# Schedule 1: Designer Information

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

## A. Project Information

| Building number, street name | | | Unit no. | Lot/con. |
|---|---|---|---|---|
| | | | | |
| **Municipality** | **Postal code** | **Plan number/ other description** | | |
| BRAMPTON | | | | |

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

| Name | | Firm | | |
|---|---|---|---|---|
| **MICHAEL O'ROURKE** | | **HVAC DESIGNS LTD.** | | |
| **Street address** | | | **Unit no.** | **Lot/con.** |
| **375 FINLEY AVE** | | | **202** | **N/A** |
| **Municipality** | **Postal code** | **Province** | **E-mail** | |
| **AJAX** | **L1S 2E2** | **ONTARIO** | **info@hvacdesigns.ca** | |
| **Telephone number** | **Fax number** | | **Cell number** | |
| **(905) 619-2300** | **(905) 619-2375** | | ( ) | |

## C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]

| | | |
|---|---|---|
| ❑ House | ☒ HVAC – House | ❑ Building Structural |
| ❑ Small Buildings | ❑ Building Services | ❑ Plumbing – House |
| ❑ Large Buildings | ❑ Detection, Lighting and Power | ❑ Plumbing – All Buildings |
| ❑ Complex Buildings | ❑ Fire Protection | ❑ On-site Sewage Systems |

| Description of designer's work | |
|---|---|
| **HEAT LOSS / GAIN CALCULATIONS**<br>**DUCT SIZING**<br>**RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY**<br>**RESIDENTIAL SYSTEM DESIGN per CSA-F280-12** | **Model:** 5008<br><br>**Project:** VALES OF HUMBER SOUTH |

## D. Declaration of Designer

I **MICHAEL O'ROURKE** declare that (choose one as appropriate):
(print name)

❑ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4.of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: _____
Firm BCIN: _____

☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5.of Di vision C, of the Building Code.

Individual BCIN: 19669
Basis for exemption from registration and qualification: O.B.C SENTENCE 3.2.4.1 (4)

❑ 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.

July 11, 2024
Date

Michael O'Rourke
Signature of Designer



NOTE:

1. 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.
2. 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.

HVAC DESIGNS LTD.
375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

SITE NAME: VALES OF HUMBER SOUTH | DATE Jul-24 | WINTER NATURAL AIR CHANGE RATE 0.234 | HEAT LOSS ΔT °F. 74 | CSA-F280-12
BUILDER: ROYAL PINE HOMES | TYPE: 5008 | GFA: 4382 | LO# 95285 | SUMMER NATURAL AIR CHANGE RATE 0.076 | HEAT GAIN ΔT °F. 11 | SB-12 PERFORMANCE

| ROOM USE | | | STUDY | | | GREAT | | | KIT | | | DIN | | | LIV | | | FOY | | | LAUN | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EXP. WALL | | | 30 | | | 27 | | | 44 | | | 16 | | | 40 | | | 19 | | | 41 | | |
| CLG. HT. | | | 11 | | | 11 | | | 11 | | | 11 | | | 11 | | | 21 | | | 13 | | |
| | FACTORS | | | | | | | | | | | | | | | | | | | | | | |
| GRS.WALL AREA | LOSS | GAIN | 330 | | | 297 | | | 484 | | | 176 | | | 440 | | | 399 | | | 533 | | |
| GLAZING | | | | LOSS | GAIN | | LOSS | GAIN | | LOSS | GAIN | | LOSS | GAIN | | LOSS | GAIN | | LOSS | GAIN | | LOSS | GAIN |
| NORTH | 20.8 | 15.5 | 0 | 0 | 0 | 12 | 249 | 186 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 332 | 248 |
| EAST | 20.8 | 41.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 1309 | 2586 | 54 | 1122 | 2217 | 0 | 0 | 0 |
| SOUTH | 20.8 | 24.4 | 0 | 0 | 0 | 12 | 249 | 293 | 42 | 873 | 1025 | 26 | 540 | 634 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WEST | 20.8 | 41.0 | 36 | 748 | 1478 | 36 | 748 | 1478 | 71 | 1475 | 2914 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SKYLT. | 34.1 | 100.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| DOORS | 24.7 | 3.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 740 | 110 | 25 | 616 | 91 |
| NET EXPOSED WALL | 3.5 | 0.5 | 294 | 1019 | 151 | 237 | 822 | 122 | 371 | 1286 | 191 | 150 | 520 | 77 | 377 | 1307 | 194 | 315 | 1092 | 162 | 492 | 1706 | 253 |
| NET EXPOSED BSMT WALL ABOVE GR | 3.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EXPOSED CLG | 1.3 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NO ATTIC EXPOSED CLG | 2.7 | 1.2 | 0 | 0 | 0 | 10 | 27 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 | 150 | 67 | 0 | 0 | 0 |
| EXPOSED FLOOR | 2.5 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| BASEMENT/CRAWL HEAT LOSS | | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| SLAB ON GRADE HEAT LOSS | | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| SUBTOTAL HT LOSS | | | | 1767 | | | 2095 | | | 3634 | | | 1060 | | | 2616 | | | 3104 | | | 2655 | |
| SUB TOTAL HT GAIN | | | | | 1629 | | | 2090 | | | 4130 | | | 711 | | | 2780 | | | 2555 | | | 592 |
| LEVEL FACTOR / MULTIPLIER | | | 0.30 | 0.36 | | 0.30 | 0.36 | | 0.30 | 0.36 | | 0.30 | 0.36 | | 0.30 | 0.36 | | 0.30 | 0.36 | | 0.30 | 0.36 | |
| AIR CHANGE HEAT LOSS | | | | 632 | | | 749 | | | 1299 | | | 379 | | | 935 | | | 1109 | | | 949 | |
| AIR CHANGE HEAT GAIN | | | | | 85 | | | 109 | | | 215 | | | 37 | | | 145 | | | 133 | | | 31 |
| DUCT LOSS | | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| DUCT GAIN | | | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 |
| HEAT GAIN PEOPLE | 240 | | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 |
| HEAT GAIN APPLIANCES/LIGHTS | | | | | 948 | | | 948 | | | 948 | | | 948 | | | 948 | | | 0 | | | 948 |
| TOTAL HT LOSS BTU/H | | | | 2399 | | | 2844 | | | 4933 | | | 1439 | | | 3551 | | | 4213 | | | 3603 | |
| TOTAL HT GAIN x 1.3 BTU/H | | | | | 3460 | | | 4091 | | | 6881 | | | 2205 | | | 5034 | | | 3495 | | | 2042 |

| ROOM USE | | | BAS | | |
|---|---|---|---|---|---|
| EXP. WALL | | | 216 | | |
| CLG. HT. | | | 10 | | |
| | FACTORS | | | | |
| GRS.WALL AREA | LOSS | GAIN | 1512 | | |
| GLAZING | | | | LOSS | GAIN |
| NORTH | 20.8 | 15.5 | 4 | 83 | 62 |
| EAST | 20.8 | 41.0 | 0 | 0 | 0 |
| SOUTH | 20.8 | 24.4 | 8 | 166 | 195 |
| WEST | 20.8 | 41.0 | 12 | 249 | 493 |
| SKYLT. | 34.1 | 100.3 | 0 | 0 | 0 |
| DOORS | 24.7 | 3.7 | 20 | 493 | 73 |
| NET EXPOSED WALL | 3.5 | 0.5 | 0 | 0 | 0 |
| NET EXPOSED BSMT WALL ABOVE GR | 3.5 | 0.5 | 648 | 2277 | 338 |
| EXPOSED CLG | 1.3 | 0.6 | 0 | 0 | 0 |
| NO ATTIC EXPOSED CLG | 2.7 | 1.2 | 0 | 0 | 0 |
| EXPOSED FLOOR | 2.5 | 0.4 | 0 | 0 | 0 |
| BASEMENT/CRAWL HEAT LOSS | | | | 7788 | |
| SLAB ON GRADE HEAT LOSS | | | | | |
| SUBTOTAL HT LOSS | | | | 11056 | |
| SUB TOTAL HT GAIN | | | | | 1160 |
| LEVEL FACTOR / MULTIPLIER | | | 0.50 | 0.91 | |
| AIR CHANGE HEAT LOSS | | | | 10085 | |
| AIR CHANGE HEAT GAIN | | | | | 60 |
| DUCT LOSS | | | | 0 | |
| DUCT GAIN | | | | | 0 |
| HEAT GAIN PEOPLE | 240 | | 0 | | 0 |
| HEAT GAIN APPLIANCES/LIGHTS | | | | | |
| TOTAL HT LOSS BTU/H | | | | 21141 | |
| TOTAL HT GAIN x 1.3 BTU/H | | | | | 1587 |

