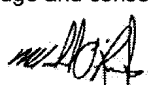


Schedule 1: Designer Information

Type in the text you want to insert

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

| | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------|-------------------------------|
| A. Project Information | | | |
| Building number, street name MODEL CERTIFICATION | | Unit no. N/A | Lot/con. N/A |
| Municipality KING CITY | Postal code N/A | Plan number/ other description N/A | |
| B. Individual who reviews and takes responsibility for design activities | | | |
| Name MICHAEL O'ROURKE | | Firm HVAC DESIGNS LTD. | |
| Street address 65 CHURCH STREET SOUTH | | Unit no. | Lot/con. |
| Municipality AJAX | Postal code L1S 6A7 | Province ONTARIO | E-mail info@hvacdesigns.ca |
| Telephone number (905) 619-2300 | Fax number (905) 619-2375 | Cell number () | |
| C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C] | | | |
| <input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings <input type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection <input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> On-site Sewage Systems | | | |
| Description of designer's work Heat Loss/Gain Calculations Duct Sizing Residential Mechanical Ventilation Design Summary Residential System Design per Can/CSA-F280-M90 | | Model: OPT 5 BED - 50-7 Project: CASTLES OF KING CITY | |
| D. Declaration of Designer | | | |
| I, <u>MICHAEL O'ROURKE</u> declare that (choose one as appropriate): (print name) | | | |
| <input type="checkbox"/> review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____ | | | |
| <input checked="" type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code. Individual BCIN: <u>19669</u> Basis for exemption from registration: <u>O.B.C. SENTENCE 3.2.4.1. (4)</u> | | | |
| <input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: _____ | | | |
| I certify that: | | | |
| 1. The information contained in this schedule is true to the best of my knowledge. | | | |
| 2. I have submitted this application with the knowledge and consent of the firm. | | | |
| JANUARY 30, 2014 | |  | |
| Date | | Signature of Designer | |

NOTE:

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

| ROOM USE | MBR | ENS | WIC | BED-2 | BED-3 | BED-4 | BATH | WIC-2 | BED-5 | ENS-2 | HALL | R2 |
|----------------------------------|-------|--------|-----|-------|-------|-------|------|-------|-------|-------|------|----|
| EXP. WALL | 36 | 32 | 6 | 10 | 29 | 13 | 25 | 21 | 14 | 6 | 37 | 0 |
| RM AREA | 301 | 213 | 102 | 190 | 210 | 224 | 121 | 81 | 224 | 81 | 328 | 0 |
| CLG. HT. | 0 | 11 | 0 | 11 | 11 | 10 | 10 | 10 | 10 | 10 | 9 | 9 |
| COLD FLOOR | 0 | 0 | 0 | 0 | 0 | 68 | 121 | 81 | 0 | 56 | 0 | 0 |
| COLD CEILING | 301 | 213 | 102 | 190 | 210 | 224 | 121 | 81 | 224 | 81 | 328 | 0 |
| NO ATTIC EXPOSED CLG | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| GROSS WALL BAS ABOVE GRADE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| GROSS WALL BAS BELOW GRADE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FACTORS | | | | | | | | | | | | |
| GRS.WALL AREA | 396 | 352 | 60 | 110 | 319 | 130 | 250 | 210 | 140 | 60 | 333 | 0 |
| GLAZING | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NORTH | 19.50 | 13.96 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EAST/WEST | 19.50 | 33.00 | 0 | 0 | 32 | 50 | 0 | 0 | 0 | 0 | 16 | 0 |
| SOUTH | 19.50 | 20.92 | 0 | 0 | 624 | 975 | 0 | 10 | 0 | 390 | 312 | 0 |
| SKYLT. | 19.50 | 136.72 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 0 |
| DOORS | 25.91 | 4.98 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NET EXPOSED WALL BAS ABOVE GR | 350 | 1024 | 197 | 322 | 839 | 80 | 250 | 200 | 112 | 40 | 257 | 0 |
| EXPOSED CLG | 3.60 | 0.45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 117 | 22 | 0 |
| NO ATTIC EXPOSED CLG | 1.48 | 0.70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81 | 120 | 0 |
| EXPOSED FLOOR | 2.36 | 0.45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 | 132 | 0 |
| EXPOSED WALL BAS BELOW GRADE | 22.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| BELOW GRADE HT LOSS FLOOR | 1.08 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SUB TOTAL HT LOSS | 2367 | 1843 | 327 | 869 | 1775 | 1702 | 1197 | 1091 | 1173 | 759 | 2720 | 0 |
| HT LOSS AIR LEAKAGE FACTOR 0.333 | 789 | 614 | 109 | 290 | 591 | 567 | 399 | 364 | 391 | 253 | 906 | 0 |
| HT GAIN AIR LEAKAGE FACTOR 0.103 | 199 | 110 | 11 | 74 | 141 | 194 | 29 | 55 | 79 | 79 | 223 | 0 |
| HT GAIN PEOPLE/APPLIANCES 240 | 480 | 240 | 1 | 240 | 240 | 240 | 1 | 240 | 0 | 1 | 240 | 0 |
| TOTAL HT LOSS BTU/H | 3156 | 2457 | 436 | 1158 | 2366 | 2259 | 1595 | 1455 | 1564 | 1013 | 3627 | 0 |
| TOTAL HT GAIN x 1.3 BTU/H | 3387 | 1843 | 463 | 1337 | 2270 | 3013 | 715 | 1081 | 1098 | 1409 | 3408 | 0 |

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C. 3.2.5 OF THE BUILDING CODE.

