

19-44492 000 0000

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
	LIANA 2, EL-1

A. Project Information

Building number, street name		Unit number	Lot/Con
			25
Municipality	Postal code	Reg. Plan number / other description	
City of Brampton		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

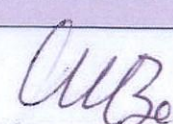
Climatic Zone (SB-1):	Heating Equipment Efficiency	Space Heating Fuel Source
<input type="checkbox"/> Zone 1 (< 5000 degree days)	<input type="checkbox"/> ≥ 92% AFUE	<input type="checkbox"/> Gas <input type="checkbox"/> Propane <input type="checkbox"/> Solid Fuel
<input type="checkbox"/> Zone 2 (≥ 5000 degree days)	<input type="checkbox"/> ≥ 84% < 92% AFUE	<input type="checkbox"/> Oil <input type="checkbox"/> Electric <input type="checkbox"/> Earth Energy
Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area		Other Building Characteristics
Area of walls = <u>286.44</u> m ² or _____ ft ²		<input type="checkbox"/> Log/Post&Beam <input type="checkbox"/> ICF Above Grade <input type="checkbox"/> ICF Basement <input type="checkbox"/> Slab-on-ground <input type="checkbox"/> Walkout Basement <input type="checkbox"/> Air Conditioning <input type="checkbox"/> Combo Unit <input type="checkbox"/> Air Sourced Heat Pump (ASHP) <input type="checkbox"/> Ground Sourced Heat Pump (GSHP)
W, S & G % = <u>9.71%</u>		
Area of W, S & G = <u>27.82</u> m ² or _____ ft ²		Utilize window averaging: <input type="checkbox"/> Yes <input type="checkbox"/> No

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

Energy Efficiency Substitutions			
<input type="checkbox"/> ICF (3.1.1.2.(5) & (6) / 3.1.1.3.(5) & (6)) <input type="checkbox"/> Combined space heating and domestic water heating systems (3.1.1.2.(7) / 3.1.1.3.(7)) <input type="checkbox"/> Airtightness substitution(s)			
Airtightness test required (Refer to Design Guide Attached)		<input type="checkbox"/> Table 3.1.1.4.B Required: _____ Permitted Substitution: _____ <input type="checkbox"/> 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
Thermal Insulation	Nominal	Effective	Efficiency Ratings
Ceiling with Attic Space	10.57	10.43	Windows & Doors Provide U-Value ⁽¹⁾ or ER rating
Ceiling without Attic Space	5.46	4.87	Windows/Sliding Glass Doors
Exposed Floor	5.46	5.25	Skylights/Glazed Roofs
Walls Above Grade	4.22	3.00	Mechanicals
Basement Walls	3.52	3.72	Heating Equip. (AFUE)
Slab (all >600mm below grade)	-	-	HRV Efficiency (SRE% at 0°C)
Slab (edge only ≤600mm below grade)	1.76	1.76	DHW Heater (EF)
Slab (all ≤600mm below grade, or heated)	1.76	1.96	DWHR (CSA B55.1 (min. 42% efficiency))
			Combined Heating System
			N/A

(1) U value to be provided in either W/(m²·K) or Btu/(h·ft²·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	BCIN	Signature
Walter Botter Jardin Design Group Inc.	21031 27763	

SITE NAME: GRANELLI HOME CORP

BUILDER: GREENYORK HOMES

TYPE: LIANA 2

GFA: 2284

DATE: Jun-18

LO# 79000

WINTER NATURAL AIR CHANGE RATE 0.335

SUMMER NATURAL AIR CHANGE RATE 0.119

HEAT LOSS AT °F. 74

HEAT GAIN AT °F. 14

CSA-P280-12

SB-12 PACKAGE A1

ROOM USE			MBR		ENS		WIC		BED-2		BED-3		BED-4		BATH						
EXP. WALL			32		23		10		31		32		11		6						
CLG. HT.			9		9		9		9		9		9		9						
FACTORS																					
GRS.WALL AREA	LOSS	GAIN	288		207		90		279		288		99		64						
GLAZING			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	0	0	0	0	0	0	0	0	0	0
EAST	20.8	41.9	0	0	0	0	0	0	0	30	623	1257	40	831	1676	0	0	0	0	0	0
SOUTH	20.8	25.2	0	0	0	8	166	202	0	0	0	0	0	0	15	312	379	8	166	202	
WEST	20.8	41.9	30	623	1257	13	270	545	0	0	0	0	0	0	0	0	0	0	0	0	
SKYL.T.	36.4	102.1	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	0	0	0	0	0	0	
NET EXPOSED WALL	4.4	0.8	288	1124	212	186	810	153	90	392	74	249	1085	205	248	1081	204	84	366	69	46
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	
EXPOSED CLG	1.3	0.6	262	316	163	133	167	81	124	165	75	231	289	140	182	228	111	178	223	108	105
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0	0	0	0	20	54	26	20	54	26	0	0	0	0
EXPOSED FLOOR	2.5	0.5	0	0	0	0	0	0	0	0	0	167	416	78	55	137	28	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0		0		0		0		0		0		0		0		0		
SLAB ON GRADE HEAT LOSS			0		0		0		0		0		0		0		0		0		
SUBTOTAL HT LOSS			2063		1413		547		2467		2330		901		498						
SUB TOTAL HT GAIN					1622		980		149		1706		2042		556		304				
LEVEL FACTOR / MULTIPLIER	0.20	0.28			0.20	0.28			0.20	0.28			0.20	0.28			0.20	0.28			
AIR CHANGE HEAT LOSS			570		391		161		682		644		249		138						
AIR CHANGE HEAT GAIN			141		85		13		148		177		48		26						
DUCT LOSS			0		0		0		315		297		0		0						
DUCT GAIN			0		0		0		282		318		0		0						
HEAT GAIN PEOPLE	240	2	480		0		0		1		240		1		240		0		0		
HEAT GAIN APPLIANCES/LIGHTS			723		0		0		723		723		723		723		0		0		
TOTAL HT LOSS BTU/H			2634		1804		699		3464		3272		1160		636						
TOTAL HT GAIN x 1.3 BTU/H			3856		1386		211		4028		4551		2038		429						