TOTAL HEAT GAIN BTU/H: 53631 TONS: 4.47 LOSS DUE TO VENTILATION LOAD BTU/H: 6010 STRUCTURAL HEAT LOSS: 64753 TOTAL COMBINED HEAT LOSS BTU/H: 70763

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

Michael O'Rourke

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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SITE NAME: VALES OF HUMBER SOUTH | DATE Jul-24 | WINTER NATURAL AIR CHANGE RATE 0.234 | HEAT LOSS ΔT °F. 74 | CSA-F280-12

BUILDER: ROYAL PINE HOMES | TYPE: 5008 | GFA: 4382 | LO# 95285 | SUMMER NATURAL AIR CHANGE RATE 0.076 | HEAT GAIN ΔT °F. 11 | SB-12 PERFORMANCE

| ROOM USE | | | PR/ST | | | ENS | | | | BED-2 | | | BED-3 | | | BED-4 | | | BATH-2 | | | BED-5 | | | BATH-3 | | | SHARED | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EXP. WALL | | | 59 | | | 24 | | | | 21 | | | 16 | | | 40 | | | 10 | | | 16 | | | 17 | | | 10 | | | | |
| CLG. HT. | | | 9 | | | 9 | | | | 9 | | | 10 | | | 10 | | | 9 | | | 9 | | | 9 | | | 9 | | | | |
| | FACTORS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GRS.WALL AREA | LOSS | GAIN | 531 | | | 216 | | | | 189 | | | 160 | | | 400 | | | 90 | | | 144 | | | 153 | | | 90 | | | | |
| GLAZING | | | | LOSS | GAIN | | LOSS | GAIN | | | LOSS | GAIN | | LOSS | GAIN | | LOSS | GAIN | | LOSS | GAIN | | LOSS | GAIN | | LOSS | GAIN | | LOSS | GAIN | | |
| NORTH | 20.8 | 15.5 | 9 | 187 | 139 | 9 | 187 | 139 | | 24 | 499 | 371 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 187 | 139 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| EAST | 20.8 | 41.0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 39 | 810 | 1601 | 57 | 1184 | 2340 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 291 | 575 | 0 | 0 | 0 | | |
| SOUTH | 20.8 | 24.4 | 9 | 187 | 220 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 499 | 585 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| WEST | 20.8 | 41.0 | 52 | 1080 | 2134 | 18 | 374 | 739 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| SKYLT. | 34.1 | 100.3 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| DOORS | 24.7 | 3.7 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| NET EXPOSED WALL | 3.5 | 0.5 | 461 | 1598 | 237 | 189 | 655 | 97 | | 165 | 572 | 85 | 121 | 420 | 62 | 343 | 1189 | 176 | 81 | 281 | 42 | 120 | 416 | 62 | 139 | 482 | 71 | 90 | 312 | 46 | | |
| NET EXPOSED BSMT WALL ABOVE GR | 3.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| EXPOSED CLG | 1.3 | 0.6 | 684 | 857 | 381 | 143 | 179 | 80 | | 441 | 553 | 246 | 344 | 431 | 192 | 260 | 326 | 145 | 60 | 75 | 33 | 320 | 401 | 178 | 70 | 88 | 39 | 150 | 188 | 84 | | |
| NO ATTIC EXPOSED CLG | 2.7 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 30 | 81 | 36 | 75 | 201 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| EXPOSED FLOOR | 2.5 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 374 | 931 | 138 | 0 | 0 | 0 | 60 | 149 | 22 | 0 | 0 | 0 | 70 | 174 | 26 | 0 | 0 | 0 | | |
| BASEMENT/CRAWL HEAT LOSS | | | | 0 | | | 0 | | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | |
| SLAB ON GRADE HEAT LOSS | | | | 0 | | | 0 | | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | |
| SUBTOTAL HT LOSS | | | | 3910 | | | 1395 | | | | 1623 | | | 2673 | | | 2901 | | | 692 | | | 1316 | | | 1035 | | | 500 | | | |
| SUB TOTAL HT GAIN | | | | | 3111 | | | 1055 | | | | 702 | | | 2029 | | | 2750 | | | 236 | | | 825 | | | 711 | | | 130 | | |
| LEVEL FACTOR / MULTIPLIER | | | 0.20 | 0.25 | | 0.20 | 0.25 | | | 0.20 | 0.25 | | 0.20 | 0.25 | | 0.20 | 0.25 | | 0.20 | 0.25 | | 0.20 | 0.25 | | 0.20 | 0.25 | | 0.20 | 0.25 | | | |
| AIR CHANGE HEAT LOSS | | | | 983 | | | 351 | | | | 408 | | | 672 | | | 729 | | | 174 | | | 331 | | | 260 | | | 126 | | | |
| AIR CHANGE HEAT GAIN | | | | | 162 | | | 55 | | | | 37 | | | 106 | | | 143 | | | 12 | | | 43 | | | 37 | | | 7 | | |
| DUCT LOSS | | | | 0 | | | 0 | | | | 0 | | | 334 | | | 0 | | | 87 | | | 0 | | | 130 | | | 0 | | | |
| DUCT GAIN | | | | | 0 | | | 0 | | | | 0 | | | 332 | | | 0 | | | 25 | | | 0 | | | 75 | | | 0 | | |
| HEAT GAIN PEOPLE | 240 | | 2 | | 480 | 0 | | 0 | | 1 | | 240 | 1 | | 240 | 1 | | 240 | 0 | | 0 | 1 | | 240 | 0 | | 0 | 0 | | 0 | | |
| HEAT GAIN APPLIANCES/LIGHTS | | | | | 948 | | | 0 | | | | 948 | | | 948 | | | 948 | | | 0 | | | 948 | | | 0 | | | 0 | | |
| TOTAL HT LOSS BTU/H | | | | 4893 | | | 1746 | | | | 2031 | | | 3679 | | | 3630 | | | 953 | | | 1646 | | | 1425 | | | 626 | | | |
| TOTAL HT GAIN x 1.3 BTU/H | | | | | 6112 | | | 1443 | | | | 2504 | | | 4751 | | | 5306 | | | 356 | | | 2673 | | | 1070 | | | 178 | | |

| ROOM USE | | |
|---|---|---|
| EXP. WALL | | |
| CLG. HT. | | |
| | FACTORS | |
| GRS.WALL AREA | LOSS | GAIN |
| GLAZING | | |
| NORTH | 20.8 | 15.5 |
| EAST | 20.8 | 41.0 |
| SOUTH | 20.8 | 24.4 |
| WEST | 20.8 | 41.0 |
| SKYLT. | 34.1 | 100.3 |
| DOORS | 24.7 | 3.7 |
| NET EXPOSED WALL | 3.5 | 0.5 |
| NET EXPOSED BSMT WALL ABOVE GR | 3.5 | 0.5 |
| EXPOSED CLG | 1.3 | 0.6 |
| NO ATTIC EXPOSED CLG | 2.7 | 1.2 |
| EXPOSED FLOOR | 2.5 | 0.4 |
| BASEMENT/CRAWL HEAT LOSS | | |
| SLAB ON GRADE HEAT LOSS | | |
| SUBTOTAL HT LOSS | | |
| SUB TOTAL HT GAIN | | |
| LEVEL FACTOR / MULTIPLIER | | |
| AIR CHANGE HEAT LOSS | | |
| AIR CHANGE HEAT GAIN | | |
| DUCT LOSS | | |
| DUCT GAIN | | |
| HEAT GAIN PEOPLE | 240 | |
| HEAT GAIN APPLIANCES/LIGHTS | | |
| TOTAL HT LOSS BTU/H | | |
| TOTAL HT GAIN x 1.3 BTU/H | | |

