

SITE NAME: MINNISALE HOMES CORP  
 BUILDER: GREENPARK HOMES

TYPE: MILLWOOD 2

GFA: 2654

 DATE: Aug-18  
 LOW 79581

 WINTER NATURAL AIR CHANGE RATE 0.354  
 SUMMER NATURAL AIR CHANGE RATE 0.115

 HEAT LOSS AT °F. 74  
 HEAT GAIN AT °F. 11

 CSA-F280-12  
 SB-12 PACKAGE A1

| ROOM USE                      | EXP. WALL | CLG. HT. | MBR  | ENS  | BED-2 | BED-3 | BED-4 | BATH | ENS-2 |
|-------------------------------|-----------|----------|------|------|-------|-------|-------|------|-------|
| 34                            | 10        | 9        | 29   | 9    | 10    | 9     | 10    | 9    | 15    |
| FACTORS                       |           |          |      |      |       |       |       |      |       |
| GRS.WALL AREA                 | LOSS      | GAIN     | 340  | 281  | 234   | 330   | 99    | 90   | 135   |
| GLAZING                       | LOSS      | GAIN     |      |      |       |       |       |      |       |
| NORTH                         | 20.8      | 15.5     | 0    | 0    | 0     | 0     | 0     | 0    | 0     |
| EAST                          | 20.8      | 41.0     | 0    | 0    | 0     | 0     | 0     | 0    | 0     |
| SOUTH                         | 20.8      | 24.4     | 0    | 0    | 0     | 0     | 12    | 249  | 293   |
| WEST                          | 20.8      | 41.0     | 32   | 665  | 1314  | 12    | 249   | 493  | 0     |
| SKYL.T.                       | 36.4      | 106.7    | 0    | 0    | 0     | 0     | 0     | 0    | 0     |
| DOORS                         | 24.7      | 3.7      | 0    | 0    | 0     | 0     | 0     | 0    | 0     |
| NET EXPOSED WALL              | 4.4       | 0.6      | 308  | 1342 | 199   | 249   | 1085  | 161  | 135   |
| NET EXPOSED BMT WALL ABOVE GR | 3.5       | 0.5      | 0    | 0    | 0     | 0     | 0     | 0    | 0     |
| EXPOSED CLG                   | 1.3       | 0.6      | 280  | 351  | 156   | 204   | 256   | 114  | 168   |
| NO ATTIC EXPOSED CLG          | 2.7       | 1.2      | 0    | 0    | 0     | 0     | 0     | 0    | 0     |
| EXPOSED FLOOR                 | 2.5       | 0.4      | 0    | 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              |           |          | 2358 | 1590 | 1965  | 2282  | 904   | 744  | 1217  |
| SUB TOTAL HT GAIN             |           |          |      | 1669 |       | 1112  |       | 472  |       |
| LEVEL FACTOR / MULTIPLIER     | 0.20      | 0.28     |      | 0.20 | 0.28  |       | 0.20  | 0.28 |       |
| AIR CHANGE HEAT LOSS          |           |          | 653  |      | 440   |       |       |      |       |
| AIR CHANGE HEAT GAIN          |           |          |      | 133  |       | 61    |       |      |       |
| DUCT LOSS                     |           |          | 0    |      | 0     |       |       |      |       |
| DUCT GAIN                     |           |          | 0    |      | 0     |       |       |      |       |
| HEAT GAIN PEOPLE              | 240       | 2        | 480  | 0    | 0     |       |       |      |       |
| HEAT GAIN APPLIANCES/LIGHTS   |           |          | 627  |      | 627   |       |       |      |       |
| TOTAL HT LOSS BTU/H           |           |          | 3010 | 2030 | 2761  | 2914  | 1154  | 950  | 1709  |
| TOTAL HT GAIN x 1.3 BTU/H     |           |          | 3781 | 1892 | 2957  | 3347  | 1789  | 1301 | 375   |

| ROOM USE                      | EXP. WALL | CLG. HT. | LIV  | KT/DM | LAUN | WIR  | FOY  | MUD  | WOD  | BAS   |
|-------------------------------|-----------|----------|------|-------|------|------|------|------|------|-------|
| 38                            | 10        | 9        | 78   | 10    | 8    | 12   | 27   | 17   | 50   | 154   |
| FACTORS                       |           |          |      |       |      |      |      |      |      |       |
| GRS.WALL AREA                 | LOSS      | GAIN     | 380  | 780   | 72   | 132  | 270  | 187  | 450  | 1224  |
| GLAZING                       | LOSS      | GAIN     |      |       |      |      |      |      |      |       |
| NORTH                         | 20.8      | 15.5     | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0     |
| EAST                          | 20.8      | 41.0     | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0     |
| SOUTH                         | 20.8      | 24.4     | 40   | 831   | 976  | 0    | 0    | 0    | 0    | 0     |
| WEST                          | 20.8      | 41.0     | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0     |
| SKYL.T.                       | 36.4      | 106.7    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0     |
| DOORS                         | 24.7      | 3.7      | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0     |
| NET EXPOSED WALL              | 4.4       | 0.6      | 340  | 1481  | 220  | 688  | 2995 | 444  | 0    | 0     |
| NET EXPOSED BMT WALL ABOVE GR | 3.5       | 0.5      | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0     |
| EXPOSED CLG                   | 1.3       | 0.6      | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0     |
| NO ATTIC EXPOSED CLG          | 2.7       | 1.2      | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0     |
| EXPOSED FLOOR                 | 2.5       | 0.4      | 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              |           |          | 2312 | 1195  | 5083 | 3516 |      |      |      |       |
| SUB TOTAL HT GAIN             |           |          |      | 0.30  | 0.44 |      |      |      |      |       |
| LEVEL FACTOR / MULTIPLIER     | 0.30      | 0.44     |      | 0.30  | 0.44 |      |      |      |      |       |
| AIR CHANGE HEAT LOSS          |           |          | 1023 |       | 2240 |      |      |      |      |       |
| AIR CHANGE HEAT GAIN          |           |          |      | 95    |      | 279  |      |      |      |       |
| DUCT LOSS                     |           |          | 0    |       | 0    |      |      |      |      |       |
| DUCT GAIN                     |           |          | 0    |       | 0    |      |      |      |      |       |
| HEAT GAIN PEOPLE              | 240       | 0        | 0    | 0     | 0    |      |      |      |      |       |
| HEAT GAIN APPLIANCES/LIGHTS   |           |          | 627  |       | 627  |      |      |      |      |       |
| TOTAL HT LOSS BTU/H           |           |          | 3336 | 7332  | 1344 | 830  | 3010 | 1761 | 1175 | 14791 |
| TOTAL HT GAIN x 1.3 BTU/H     |           |          | 2483 | 6748  | 1776 | 120  | 754  | 1059 | 572  | 540   |

TOTAL HEAT GAIN BTU/H: 28751

TONS: 2.40

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 48196

TOTAL COMBINED HEAT LOSS BTU/H: 49088

SITE NAME: MINNISSALE HOMES CORP  
BUILDER: GREENPARK HOMES

TYPE: MILLWOOD 2

DATE: Aug-18

GFA: 2654 LO# 79581

HEATING CFM 1131 COOLING CFM 1131  
TOTAL HEAT LOSS 48,106 TOTAL HEAT GAIN 28,515  
AIR FLOW RATE CFM 23.51 AIR FLOW RATE CFM 39.66

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

#GOODMAN  
GMEC960603BNA 60  
FAN SPEED LOW  
MEDLOW  
MEDIUM  
MEDIUM HIGH  
HIGH 1131

AFUE = 96 %  
INPUT (BTU/H) = 60,000  
OUTPUT (BTU/H) = 57,600

DESIGN CFM = 1131  
CFM @ 8" E.S.P.