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LV/DN	K/B/F	LAUN	W/R	FOY																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								</
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TOTAL HEAT GAIN BTU/H:

30227

TONS: 2.52

LOSS DUE TO VENTILATION LOAD BTU/H: 1629

STRUCTURAL HEAT LOSS: 42960

TOTAL COMBINED HEAT LOSS BTU/H: 44489

Michael O'Rourke

M-2057

LOT 25

SITE NAME: GRANELLI HOME CORP
BUILDER: GREENYORK HOMES

TYPE: LIANA 2

DATE: Jun-18

GFA: 2284 LO# 79000

HEATING CFM 970 COOLING CFM 970
TOTAL HEAT LOSS 42,960 TOTAL HEAT GAIN 29,939
AIR FLOW RATE CFM 22.58 AIR FLOW RATE CFM 32.4

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

#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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	10	7	4
R/A	0	0	5	2	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	13	14	15	16	17	18	19	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	BED-2	BED-3	MBR	LV/DN	K/B/F	K/B/F	K/B/F	LAUN	W/R	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH	1.32	1.80	0.70	1.73	1.64	1.15	0.64	1.73	1.64	1.32	2.56	2.03	2.03	2.03	2.48	0.40	3.12	3.66	3.66	3.66	3.66
CFM PER RUN HEAT	30	41	16	39	37	26	14	39	37	30	58	46	46	46	58	9	71	83	83	83	83
RM GAIN MBH	1.93	1.38	0.21	2.01	2.28	2.04	0.43	2.01	2.28	1.93	2.57	2.16	2.16	2.16	1.41	0.08	0.97	0.48	0.48	0.48	0.48
CFM PER RUN COOLING	62	45	7	65	74	66	14	65	74	62	83	70	70	70	48	2	31	16	16	16	16
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	29	23	36	50	41	20	50	45	52	46	28	35	29	39	34	33	32	37	32	25	35
EQUIVALENT LENGTH	190	160	190	150	120	130	150	140	140	180	130	140	140	150	140	150	110	150	110	140	120
TOTAL EFFECTIVE LENGTH	219	183	226	200	161	150	200	185	192	206	158	175	169	189	174	183	142	187	142	165	155
ADJUSTED PRESSURE	0.08	0.09	0.08	0.09	0.11	0.11	0.09	0.09	0.09	0.08	0.1	0.1	0.1	0.09	0.1	0.09	0.12	0.09	0.11	0.1	0.1
ROUND DUCT SIZE	5	4	4	5	5	6	4	5	5	5	6	5	5	5	5	4	5	6	6	6	6
HEATING VELOCITY (ft/min)	220	470	184	286	272	133	161	286	272	220	296	338	338	338	411	103	521	423	423	423	423
COOLING VELOCITY (ft/min)	455	516	80	477	543	337	161	477	543	455	423	514	514	514	338	23	228	82	82	82	82
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	B	E	B	D	D	E	D	D	C	A	D	A	A	A	B	C	C	A	B	D	C

RUN #
ROOM NAME
RM LOSS MBH
CFM PER RUN HEAT
RM GAIN MBH
CFM PER RUN COOLING
ADJUSTED PRESSURE
ACTUAL DUCT LGH.
EQUIVALENT LENGTH
TOTAL EFFECTIVE LENGTH
ADJUSTED PRESSURE
ROUND DUCT SIZE
HEATING VELOCITY (ft/min)
COOLING VELOCITY (ft/min)
OUTLET GRILL SIZE
TRUNK

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI

MAR 25 2019

ATTACHED NOTES ARE PART
OF REVIEWED DRAWINGS
ALL WORK MUST COMPLY WITH OBC

SUPPLY AIR TRUNK SIZE

TRUNK	STATIC	ROUND	RECT	VELOCITY	TRUNK	STATIC	ROUND	RECT	VELOCITY
CFM	PRESS	DUCT	DUCT	(ft/min)	CFM	PRESS	DUCT	DUCT	(ft/min)
TRUNK A	251	0.08	8.4	8	x	8	565		
TRUNK B	436	0.08	10.3	12	x	8	654		
TRUNK C	200	0.09	7.5	8	x	8	450		
TRUNK D	470	0.09	10.3	12	x	8	705		
TRUNK E	973	0.08	13.9	22	x	8	796		
TRUNK F	0	0.00	0	0	x	8	0		

RETURN AIR TRUNK SIZE

TRUNK	STATIC	ROUND	RECT	VELOCITY
CFM	PRESS	DUCT	DUCT	(ft/min)
TRUNK G	0	0.00	0	0
TRUNK H	0	0.00	0	0
TRUNK I	0	0.00	0	0
TRUNK J	0	0.00	0	0
TRUNK K	0	0.00	0	0
TRUNK L	0	0.00	0	0
TRUNK O	0	0.06	0	0
TRUNK P	0	0.06	0	0
TRUNK Q	0	0.06	0	0
TRUNK R	0	0.06	0	0
TRUNK S	0	0.06	0	0
TRUNK T	0	0.06	0	0
TRUNK U	0	0.06	0	0
TRUNK V	0	0.06	0	0
TRUNK W	0	0.06	0	0
TRUNK X	970	0.06	14.9	26
TRUNK Y	340	0.06	10.1	12
TRUNK Z	0	0.06	0	0
DROP	970	0.06	14.9	24

RETURN AIR #	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	85	85	85	85	85	360	85	0	0	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.	43	53	55	42	39	18	34	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	175	215	175	165	220	135	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	218	268	230	207	259	153	234	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.07	0.06	0.06	0.07	0.06	0.10	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.06	0.06	0.06	0.06	0.06	0.06	0.06
ROUND DUCT SIZE	5.8	6	6	5.8	6	9	6	0	0	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	0	0	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	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: LIANA 2
SITE NAME: GRANELLI HOME CORP