TOTAL HEAT GAIN BTU/H: 53631 | TONS: 4.47 | LOSS DUE TO VENTILATION LOAD BTU/H: 6010 | STRUCTURAL HEAT LOSS: 64753 | TOTAL COMBINED HEAT LOSS BTU/H: 70763

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

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SITE NAME: VALES OF HUMBER SOUTH
BUILDER: ROYAL PINE HOMES

TYPE: 5008 DATE: Jul-24 GFA: 4382 LO# 95285 **FURNACE 1**

| | | | | | | |
|---|---|---|---|---|---|---|
| HEATING CFM | 975 | COOLING CFM | 975 | **FACTORY** | furnace pressure | 0.6 |
| TOTAL HEAT LOSS | 44,124 | TOTAL HEAT GAIN | 28,793 | **INSTALLED** | furnace filter | 0 |
| AIR FLOW RATE CFM | 22.1 | AIR FLOW RATE CFM | 33.86 | | a/c coil pressure | 0.21 |
| | | | | | available pressure for s/a & r/a | 0.39 |

FURNACE HEAT LOSS + HRV / ERV HEAT LOSS = 47129 BTUH

**CARRIER**
**59SC6A060M17--16** **60**

| FAN SPEED | |
|---|---|
| LOW | 0 |
| MEDLOW | 790 |
| MEDIUM | 975 |
| MEDIUM HIGH | 1140 |
| HIGH | 1300 |

AFUE = 97 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = **58,000**
DESIGN CFM = **975**
CFM @ .6 " E.S.P.
TEMPERATURE RISE 55 °F

| RUN COUNT | 4th | 3rd | 2nd | 1st | Bas |
|---|---|---|---|---|---|
| S/A | 0 | 0 | 0 | 14 | 7 |
| R/A | 0 | 0 | 0 | 3 | 1 |

plenum pressure s/a 0.20 r/a pressure 0.19
max s/a dif press. loss 0.01 r/a grille press. Loss 0.02
min adjusted pressure s/a 0.19 adjusted pressure r/a 0.17

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

| RUN # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROOM NAME | STUDY | STUDY | GREAT | GREAT | KIT | KIT | KIT | DIN | LIV | LIV | LIV | FOY | FOY | LAUN | BAS | BAS | BAS | BAS |
| RM LOSS MBH. | 1.20 | 1.20 | 1.42 | 1.42 | 1.64 | 1.64 | 1.64 | 1.44 | 1.18 | 1.18 | 1.18 | 2.11 | 2.11 | 3.60 | 3.02 | 3.02 | 3.02 | 3.02 |
| CFM PER RUN HEAT | 27 | 27 | 31 | 31 | 36 | 36 | 36 | 32 | 26 | 26 | 26 | 47 | 47 | 80 | 67 | 67 | 67 | 67 |
| RM GAIN MBH. | 1.73 | 1.73 | 2.05 | 2.05 | 2.29 | 2.29 | 2.29 | 2.21 | 1.68 | 1.68 | 1.68 | 1.75 | 1.75 | 2.04 | 0.23 | 0.23 | 0.23 | 0.23 |
| CFM PER RUN COOLING | 59 | 59 | 69 | 69 | 78 | 78 | 78 | 75 | 57 | 57 | 57 | 59 | 59 | 69 | 8 | 8 | 8 | 8 |
| ADJUSTED PRESSURE | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
| ACTUAL DUCT LGH. | 47 | 41 | 39 | 25 | 24 | 30 | 20 | 31 | 48 | 43 | 38 | 44 | 39 | 42 | 23 | 31 | 37 | 26 |
| EQUIVALENT LENGTH | 160 | 150 | 160 | 140 | 110 | 110 | 100 | 100 | 120 | 110 | 100 | 130 | 100 | 160 | 100 | 140 | 100 | 110 |
| TOTAL EFFECTIVE LENGTH | 207 | 191 | 199 | 165 | 134 | 140 | 120 | 131 | 168 | 153 | 138 | 174 | 139 | 202 | 123 | 171 | 137 | 136 |
| ADJUSTED PRESSURE | 0.09 | 0.1 | 0.1 | 0.12 | 0.14 | 0.14 | 0.16 | 0.15 | 0.11 | 0.13 | 0.14 | 0.11 | 0.14 | 0.1 | 0.16 | 0.11 | 0.14 | 0.14 |
| ROUND DUCT SIZE | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 4 | 5 | 5 | **6** | 5 | 5 | 5 | 5 |
| HEATING VELOCITY (ft/min) | 198 | 198 | 228 | 228 | 264 | 264 | 264 | 235 | 191 | 298 | 298 | 345 | 345 | 408 | 492 | 492 | 492 | 492 |
| COOLING VELOCITY (ft/min) | 433 | 433 | 507 | 507 | 573 | 573 | 573 | 551 | 419 | 654 | 654 | 433 | 433 | 352 | 59 | 59 | 59 | 59 |
| OUTLET GRILL SIZE | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 4X10 | 3X10 | 3X10 | 3X10 | 3X10 |
| TRUNK | A | A | A | A | A | A | B | D | C | C | C | C | D | B | B | A | B | B |

| RUN # | 25 | 26 | 27 |
|---|---|---|---|
| ROOM NAME | BAS | BAS | BAS |
| RM LOSS MBH. | 3.02 | 3.02 | 3.02 |
| CFM PER RUN HEAT | 67 | 67 | 67 |
| RM GAIN MBH. | 0.23 | 0.23 | 0.23 |
| CFM PER RUN COOLING | 8 | 8 | 8 |
| ADJUSTED PRESSURE | 0.19 | 0.19 | 0.19 |
| ACTUAL DUCT LGH. | 27 | 26 | 39 |
| EQUIVALENT LENGTH | 140 | 100 | 120 |
| TOTAL EFFECTIVE LENGTH | 167 | 126 | 159 |
| ADJUSTED PRESSURE | 0.12 | 0.15 | 0.12 |
| ROUND DUCT SIZE | 5 | 5 | 5 |
| HEATING VELOCITY (ft/min) | 492 | 492 | 492 |
| COOLING VELOCITY (ft/min) | 59 | 59 | 59 |
| OUTLET GRILL SIZE | 3X10 | 3X10 | 3X10 |
| TRUNK | D | D | C |

**SUPPLY AIR TRUNK SIZE**

| | TRUNK CFM | STATIC PRESS. | ROUND DUCT | RECT DUCT | | | VELOCITY (ft/min) | | TRUNK CFM | STATIC PRESS. | ROUND DUCT | RECT DUCT | | | VELOCITY (ft/min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TRUNK A | 255 | 0.09 | 8.2 | 12 | x | 8 | 383 | TRUNK G | 0 | 0.00 | 0 | 0 | x | 8 | 0 |
| TRUNK B | 572 | 0.09 | 11 | 16 | x | 8 | 644 | TRUNK H | 0 | 0.00 | 0 | 0 | x | 8 | 0 |
| TRUNK C | 192 | 0.11 | 7 | 8 | x | 8 | 432 | TRUNK I | 0 | 0.00 | 0 | 0 | x | 8 | 0 |
| TRUNK D | 405 | 0.11 | 9.2 | 12 | x | 8 | 608 | TRUNK J | 0 | 0.00 | 0 | 0 | x | 8 | 0 |
| TRUNK E | 0 | 0.00 | 0 | 0 | x | 8 | 0 | TRUNK K | 0 | 0.00 | 0 | 0 | x | 8 | 0 |
| TRUNK F | 0 | 0.00 | 0 | 0 | x | 8 | 0 | TRUNK L | 0 | 0.00 | 0 | 0 | x | 8 | 0 |