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

| ROOM USE | PAR | DIN | KT/FM | MUD | LAUN | WIR | FOY | DEN | R3 | R4 | WOB BAS | BAS |
|----------------------------------|-------|--------|-------|------|------|-----|------|------|-----|----|---------|-------|
| EXP. WALL | 12 | 26 | 84 | 27 | 0 | 20 | 11 | 36 | 0 | 0 | 0 | 156 |
| RM AREA | 0 | 0 | 0 | 0 | 84 | 0 | 0 | 0 | 0 | 0 | 0 | 140 |
| CLG. HT. | 10 | 10 | 12 | 10 | 10 | 10 | 10 | 10 | 9 | 9 | 9 | 9 |
| COLD FLOOR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| COLD CEILING | 0 | 0 | 0 | 0 | 84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NO ATTIC EXPOSED CLG | 0 | 0 | 244 | 0 | 0 | 0 | 0 | 30 | 0 | 0 | 0 | 468 |
| GROSS WALL BAS ABOVE GRADE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 936 |
| GROSS WALL BAS BELOW GRADE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FACTORS | | | | | | | | | | | | |
| GRS.WALL AREA | 120 | 260 | 1008 | 270 | 0 | 200 | 110 | 360 | 0 | 0 | 0 | 0 |
| GLAZING | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NORTH | 0 | 0 | 12 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| EAST/WEST | 0 | 18 | 165 | 0 | 0 | 0 | 14 | 36 | 0 | 0 | 0 | 5 |
| SOUTH | 16 | 64 | 3218 | 0 | 0 | 6 | 273 | 702 | 0 | 0 | 0 | 15 |
| SKYLT. | 19.50 | 136.72 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 293 |
| DOORS | 25.91 | 4.98 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| NET EXPOSED WALL BAS ABOVE GR | 104 | 521 | 831 | 241 | 0 | 194 | 76 | 324 | 182 | 0 | 0 | 0 |
| EXPOSED CLG | 3.60 | 0.45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 438 |
| NO ATTIC EXPOSED CLG | 1.48 | 0.70 | 0 | 0 | 84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EXPOSED FLOOR | 2.36 | 0.45 | 244 | 0 | 0 | 0 | 0 | 30 | 0 | 0 | 0 | 0 |
| EXPOSED WALL BAS BELOW GRADE | 22.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 150 |
| BELOW GRADE HT LOSS FLOOR | 1.08 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2073 |
| SUB TOTAL HT LOSS | 616 | 2120 | 6472 | 1399 | 125 | 684 | 1014 | 1722 | 0 | 0 | 0 | 8731 |
| HT LOSS AIR LEAKAGE FACTOR 0.333 | 205 | 706 | 2156 | 466 | 42 | 228 | 338 | 574 | 0 | 0 | 0 | 2909 |
| HT GAIN AIR LEAKAGE FACTOR 0.103 | 41 | 210 | 656 | 37 | 6 | 24 | 62 | 145 | 0 | 0 | 0 | 105 |
| HT GAIN PEOPLE/APPLIANCES 240 | 1 | 240 | 1440 | 1 | 5 | 912 | 1351 | 2296 | 0 | 0 | 0 | 11640 |
| TOTAL HT LOSS BTU/H | 821 | 2826 | 8629 | 1865 | 166 | 912 | 1351 | 2296 | 0 | 0 | 0 | 1458 |
| TOTAL HT GAIN x 1.3 BTU/H | 876 | 2916 | 10993 | 830 | 1645 | 336 | 1179 | 2326 | 0 | 0 | 0 | 1017 |

TOTAL HEAT GAIN BTU/H

3.98 TONS

LOSS DUE TO VENTILATION LOAD BTU/H

20538

TOTAL STRUCTURE HEAT LOSS BTU/H

51603

TOTAL COMBINED HEAT LOSS BTU/H

72140

SITE NAME: CASTLES OF KING

BUILDER: ZANCOR HOMES

TYPE: 50-7 OPT BED 5

DATE: Jan-14

GFA: 4286 LO# 53734 CALCULATIONS per HRAI

PAGE 2 of 3

FURNACE CFM 1460 FURNACE CFM 1460
TOTAL HEAT LOSS 51603 TOTAL HEAT GAIN 42583
AIR FLOW RATE CFM 28.29 AIR FLOW RATE CFM 34.29

| RUN COUNT | 3rd | 2nd | 1st | Bas |
|-----------|-----|-----|-----|-----|
| S/A | 0 | 14 | 13 | 4 |
| R/A | 0 | 5 | 3 | 1 |

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

All S/A runs 5/8" unless noted otherwise on layout.

*LENNOX

ML195UH090XP48C 90

FAN SPEED LOW 1285

MEDIUM 1460

HIGH 1830

DESIGN CFM = 1460
TEMPERATURE RISE 54 DEG/F.

