19-447160 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: LIANA 2-22, EL-2 |

## A. Project Information

| Building number, street name | | Unit number | Lot/Con |
|---|---|---|---|
| | | | 22 |
| **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 | | |
|---|---|---|---|---|
| ☐ 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 = 312.2 $m^2$ or _____ $ft^2$ | W, S & G % = 9.71% | ☐ Log/Post&Beam ☐ ICF Above Grade ☐ ICF Basement<br>☐ Slab-on-ground ☐ Walkout Basement<br>☐ Air Conditioning ☐ Combo Unit |
| Area of W, S & G = 30.3 $m^2$ or _____ $ft^2$ | Utilize window averaging: ☐Yes ☐No | ☐ Air Sourced Heat Pump (ASHP)<br>☐ Ground Sourced Heat Pump (GSHP) |

CITY OF BRAMPTON BUILDING DIVISION REVIEWED BY: S. DESAI APR 12 2019 ATTACHED NOTES ARE PART OF REVIEWED DRAWINGS ALL WORK MUST COMPLY WITH OBC

## 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 | BCIN | Signature |
|---|---|---|
| Walter Botter<br>Jardin Design Group Inc. | 21031<br>27763 | |

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

19-447160 000 00 RR

SITE NAME: GRANELLI HOME CORP | DATE: Jun-18 | WINTER NATURAL AIR CHANGE RATE 0.335 | HEAT LOSS ΔT °F. 74 | CSA-F280-12
BUILDER: GREENYORK HOMES | TYPE: LIANA 2 | GFA: 2284 | LO# 79000 | SUMMER NATURAL AIR CHANGE RATE 0.119 | HEAT GAIN ΔT °F. 14 | 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 | | | 54 | | |
| 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 | 0 | 0 |
| EAST | 20.8 | 41.9 | 0 | 0 | 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 | 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 | 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 |
| DOORS | 24.7 | 4.7 | 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 | 0.8 | 258 | 1124 | 212 | 186 | 810 | 153 | 90 | 392 | 74 | 249 | 1085 | 205 | 248 | 1081 | 204 | 84 | 366 | 69 | 46 | 200 | 38 |
| 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 |
| EXPOSED CLG | 1.3 | 0.6 | 262 | 316 | 153 | 133 | 167 | 81 | 124 | 155 | 75 | 231 | 289 | 140 | 182 | 228 | 111 | 178 | 223 | 108 | 105 | 132 | 64 |
| 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 | 0 | 0 |
| EXPOSED FLOOR | 2.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 167 | 416 | 78 | 55 | 137 | 26 | 0 | 0 | 0 | 0 | 0 | 0 |
| BASEMENT/CRAWL HEAT LOSS | | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| SLAB ON GRADE HEAT LOSS | | | | 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 | | 0.20 | 0.28 | | 0.20 | 0.28 | |
| AIR CHANGE HEAT LOSS | | | | 570 | | | 391 | | | 151 | | | 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 | 0 | | 0 | 1 | | 240 | 1 | | 240 | 1 | | 240 | 0 | | 0 |
| HEAT GAIN APPLIANCES/LIGHTS | | | | | 723 | | | 0 | | | 0 | | | 723 | | | 723 | | | 723 | | | 0 |
| TOTAL HT LOSS BTU/H | | | | 2634 | | | 1804 | | | 699 | | | 3464 | | | 3272 | | | 1150 | | | 636 | |
| TOTAL HT GAIN x 1.3 BTU/H | | | | | 3856 | | | 1386 | | | 211 | | | 4029 | | | 4651 | | | 2038 | | | 429 |