TEMPERATURE RISE 47 °F

| RUN COUNT | 4th | 3rd | 2nd | 1st | Bas |
|-----------|-----|-----|-----|-----|-----|
| S/A       | 0   | 0   | 11  | 7   | 4   |
| R/A       | 0   | 0   | 4   | 2   | 1   |

All S/A diffusers 4"x10" unless noted otherwise on layout.  
All S/A runs 5"Ø unless noted otherwise on layout.

plenium 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

| RUN #                     | 1    | 2    | 4     | 5     | 6     | 7    | 8     | 9     | 10   | 11    | 12   | 14    | 15    | 16    | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
|---------------------------|------|------|-------|-------|-------|------|-------|-------|------|-------|------|-------|-------|-------|------|------|------|------|------|------|------|------|
| ROOM NAME                 | MBR  | ENS  | BED-2 | BED-3 | BED-4 | BATH | BED-2 | BED-3 | MBR  | ENS-2 | LIV  | KT/FM | KT/FM | KT/FM | LAUN | WIR  | FOY  | MUD  | BAS  | BAS  | BAS  | BAS  |
| RM LOSS MBH               | 1.51 | 2.03 | 1.38  | 1.46  | 1.15  | 0.95 | 1.38  | 1.46  | 1.51 | 1.71  | 3.34 | 2.44  | 2.44  | 2.44  | 1.34 | 0.83 | 3.01 | 1.76 | 3.99 | 3.99 | 3.99 | 3.99 |
| CFM PER RUN HEAT          | 35   | 48   | 32    | 34    | 27    | 22   | 32    | 34    | 35   | 40    | 78   | 57    | 57    | 57    | 32   | 20   | 71   | 41   | 94   | 94   | 94   | 94   |
| RM GAIN MBH               | 1.89 | 1.89 | 1.48  | 1.67  | 1.79  | 1.30 | 1.48  | 1.67  | 1.89 | 0.37  | 2.49 | 1.92  | 1.92  | 1.92  | 1.78 | 0.12 | 0.75 | 1.07 | 0.28 | 0.28 | 0.28 | 0.28 |
| CFM PER RUN COOLING       | 75   | 75   | 59    | 66    | 71    | 52   | 59    | 66    | 75   | 15    | 99   | 76    | 76    | 76    | 70   | 5    | 30   | 42   | 11   | 11   | 11   | 11   |
| 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 | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 |
| ACTUAL DUCT LGH           | 55   | 54   | 46    | 33    | 15    | 37   | 47    | 47    | 45   | 38    | 15   | 48    | 44    | 49    | 39   | 39   | 29   | 32   | 39   | 39   | 20   | 10   |
| EQUIVALENT LENGTH         | 190  | 160  | 140   | 140   | 160   | 110  | 140   | 160   | 150  | 140   | 120  | 130   | 110   | 140   | 130  | 140  | 90   | 160  | 150  | 160  | 110  | 150  |
| TOTAL EFFECTIVE LENGTH    | 245  | 214  | 186   | 173   | 175   | 147  | 187   | 207   | 195  | 178   | 135  | 178   | 154   | 189   | 169  | 179  | 119  | 192  | 189  | 199  | 130  | 160  |
| ADJUSTED PRESSURE         | 0.07 | 0.08 | 0.09  | 0.1   | 0.1   | 0.12 | 0.09  | 0.08  | 0.09 | 0.1   | 0.12 | 0.1   | 0.11  | 0.09  | 0.1  | 0.1  | 0.14 | 0.09 | 0.09 | 0.08 | 0.12 | 0.1  |
| ROUND DUCT SIZE           | 6    | 6    | 5     | 5     | 5     | 4    | 5     | 5     | 5    | 4     | 6    | 5     | 5     | 5     | 5    | 4    | 5    | 4    | 6    | 6    | 6    | 6    |
| HEATING VELOCITY (ft/min) | 178  | 245  | 235   | 250   | 198   | 252  | 235   | 250   | 257  | 459   | 398  | 419   | 419   | 419   | 235  | 229  | 521  | 470  | 479  | 479  | 479  | 479  |
| COOLING VELOCITY (ft/min) | 382  | 382  | 433   | 485   | 521   | 597  | 433   | 485   | 551  | 172   | 505  | 558   | 558   | 558   | 514  | 57   | 220  | 482  | 56   | 56   | 56   | 56   |
| OUTLET GRILL SIZE         | 4X10 | 4X10 | 3X10  | 3X10  | 3X10  | 3X10 | 3X10  | 3X10  | 3X10 | 3X10  | 4X10 | 3X10  | 3X10  | 3X10  | 3X10 | 3X10 | 3X10 | 3X10 | 4X10 | 4X10 | 4X10 | 4X10 |
| TRUNK                     | A    | B    | D     | C     | B     | D    | D     | C     | A    | D     | C    | A     | A     | A     | D    | B    | C    | B    | A    | A    | C    | B    |