**RETURN AIR TRUNK SIZE**

| | TRUNK CFM | STATIC PRESS. | ROUND DUCT | RECT DUCT | | | VELOCITY (ft/min) |
|---|---|---|---|---|---|---|---|
| TRUNK O | 0 | 0.08 | 0 | 0 | x | 8 | 0 |
| TRUNK P | 0 | 0.08 | 0 | 0 | x | 8 | 0 |
| TRUNK Q | 0 | 0.08 | 0 | 0 | x | 8 | 0 |
| TRUNK R | 0 | 0.08 | 0 | 0 | x | 8 | 0 |
| TRUNK S | 0 | 0.08 | 0 | 0 | x | 8 | 0 |
| TRUNK T | 0 | 0.08 | 0 | 0 | x | 8 | 0 |
| TRUNK U | 0 | 0.08 | 0 | 0 | x | 8 | 0 |
| TRUNK V | 0 | 0.08 | 0 | 0 | x | 8 | 0 |
| TRUNK W | 0 | 0.08 | 0 | 0 | x | 8 | 0 |
| TRUNK X | 975 | 0.08 | 13.9 | 26 | x | 8 | 675 |
| TRUNK Y | 205 | 0.08 | 7.7 | 8 | x | 8 | 461 |
| TRUNK Z | 0 | 0.08 | 0 | 0 | x | 8 | 0 |
| DROP | 975 | 0.08 | 13.9 | 24 | x | 10 | 585 |

| **RETURN AIR #** | 1 | 2 | 3 | | | | | | | | | | | | | | **BR** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AIR VOLUME | 205 | 360 | 360 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 |
| PLENUM PRESSURE | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
| ACTUAL DUCT LGH. | 43 | 23 | 23 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 18 |
| EQUIVALENT LENGTH | 130 | 145 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 190 |
| TOTAL EFFECTIVE LH | 173 | 168 | 173 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 208 |
| ADJUSTED PRESSURE | 0.10 | 0.10 | 0.10 | 16.72 | 16.72 | 16.72 | 16.72 | 16.72 | 16.72 | 16.72 | 16.72 | 16.72 | 16.72 | 16.72 | 16.72 | 16.72 | 0.08 |
| ROUND DUCT SIZE | 7.3 | 9 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4.6 |
| INLET GRILL SIZE | 8 | 8 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| INLET GRILL SIZE | 14 | 30 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |

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

Michael O'Rourke INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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SITE NAME: VALES OF HUMBER SOUTH
BUILDER: ROYAL PINE HOMES

TYPE: 5008 DATE: Jul-24 GFA: 4382 LO# 95285 **FURNACE 2**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HEATING CFM | 770 | COOLING CFM | 770 | **FACTORY** | furnace pressure | 0.6 | FURNACE HEAT LOSS + | | **CARRIER** | AFUE = | 96 % |
| TOTAL HEAT LOSS | 20,629 | TOTAL HEAT GAIN | 24,392 | **INSTALLED** | furnace filter | 0 | HRV / ERV HEAT LOSS | | **59SC6A026M14--10** | **26** | INPUT (BTU/H) = | 26,000 |
| AIR FLOW RATE CFM | 37.33 | AIR FLOW RATE CFM | 31.57 | | a/c coil pressure | 0.26 | = 23634 BTUH | | FAN SPEED | | OUTPUT (BTU/H) = | **25,000** |
| | | | | | available pressure | | | | LOW | 0 | | |
| | | | | | for s/a & r/a | 0.34 | | | MEDLOW | 545 | DESIGN CFM = | **770** |
| | | | | | | | | | MEDIUM | 770 | CFM @ .6 " E.S.P. | |
| | | | | | plenum pressure s/a | 0.18 | r/a pressure | 0.16 | MEDIUM HIGH | 0 | | |
| | | | | | max s/a dif press. loss | 0.02 | r/a grille press. Loss | 0.02 | | | | |
| | | | | | min adjusted pressure s/a | 0.16 | adjusted pressure r/a | 0.14 | HIGH | 0 | TEMPERATURE RISE | 30 °F |

| RUN COUNT | 4th | 3rd | 2nd | 1st | Bas |
|---|---|---|---|---|---|
| S/A | 0 | 0 | 15 | 0 | 0 |
| R/A | 0 | 0 | 6 | 0 | 0 |

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

| RUN # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROOM NAME | PR/ST | PR/ST | PR/ST | ENS | BED-2 | BED-2 | BATH-2 | BED-3 | BED-3 | BATH-3 | BED-4 | BED-4 | SHARED | BED-5 | BED-5 |
| RM LOSS MBH. | 1.63 | 1.63 | 1.63 | 1.75 | 1.02 | 1.02 | 0.95 | 1.84 | 1.84 | 1.42 | 1.81 | 1.81 | 0.63 | 0.82 | 0.82 |
| CFM PER RUN HEAT | 61 | 61 | 61 | 65 | 38 | 38 | 36 | 69 | 69 | 53 | 68 | 68 | 23 | 31 | 31 |
| RM GAIN MBH. | 2.04 | 2.04 | 2.04 | 1.44 | 1.25 | 1.25 | 0.36 | 2.38 | 2.38 | 1.07 | 2.65 | 2.65 | 0.18 | 1.34 | 1.34 |
| CFM PER RUN COOLING | 64 | 64 | 64 | 46 | 40 | 40 | 11 | 75 | 75 | 34 | 84 | 84 | 6 | 42 | 42 |
| ADJUSTED PRESSURE | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.17 | 0.17 | 0.17 |
| ACTUAL DUCT LGH. | 41 | 69 | 53 | 58 | 56 | 54 | 59 | 58 | 62 | 68 | 62 | 59 | 57 | 67 | 31 |
| EQUIVALENT LENGTH | 160 | 150 | 140 | 160 | 170 | 190 | 140 | 140 | 150 | 110 | 170 | 150 | 110 | 150 | 160 |
| TOTAL EFFECTIVE LENGTH | 201 | 219 | 193 | 218 | 226 | 244 | 199 | 198 | 212 | 178 | 232 | 209 | 167 | 217 | 191 |
| ADJUSTED PRESSURE | 0.08 | 0.08 | 0.09 | 0.08 | 0.07 | 0.07 | 0.08 | 0.08 | 0.08 | 0.09 | 0.07 | 0.08 | 0.1 | 0.08 | 0.09 |
| ROUND DUCT SIZE | 5 | 5 | 5 | 5 | 5 | 5 | 4 | **6** | **6** | 5 | **6** | **6** | 4 | 5 | 4 |
| HEATING VELOCITY (ft/min) | 448 | 448 | 448 | 477 | 279 | 279 | 413 | 352 | 352 | 389 | 347 | 347 | 264 | 228 | 356 |
| COOLING VELOCITY (ft/min) | 470 | 470 | 470 | 338 | 294 | 294 | 126 | 382 | 382 | 250 | 428 | 428 | 69 | 308 | 482 |
| OUTLET GRILL SIZE | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 4X10 | 4X10 | 3X10 | 4X10 | 4X10 | 3X10 | 3X10 | 3X10 |
| TRUNK | C | C | C | C | C | C | B | A | A | B | A | A | B | B | 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 | |

**SUPPLY AIR TRUNK SIZE**

| | TRUNK CFM | STATIC PRESS. | ROUND DUCT | RECT DUCT | | | VELOCITY (ft/min) | | TRUNK CFM | STATIC PRESS. | ROUND DUCT | RECT DUCT | | | VELOCITY (ft/min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TRUNK A | 274 | 0.07 | 8.9 | 10 | x | 8 | 493 | TRUNK G | 0 | 0.00 | 0 | 0 | x | 8 | 0 |
| TRUNK B | 448 | 0.07 | 10.7 | 14 | x | 8 | 576 | TRUNK H | 0 | 0.00 | 0 | 0 | x | 8 | 0 |
| TRUNK C | 324 | 0.07 | 9.5 | 10 | x | 8 | 583 | TRUNK I | 0 | 0.00 | 0 | 0 | x | 8 | 0 |
| TRUNK D | 0 | 0.00 | 0 | 0 | x | 8 | 0 | TRUNK J | 0 | 0.00 | 0 | 0 | x | 8 | 0 |
| TRUNK E | 0 | 0.00 | 0 | 0 | x | 8 | 0 | TRUNK K | 0 | 0.00 | 0 | 0 | x | 8 | 0 |
| TRUNK F | 0 | 0.00 | 0 | 0 | x | 8 | 0 | TRUNK L | 0 | 0.00 | 0 | 0 | x | 8 | 0 |