| ROOM USE | | | | LV/DN | | | K/B/F | | | | LAUN | | | W/R | | | FOY | | | | | WUB | | | BAS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EXP. WALL | | | | 25 | | | 62 | | | | 26 | | | 6 | | | 27 | | | | | 15 | | | 133 | | |
| CLG. HT. | | | | 11 | | | 11 | | | | 12 | | | 11 | | | 11 | | | | | 9 | | | 9 | | |
| | FACTORS | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GRS.WALL AREA | LOSS | GAIN | | 275 | | | 682 | | | | 312 | | | 66 | | | 297 | | | | | 135 | | | 798 | | |
| 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 | 0 |
| EAST | 20.8 | 41.9 | | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 145 | 293 | | | 0 | 0 | 0 | 0 | 0 | 0 |
| SOUTH | 20.8 | 25.2 | | 38 | 789 | 959 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 6 | 125 | 151 |
| WEST | 20.8 | 41.9 | | 0 | 0 | 0 | 82 | 1704 | 3435 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 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 |
| DOORS | 24.7 | 4.7 | | 0 | 0 | 0 | 0 | 0 | 0 | | 20 | 493 | 93 | 0 | 0 | 0 | 40 | 986 | 186 | | | 20 | 493 | 93 | 20 | 493 | 93 |
| NET EXPOSED WALL | 4.4 | 0.8 | | 237 | 1033 | 195 | 600 | 2614 | 493 | | 292 | 1272 | 240 | 66 | 288 | 54 | 250 | 1089 | 206 | | | 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 | 399 | 1402 | 264 |
| 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 |
| 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 |
| 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 |
| BASEMENT/CRAWL HEAT LOSS | | | | | 0 | | | 0 | | | | 0 | | | 0 | | | 0 | | | | | | | 4460 | | |
| SLAB ON GRADE HEAT LOSS | | | | | 0 | | | 0 | | | | 0 | | | 0 | | | 0 | | | | | 114 | | | | |
| SUBTOTAL HT LOSS | | | | | 1822 | | | 4318 | | | | 1765 | | | 288 | | | 2221 | | | | | 1108 | | | 6479 | | |
| SUB TOTAL HT GAIN | | | | | | 1154 | | | 3928 | | | | 333 | | | 54 | | | 686 | | | | | 188 | | | 509 |
| LEVEL FACTOR / MULTIPLIER | | | | 0.30 | 0.41 | | 0.30 | 0.41 | | | 0.30 | 0.41 | | 0.30 | 0.41 | | 0.30 | 0.41 | | | | | | | 0.80 | 0.93 | |
| AIR CHANGE HEAT LOSS | | | | | 742 | | | 1757 | | | | 718 | | | 117 | | | 904 | | | | | | | | 7064 | | |
| AIR CHANGE HEAT GAIN | | | | | | 100 | | | 341 | | | | 29 | | | 5 | | | 59 | | | | | | | | 60 |
| DUCT LOSS | | | | | 0 | | | 0 | | | | 0 | | | 0 | | | 0 | | | | | | | 0 | | |
| DUCT GAIN | | | | | | 0 | | | 0 | | | | 0 | | | 0 | | | 0 | | | | | | | | 0 |
| HEAT GAIN PEOPLE | 240 | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | 0 | | 0 |
| HEAT GAIN APPLIANCES/LIGHTS | | | | | | 723 | | | 723 | | | | 723 | | | 0 | | | 0 | | | | | 0 | | | 723 |
| TOTAL HT LOSS BTU/H | | | | | 2564 | | | 6075 | | | | 2484 | | | 405 | | | 3125 | | | | | 1108 | | | 13543 | |
| TOTAL HT GAIN x 1.3 BTU/H | | | | | | 2570 | | | 6490 | | | | 1411 | | | 77 | | | 967 | | | | | 244 | | | 1681 |



M-20054 LOT 22

TOTAL HEAT GAIN BTU/H: 30227 TONS: 2.52 LOSS DUE TO VENTILATION LOAD BTU/H: 1529 STRUCTURAL HEAT LOSS: 42960 TOTAL COMBINED HEAT LOSS BTU/H: 44489

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.

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: 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 |
| fumace filter | 0.05 |
| a/c coil pressure | 0.2 |
| available pressure for s/a & r/a | 0.35 |
| plenum pressure s/a | 0.18 |
| max s/a dif press. loss | 0.02 |
| min adjusted pressure s/a | 0.16 |
| r/a pressure | 0.17 |
| r/a grille press. Loss | 0.02 |
| 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

| 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 | 56 | 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 | 46 | 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 | 160 | 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
APR 1 2 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 | 251 | 0.08 | 8.4 | 8 | x | 8 | 565 | TRUNK G | 0 | 0.00 | 0 | 0 | x | 8 | 0 |
| TRUNK B | 436 | 0.08 | 10.3 | 12 | x | 8 | 654 | TRUNK H | 0 | 0.00 | 0 | 0 | x | 8 | 0 |
| TRUNK C | 200 | 0.09 | 7.5 | 8 | x | 8 | 450 | TRUNK I | 0 | 0.00 | 0 | 0 | x | 8 | 0 |
| TRUNK D | 470 | 0.09 | 10.3 | 12 | x | 8 | 705 | TRUNK J | 0 | 0.00 | 0 | 0 | x | 8 | 0 |
| TRUNK E | 973 | 0.08 | 13.9 | 22 | x | 8 | 796 | 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 | 340 | 0.06 | 10.1 | 12 | x | 8 | 510 |
| 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 | 7 | | | | | | | | | BR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| AIR VOLUME | 85 | 85 | 85 | 85 | 85 | 360 | 85 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 |
| 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. | 43 | 53 | 55 | 42 | 39 | 18 | 34 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 20 |
| EQUIVALENT LENGTH | 175 | 215 | 175 | 165 | 220 | 135 | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 215 |
| TOTAL EFFECTIVE LH | 218 | 268 | 230 | 207 | 259 | 153 | 234 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 235 |
| 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 | 0.06 |
| ROUND DUCT SIZE | 5.8 | 6 | 6 | 5.8 | 6 | 9 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6.4 |
| INLET GRILL SIZE | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 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 | 14 | 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

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: LIANA 2 LO # 79000
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 | 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: 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 |
| BATH | QTXEN050C | 50 | ✓ | 0.3 |
| LAUN | QTXEN050C | 50 | ✓ | 0.3 |
| W/R | 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 #

CITY OF BRAMPTON BUILDING DIVISION REVIEWED BY: S. DESAI APR 1 2019 ATTACHED NOTES ARE PART OF REVIEWED DRAWINGS ALL WORK MUST COMPLY WITH OBC

## 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: June-18

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

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:** 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 |

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
APR 1 2 2019
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ALL WORK MUST COMPLY WITH OBC

| 2012 OBC - COMPLIANCE PACKAGE<br>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 | - |