LO # 79000

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	4 @ 10.6 cfm	42.4 cfm
Other Rooms	4 @ 10.6 cfm	42.4 cfm
Table 9.32.3.A. TOTAL		159.0 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	159	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	79.5	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: LIFE BREATH RNC5-HEX	Location: BSMT
79.5 cfm	3.0 sones
<input checked="" type="checkbox"/> HVI Approved	

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
79.5 CFM	74 F	1.08	X	0.24

SUPPLEMENTAL FANS		NUTONE	
Location	Model	cfm	HVI
ENS	QTXEN050C	50	✓
BATH	QTXEN050C	50	✓
LAUN	QTXEN050C	50	✓
W/R	QTXEN050C	50	✓

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: LIFE BREATH RNC5-HEX		
108 cfm high	59 cfm low	
76 % 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:	
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:	<i>Michael O'Rourke</i>
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

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** LIANA 2**BUILDER:** GREENYORK HOMES**SFQT:** 2284**LO#** 79000**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)	72

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):	31793.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.75	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 44.0 ft	WIDTH: 30.0 ft	EXPOSED PERIMETER:	133.0 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 25 2019
ATTACHED NOTES ARE PART
OF REVIEWED DRAWINGS
ALL WORK MUST COMPLY WITH OBC

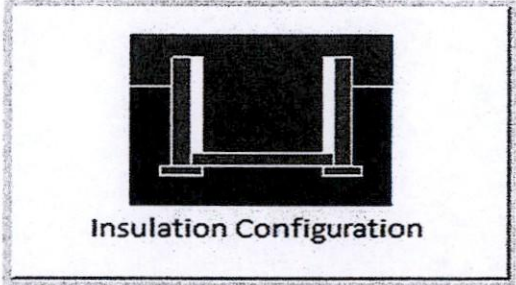
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

Michael O'Rourke

Residential Foundation Thermal Load Calculator

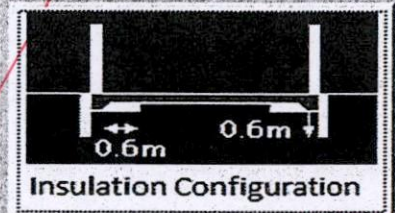
Supplemental tool for CAN/CSA-F280

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):	13.4	 Insulation Configuration
Floor Width (m):	9.1	
Exposed Perimeter (m):	40.5	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	0.6	
Door Area (m ²):	3.7	
Radiant Slab		
Heated Fraction of the Slab:	0	<div>CITY OF BRAMPTON BUILDING DIVISION REVIEWED BY S. DESAI MAR 25 2019 ATTACHED NOTES ARE PART OF REVIEWED DRAWINGS ALL WORK MUST COMPLY WITH OBC</div>
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	1307	

TYPE: LIANA 2
LO# 79000

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):	0.6	 Insulation Configuration
Width (m):	4.0	
Exposed Perimeter (m):	4.6	
Radiant Slab		
Heated Fraction of the Slab:	0	<div>CITY OF BRAMPTON BUILDING DIVISION REVIEWED BY: S. DESAI MAR 25 2019 ATTACHED NOTES ARE PART OF REVIEWED DRAWINGS ALL WORK MUST COMPLY WITH OBC</div>
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):	33	

TYPE: LIANA 2
LO# 79000

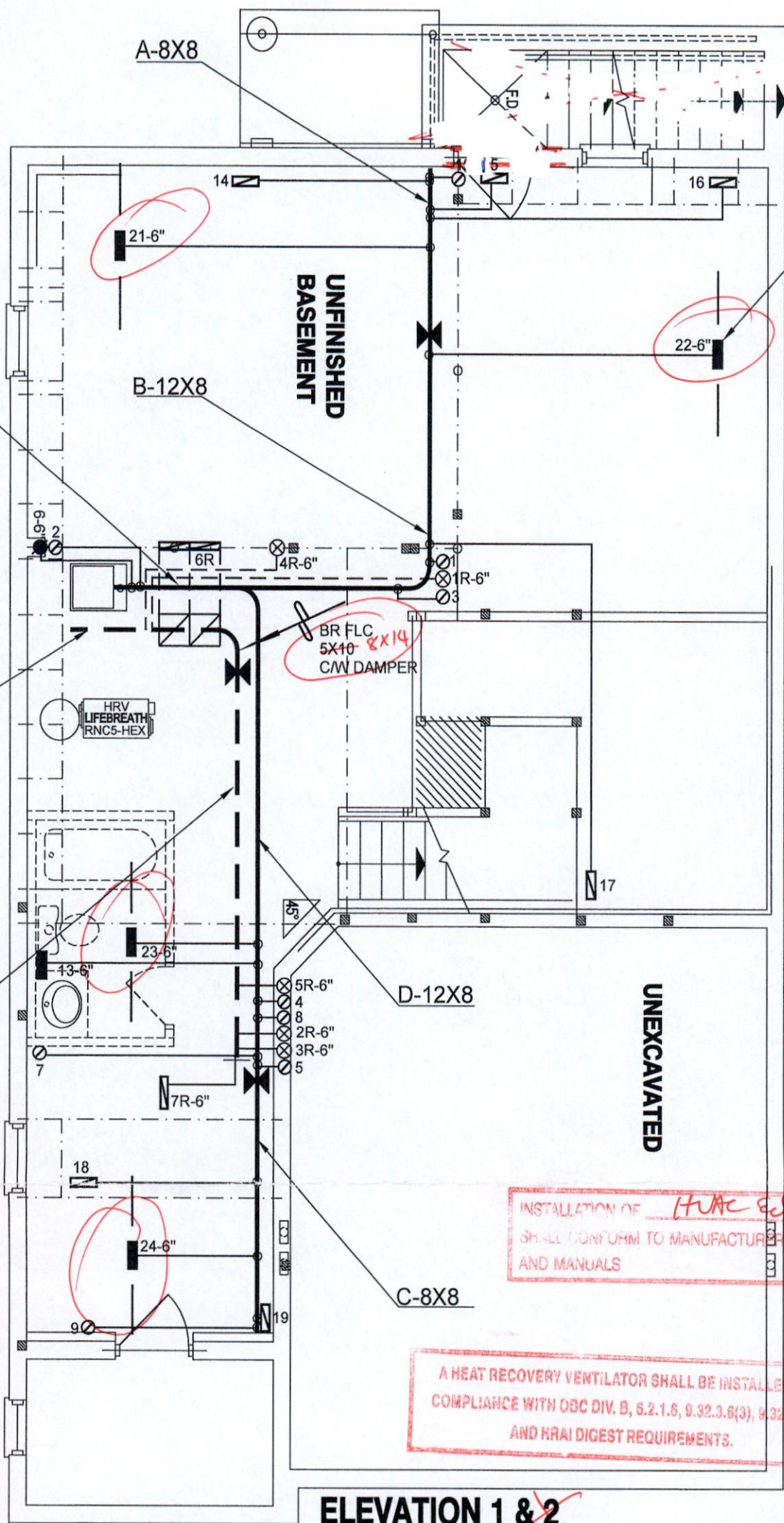
Air Infiltration Residential Load Calculator