| 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 |
|-------|-----------|-------------|------------------|-------------|---------------------|-------------------|-----------------|-------------------|------------------------|-------------------|-----------------|---------------------------|---------------------------|-------------------|-------|
| 1     | MBR       | 1.51        | 35               | 1.89        | 75                  | 0.17              | 55              | 190               | 245                    | 0.07              | 6               | 178                       | 382                       | 4X10              | A     |
| 2     | ENS       | 2.03        | 48               | 1.89        | 75                  | 0.17              | 54              | 160               | 214                    | 0.08              | 6               | 245                       | 382                       | 4X10              | B     |
| 4     | BED-2     | 1.38        | 32               | 1.48        | 59                  | 0.17              | 46              | 140               | 186                    | 0.09              | 5               | 235                       | 433                       | 3X10              | D     |
| 5     | BED-3     | 1.46        | 34               | 1.67        | 66                  | 0.17              | 33              | 140               | 173                    | 0.1               | 5               | 250                       | 485                       | 3X10              | C     |
| 6     | BED-4     | 1.15        | 27               | 1.79        | 71                  | 0.17              | 15              | 160               | 175                    | 0.1               | 5               | 198                       | 521                       | 3X10              | B     |
| 7     | BATH      | 0.95        | 22               | 1.30        | 52                  | 0.17              | 37              | 110               | 147                    | 0.12              | 4               | 252                       | 597                       | 3X10              | D     |
| 8     | BED-2     | 1.38        | 32               | 1.48        | 59                  | 0.17              | 47              | 140               | 187                    | 0.09              | 5               | 235                       | 433                       | 3X10              | D     |
| 9     | BED-3     | 1.46        | 34               | 1.67        | 66                  | 0.17              | 47              | 160               | 207                    | 0.08              | 5               | 250                       | 485                       | 3X10              | C     |
| 10    | MBR       | 1.51        | 35               | 1.89        | 75                  | 0.17              | 45              | 150               | 195                    | 0.09              | 5               | 257                       | 551                       | 3X10              | A     |
| 11    | ENS-2     | 1.71        | 40               | 0.37        | 15                  | 0.17              | 38              | 140               | 178                    | 0.1               | 4               | 459                       | 172                       | 3X10              | D     |
| 12    | LIV       | 3.34        | 78               | 2.49        | 99                  | 0.16              | 15              | 120               | 135                    | 0.12              | 6               | 398                       | 505                       | 4X10              | C     |
| 14    | KT/FM     | 2.44        | 57               | 1.92        | 76                  | 0.17              | 48              | 130               | 178                    | 0.1               | 5               | 419                       | 558                       | 3X10              | A     |
| 15    | KT/FM     | 2.44        | 57               | 1.92        | 76                  | 0.17              | 44              | 110               | 154                    | 0.11              | 5               | 419                       | 558                       | 3X10              | A     |
| 16    | KT/FM     | 2.44        | 57               | 1.92        | 76                  | 0.17              | 49              | 140               | 189                    | 0.09              | 5               | 419                       | 558                       | 3X10              | A     |
| 17    | LAUN      | 1.34        | 32               | 1.78        | 70                  | 0.17              | 39              | 130               | 169                    | 0.1               | 5               | 235                       | 514                       | 3X10              | D     |
| 18    | WIR       | 0.83        | 20               | 0.12        | 5                   | 0.17              | 39              | 140               | 179                    | 0.1               | 4               | 229                       | 57                        | 3X10              | B     |
| 19    | FOY       | 3.01        | 71               | 0.75        | 30                  | 0.17              | 29              | 90                | 119                    | 0.14              | 5               | 521                       | 220                       | 3X10              | C     |
| 20    | MUD       | 1.76        | 41               | 1.07        | 42                  | 0.17              | 32              | 160               | 192                    | 0.09              | 4               | 470                       | 482                       | 3X10              | B     |
| 21    | BAS       | 3.99        | 94               | 0.28        | 11                  | 0.16              | 39              | 150               | 189                    | 0.09              | 6               | 479                       | 56                        | 4X10              | A     |
| 22    | BAS       | 3.99        | 94               | 0.28        | 11                  | 0.16              | 39              | 160               | 199                    | 0.08              | 6               | 479                       | 56                        | 4X10              | A     |
| 23    | BAS       | 3.99        | 94               | 0.28        | 11                  | 0.16              | 20              | 110               | 130                    | 0.12              | 6               | 479                       | 56                        | 4X10              | C     |
| 24    | BAS       | 3.99        | 94               | 0.28        | 11                  | 0.16              | 10              | 150               | 160                    | 0.1               | 6               | 479                       | 56                        | 4X10              | B     |

CITY OF BRAMPTON  
BUILDING DIVISION  
REVIEWED  
NOV 28 2018  
HVAC BY  
MONICA CRISAN

| SUPPLY AIR TRUNK SIZE |       |        |       |      |   |   |          |  |         |        |       |      |   |   | RETURN AIR TRUNK SIZE |      |         |        |       |      |    |     |          |      |      |      |    |   |   |     |
|-----------------------|-------|--------|-------|------|---|---|----------|--|---------|--------|-------|------|---|---|-----------------------|------|---------|--------|-------|------|----|-----|----------|------|------|------|----|---|---|-----|
|                       | TRUNK | STATIC | ROUND | RECT |   |   | VELOCITY |  | TRUNK   | STATIC | ROUND | RECT |   |   | VELOCITY              |      | TRUNK   | STATIC | ROUND | RECT |    |     | VELOCITY |      |      |      |    |   |   |     |
|                       | CFM   | PRESS. | DUCT  | DUCT |   |   | (ft/min) |  | CFM     | PRESS. | DUCT  | DUCT |   |   | (ft/min)              |      | CFM     | PRESS. | DUCT  | DUCT |    |     | (ft/min) |      |      |      |    |   |   |     |
| TRUNK A               | 429   | 0.07   | 10.6  | 14   | x | 8 | 552      |  | TRUNK G | 0      | 0.00  | 0    | 0 | x | 8                     | 0    | TRUNK O | 0      | 0.07  | 0    | 0  | x   | 8        | 0    |      |      |    |   |   |     |
| TRUNK B               | 659   | 0.07   | 12.4  | 18   | x | 8 | 659      |  | TRUNK H | 0      | 0.00  | 0    | 0 | x | 8                     | 0    | TRUNK P | 0      | 0.07  | 0    | 0  | x   | 8        | 0    |      |      |    |   |   |     |
| TRUNK C               | 311   | 0.08   | 9.1   | 10   | x | 8 | 560      |  | TRUNK I | 0      | 0.00  | 0    | 0 | x | 8                     | 0    | TRUNK Q | 0      | 0.07  | 0    | 0  | x   | 8        | 0    |      |      |    |   |   |     |
| TRUNK D               | 469   | 0.08   | 10.6  | 14   | x | 8 | 603      |  | TRUNK J | 0      | 0.00  | 0    | 0 | x | 8                     | 0    | TRUNK R | 0      | 0.07  | 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 S | 0      | 0.07  | 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    | TRUNK T | 0      | 0.07  | 0    | 0  | x   | 8        | 0    |      |      |    |   |   |     |
|                       |       |        |       |      |   |   |          |  |         |        |       |      |   |   | TRUNK U               | 0    | 0.07    | 0      | 0     | x    | 8  | 0   | TRUNK V  | 0    | 0.07 | 0    | 0  | x | 8 | 0   |
|                       |       |        |       |      |   |   |          |  |         |        |       |      |   |   | TRUNK W               | 0    | 0.07    | 0      | 0     | x    | 8  | 0   | TRUNK X  | 1131 | 0.07 | 15.2 | 30 | x | 8 | 679 |
|                       |       |        |       |      |   |   |          |  |         |        |       |      |   |   | TRUNK Y               | 290  | 0.07    | 9.1    | 10    | x    | 8  | 522 | TRUNK Z  | 0    | 0.07 | 0    | 0  | x | 8 | 0   |
|                       |       |        |       |      |   |   |          |  |         |        |       |      |   |   | DROP                  | 1131 | 0.07    | 15.2   | 24    | x    | 10 | 679 |          |      |      |      |    |   |   |     |