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

Michael O'Rourke

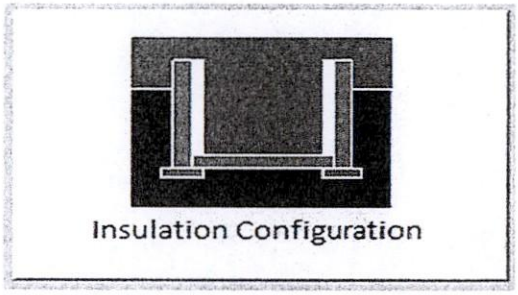
HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

# 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): | 13.4 | |
| 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 | |



Insulation Configuration

| Radiant Slab | | |
|---|---|---|
| Heated Fraction of the Slab: | 0 | |
| Fluid Temperature (°C): | 33 | |
| **Design Months** | | |
| **Heating Month** | 1 | |
| **Foundation Loads** | | |
| **Heating Load (Watts):** | **1307** | |



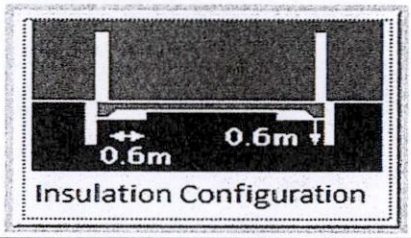
**TYPE:** LIANA 2
**LO#** 79000

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): | 0.6 |  |
| Width (m): | 4.0 | |
| 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):** | **33** | |


Insulation Configuration

**TYPE:** LIANA 2
**LO#** 79000

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 ($m^3$): | 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** |

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
APR 1 2 2019
ATTACHED NOTES ARE PART OF REVIEWED DRAWINGS
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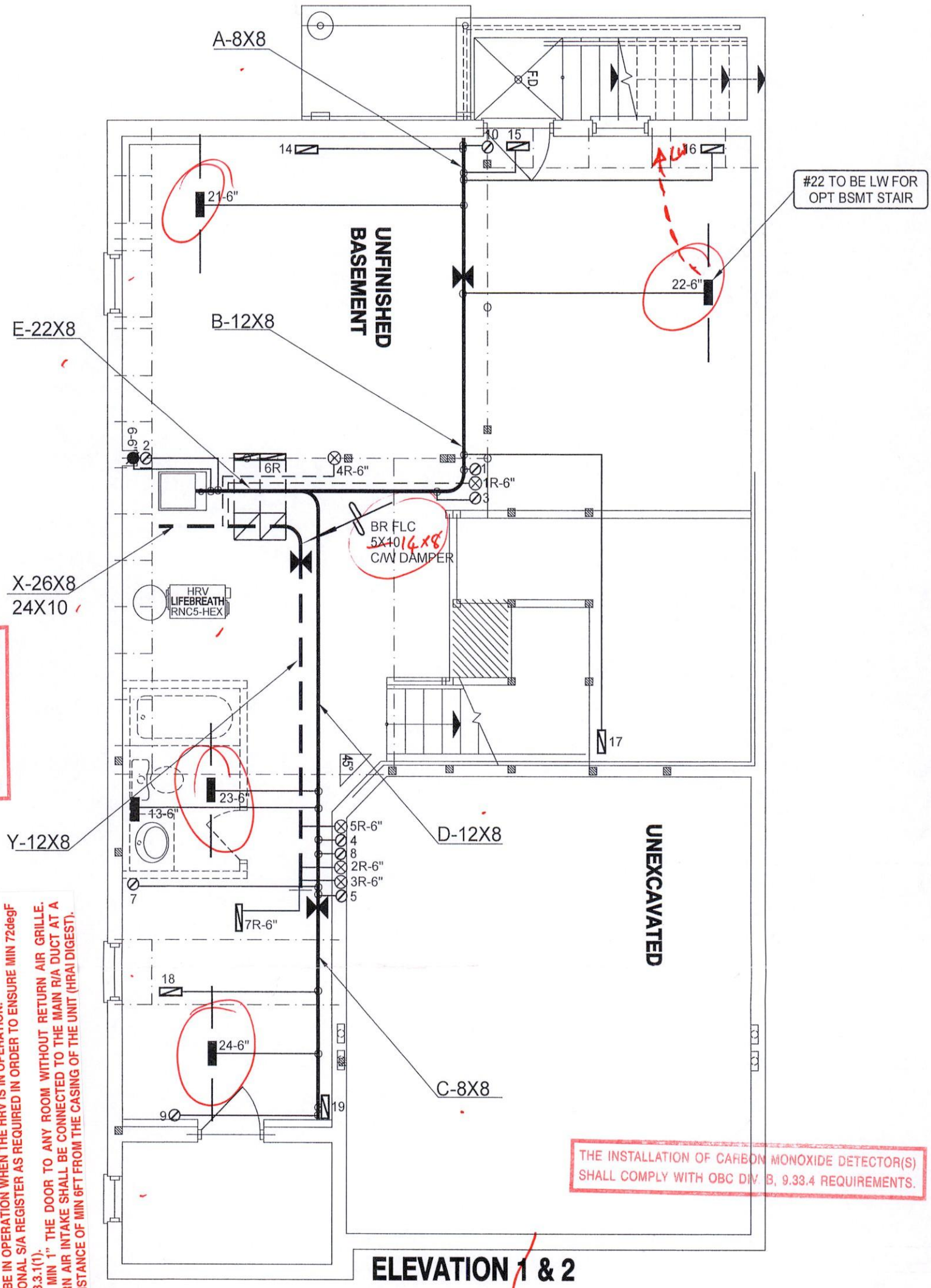
**TYPE:** LIANA 2
**LO#** 79000

19-447160 000 00 RR




ELEVATION 1 & 2

CITY OF BRAMPTON
BUILDING DIVISION
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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).