| RUN # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---------------------|-------|------|-------|-------|------|-------|------|------|-------|------|-------|------|------|-------|-------|-------|-------|------|-------|-------|------|------|------|------|
| ROOM NAME | MBR | ENS | HALL | BED-3 | BATH | BED-5 | WIC | HALL | BED-4 | MBR | ENS-2 | DIN | LAUN | KT/FM | KT/FM | KT/FM | BED-2 | W/R | FOY | KT/FM | BAS | BAS | BAS | BAS |
| RM LOSS MBH | 1.58 | 1.23 | 1.81 | 2.37 | 1.60 | 1.56 | 0.44 | 1.81 | 2.27 | 1.58 | 1.01 | 1.41 | 0.17 | 2.16 | 2.16 | 2.16 | 1.16 | 0.91 | 1.35 | 2.16 | 2.91 | 2.91 | 2.91 | 2.91 |
| CFM PER RUN HEAT | 45 | 35 | 51 | 67 | 45 | 44 | 12 | 51 | 64 | 45 | 29 | 40 | 5 | 61 | 61 | 61 | 33 | 26 | 38 | 61 | 82 | 82 | 82 | 82 |
| RM GAIN MBH | 1.69 | 0.92 | 1.70 | 2.27 | 0.71 | 1.10 | 0.46 | 1.70 | 3.01 | 1.69 | 1.41 | 1.46 | 1.64 | 2.75 | 2.75 | 2.75 | 1.34 | 0.34 | 1.18 | 2.75 | 0.36 | 0.36 | 0.36 | 0.36 |
| CFM PER RUN COOLING | 58 | 32 | 58 | 78 | 25 | 38 | 16 | 58 | 103 | 58 | 48 | 50 | 56 | 94 | 94 | 94 | 46 | 12 | 40 | 94 | 12 | 12 | 12 | 12 |
| ADJUSTED PRESSURE | 0.125 | 0.13 | 0.125 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.125 | 0.13 | 0.13 | 0.13 | 0.13 | |
| ACTUAL DUCT LGH. | 56 | 54 | 52 | 54 | 63 | 77 | 41 | 68 | 69 | 45 | 42 | 49 | 32 | 42 | 30 | 44 | 65 | 43 | 43 | 54 | 32 | 48 | 11 | 46 |
| EQUIVALENT LENGTH | 190 | 170 | 190 | 190 | 170 | 150 | 150 | 190 | 150 | 170 | 150 | 130 | 150 | 140 | 190 | 140 | 160 | 160 | 160 | 130 | 130 | 140 | 160 | 190 |
| TOTAL EFFECTIVE LH | 246 | 224 | 242 | 244 | 233 | 227 | 191 | 258 | 219 | 215 | 192 | 179 | 182 | 182 | 220 | 184 | 225 | 203 | 203 | 184 | 162 | 188 | 171 | 236 |
| ADJUSTED PRESSURE | 0.05 | 0.06 | 0.05 | 0.05 | 0.05 | 0.06 | 0.07 | 0.05 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 | 0.07 | 0.06 | 0.07 | 0.06 | 0.06 | 0.06 | 0.07 | 0.08 | 0.07 | 0.07 | 0.05 |
| ROUND DUCT SIZE | 5 | 5 | 5 | 6 | 5 | 5 | 5 | 5 | 6 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 5 | 5 | 5 | 6 | 5 | 6 | 6 | 6 |
| OUTLET GRILL SIZE | 3X10 | 3X10 | 3X10 | 4X10 | 3X10 | 3X10 | 3X10 | 3X10 | 4X10 | 3X10 | 3X10 | 3X10 | 3X10 | 4X10 | 4X10 | 4X10 | 3X10 | 3X10 | 3X10 | 4X10 | 4X10 | 4X10 | 4X10 | 4X10 |
| TRUNK | D | C | C | A | D | D | D | A | E | E | B | D | F | E | C | C | A | B | B | C | E | C | B | A |

| RUN # | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 |
|---------------------|-------|------|-------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|------|------|------|------|------|
| ROOM NAME | | | | ENS | WIC-2 | | DIN | MUD | PAR | DEN | DEN | | | | | | | | | | | | | |
| RM LOSS MBH. | 0.00 | 0.00 | 0.00 | 1.23 | 1.46 | 0.00 | 1.41 | 1.86 | 0.82 | 1.15 | 1.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| CFM PER RUN HEAT | 0 | 0 | 0 | 35 | 41 | 0 | 40 | 53 | 23 | 32 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RM GAIN MBH. | 0.00 | 0.00 | 0.00 | 0.92 | 1.08 | 0.00 | 1.46 | 0.83 | 0.88 | 1.16 | 1.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| CFM PER RUN COOLING | 0 | 0 | 0 | 32 | 37 | 0 | 50 | 28 | 30 | 40 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ADJUSTED PRESSURE | 0.125 | 0.13 | 0.125 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.125 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| ACTUAL DUCT LGH. | 1 | 1 | 1 | 43 | 57 | 1 | 38 | 52 | 45 | 42 | 56 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| EQUIVALENT LENGTH | 0 | 0 | 0 | 180 | 160 | 0 | 190 | 160 | 160 | 170 | 170 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL EFFECTIVE LH | 1 | 1 | 1 | 223 | 217 | 1 | 228 | 212 | 205 | 212 | 226 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| ADJUSTED PRESSURE | 12.5 | 12.5 | 12.5 | 0.06 | 0.06 | 12.5 | 0.05 | 0.06 | 0.06 | 0.06 | 0.06 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 |
| ROUND DUCT SIZE | 0 | 0 | 0 | 5 | 5 | 0 | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OUTLET GRILL SIZE | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 |
| TRUNK | | | | C | B | | C | D | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A |

SUPPLY AIR TRUNK SIZE

| TRUNK | CFM | STATIC PRESS. | ROUND DUCT | RECT DUCT |
|---------|-----|---------------|------------|-----------|
| TRUNK A | 320 | 0.05 | 10.3 | 12 |
| TRUNK B | 536 | 0.05 | 12.5 | 18 |
| TRUNK C | 426 | 0.05 | 11.5 | 15 |
| TRUNK D | 239 | 0.05 | 9.2 | 10 |
| TRUNK E | 491 | 0.05 | 12.1 | 17 |

RETURN AIR TRUNK SIZE

| TRUNK | CFM | STATIC PRESS. | ROUND DUCT | RECT DUCT |
|---------|------|---------------|------------|-----------|
| TRUNK O | 0 | 0.05 | 0 | 0 |
| TRUNK P | 0 | 0.05 | 0 | 0 |
| TRUNK Q | 0 | 0.05 | 0 | 0 |
| TRUNK R | 0 | 0.05 | 0 | 0 |
| TRUNK S | 0 | 0.05 | 0 | 0 |
| TRUNK T | 0 | 0.05 | 0 | 0 |
| TRUNK U | 0 | 0.05 | 0 | 0 |
| TRUNK V | 0 | 0.05 | 0 | 0 |
| TRUNK W | 0 | 0.05 | 0 | 0 |
| TRUNK X | 1050 | 0.05 | 16.1 | 29 |
| TRUNK Y | 380 | 0.05 | 11 | 14 |
| TRUNK Z | 0 | 0.05 | 0 | 0 |
| DROP | 1460 | 0.05 | 18.2 | 24 |

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C.3.2.5 OF THE BUILDING CODE.