**RETURN AIR TRUNK SIZE**

| | TRUNK CFM | STATIC PRESS. | ROUND DUCT | RECT DUCT | | | VELOCITY (ft/min) |
|---|---|---|---|---|---|---|---|
| TRUNK O | 0 | 0.05 | 0 | 0 | x | 8 | 0 |
| TRUNK P | 0 | 0.05 | 0 | 0 | x | 8 | 0 |
| TRUNK Q | 0 | 0.05 | 0 | 0 | x | 8 | 0 |
| TRUNK R | 0 | 0.05 | 0 | 0 | x | 8 | 0 |
| TRUNK S | 0 | 0.05 | 0 | 0 | x | 8 | 0 |
| TRUNK T | 0 | 0.05 | 0 | 0 | x | 8 | 0 |
| TRUNK U | 0 | 0.05 | 0 | 0 | x | 8 | 0 |
| TRUNK V | 0 | 0.05 | 0 | 0 | x | 8 | 0 |
| TRUNK W | 0 | 0.05 | 0 | 0 | x | 8 | 0 |
| TRUNK X | 770 | 0.05 | 14.3 | 24 | x | 8 | 578 |
| TRUNK Y | 375 | 0.05 | 10.9 | 14 | x | 8 | 482 |
| TRUNK Z | 315 | 0.05 | 10.2 | 12 | x | 8 | 473 |
| DROP | 770 | 0.05 | 14.3 | 24 | x | 10 | 462 |

| **RETURN AIR #** | 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | | **BR** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AIR VOLUME | 230 | 85 | 85 | 75 | 85 | 215 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PLENUM PRESSURE | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| ACTUAL DUCT LGH. | 62 | 57 | 61 | 82 | 66 | 64 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| EQUIVALENT LENGTH | 180 | 175 | 175 | 220 | 185 | 215 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL EFFECTIVE LH | 242 | 232 | 236 | 302 | 251 | 279 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| ADJUSTED PRESSURE | 0.06 | 0.06 | 0.06 | 0.05 | 0.06 | 0.05 | 14.32 | 14.32 | 14.32 | 14.32 | 14.32 | 14.32 | 14.32 | 14.32 | 14.32 | 14.32 |
| ROUND DUCT SIZE | 8.7 | 6 | 6 | 6 | 6 | 8.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| INLET GRILL SIZE | 8 | 8 | 8 | 8 | 8 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| INLET GRILL SIZE | 30 | 14 | 14 | 14 | 14 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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TYPE: 5008 LO # 95285
SITE NAME: VALES OF HUMBER SOUTH

# 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 | 4 | @ 10.6 cfm | 42.4 | cfm |
| Kitchen & Bathrooms | 6 | @ 10.6 cfm | 63.6 | cfm |
| Other Rooms | 6 | @ 10.6 cfm | 63.6 | cfm |
| Table 9.32.3.A. | | TOTAL | 212.0 | cfm |

**PRINCIPAL VENTILATION CAPACITY REQUIRED** 9.32.3.4.(1)

| | | | |
|---|---|---|---|
| 1 | Bedroom | 31.8 | cfm |
| 2 | Bedroom | 47.7 | cfm |
| 3 | Bedroom | 63.6 | cfm |
| 4 | Bedroom | 79.5 | cfm |
| 5 | Bedroom | 95.4 | cfm |
| | **TOTAL** | **95.4** | **cfm** |

**SUPPLEMENTAL VENTILATION CAPACITY** 9.32.3.5.

| | | |
|---|---|---|
| Total Ventilation Capacity | 212 | cfm |
| Less Principal Ventil. Capacity | 150 | cfm |
| Required Supplemental Capacity | 62.0 | cfm |

**PRINCIPAL EXHAUST FAN CAPACITY**

Model: VANEE V150H Location: BSMT

150.0 cfm [✓] HVI Approved

**PRINCIPAL EXHAUST HEAT LOSS CALCULATION**

| CFM | | ΔT °F | | FACTOR | | % LOSS |
|---|---|---|---|---|---|---|
| 150.0 CFM | X | 74 F | X | 1.08 | X | 0.25 |

**SUPPLEMENTAL FANS** BY INSTALLING CONTRACTOR

| Location | Model | cfm | HVI | Sones |
|---|---|---|---|---|
| ENS | BY INSTALLING CONTRACTOR | 50 | ✓ | 3.5 |
| BATH-2 | BY INSTALLING CONTRACTOR | 50 | ✓ | 3.5 |
| SHARED | BY INSTALLING CONTRACTOR | 50 | ✓ | 3.5 |
| BATH-3 | BY INSTALLING CONTRACTOR | 50 | ✓ | 3.5 |

**HEAT RECOVERY VENTILATOR** 9.32.3.11.

Model: VANEE V150H INSTALL 2 HRV / ERV's

150 cfm high 35 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:** ROYAL PINE 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: July-24

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

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# CSA F280-12 Residential Heat Loss and Heat Gain Calculations

## Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 95285 Model: 5008 Builder: ROYAL PINE HOMES Date: 7/11/2024

### Volume Calculation

**House Volume**

| Level | Floor Area (ft²) | Floor Height (ft) | Volume (ft³) |
|---|---|---|---|
| Bsmt | 2059 | 10 | 20590 |
| First | 2059 | 11 | 22649 |
| Second | 2398 | 9 | 21582 |
| Third | 0 | 9 | 0 |
| Fourth | 0 | 9 | 0 |
| | | Total: | 64,821.0 ft³ |
| | | Total: | 1835.5 m³ |

### Air Change & Delta T Data

| | |
|---|---|
| WINTER NATURAL AIR CHANGE RATE | 0.234 |
| SUMMER NATURAL AIR CHANGE RATE | 0.076 |

**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

$$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

0.234 x 509.87 x 41 °C x 1.2 = 5912 W

= **20170 Btu/h**

### 6.2.6 Sensible Gain due to Air Leakage

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

= 0.076 x 509.87 x 6 °C x 1.2 = 285 W

= **972 Btu/h**

### 5.2.3.2 Heat Loss due to Mechanical Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

x 2 HRV / ERV's

300 CFM x 74 °F x 1.08 x 0.25 = **6010 Btu/h**

### 6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

300 CFM x 11 °F x 1.08 x 0.25 = **891 Btu/h**

### 5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

$$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$$

| Level | Level Factor (LF) | HLairve Air Leakage + Ventilation Heat Loss (Btu/h) | Level Conductive Heat Loss: ($HL_{clevel}$) | Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel) |
|---|---|---|---|---|
| **1** | 0.5 | 20,170 | 11,056 | 0.912 |
| **2** | 0.3 | | 16,931 | 0.357 |
| **3** | 0.2 | | 16,044 | 0.251 |
| **4** | 0 | | 0 | 0.000 |
| **5** | 0 | | 0 | 0.000 |

*HLairbv = Air leakage heat loss + ventilation heat loss
*For a balanced or supply only ventilation system HLairve = 0

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# HEAT LOSS AND GAIN SUMMARY SHEET