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.

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.

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

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 |

| No. | Description | Date |
|---|---|---|
| 3. | | |
| 2. | | |
| 1. | | |

REVISIONS



Client
GREENYORK HOMES

Project Name
GRANELLI HOMES CORP
BRAMPTON, ONTARIO
M-2057 LOT 22

LIANA 2 2284 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.

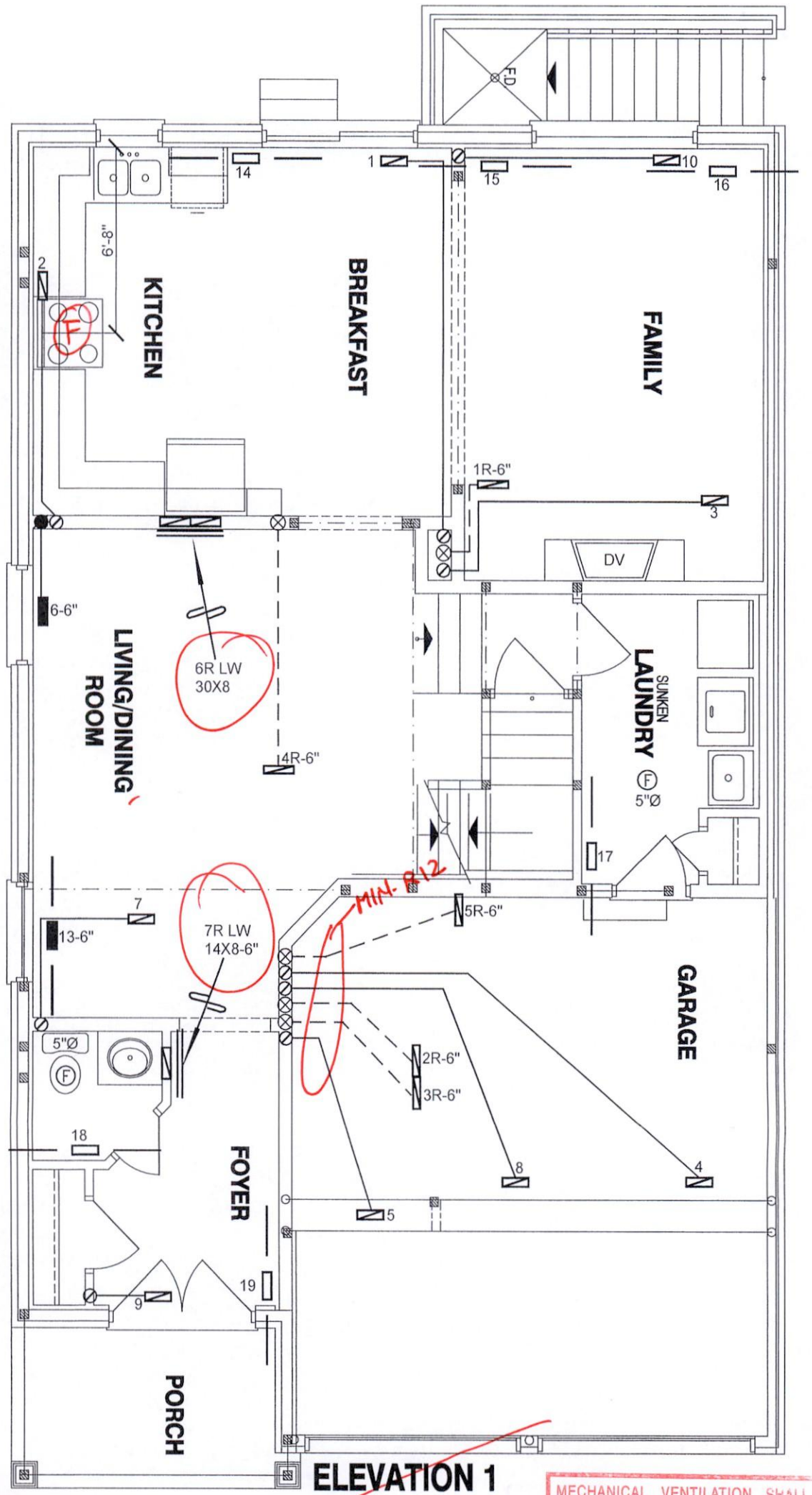
| HEAT LOSS 44489 BTU/H | |
|---|---|
| UNIT DATA | |
| MAKE | CARRIER |
| MODEL | 59SP5A-60-12 |
| INPUT | 60 MBTU/H |
| OUTPUT | 58 MBTU/H |
| COOLING | 2.5 TONS |
| FAN SPEED | 970 cfm @ 0.6" w.c. |

| # OF RUNS | S/A | R/A | FANS |
|---|---|---|---|
| 3RD FLOOR | | | |
| 2ND FLOOR | 10 | 5 | 2 |
| 1ST FLOOR | 7 | 2 | 3 |
| BASEMENT | 4 | 1 | 0 |