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):	900.3			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1200.1 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):	0.119			

TYPE: LIANA 2
LO# 79000

ENSURE THAT MIN THERMAL PERFORMANCE OF BLDG ENVELOPE AND EQUIPMENT SHALL CONFORM TO OBC SB-12.3.1.2 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). 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).



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.

CITY OF BRAMPTON BUILDING DIVISION REVIEWED BY: S. DESAI
MAR 25 2019
THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH OBC DIV. B, 9.33.4 REQUIREMENTS.
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, UCBN 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

HVAC LEGEND						REVISIONS	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	No.	Date
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE	3.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE	2.	
	SUPPLY AIR BOOT ABOVE		8" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE	1.	
					REDUCER	No.	Description

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Client

GREENYORK HOMES

Project Name

**GRANELLI HOMES CORP
BRAMPTON, ONTARIO**

M-2057 LOT 25

LIANA 2 2284 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.

HEAT LOSS 44489 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	2
1ST FLOOR	7	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

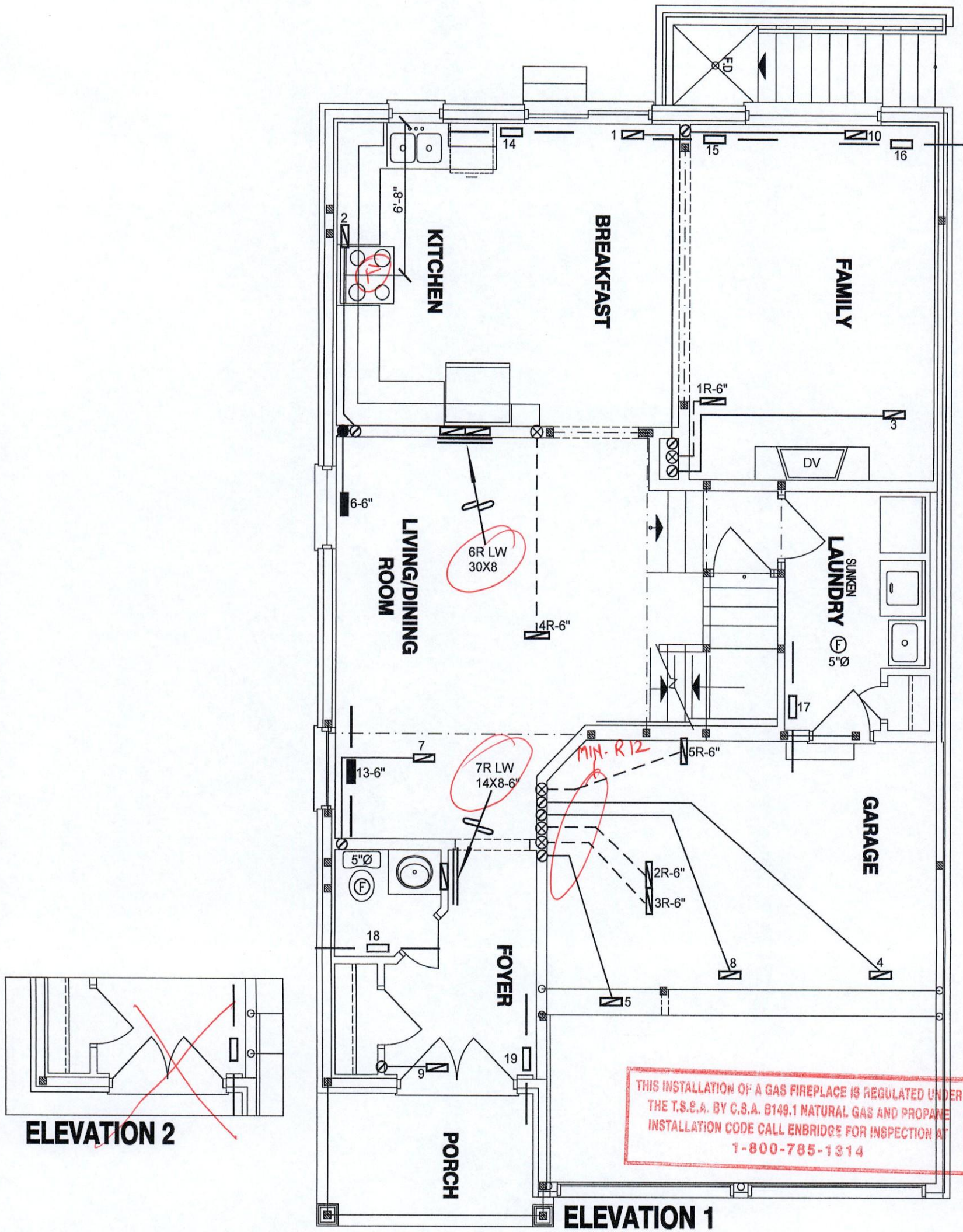
BASEMENT HEATING LAYOUT

Date JUNE/2018

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 79000



CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
MAR 25 2019
ATTACHED NOTES ARE PART
OF REVIEWED DRAWINGS
ALL WORK MUST COMPLY WITH OBC