MICHAEL O'ROURKE
BCIN: 19669

| RETURN AIR # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | BR |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| AIR VOLUME | 165 | 130 | 115 | 150 | 380 | 155 | 155 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 135 |
| PLENUM PRESSURE | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| EQUIVALENT LENGTH | 31 | 40 | 31 | 48 | 22 | 30 | 46 | 46 | 1 | 1 | 1 | 1 | 1 | 1 | 16 |
| TOTAL EFFECTIVE LH | 135 | 180 | 175 | 170 | 135 | 175 | 165 | 195 | 0 | 0 | 0 | 0 | 0 | 0 | 180 |
| ADJUSTED PRESSURE | 0.07 | 0.05 | 0.06 | 0.06 | 0.08 | 0.06 | 0.06 | 0.06 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.06 |
| ROUND DUCT SIZE | 7.4 | 7.3 | 6.7 | 7.4 | 9.8 | 7.5 | 7.5 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| INLET GRILL SIZE | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| INLET GRILL SIZE | 14 | 14 | 14 | 14 | 30 | 14 | 14 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER"

UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

TYPE: 50-7 OPT BED 5

LO # 53734

PAGE 3 of 3

SITE NAME: CASTLES OF KING

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

| COMBUSTION APPLIANCES | | 9.32.3.1(1) |
|-----------------------|-------------------------------------------------------------------------------|-------------|
| a) | <input checked="" type="checkbox"/> Direct vent (sealed combustion) only | |
| b) | <input type="checkbox"/> Positive venting induced draft (except fireplaces) | |
| c) | <input type="checkbox"/> Natural draft, B-vent or induced draft gas fireplace | |
| d) | <input type="checkbox"/> Solid Fuel (including fireplaces) | |
| e) | <input type="checkbox"/> No Combustion Appliances | |

| HEATING SYSTEM | |
|------------------------------------------------|-----------------------------------------|
| <input checked="" type="checkbox"/> Forced Air | <input type="checkbox"/> Non Forced Air |
| <input type="checkbox"/> Electric Space Heat | |

| HOUSE TYPE | | 9.32.1(2) |
|---------------------------------------|------------------------------------------------------|-----------|
| <input checked="" type="checkbox"/> I | Type a) or b) appliance only, no solid fuel | |
| <input type="checkbox"/> II | Type I except with solid fuel (including fireplaces) | |
| <input type="checkbox"/> III | Any Type c) appliance | |
| <input type="checkbox"/> IV | Type I, or II with electric space heat | |
| <input type="checkbox"/> Other: | Type I, II or IV no forced air | |

| SYSTEM DESIGN OPTIONS | | O.N.H.W.P. |
|---------------------------------------|-----------------------------------------------|------------|
| <input type="checkbox"/> 1 | Exhaust only/Forced Air System | |
| <input type="checkbox"/> 2 | HRV with Ducting/Forced Air System | |
| <input checked="" type="checkbox"/> 3 | HRV Simplified/connected to forced air system | |
| <input type="checkbox"/> 4 | HRV with Ducting/non forced air system | |
| <input type="checkbox"/> | Part 6 Design | |

| TOTAL VENTILATION CAPACITY | | 9.32.3.3(1) |
|----------------------------|--------------|-------------|
| Basement & Master Bedroom | 2 @ 21.2 cfm | 42.4 cfm |
| Other Bedrooms | 4 @ 10.6 cfm | 42.4 cfm |
| Kitchen & Bathrooms | 6 @ 10.6 cfm | 63.6 cfm |
| Other Rooms | 9 @ 10.6 cfm | 95.4 cfm |
| Table 9.32.3.A. | TOTAL | 243.8 cfm |

| PRINCIPAL VENTILATION CAPACITY REQUIRED | | 9.32.3.4.(1) |
|-----------------------------------------|----------|--------------|
| Master Bedroom | 31.8 cfm | |
| Two Bedrooms | 47.7 cfm | |
| Three Bedrooms | 63.6 cfm | |
| Four Bedrooms | 79.5 cfm | |
| Table 9.32.3.B. | TOTAL | 95.4 cfm |
| More than 5 - Part 6 | | |

| SUPPLEMENTAL VENTILATION CAPACITY | | 9.32.3.5. |
|-----------------------------------|-------|-----------|
| Total Ventilation Capacity | 243.8 | cfm |
| Less Principal Ventil. Capacity | 120 | cfm |
| Required Supplemental Capacity | 123.8 | cfm |

| PRINCIPAL EXHAUST FAN CAPACITY | |
|--------------------------------|--------------------------------------------------|
| Model: VANEE 90H-V ECM | Location: BSMT |
| 120 cfm | <input checked="" type="checkbox"/> HVI Approved |
| 0.6 sones | |


| SUPPLEMENTAL FANS | | NUTONE | | | |
|-------------------|-----------|--------|-------------------------------------|-------|--|
| Location | Model | cfm | HVI | Sones | |
| ENS | QTXEN050C | 50 | <input checked="" type="checkbox"/> | 0.3 | |
| W/R | QTXEN050C | 50 | <input checked="" type="checkbox"/> | 0.3 | |
| BATH | QTXEN050C | 50 | <input checked="" type="checkbox"/> | 0.3 | |
| ENS-2 | QTXEN050C | 50 | <input checked="" type="checkbox"/> | 0.3 | |

| HEAT RECOVERY VENTILATOR | | 9.32.3.11. |
|--------------------------|--------------------------------------------------|------------|
| Model: VANEE 90H-V ECM | | |
| 159 cfm high | 65 cfm low | |
| 75 % Sensible Efficiency | <input checked="" type="checkbox"/> HVI Approved | |
| @ 32 deg F (0 deg C) | | |

| LOCATION OF INSTALLATION | |
|--------------------------|-------------------|
| Lot: | Concession |
| Township | Plan: |
| Address | |
| Roll # | Building Permit # |

| BUILDER | |
|--------------|--------|
| 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:  | |
| HRAI # | 001820 |
| Date: | January-14 |