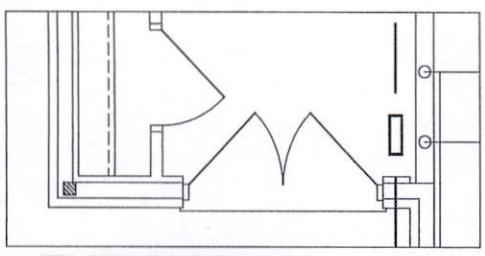
ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

Sheet Title
BASEMENT HEATING LAYOUT

Date JUNE/2018
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 79000




ELEVATION 1



ELEVATION 2

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. DESAI
APR 1 2 2019
ATTACHED NOTES ARE PART OF REVIEWED DRAWINGS
ALL WORK MUST COMPLY WITH OBC

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.

THIS INSTALLATION OF A GAS FIREPLACE IS REGULATED UNDER THE T.S.S.A. BY C.S.A. B149.1 NATURAL GAS AND PROPANE INSTALLATION CODE CALL ENBRIDGE FOR INSPECTION AT 1-800-785-1314

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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| 3. | | |
| 2. | | |
| 1. | | |

REVISIONS



Client
GREENYORK HOMES

Project Name
GRANELLI HOMES CORP
BRAMPTON, ONTARIO
M-2057 LOT 22

LIANA 2 2284 sqft

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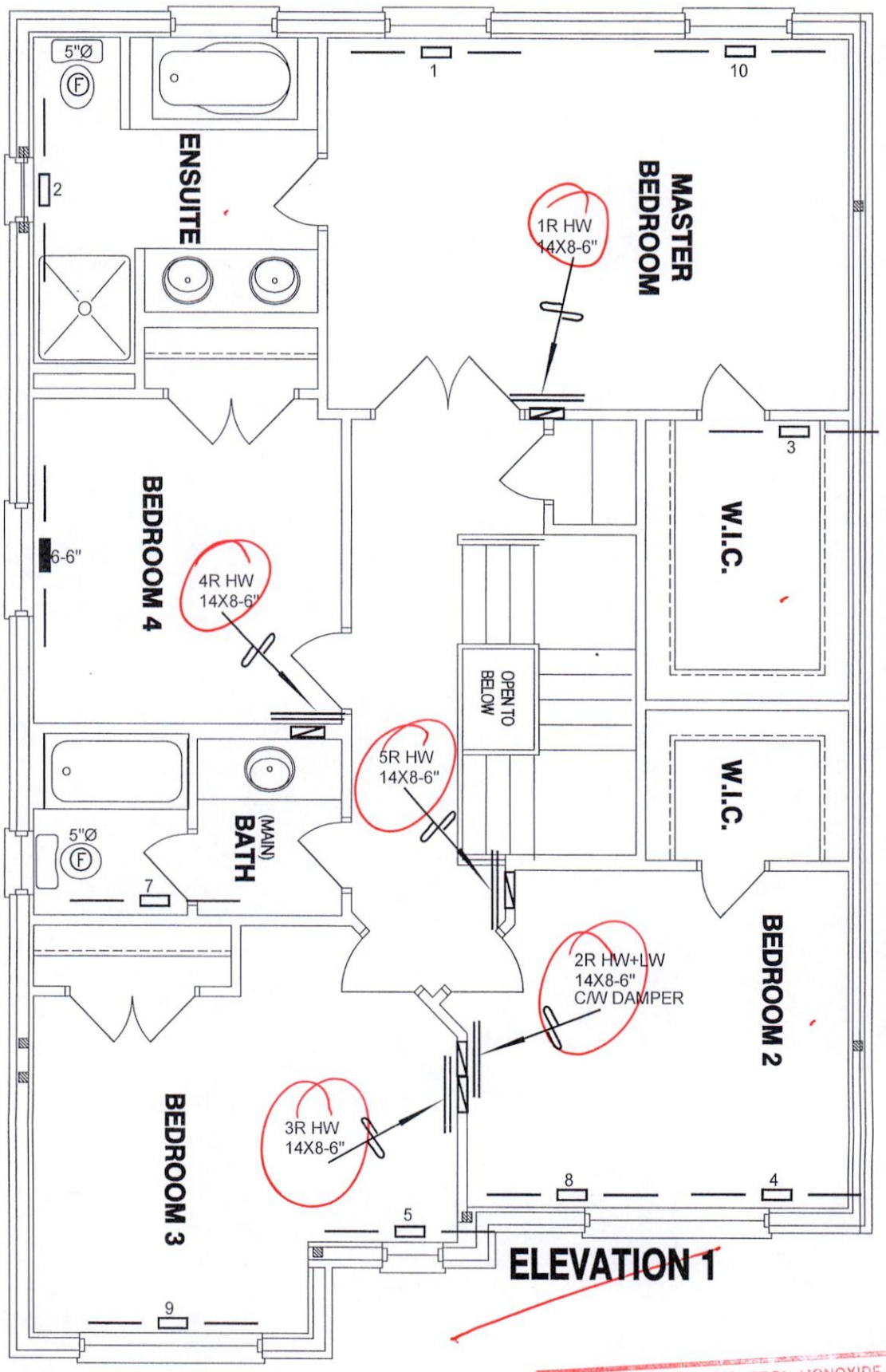
Specializing in Residential Mechanical Design Services