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

MECHANICAL VENTILATION SHALL BE PROVIDED IN
CONFORMANCE WITH OBC DIV. B, 9.32.3 REQUIREMENTS.

CSA-F280-12
PACKAGE A1

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

HVAC LEGEND								REVISIONS	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	No.	Date
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	3.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	2.	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	1.	
								No.	Description

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Client
GREENYORK HOMES

Project Name
**GRANELLI HOMES CORP
BRAMPTON, ONTARIO**

M-2057 LOT 25

LIANA 2 **2284 sqft**

HVAC DESIGNS LTD.

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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.

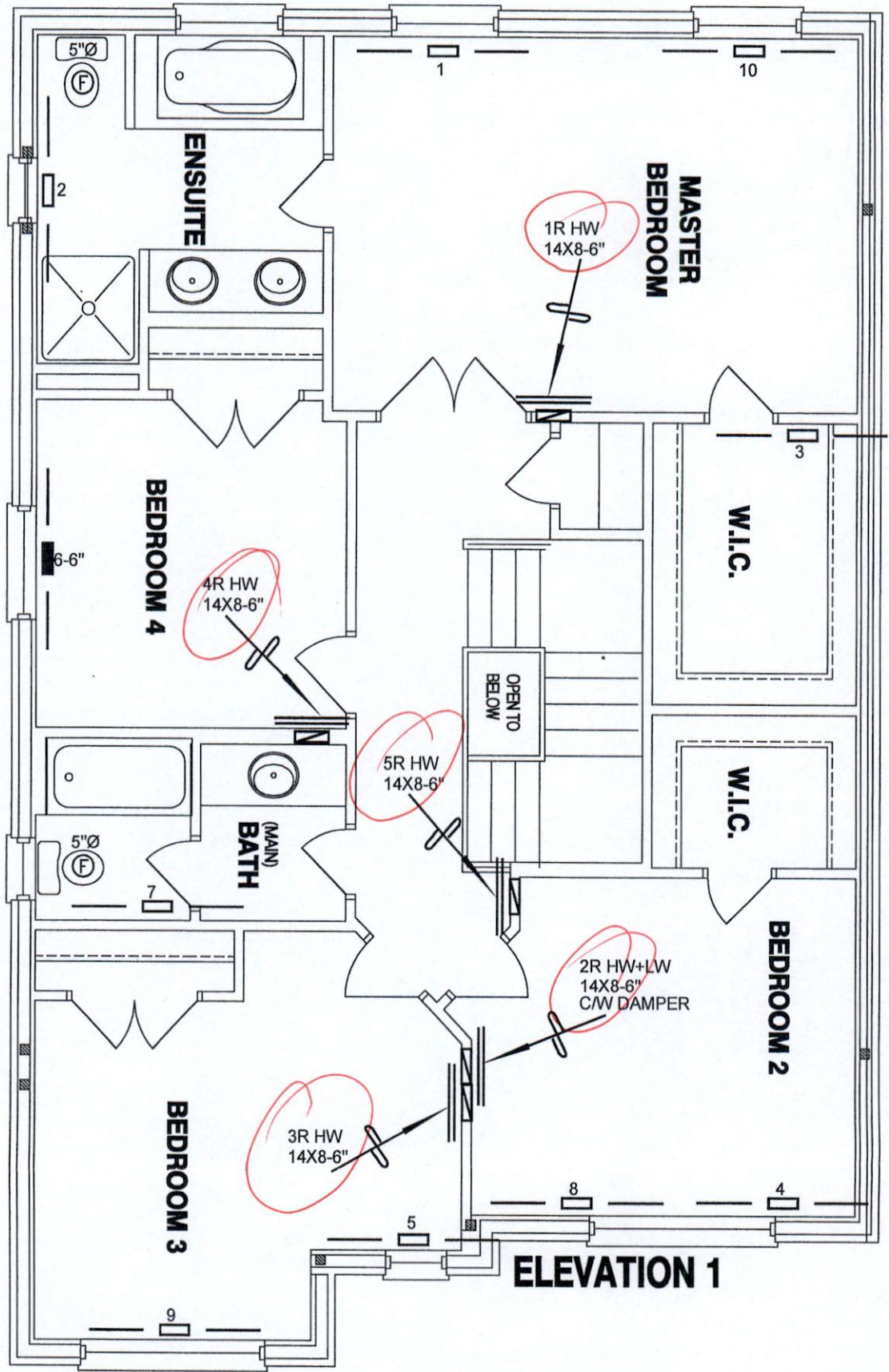
Sheet Title
**FIRST FLOOR
HEATING
LAYOUT**

Date
JUNE/2018

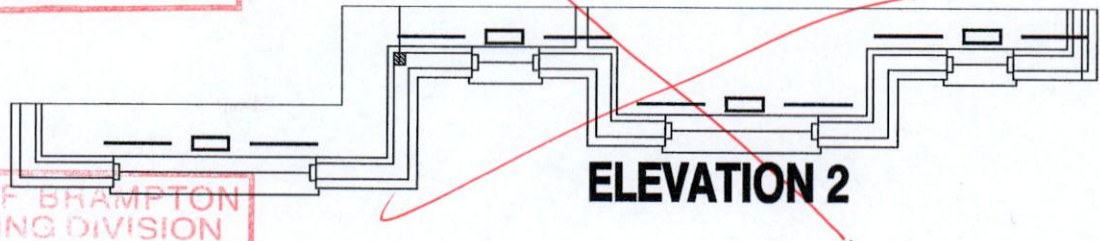
Scale
3/16" = 1'-0"