MODEL: 50-7 OPT BED 5
SFQT: 4286

LO# 53734

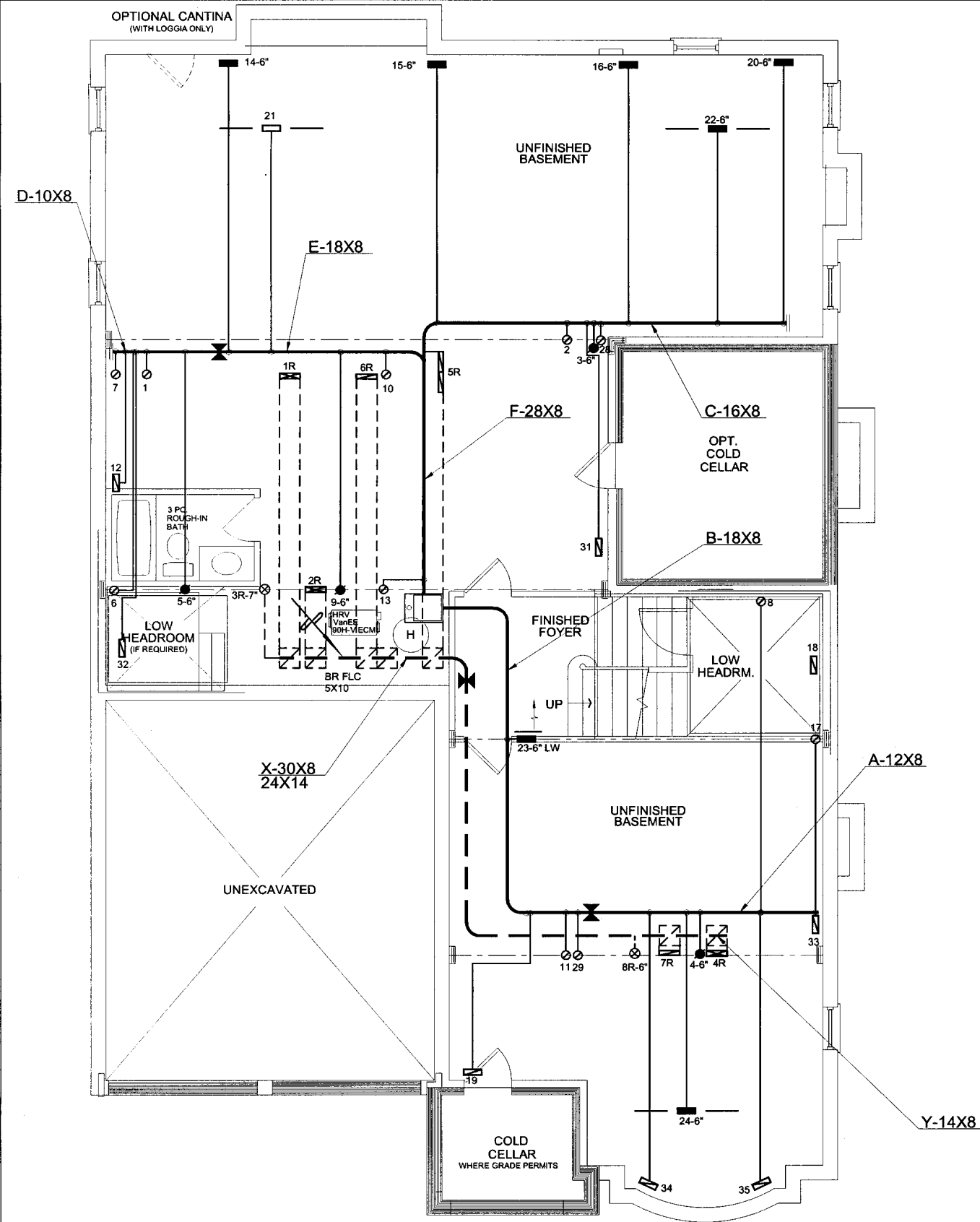
BUILDER: ZANCOR HOMES

ENERGYSTAR 12.1

| Component | Compliance Package |
|----------------------------------------------------------------------------|--------------------|
| | ZONE 1 |
| Ceiling with Attic Space Minimum RSI (R)-Value | 50 |
| Ceiling Without Attic Space Minimum RSI (R)-Value | 31 |
| Exposed Floor Minimum RSI (R)-Value | 31 |
| Walls Above Grade Minimum RSI (R)-Value | 24 |
| Basement Walls Minimum RSI (R)-Value | 20 |
| Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value | - |
| Edge of Below Grade Slab \leq 600 mm Below Grade Minimum RSI (R)-Value | 10 |
| Heated Slab or Slab \leq 600 mm below grade Minimum RSI (R)-Value | 10 |
| Windows and Sliding Glass Doors Maximum U-Value | ZONE C |
| Skylights Maximum U-Value | 2.8 |
| Space Heating Equipment Minimum AFUE | 95% |
| HRV Minimum Efficiency | 75% |
| Domestic Hot Water Heater Minimum EF | 0.9 |



INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE



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

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

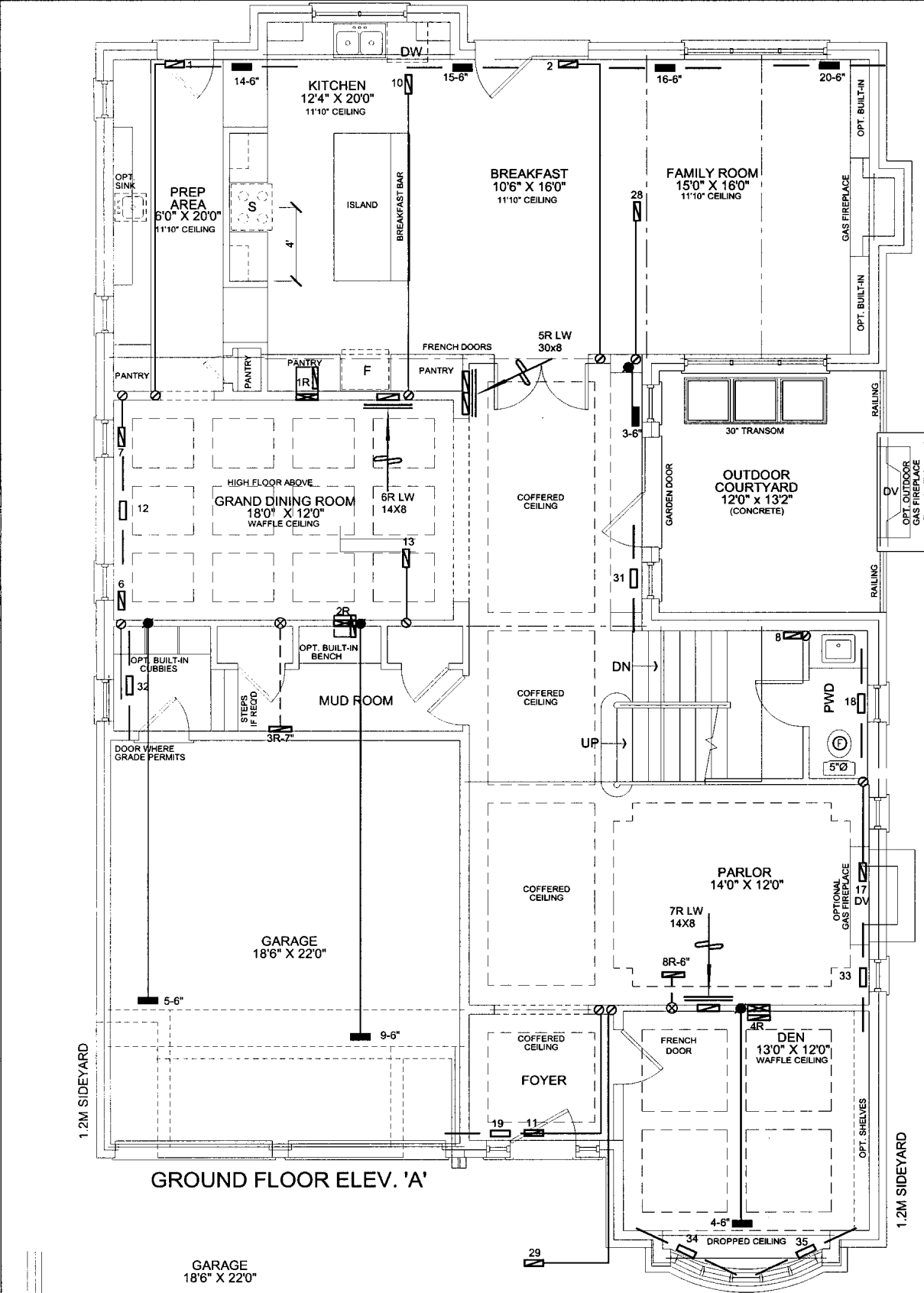
OBC 2012-Rev. 2014



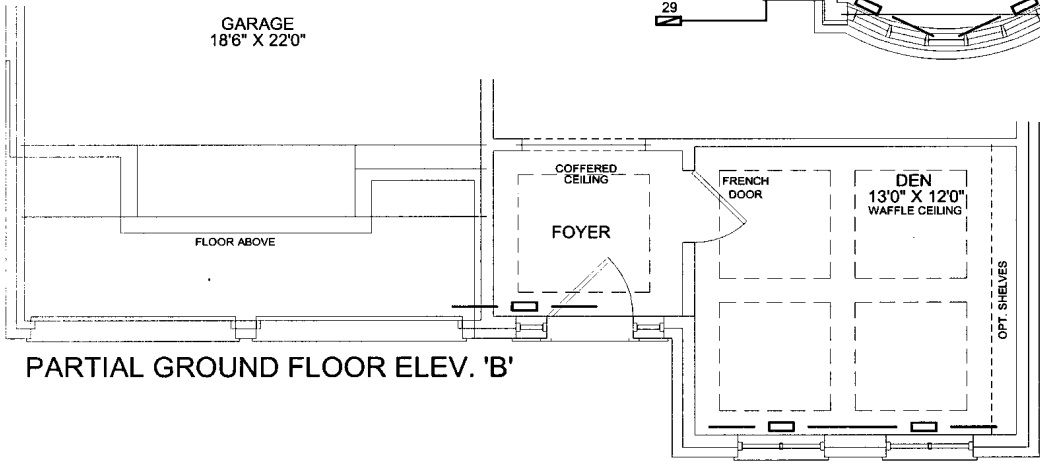
| HVAC LEGEND | | | | | | | 3. | | |
|-------------|---------------------------------|--------|---------------------------------|--------|------------------------------|--------|----------------------------|-----------|------------------|
| SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | 2. | |
| | FLOOR SUPPLY AIR GRILLE | | 6" SUPPLY AIR BOOT ABOVE | | 14"x8" RETURN AIR GRILLE | | RETURN AIR STACK ABOVE | 1. | |
| | FLOOR SUPPLY AIR GRILLE 6" BOOT | | SUPPLY AIR STACK FROM 2nd FLOOR | | 30"x8" 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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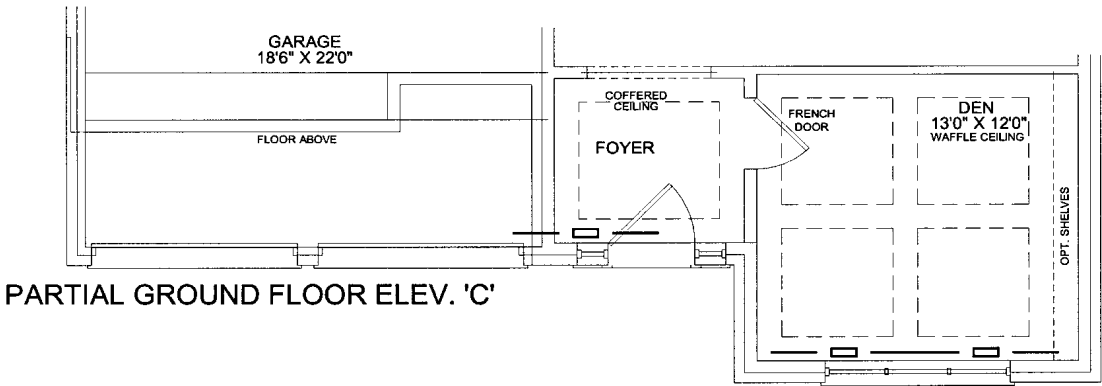
| | | | | | | | | | |
|----------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--|-------------|-----------------------------------------------------------|---|