**MODEL:** 5008 **BUILDER:** ROYAL PINE HOMES
**SFQT:** 4382 **LO#** 95285 **SITE:** VALES OF HUMBER SOUTH

## 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 |
| | | WINDOW SHGC | 0.60 |

## BUILDING DATA

| | | | |
|---|---|---|---|
| ATTACHMENT: | DETACHED | # OF STORIES (+BASEMENT): | 3 |
| FRONT FACES: | EAST | ASSUMED (Y/N): | Y |
| AIR CHANGES PER HOUR: | 2.50 | ASSUMED (Y/N): | Y |
| AIR TIGHTNESS CATEGORY: | TIGHT | ASSUMED (Y/N): | Y |
| WIND EXPOSURE: | SHELTERED | ASSUMED (Y/N): | Y |
| HOUSE VOLUME ($ft^3$): | 64821.0 | ASSUMED (Y/N): | Y |
| INTERNAL SHADING: | BLINDS/CURTAINS | ASSUMED OCCUPANTS: | 6 |
| INTERIOR LIGHTING LOAD ($Btu/h/ft^2$): | 1.60 | DC BRUSHLESS MOTOR (Y/N): | Y |
| FOUNDATION CONFIGURATION | BCIN_1 | DEPTH BELOW GRADE: | 7.0 ft |
| LENGTH: 66.0 ft | WIDTH: 42.0 ft | EXPOSED PERIMETER: | 216.0 ft |

| **2012 OBC - COMPLIANCE PACKAGE**<br>**Component** | **Compliance Package SB-12 PERFORMANCE** | |
|---|---|---|
| | **Nominal** | **Min. Eff.** |
| Ceiling with Attic Space Minimum RSI (R)-Value | 60 | 59.22 |
| Ceiling Without Attic Space Minimum RSI (R)-Value | 31 | 27.65 |
| Exposed Floor Minimum RSI (R)-Value | 31 | 29.80 |
| Walls Above Grade Minimum RSI (R)-Value | 22+1.5 | 21.40 |
| Basement Walls Minimum RSI (R)-Value | 20 | 21.12 |
| Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value | - | - |
| Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value | 10 | 10 |
| Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value | 10 | 11.13 |
| Windows and Sliding Glass Doors Maximum U-Value | 1.6 | - |
| Skylights Maximum U-Value | 2.6 | - |
| Space Heating Equipment Minimum AFUE | 0.96 | - |
| HRV Minimum Efficiency | 75% | - |
| Domestic Hot Water Heater Minimum EF | 0.9 | - |

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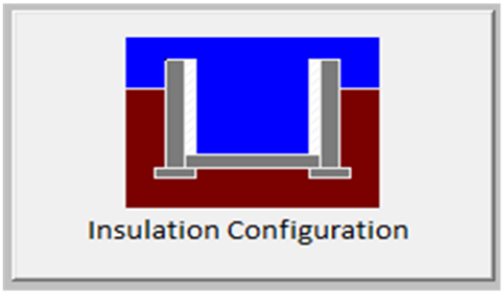
# Residential Foundation Thermal Load Calculator

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): | **20.1** |  Insulation Configuration |
| Floor Width (m): | **12.8** | |
| Exposed Perimeter (m): | **0.0** | |
| Wall Height (m): | **3.0** | |
| Depth Below Grade (m): | **2.13** | |
| Window Area ($m^2$): | **2.2** | |
| Door Area ($m^2$): | **1.9** | |
| **Radiant Slab** | | |
| Heated Fraction of the Slab: | **0** | |
| Fluid Temperature (°C): | **33** | |
| **Design Months** | | |
| **Heating Month** | **1** | |
| **Foundation Loads** | | |
| **Heating Load (Watts):** | **2282** | |

**TYPE:** 5008
**LO#** 95285

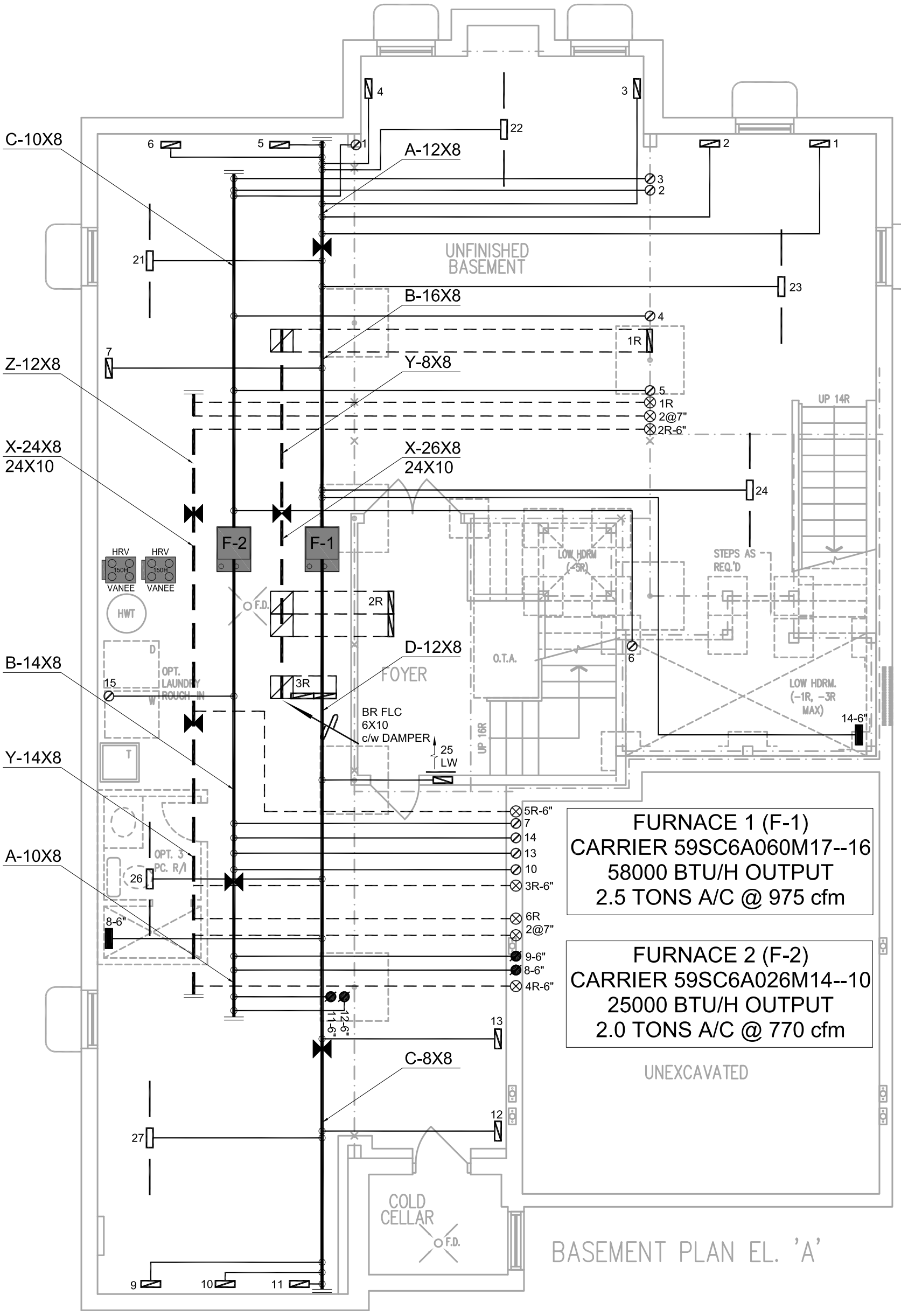
HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

# Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description | |
|---|---|
| Province: | Ontario |
| Region: | Brampton |
| Weather Station Location: | Open flat terrain, grass |
| Anemometer height (m): | 10 |
| **Local Shielding** | |
| Building Site: | Suburban, forest |
| Walls: | Heavy |
| Flue: | Heavy |
| Highest Ceiling Height (m): | 7.01 |
| **Building Configuration** | |
| Type: | Detached |
| Number of Stories: | Two |
| Foundation: | Full |
| House Volume ($m^3$): | 1835.5 |
| **Air Leakage/Ventilation** | |
| Air Tightness Type: | Energy Star Detached (2.5 ACH) |
| Custom BDT Data: | ELA @ 10 Pa. 1713.5 $cm^2$ |
| | 2.50 ACH @ 50 Pa |
| Mechanical Ventilation (L/s): | Total Supply 70.8 / Total Exhaust 70.8 |
| **Flue Size** | |
| Flue #: | #1 #2 #3 #4 |
| Diameter (mm): | 0 0 0 0 |
| **Natural Infiltration Rates** | |
| **Heating Air Leakage Rate (ACH/H):** | **0.234** |
| **Cooling Air Leakage Rate (ACH/H):** | **0.076** |

**TYPE:** 5008
**LO#** 95285




FURNACE 1 (F-1)
CARRIER 59SC6A060M17--16
58000 BTU/H OUTPUT
2.5 TONS A/C @ 975 cfm

FURNACE 2 (F-2)
CARRIER 59SC6A026M14--10
25000 BTU/H OUTPUT
2.0 TONS A/C @ 770 cfm

HVAC LEGEND

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

| No. | Description | Date |
|---|---|---|
| 3. | | |
| 2. | UPDATED EQUIPMENT | JUL/2022 |
| 1. | REVISED TO PERFORMANCE PATH | APR/2022 |

REVISIONS



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 BCIN # 19669
HVAC Designs Ltd.