|                    |      |      |      |      |      |      |       |       |       |       |       |       |       |       |      |  |    |
|--------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|--|----|
| RETURN AIR #       | 1    | 2    | 3    | 4    | 5    | 6    |       |       |       |       |       |       |       |       |      |  | BR |
| AIR VOLUME         | 155  | 155  | 95   | 95   | 135  | 310  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 186  |  |    |
| PLENUM PRESSURE    | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15 |  |    |
| ACTUAL DUCT LCH    | 58   | 43   | 42   | 48   | 38   | 15   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 17   |  |    |
| EQUIVALENT LENGTH  | 150  | 135  | 175  | 175  | 145  | 135  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 145  |  |    |
| TOTAL EFFECTIVE LH | 208  | 178  | 217  | 223  | 183  | 150  | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 162  |  |    |
| ADJUSTED PRESSURE  | 0.07 | 0.08 | 0.07 | 0.07 | 0.08 | 0.10 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 0.09 |  |    |
| ROUND DUCT SIZE    | 7.2  | 7    | 6    | 6    | 6.6  | 8.6  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 7.3  |  |    |
| INLET GRILL SIZE   | 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    |  |    |
| INLET GRILL SIZE   | 14   | 14   | 14   | 14   | 14   | 30   | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 14   |  |    |

| CSA F280-12 Residential Heat Loss and Heat Gain Calculations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                   |                                                     |                                                                                                                                      |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------|-------------------|-----------------------------------------------------|----------------------------------------------------|-----------------------------------------------------------|-------|-------|--------|-------|-------|--------|------|--------|-------|-------|-----|--------|-------|--------|---|---|-------|--------|---|---|--------------|--------|--|--|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------|-------|--------------------------------|-------|-------------------------------|--|--|--|--|--|--------|---------|-------|-------|-------------|----|-----|----|----|-------------|----|----|---|----|
| Formula Sheet (For Air Leakage / Ventilation Calculation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                   |                                                     |                                                                                                                                      |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| LO#: 79581                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Model: MILLWOOD 2 | Builder: GREENPARK HOMES                            | Date: 8/8/2018                                                                                                                       |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Volume Calculation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                   |                                                     | Air Change & Delta T Data                                                                                                            |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <b>House Volume</b><br><table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>1148</td> <td>9</td> <td>10332</td> </tr> <tr> <td>First</td> <td>1148</td> <td>10</td> <td>11480</td> </tr> <tr> <td>Second</td> <td>1506</td> <td>9</td> <td>13554</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>35,366.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1001.5 m³</td> </tr> </tbody> </table>                                                                                                                                                                                                                                           |                   |                                                     | Level                                                                                                                                | Floor Area (ft²)                                          | Floor Height (ft) | Volume (ft³)      | Bsmt                                                | 1148                                               | 9                                                         | 10332 | First | 1148   | 10    | 11480 | Second | 1506 | 9      | 13554 | Third | 0   | 9      | 0     | Fourth | 0 | 9 | 0     | Total: |   |   | 35,366.0 ft³ | Total: |  |  | 1001.5 m³ | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 30%;">0.354</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.115</td> </tr> </table><br><table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td>22</td> <td>-19</td> <td>41</td> <td>74</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>30</td> <td>6</td> <td>11</td> </tr> </table> |  | WINTER NATURAL AIR CHANGE RATE | 0.354 | SUMMER NATURAL AIR CHANGE RATE | 0.115 | Design Temperature Difference |  |  |  |  |  | Tin °C | Tout °C | ΔT °C | ΔT °F | Winter DTDh | 22 | -19 | 41 | 74 | Summer DTDc | 24 | 30 | 6 | 11 |
| Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Floor Area (ft²)  | Floor Height (ft)                                   | Volume (ft³)                                                                                                                         |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Bsmt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1148              | 9                                                   | 10332                                                                                                                                |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| First                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1148              | 10                                                  | 11480                                                                                                                                |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1506              | 9                                                   | 13554                                                                                                                                |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Third                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0                 | 9                                                   | 0                                                                                                                                    |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Fourth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0                 | 9                                                   | 0                                                                                                                                    |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Total:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                                                     | 35,366.0 ft³                                                                                                                         |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Total:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                                                     | 1001.5 m³                                                                                                                            |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| WINTER NATURAL AIR CHANGE RATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.354             |                                                     |                                                                                                                                      |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| SUMMER NATURAL AIR CHANGE RATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.115             |                                                     |                                                                                                                                      |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Design Temperature Difference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   |                                                     |                                                                                                                                      |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Tin °C            | Tout °C                                             | ΔT °C                                                                                                                                | ΔT °F                                                     |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Winter DTDh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 22                | -19                                                 | 41                                                                                                                                   | 74                                                        |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Summer DTDc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 24                | 30                                                  | 6                                                                                                                                    | 11                                                        |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 5.2.3.1 Heat Loss due to Air Leakage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                   |                                                     | 6.2.6 Sensible Gain due to Air Leakage                                                                                               |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| $HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.354 x 278.18 x 41 °C x 1.2 = 4875 W</p> <p>= 16633 Btu/h</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |                                                     | $HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>0.115 x 278.18 x 6 °C x 1.2 = 235 W</p> <p>= 802 Btu/h</p> |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 5.2.3.2 Heat Loss due to Mechanical Ventilation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                   |                                                     | 6.2.7 Sensible heat Gain due to Ventilation                                                                                          |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| $HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>80 CFM x 74 °F x 1.08 x 0.25 = 1593 Btu/h</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                   |                                                     | $HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>80 CFM x 11 °F x 1.08 x 0.25 = 236 Btu/h</p>                            |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                   |                                                     |                                                                                                                                      |                                                           |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| $HL_{airr} = Level\ Factor \times HL_{airbv} \times ((HL_{agcr} + HL_{bgcr}) + (HL_{agclel} + HL_{bgclel}))$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL<sub>level</sub>)</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center;">16,633</td> <td>7,649</td> <td>1.087</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>11,278</td> <td>0.442</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>12,017</td> <td>0.277</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </tbody> </table> <p>*HLairbv = Air leakage heat loss + ventilation heat loss<br/> *For a balanced or supply only ventilation system HLairv = 0</p> |                   |                                                     |                                                                                                                                      |                                                           | Level             | Level Factor (LF) | HLairbv Air Leakage + Ventilation Heat Loss (Btu/h) | Level Conductive Heat Loss: (HL <sub>level</sub> ) | Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel) | 1     | 0.5   | 16,633 | 7,649 | 1.087 | 2      | 0.3  | 11,278 | 0.442 | 3     | 0.2 | 12,017 | 0.277 | 4      | 0 | 0 | 0.000 | 5      | 0 | 0 | 0.000        |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Level Factor (LF) | HLairbv Air Leakage + Ventilation Heat Loss (Btu/h) | Level Conductive Heat Loss: (HL <sub>level</sub> )                                                                                   | Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel) |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.5               | 16,633                                              | 7,649                                                                                                                                | 1.087                                                     |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.3               |                                                     | 11,278                                                                                                                               | 0.442                                                     |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.2               |                                                     | 12,017                                                                                                                               | 0.277                                                     |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0                 |                                                     | 0                                                                                                                                    | 0.000                                                     |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0                 |                                                     | 0                                                                                                                                    | 0.000                                                     |                   |                   |                                                     |                                                    |                                                           |       |       |        |       |       |        |      |        |       |       |     |        |       |        |   |   |       |        |   |   |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |

CITY OF BRAMPTON  
BUILDING DIVISION  
REVIEWED

NOV 28 2010

HVAC BY  
MONICA CRISAN

**HEAT LOSS AND GAIN SUMMARY SHEET****MODEL:** MILLWOOD 2**BUILDER:** GREENPARK HOMES**SFQT:** 2654**LO#** 79581**SITE:** MINNISSALE HOMES 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) | 75 |

**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 (ft³):                 | 35366.0         | ASSUMED (Y/N):            | Y        |
| INTERNAL SHADING:                   | BLINDS/CURTAINS | ASSUMED OCCUPANTS:        | 5        |
| INTERIOR LIGHTING LOAD (Btu/h/ft²): | 1.65            | DC BRUSHLESS MOTOR (Y/N): | Y        |
| FOUNDATION CONFIGURATION            | BCIN_1          | DEPTH BELOW GRADE:        | 6.0 ft   |
| LENGTH: 46.0 ft                     | WIDTH: 31.0 ft  | EXPOSED PERIMETER:        | 154.0 ft |

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

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

**Compliance Package****A1**

| Nominal | Min. Eff. |
|---------|-----------|
| 60      | 59.22     |
| 31      | 27.65     |
| 31      | 29.80     |
| 22      | 17.03     |
| 20 ci   | 21.12     |
| -       | -         |
| 10      | 10        |
| 10      | 11.13     |
| 0.28    | -         |
| 0.49    | -         |
| 0.96    | -         |
| 75%     | -         |
| 0.8     | -         |

INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

*Michael O'Rourke*

TYPE: MILLWOOD 2  
SITE NAME: MINNISSALE HOMES CORP

LO # 79581

### 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               | 6 | @ 10.6 cfm | 63.6         | cfm              |
| Table 9.32.3.A.           |   |            | <b>TOTAL</b> | <b>190.8</b> 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        |
| <b>TOTAL</b> | <b>79.5</b> | <b>cfm</b> |

**SUPPLEMENTAL VENTILATION CAPACITY** 9.32.3.5

|                                 |       |     |
|---------------------------------|-------|-----|
| Total Ventilation Capacity      | 190.8 | cfm |
| Less Principal Ventil. Capacity | 79.5  | cfm |
| Required Supplemental Capacity  | 111.3 | cfm |

**PRINCIPAL EXHAUST FAN CAPACITY**

Model: VANEE 65H Location: BSMT

79.5 cfm 3.0 sones ☒ HVI Approved

**PRINCIPAL EXHAUST HEAT LOSS CALCULATION**

| CFM      | ΔT °F | FACTOR | % LOSS |
|----------|-------|--------|--------|
| 79.5 CFM | 74 F  | 1.08   | 0.25   |

**SUPPLEMENTAL FANS** PANASONIC

| Location | Model       | cfm | HVI | Sones |
|----------|-------------|-----|-----|-------|
| ENS      | FV-05-11VK1 | 50  | ✓   | 0.3   |
| BATH     | FV-05-11VK1 | 50  | ✓   | 0.3   |
| ENS-2    | FV-05-11VK1 | 50  | ✓   | 0.3   |
| WIR      | FV-05-11VK1 | 50  | ✓   | 0.3   |

**HEAT RECOVERY VENTILATOR** 9.32.3.11

Model: VANEE 65H

155 cfm high 64 cfm low

75 % Sensible Efficiency @ 32 deg F (0 deg C) ☒ HVI Approved

**LOCATION OF INSTALLATION**

Lot: Concession

Township: Plan:

Address:

Roll # Building Permit #

**BUILDER:** GREENPARK HOMES

Name:

Address:

City:

Telephone #: Fax #:

**INSTALLING CONTRACTOR**

Name:

Address:

City:

Telephone #: Fax #:

**DESIGNER CERTIFICATION**

I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.

Name: HVAC Designs Ltd.

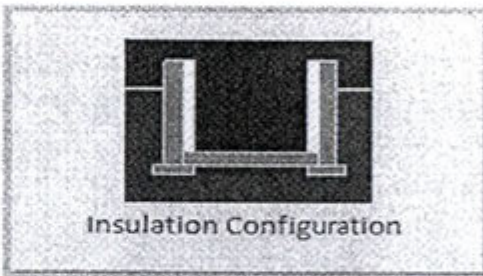
Signature: *Michael O'Rourke*

HRAI # 001820

Date: August-18

## 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):              | 14.0                                      | <br>Insulation Configuration |
| Floor Width (m):               | 9.4                                       |                                                                                                                 |
| Exposed Perimeter (m):         | 0.0                                       |                                                                                                                 |
| Wall Height (m):               | 2.7                                       |                                                                                                                 |
| Depth Below Grade (m):         | 1.83                                      |                                                                                                                 |
| Window Area (m <sup>2</sup> ): | 1.4                                       |                                                                                                                 |
| Door Area (m <sup>2</sup> ):   | 1.9                                       |                                                                                                                 |
| Radiant Slab                   |                                           |                                                                                                                 |
| Heated Fraction of the Slab:   | 0                                         |                                                                                                                 |
| Fluid Temperature (°C):        | 33                                        |                                                                                                                 |
| Design Months                  |                                           |                                                                                                                 |
| Heating Month                  | 1                                         |                                                                                                                 |
| Foundation Loads               |                                           |                                                                                                                 |
| Heating Load (Watts):          |                                           | 1537                                                                                                            |

