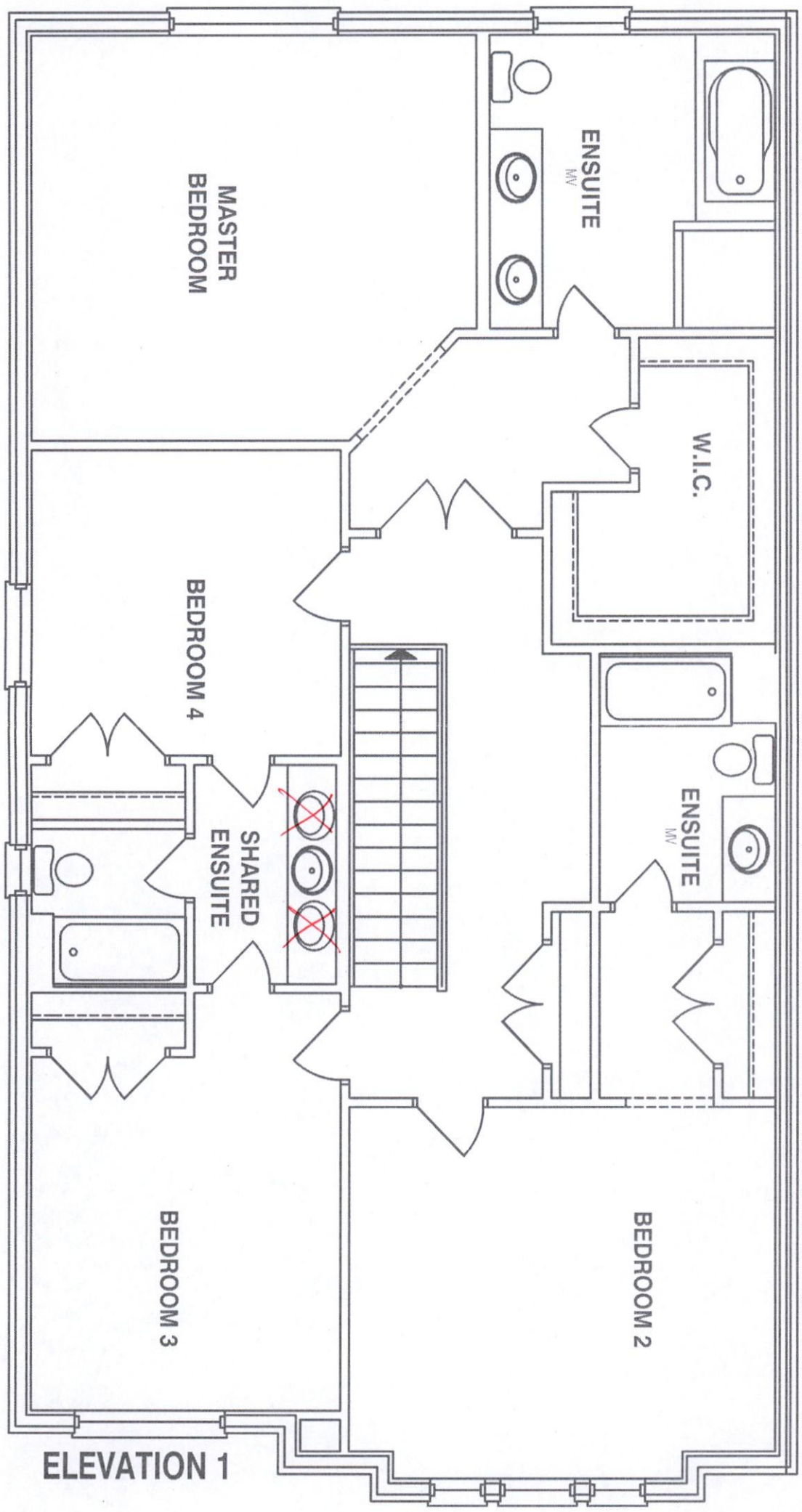

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Client: GREENYORK HOMES	HVAdesigns LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	Sheet Title: SECOND FLOOR PLUMBING LAYOUT
Project Name: GRANELLI HOMES CORP BRAMPTON, ONTARIO M-2057 LOT 8		Date: JULY 2018
		Scale: 3/16" = 1'-0"
AMELIA 2 2818 sqft		LO# 78988-P