BCIN# 19669

LO# **79000**



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



CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
MAR 25 2019
ATTACHED NOTES ARE PART
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ALL WORK MUST COMPLY WITH OBC

MECHANICAL VENTILATION SHALL BE PROVIDED IN
CONFORMANCE WITH OBC DIV. B, 9.32.3 REQUIREMENTS

CSA-F280-12
PACKAGE A1

I MICHAEL O'ROURKE HAVE REVIEW
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C, 32.5 OF THE
BUILDING CODE.
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

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	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 GREENYORK HOMES		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 JUNE/2018 Scale 3/16" = 1'-0" BCIN# 19669 LO# 79000
Project Name GRANELLI HOMES CORP BRAMPTON, ONTARIO M-2057 LOT 25 LIANA 2 2284 sqft			

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 114 THORNDAL ROAD		Unit no.	Lot/con. 25												
Municipality BRAMPTON	Postal 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	Postal 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]															
<table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> House</td> <td><input type="checkbox"/> HVAC – House</td> <td><input type="checkbox"/> Building Structural</td> </tr> <tr> <td><input type="checkbox"/> Small Buildings</td> <td><input type="checkbox"/> Building Services</td> <td><input checked="" type="checkbox"/> Plumbing – House</td> </tr> <tr> <td><input type="checkbox"/> Large Buildings</td> <td><input type="checkbox"/> Detection, Lighting and Power</td> <td><input type="checkbox"/> Plumbing – II Buildings</td> </tr> <tr> <td><input type="checkbox"/> Complex Buildings</td> <td><input type="checkbox"/> Fire Protection</td> <td><input type="checkbox"/> On-site Sewage Systems</td> </tr> </table>				<input type="checkbox"/> House	<input type="checkbox"/> HVAC – House	<input type="checkbox"/> Building Structural	<input type="checkbox"/> Small Buildings	<input type="checkbox"/> Building Services	<input checked="" type="checkbox"/> Plumbing – House	<input type="checkbox"/> Large Buildings	<input type="checkbox"/> Detection, Lighting and Power	<input type="checkbox"/> Plumbing – II Buildings	<input type="checkbox"/> Complex Buildings	<input type="checkbox"/> Fire Protection	<input type="checkbox"/> On-site Sewage Systems
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Description of designer's work															
LIANA 2 - ELEVATION 1		GRANELLI HOMES CORP.													
D. Declaration of Designer															
I <u>SANDY WHITE,</u> declare that (choose one as appropriate):															
(print name)															
<input type="checkbox"/> 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: _____															
<input type="checkbox"/> 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: _____															
<input checked="" type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: <u>P.Eng. exempt, note 2</u>															
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.															
2019/24/01 _____ Date		SANDY WHITE <small>Digitally signed by SANDY WHITE DN: cn=SANDY WHITE, o=ANDA ENGINEERING LTD., ou=Engineering and Design, email=sandy.white@andaeng.com c=CA</small> _____ Signature of Designer													

NOTE:

- 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.
- 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 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.



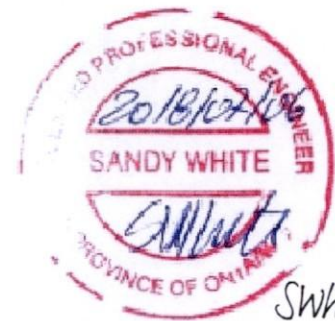
Planning and Development Services
Building Division
8850 McLaughlin Road, Unit 1
Brampton, ON L6Y 5T1

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: LIANA 2 (LO#79000-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		2	
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 26.4

Minimum Diameter 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.