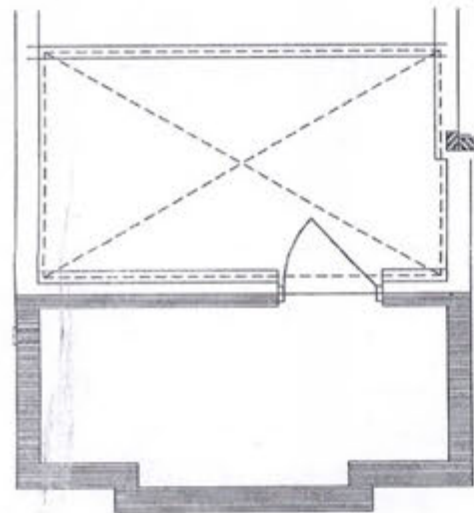
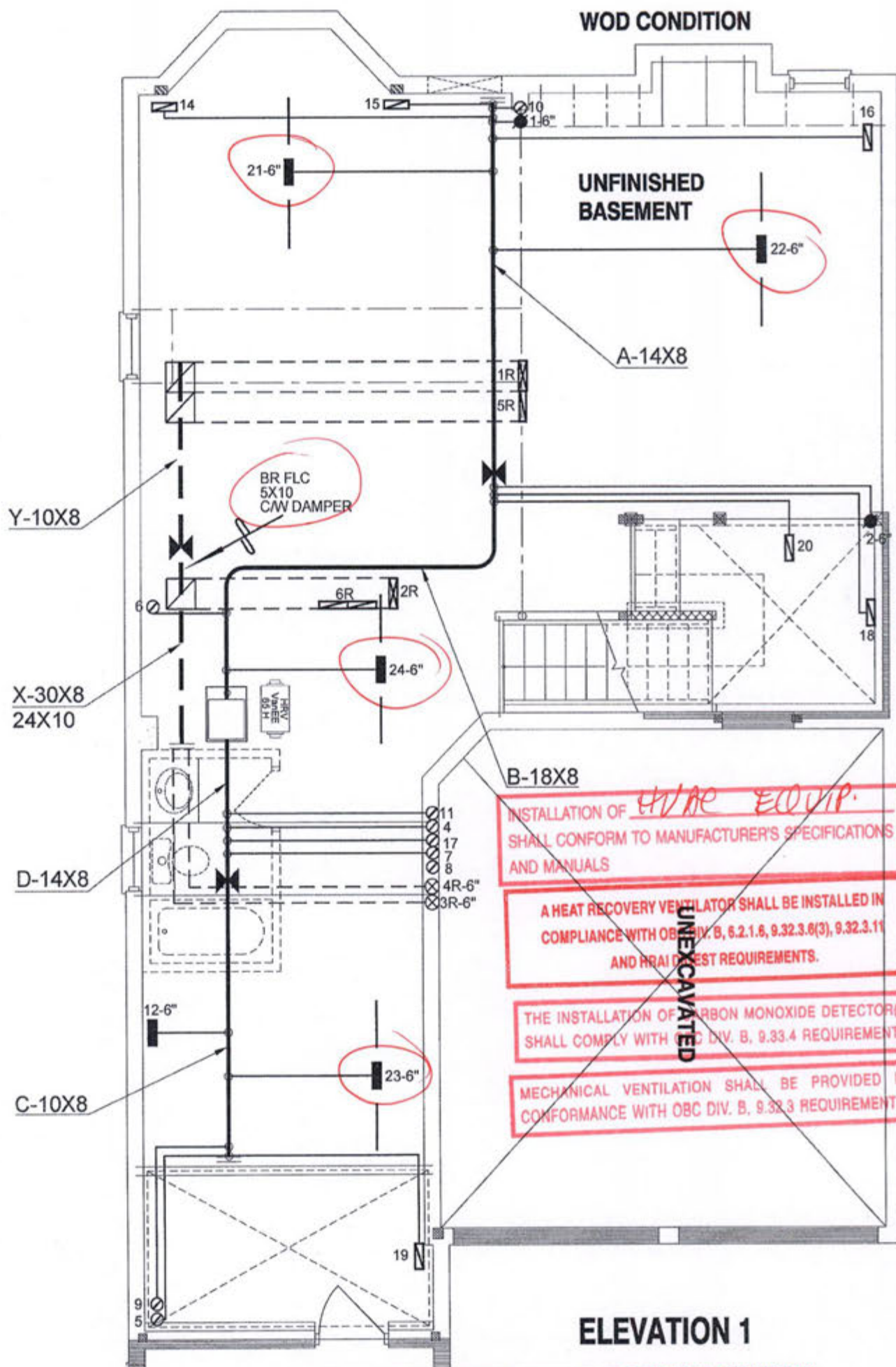
TYPE: MILLWOOD 2  
LO# 79581

## Air Infiltration Residential Load Calculator

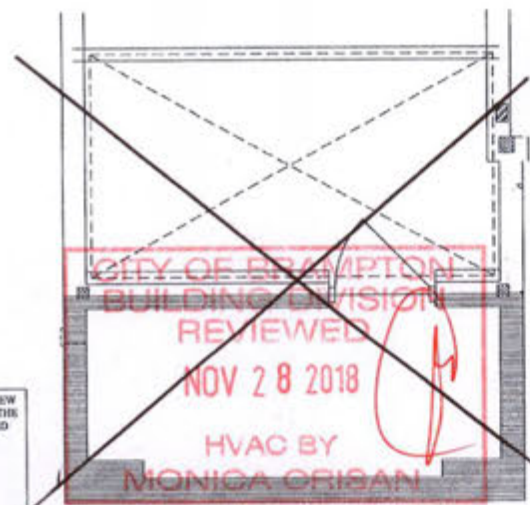
Supplemental tool for CAN/CSA-F280

| 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):       | 7.62                       |                                       |    |
| Building Configuration            |                            |                                       |    |
| Type:                             | Detached                   |                                       |    |
| Number of Stories:                | Two                        |                                       |    |
| Foundation:                       | Full                       |                                       |    |
| House Volume (m <sup>3</sup> ):   | 1001.5                     |                                       |    |
| Air Leakage/Ventilation           |                            |                                       |    |
| Air Tightness Type:               | Present (1961-) (3.57 ACH) |                                       |    |
| Custom BDT Data:                  | ELA @ 10 Pa.<br>3.57       | 1335.0 cm <sup>2</sup><br>ACH @ 50 Pa |    |
| Mechanical Ventilation (L/s):     | Total Supply<br>37.5       | Total Exhaust<br>37.5                 |    |
| Flue Size                         |                            |                                       |    |
| Flue #:                           | #1                         | #2                                    | #3 |
| Diameter (mm):                    | 0                          | 0                                     | 0  |
|                                   | #4                         | 0                                     |    |
| Natural Infiltration Rates        |                            |                                       |    |
| Heating Air Leakage Rate (ACH/H): | 0.354                      |                                       |    |
| Cooling Air Leakage Rate (ACH/H): | 0.115                      |                                       |    |

TYPE: MILLWOOD 2  
LO# 79581



ELEVATION 2



ELEVATION

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).

**UNEXCAVATED**

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, 6.2.1.5, 9.32.3.8(3), 9.32.3.11 AND HRAI TEST REQUIREMENTS.