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

Sheet Title
FIRST FLOOR HEATING LAYOUT

Date 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
APR 1 2 2019
ATTACHED NOTES ARE PART OF REVIEWED DRAWINGS
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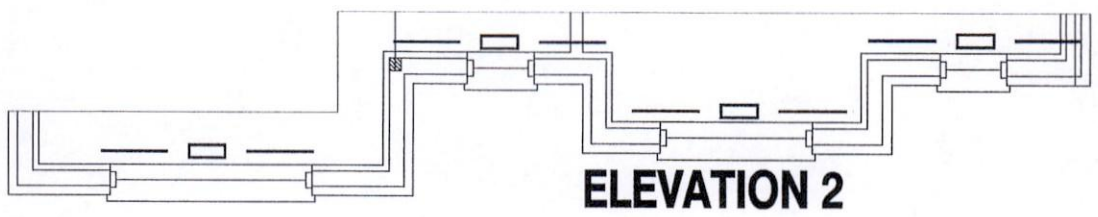


I MICHAEL O'ROURKE HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

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

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

**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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| 3. | | |
| 2. | | |
| 1. | | |

REVISIONS



Client
GREENYORK HOMES

Project Name
GRANELLI HOMES CORP
BRAMPTON, ONTARIO
M-2057 LOT 22

LIANA 2 2284 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# 79000

# 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. |
|---|---|---|---|
| | 108 THORNDALE ROAD | | 22 |

| Municipality | ostal code | lan number/ other description |
|---|---|---|
| BRAMPTON | | 43M-2057 |

## B. Individual who reviews and takes responsibility for design activities

| Name | Firm |
|---|---|
| SANDY WHITE, P.Eng. | ANDA ENGINEERING LTD. |

| Street address | Unit no. | Lot/con. |
|---|---|---|
| 5125 ARDOCH ROAD | | |

| Municipality | ostal code | Province | E-mail |
|---|---|---|---|
| ARDOCH | K0H-1C0 | ONTARIO | design@andaengineering.com |

| Telephone number | Fax number | Cell number |
|---|---|---|
| ( 613 ) 479-0161 | ( ) N/A | ( 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 ower | ☐ lumbing – ll Buildings |
| ☐ Complex Buildings | ☐ Fire Protection | ☐ On-site Sewage Systems |

Description of designer's work

LIANA 2 EL. 2

WALK-UP & DECK CONDITION

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.

2019/24/01 — Date

SANDY WHITE — 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.

M-2057 LOT 22

BRAMPTON Flower City
brampton.ca

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

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:** 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 | | |

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

| | |
|---|---|
| **Total Fixture Units** | **26.4** |
| **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.

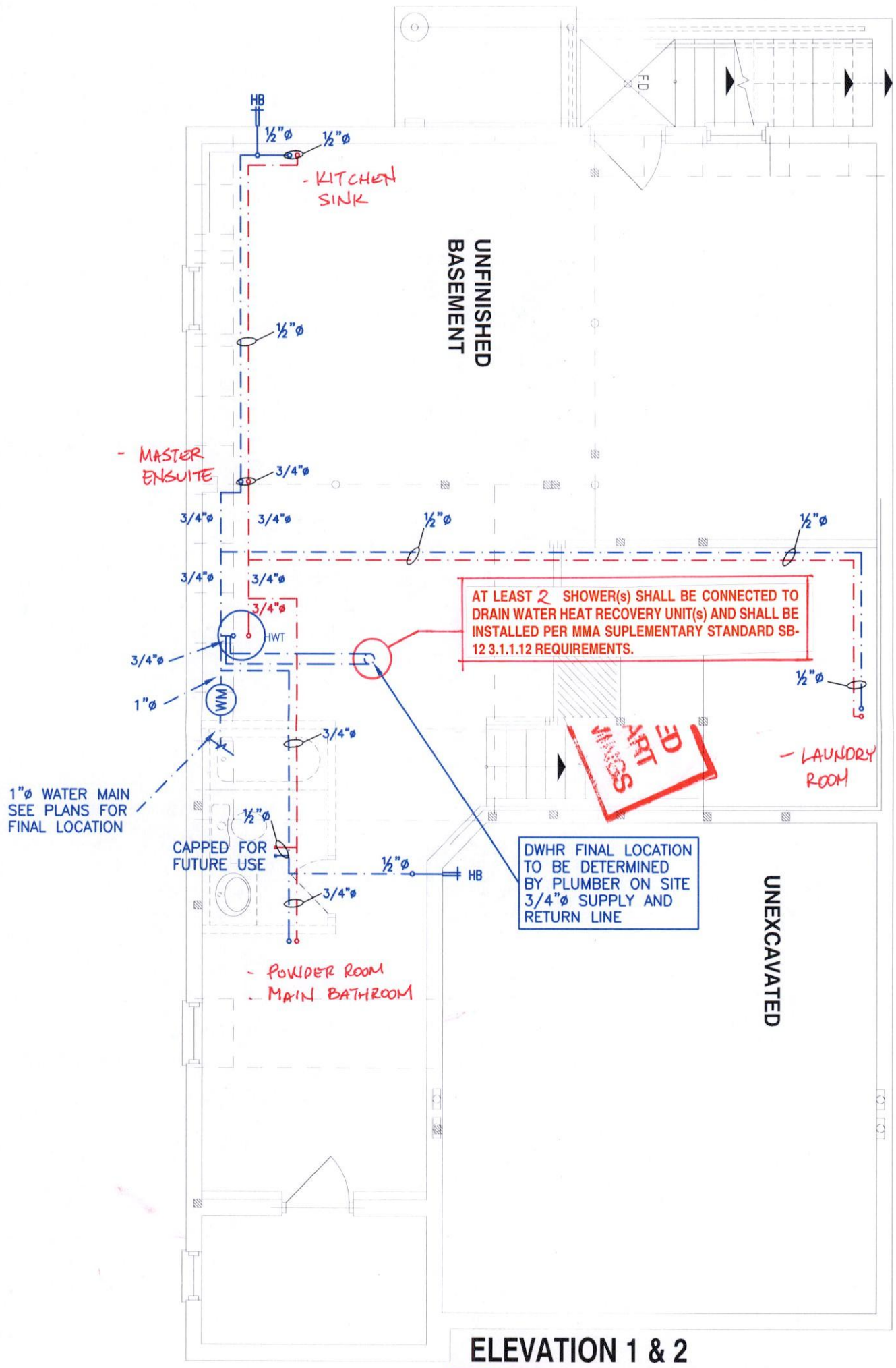
CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED
APR 03 2019
PLUMBING BY
KOFI MORIEL