| Client | | <div><div>HVACDESIGNS LTD.</div><div>65 Church Street South - Ajax, Ontario L1S 6A7 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services</div><div>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.</div></div> | HEAT LOSS 72140 BTU/H UNIT DATA | | # OF RUNS S/A R/A FANS | | | Sheet Title <div>BASEMENT HEATING LAYOUT</div> | |
| ZANCOR HOMES | | | MAKE LENNOX | 3RD FLOOR | | | | | |
| Project Name THE CASTLES OF KING CITY KING CITY, ONTARIO | | | MODEL ML195UH090XP48C-90 | 2ND FLOOR | | | 14 | 4 | 5 |
| OPT 5 BED 50-7 <div>4286 sqft</div> | | | INPUT 88 MBTU/H | 1ST FLOOR | | | 13 | 3 | 2 |
| | | | OUTPUT 85 MBTU/H | BASEMENT | | | 4 | 1 | 0 |
| | | | COOLING 4.0 TONS | 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 | | | | | |
| | | | FAN SPEED 1460 cfm @ 0.5" w.c. | | | | | | |
| | | | | | | | Date | JAN/2014 | |
| | | | | | | | Scale | 3/16" = 1'-0" | |
| | | | | | | | BCIN# 19669 | | |
| | | | | | | | LO# | 53734 | |



GROUND FLOOR ELEV. 'A'



PARTIAL GROUND FLOOR ELEV. 'B'



PARTIAL GROUND FLOOR ELEV. 'C'