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.

ELEVATION 1

HVAC LEGEND

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

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

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Client  
**GREENPARK HOMES**

Project Name  
**MINNISALE HOMES CORP.  
BRAMPTON, ONTARIO**

**LOT 7**

**MILLWOOD 2**      **2654 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.hvacdsgns.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 49698 BTU/H          |  | # OF RUNS                                                                                                                                     |  | S/A | R/A | FANS |
| UNIT DATA                      |  | 3RD FLOOR                                                                                                                                     |  |     |     |      |
| MAKE GOODMAN                   |  | 2ND FLOOR                                                                                                                                     |  | 11  | 4   | 3    |
| MODEL GMEC960603BNA-60         |  | 1ST FLOOR                                                                                                                                     |  | 7   | 2   | 2    |
| INPUT 60 MBTU/H                |  | BASEMENT                                                                                                                                      |  | 4   | 1   | 0    |
| OUTPUT 57.6 MBTU/H             |  | 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 |  |     |     |      |
| COOLING 2.5 TONS               |  |                                                                                                                                               |  |     |     |      |
| FAN SPEED 1131 cfm @ 0.6" w.c. |  |                                                                                                                                               |  |     |     |      |

Sheet Title  
**BASEMENT HEATING LAYOUT**

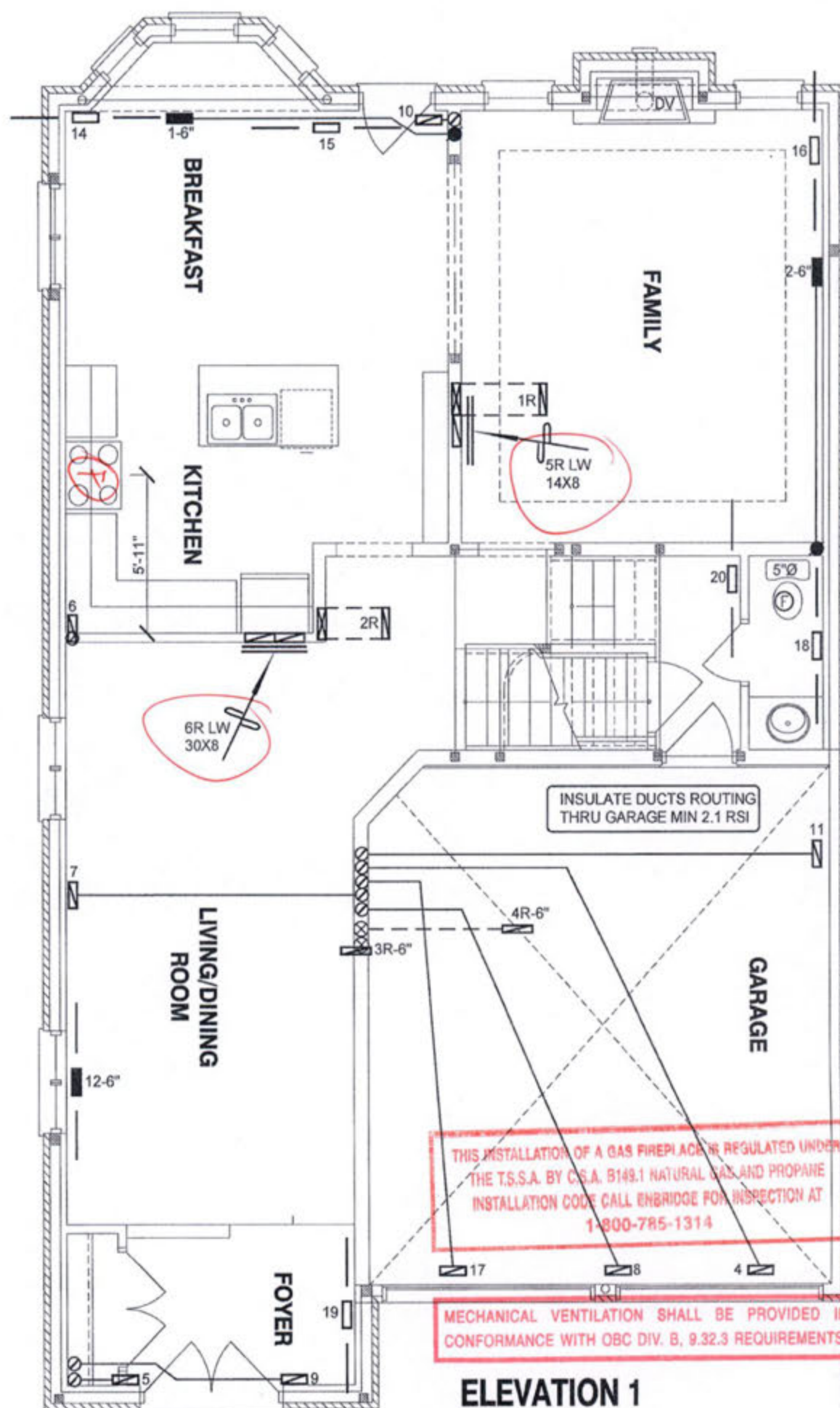
Date  
**AUG/2018**

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

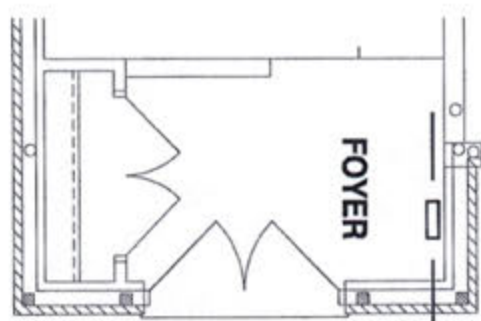
BCIN# 19669

LO# **79581**

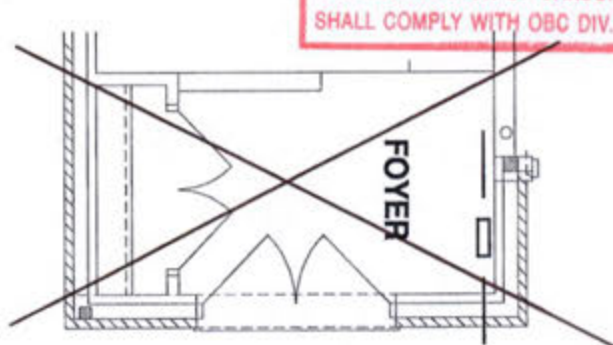
18-333294 000 00 R2



### ELEVATION 1



## ELEVATION 2



### ELEVATION 3

I/MICHAEL O'BRIEN HAVE REVIEW  
AND TAKE RESPONSIBILITY FOR THE  
DESIGN WORK AND AM QUALIFIED  
UNDER DIVISION C, 3.2.5 OF THE  
BLUE PRINT CODE.