## 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 |




CITY OF BRAMPTON
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REVIEWED
APR 03 2019
PLUMBING BY
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## ELEVATION 1 & 2

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

THE ONTARIO BUILDING CODE, O.REG. 332/12, AS AMENDED, DIVISION B, PART 7.

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

Lot 22

Client
GREENYORK HOMES

Project Name
GRANELLI HOMES CORP
BRAMPTON, ONTARIO

LIANA 2 2284 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


Sheet Title
BASEMENT PLUMBING LAYOUT

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

LO# 79000-P

## 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
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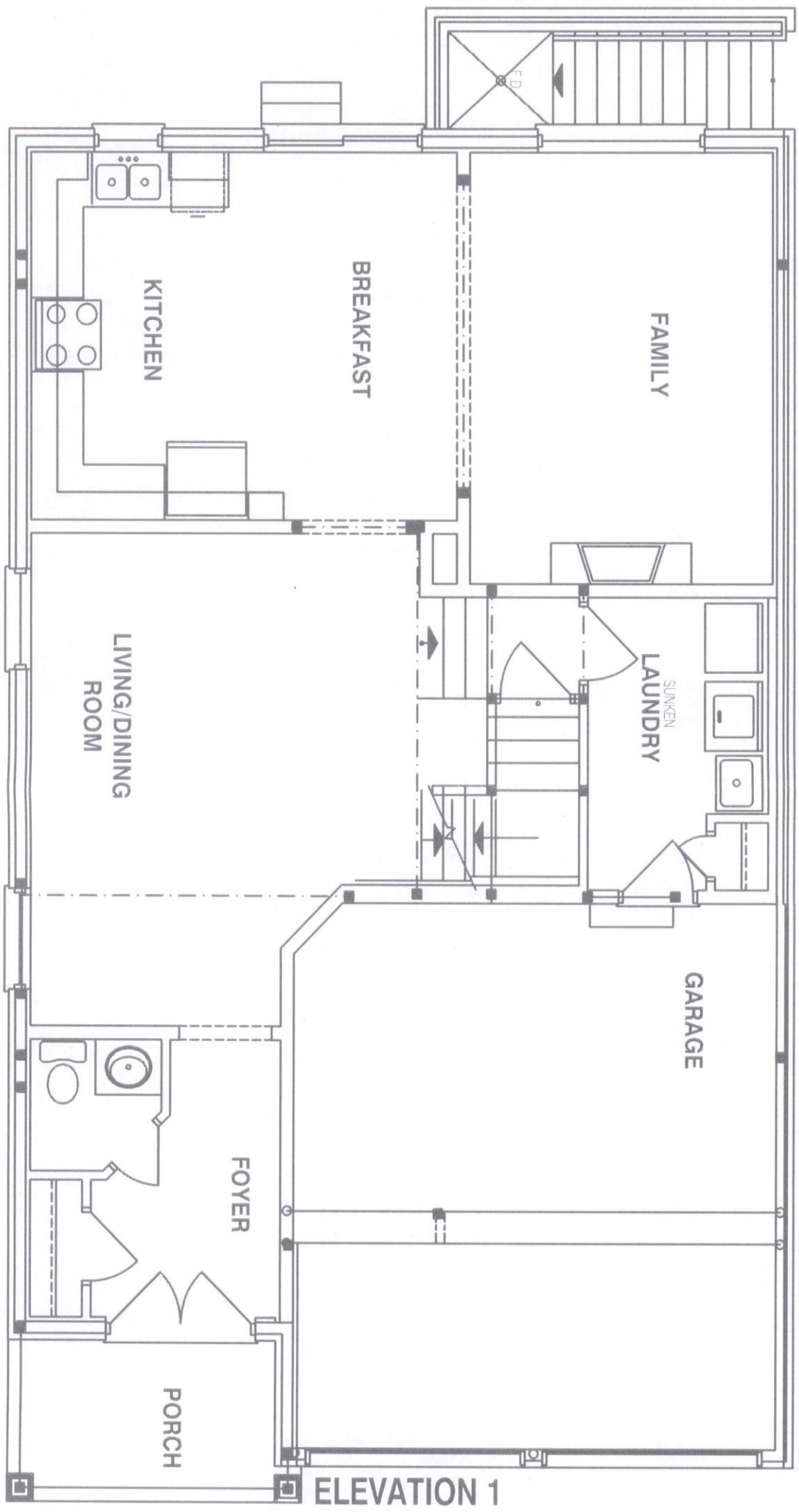