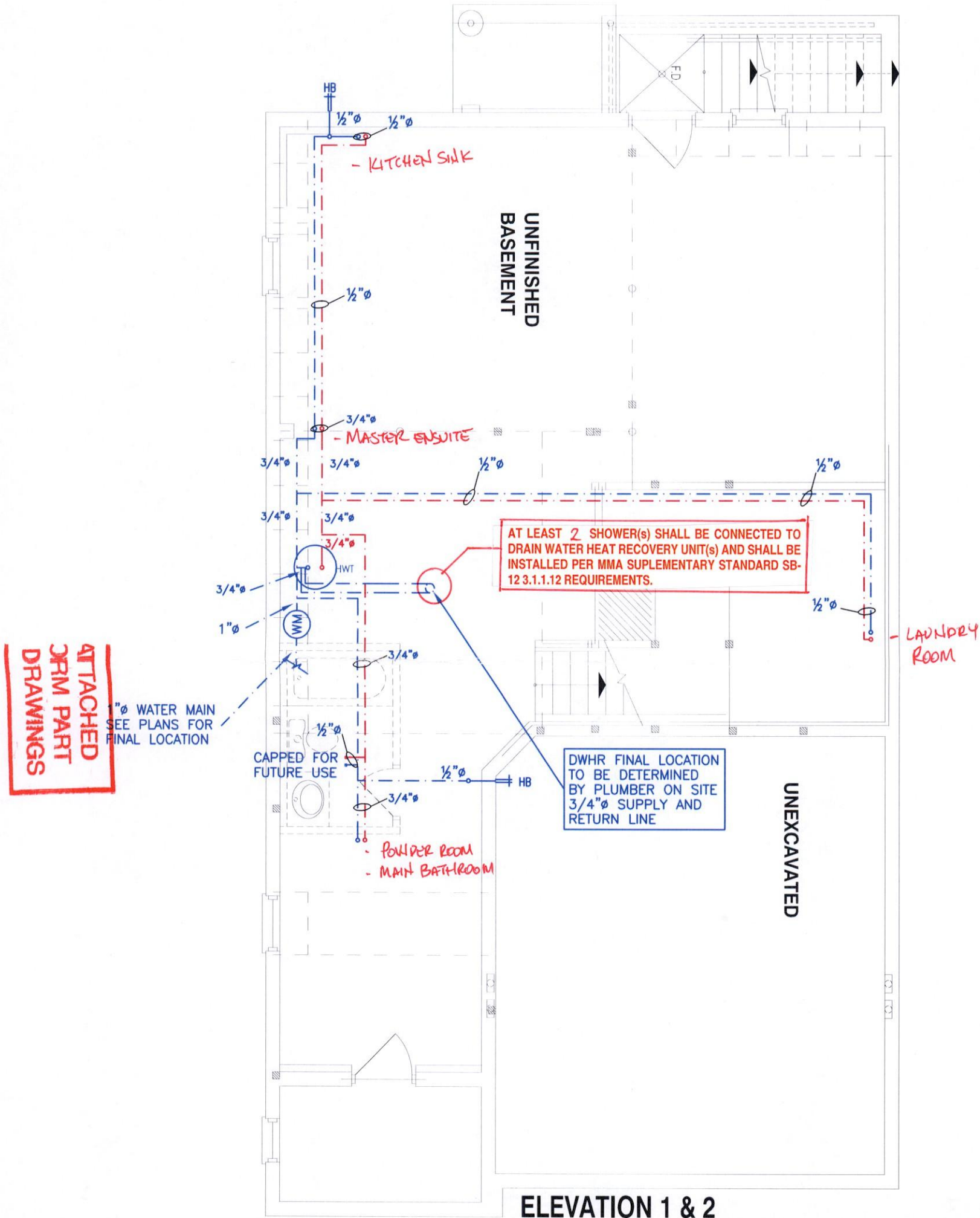
PLEASE SEE THE
NOTES AS THEY F
OF THE REVIEWED

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)
	WATER METER, PROVIDE SUPPLY PIPE SIZE/ Ø
	HOSE BIB
	PROPOSED COLD WATER LINE & RISER
	PROPOSED HOT WATER LINE & RISER
	FLOOR DRAIN



ELEVATION 1 & 2

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

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

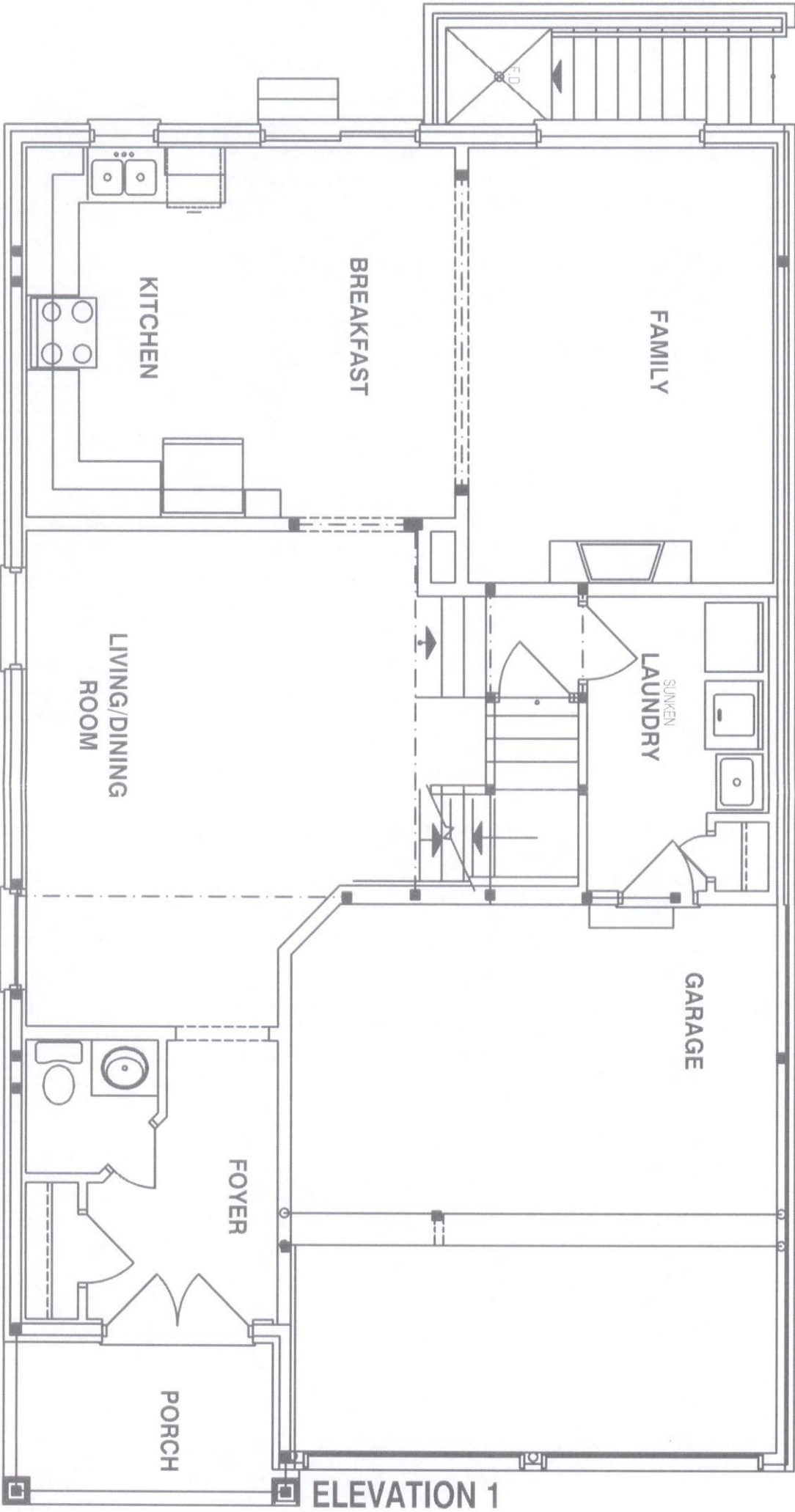


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LEGEND

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



CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED

APR 01 2019

PLUMBING BY
KOFI MORIEL



Client

GREENYORK HOMES

Project Name

GRANELLI HOMES CORP
BRAMPTON, ONTARIO

M-2057 LOT 25

LIANA 2

2284 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@hvacdsgns.ca
Web: www.hvacdesigns.ca
Specializing in Residential Mechanical Design Services