SB-12 PERFORMANCE

Client
ROYAL PINE HOMES

Project Name
VALES OF HUMBER SOUTH
BRAMPTON, ONTARIO

5008 4382 sqft

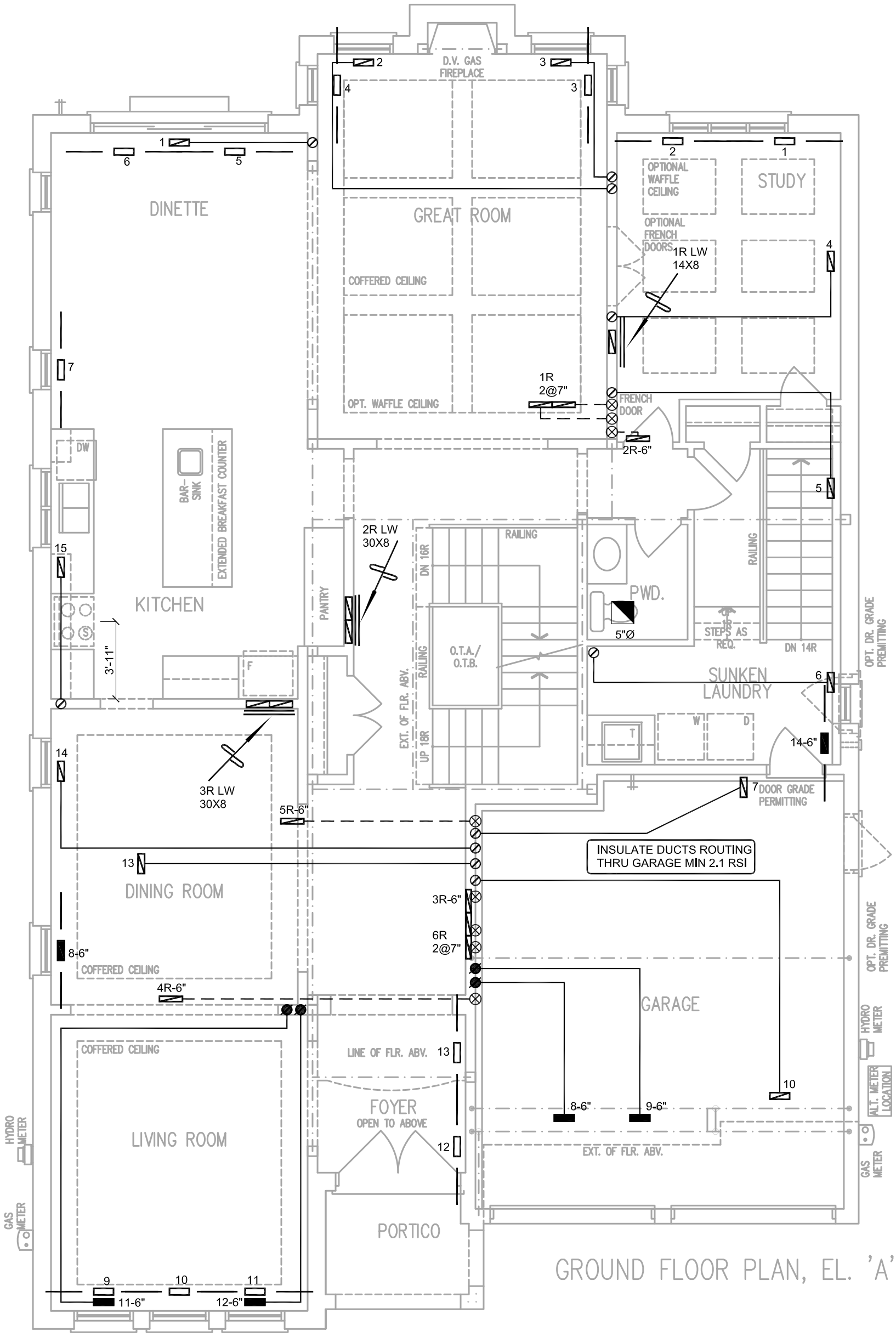
HVAC DESIGNS LTD.
375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdesigns.ca
Web: www.hvacdesigns.ca
Specializing in Residential Mechanical Design Services

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

| | S/A | R/A | FANS |
|---|---|---|---|
| 2ND | 15 | 6 | 3 |
| 1ST | 14 | 3 | 2 |
| BAS | 7 | 1 | 0 |

Sheet Title
BASEMENT HEATING LAYOUT

Date MAR/2022
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 95285




HVAC LEGEND

| SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| — ▭ — | SUPPLY AIR GRILLE | ▬ | 6" SUPPLY AIR BOOT ABOVE | ▭ | 14"x8" RETURN AIR GRILLE | ▭ | RETURN AIR STACK ABOVE |
| — ▬ — | SUPPLY AIR GRILLE 6" BOOT | ⊘ | SUPPLY AIR STACK FROM 2nd FLOOR | ▭ | 30"x8" RETURN AIR GRILLE | ⊠ | RETURN AIR STACK 2nd FLOOR |
| ▭ | SUPPLY AIR BOOT ABOVE | ● | 6" SUPPLY AIR STACK 2nd FLOOR | ▭ | FRA- FLOOR RETURN AIR GRILLE | ⧗ | REDUCER |

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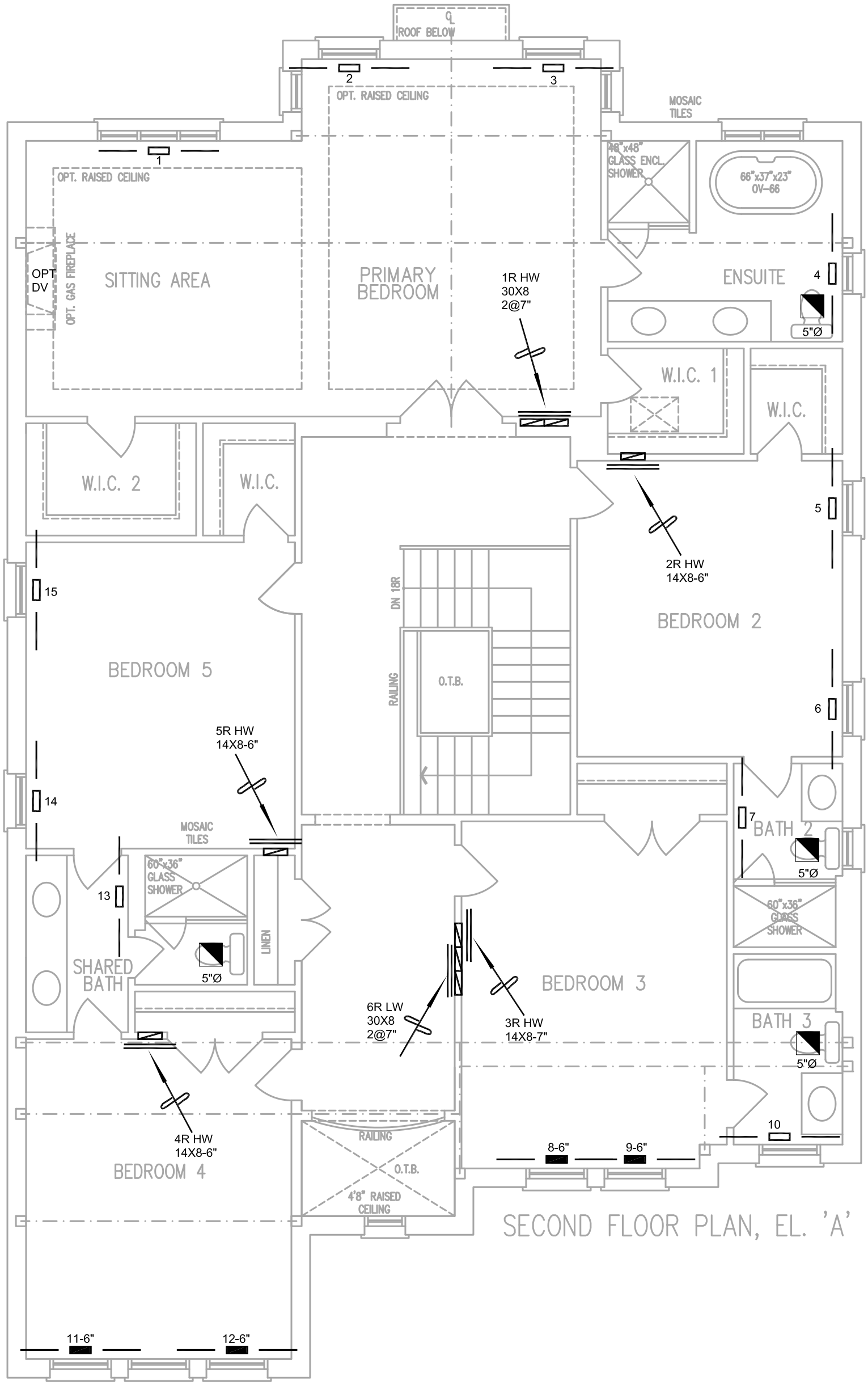
Sheet Title
FIRST FLOOR HEATING LAYOUT