ELEVATION 1

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED

APR 03 2019

PLUMBING BY
KOFI MORIEL

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

Client
GREENYORK HOMES

Project Name
GRANELLI HOMES CORP
BRAMPTON, ONTARIO
M-2057 LOT 22
LIANA 2 2284 sqft

HVAC DESIGNS LTD.
375 Finley Ave. Suite 202 - Ajax, Ontario
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Email: info@hvacdesigns.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# 79000-P

## NOTES

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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
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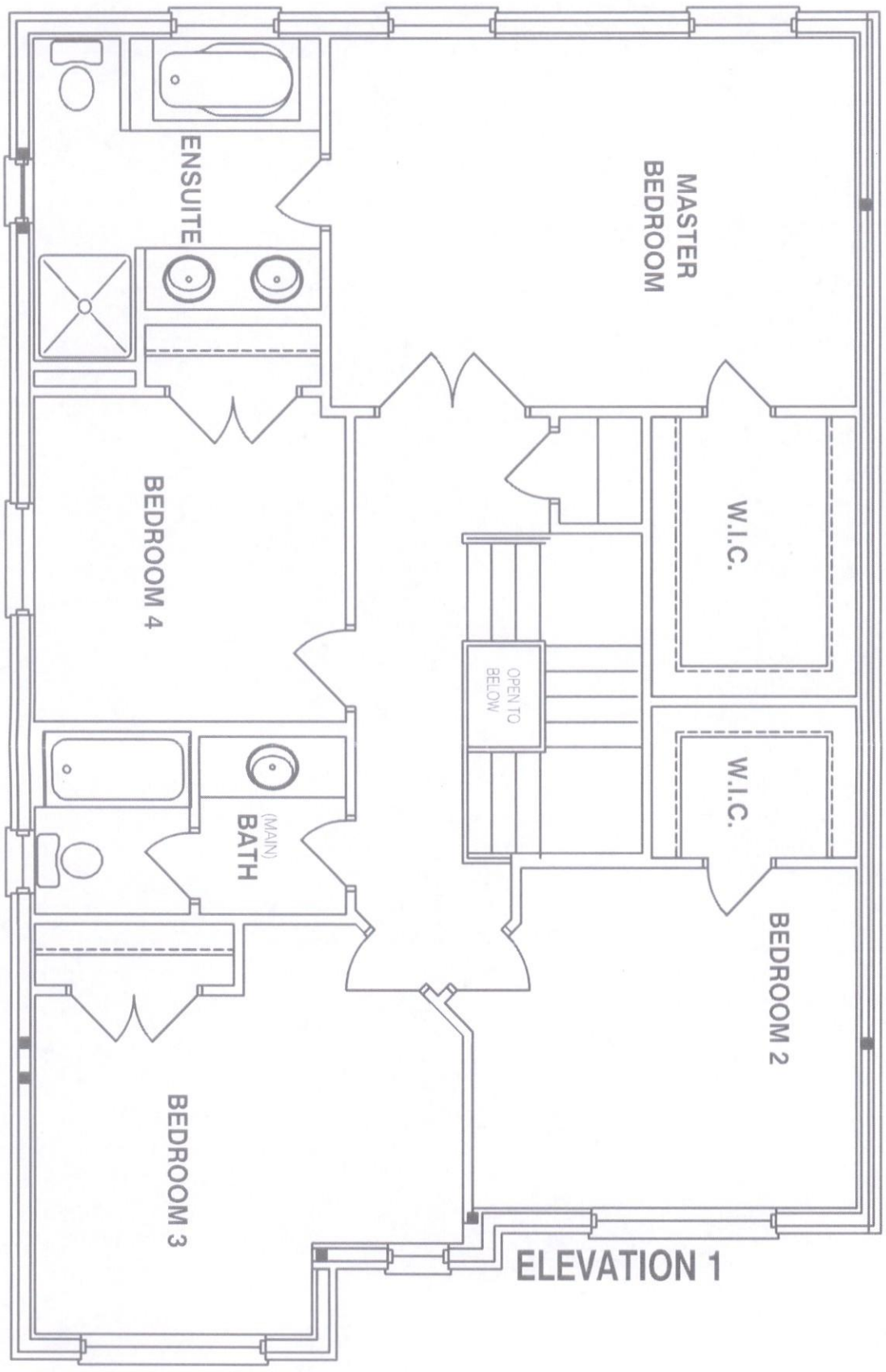


ELEVATION 1

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED
APR 03 2019
PLUMBING BY
KOFI MORIEL

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

Client
GREENYORK HOMES

Project Name
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BRAMPTON, ONTARIO
M- 2057 LOT 22
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Sheet Title
SECOND FLOOR PLUMBING LAYOUT

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

LO# 79000-P