Sheet Title

FIRST FLOOR
PLUMBING
LAYOUT

Date

JULY 2018

Scale

3/16" = 1'-0"

LO#

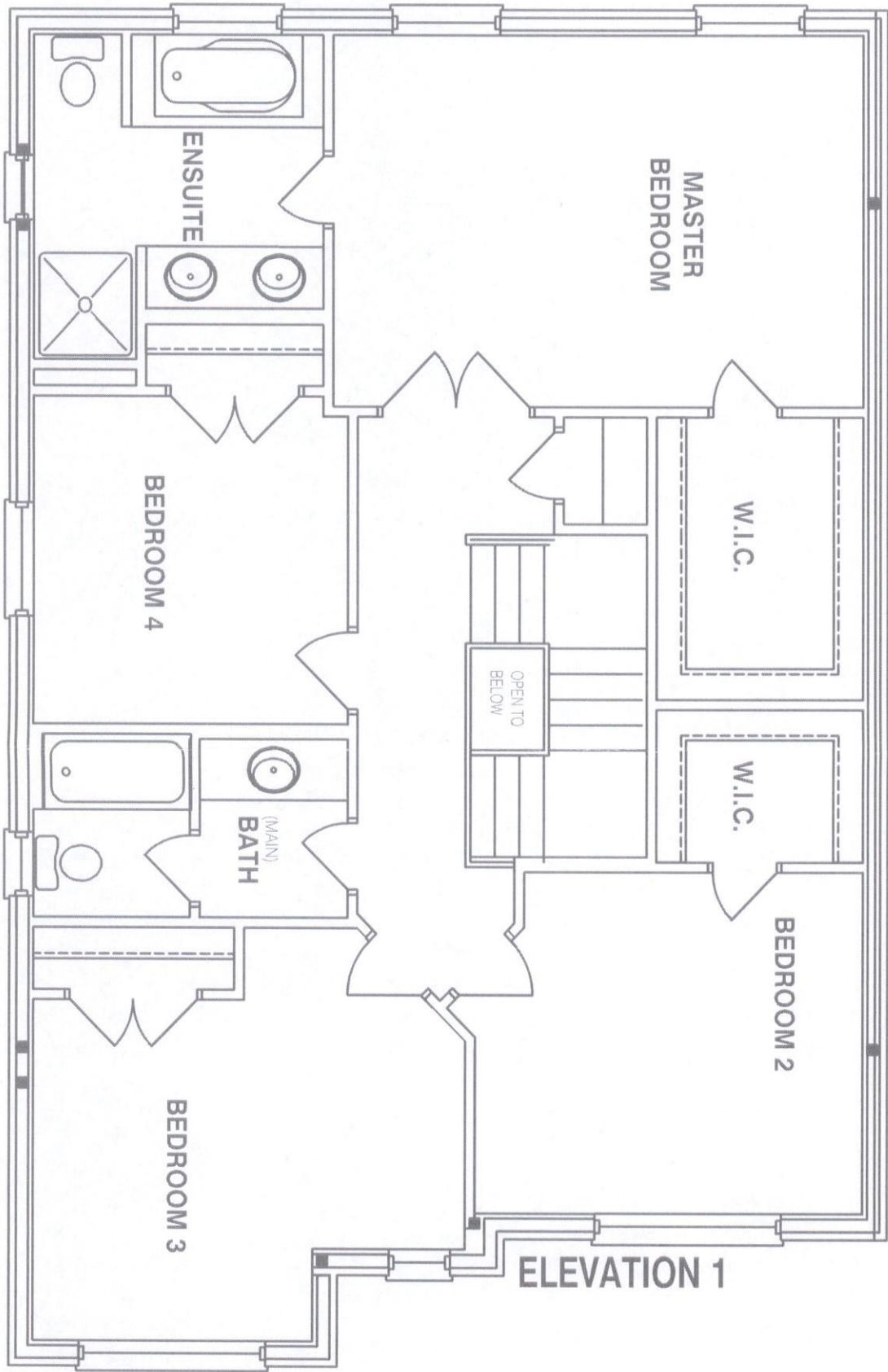
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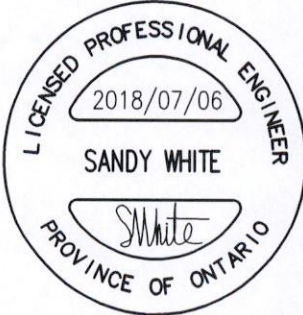
SYMBOL	DESCRIPTION (SEE PLAN FOR PIPE SIZING)
	WATER METER, PROVIDE SUPPLY PIPE SIZE/ Ø
	HOSE BIB
	PROPOSED COLD WATER LINE & RISER
	PROPOSED HOT WATER LINE & RISER
	FLOOR DRAIN



CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED

APR 01 2019

PLUMBING BY
KOFI MORIEL



Client
GREENYORK HOMES

Project Name
GRANELLI HOMES CORP
BRAMPTON, ONTARIO

M-2057 LOT 25

LIANA 2 2284 sqft



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

Sheet Title
SECOND FLOOR
PLUMBING
LAYOUT

Date
JULY 2018

Scale
3/16" = 1'-0"

LO# 79000-P