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

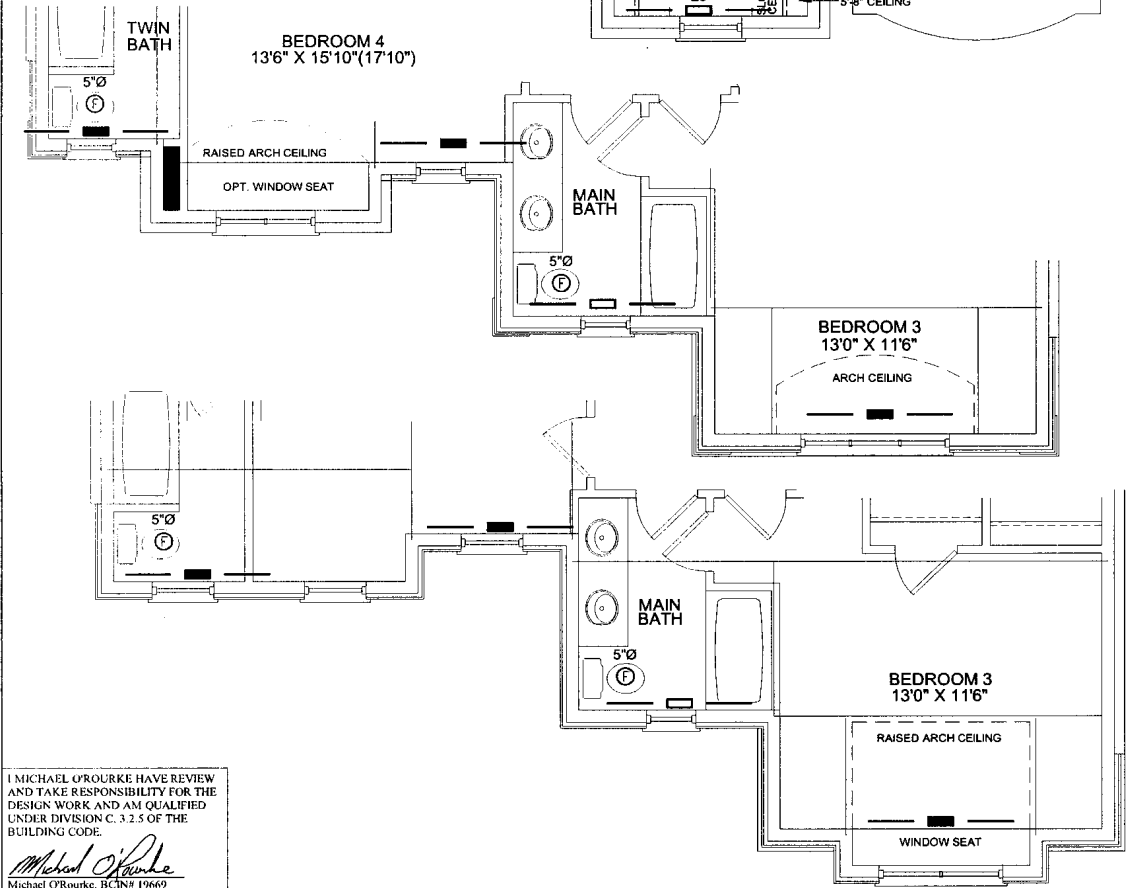
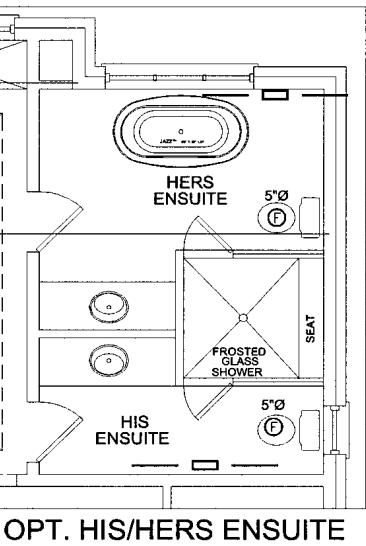
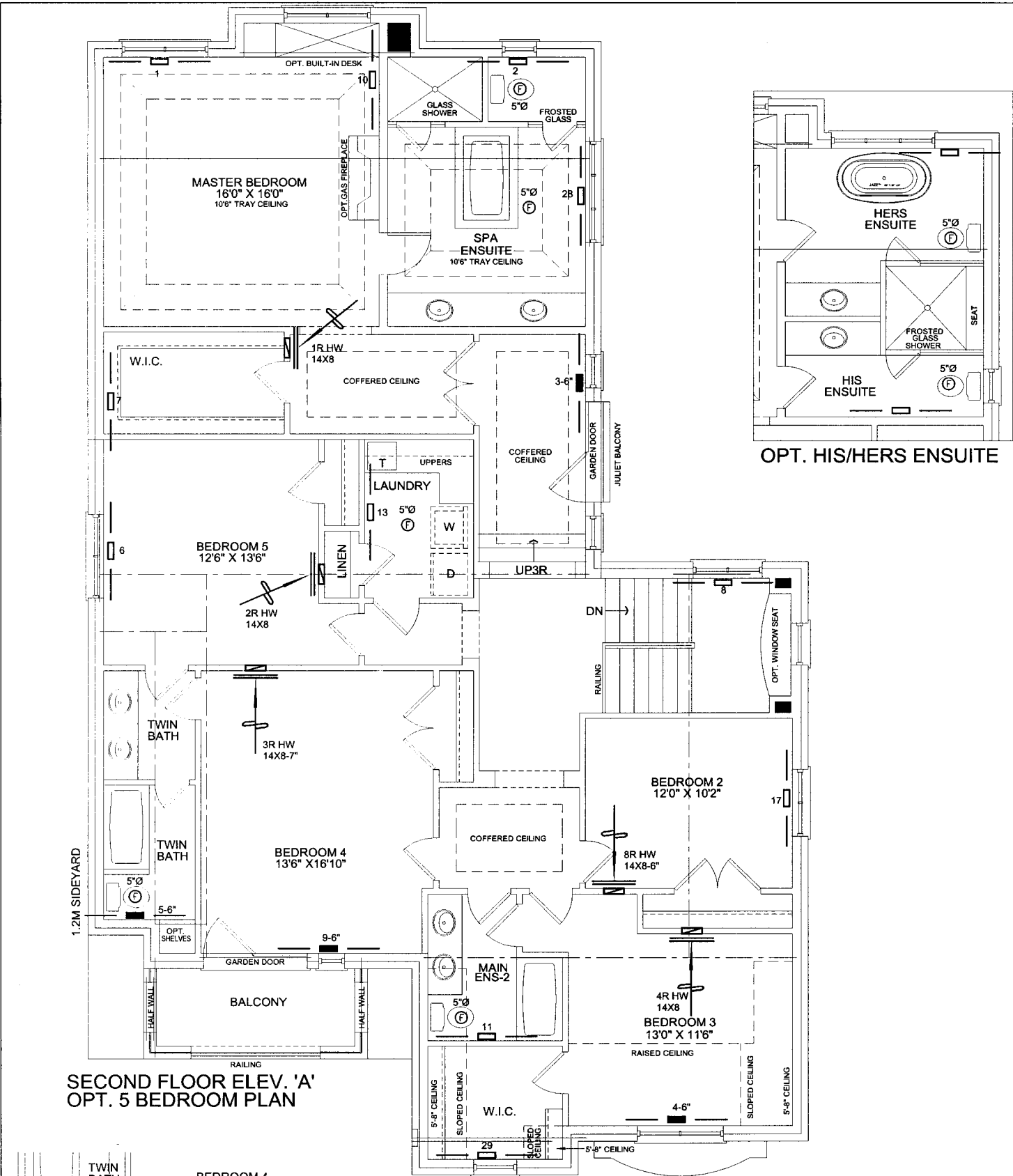
OBC 2012-Rev. 2014



| HVAC LEGEND | | | | | | | 3. | | |
|-------------|---------------------------------|--------|---------------------------------|--------|------------------------------|--------|----------------------------|-----------|------------------|
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| | | | | |
|------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------|
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| ZANCOR HOMES | | | FIRST FLOOR HEATING LAYOUT | |
| Project Name | | | Date | JAN/2014 |
| THE CASTLES OF KING CITY KING CITY, ONTARIO | | | Scale | 3/16" = 1'-0" |
| OPT 5 BED 50-7 | | BCIN# 19669 | | |
| 4286 sqft | | LO# | 53734 | |



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



| HVAC LEGEND | | | | | | 3. | |
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| | | | | | | No. | REVISIONS |

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| ZANCOR HOMES | | | SECOND FLOOR HEATING LAYOUT | |
| Project Name | | | Date | JAN/2014 |
| THE CASTLES OF KING CITY KING CITY, ONTARIO | | | Scale | 3/16" = 1'-0" |
| OPT 5 BED 50-7 | | | BCIN# 19669 | |
| 4286 sqft | | | LO# | 53734 |