Michael O'Brien, BCIN# 19609  
HVAC INSURANCE LTD.

|             |
|-------------|
| CSA-F280-12 |
| PACKAGE A1  |

| HVAC LEGEND                                                                        |                                 |                                                                                    |                                 |                                                                                    |                              |                                                                                    |                            | 3.        |             |      |
|------------------------------------------------------------------------------------|---------------------------------|------------------------------------------------------------------------------------|---------------------------------|------------------------------------------------------------------------------------|------------------------------|------------------------------------------------------------------------------------|----------------------------|-----------|-------------|------|
| SYMBOL                                                                             | DESCRIPTION                     | SYMBOL                                                                             | DESCRIPTION                     | SYMBOL                                                                             | DESCRIPTION                  | SYMBOL                                                                             | DESCRIPTION                | 2.        |             |      |
|  | FLOOR SUPPLY AIR GRILLE         |  | 8" SUPPLY AIR BOOT ABOVE        |  | 14"x6" RETURN AIR GRILLE     |  | RETURN AIR STACK ABOVE     | 1.        |             |      |
|  | FLOOR SUPPLY AIR GRILLE 6" BOOT |  | SUPPLY AIR STACK FROM 2nd FLOOR |  | 30"x6" RETURN AIR GRILLE     |  | RETURN AIR STACK 2nd FLOOR | No.       | Description | Date |
|  | SUPPLY AIR BOOT ABOVE           |  | 6" SUPPLY AIR STACK 2nd FLOOR   |  | FRA- FLOOR RETURN AIR GRILLE |  | REDUCER                    | REVISIONS |             |      |

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Client  
GREENPARK HOMES

Project Name  
MINNISALE HOMES CORP.  
BRAMPTON, ONTARIO

LOT 7

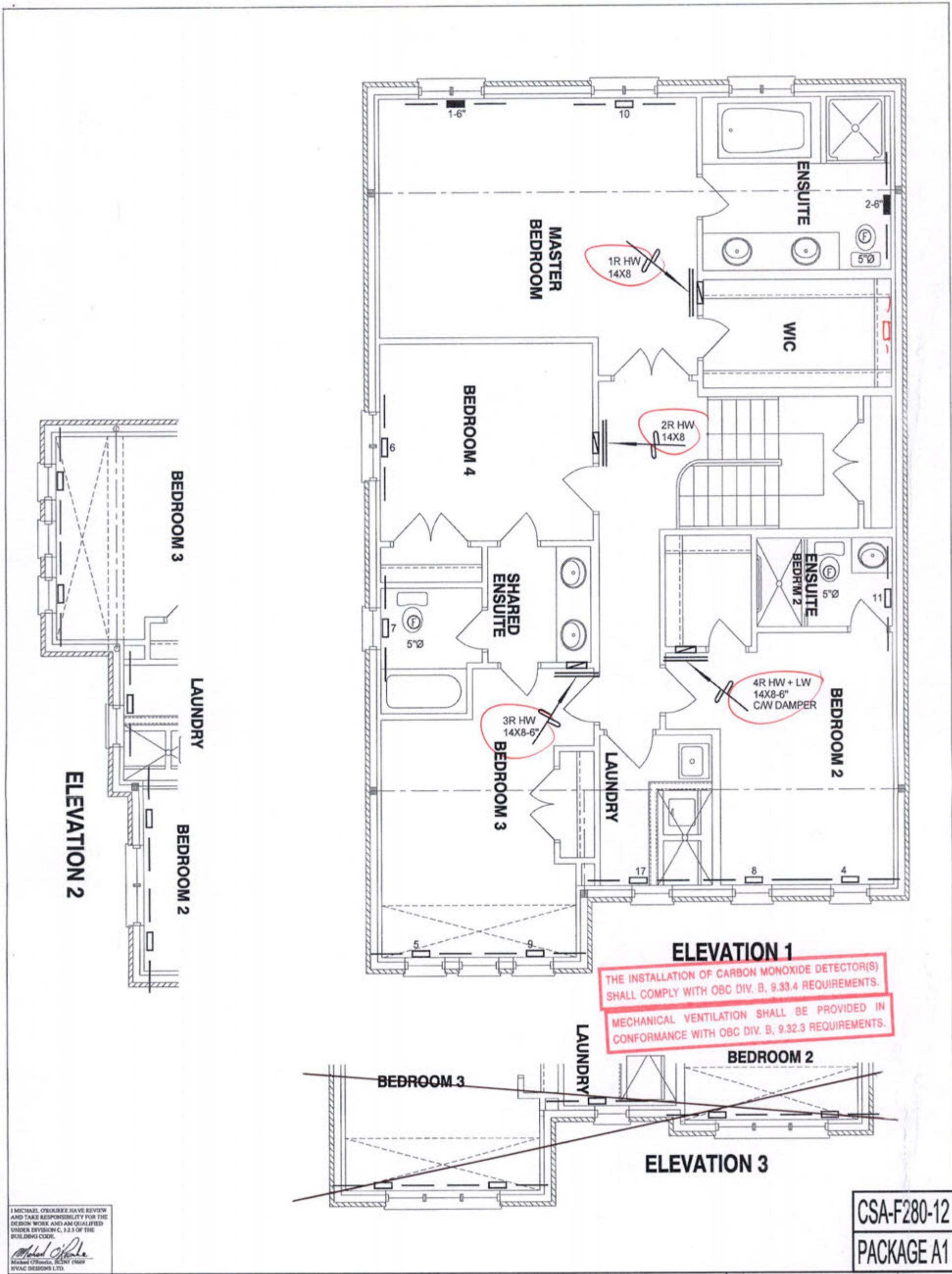
MILLWOOD 2 2654 sqft

**HVAC DESIGNS LTD.**  
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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.

CITY OF BRAMPTON  
BUILDING DIVISION  
REVIEWED  
NOV 28 2018  
HVAC BY  
MONICA CRISAN

|                                  |               |
|----------------------------------|---------------|
| Sheet Title                      |               |
| FIRST FLOOR<br>HEATING<br>LAYOUT |               |
| Date                             | AUG/2018      |
| Scale                            | 3/16" = 1'-0" |
| BCIN# 19669                      |               |
| LO#                              | 79581         |



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

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Client

GREENPARK HOMES

Project Name

MINNISALE HOMES CORP.  
BRAMPTON, ONTARIO

LOT 7

MILLWOOD 2      2654 sqft

**HVACDESIGNS LTD.**

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L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375  
Email: info@hvacdsgns.ca  
Web: www.hvacdsgns.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.

CITY OF BRAMPTON  
BUILDING DIVISION  
REVIEWED  
NOV 28 2018  
HVAC BY  
MONICA CRISAN

Sheet Title

SECOND FLOOR  
HEATING  
LAYOUT

Date

AUG/2018

Scale

3/16" = 1'-0"

BCIN# 19669

LO# 79581