Date MAR/2022
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 95285




SECOND FLOOR PLAN, EL. 'A'

## HVAC LEGEND

| SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| — ▭ — | SUPPLY AIR GRILLE | ▬ | 6" SUPPLY AIR BOOT ABOVE | ▱ | 14"x8" RETURN AIR GRILLE | ▨ | RETURN AIR STACK ABOVE |
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| ▨ | SUPPLY AIR BOOT ABOVE | ⊘ | 6" SUPPLY AIR STACK 2nd FLOOR | ▤ | FRA- FLOOR RETURN AIR GRILLE | ⧗ | REDUCER |

| No. | Description | Date |
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Sheet Title
SECOND FLOOR HEATING LAYOUT

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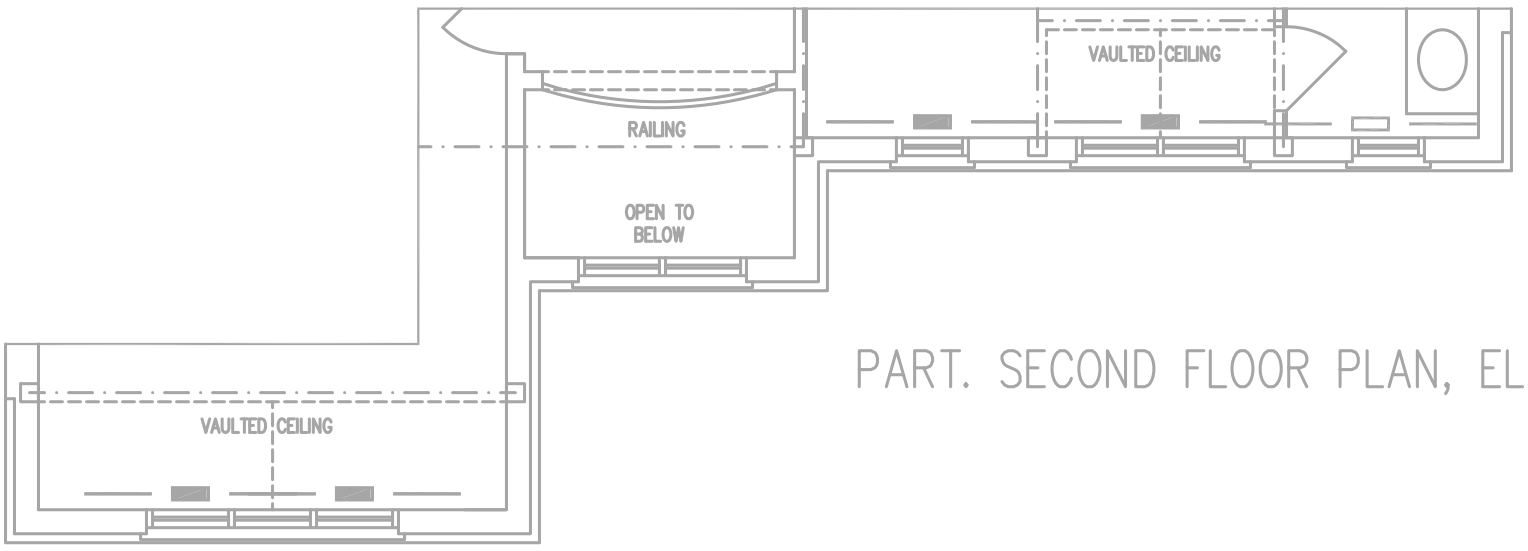
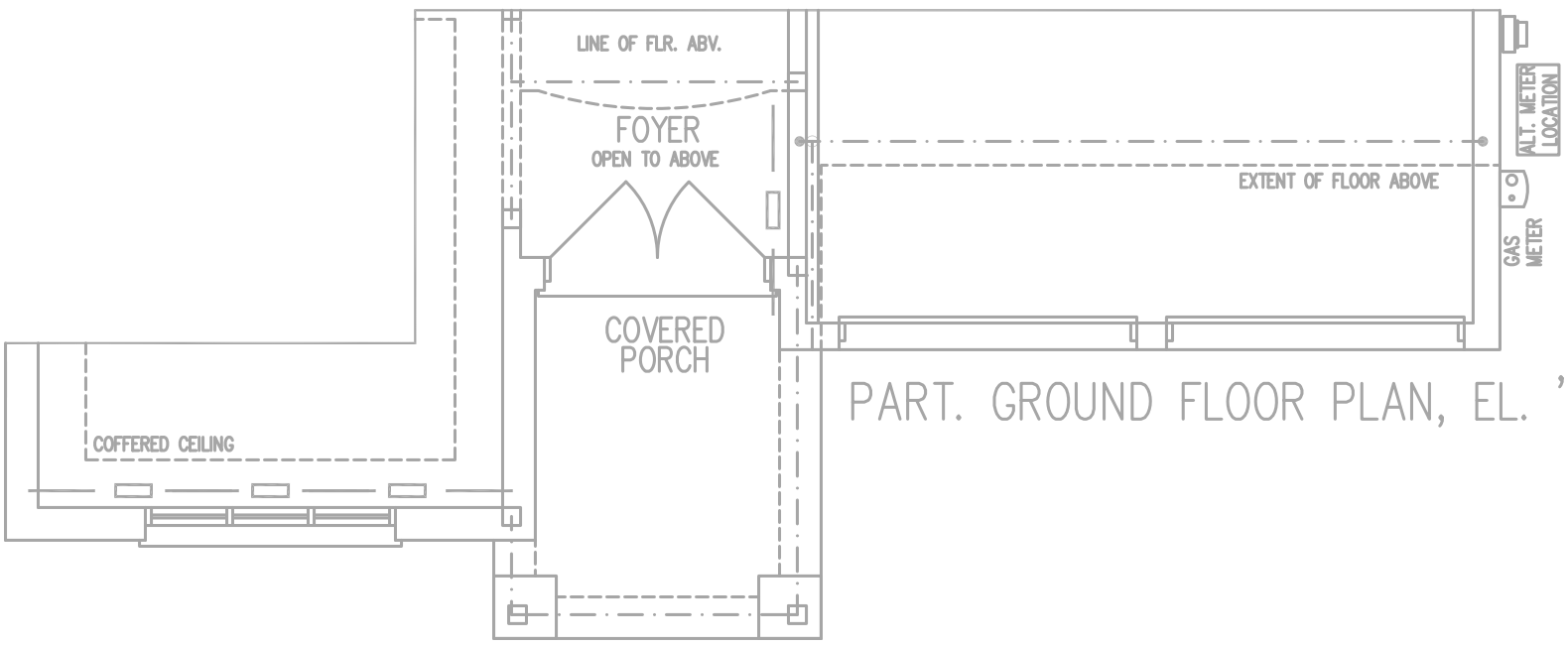
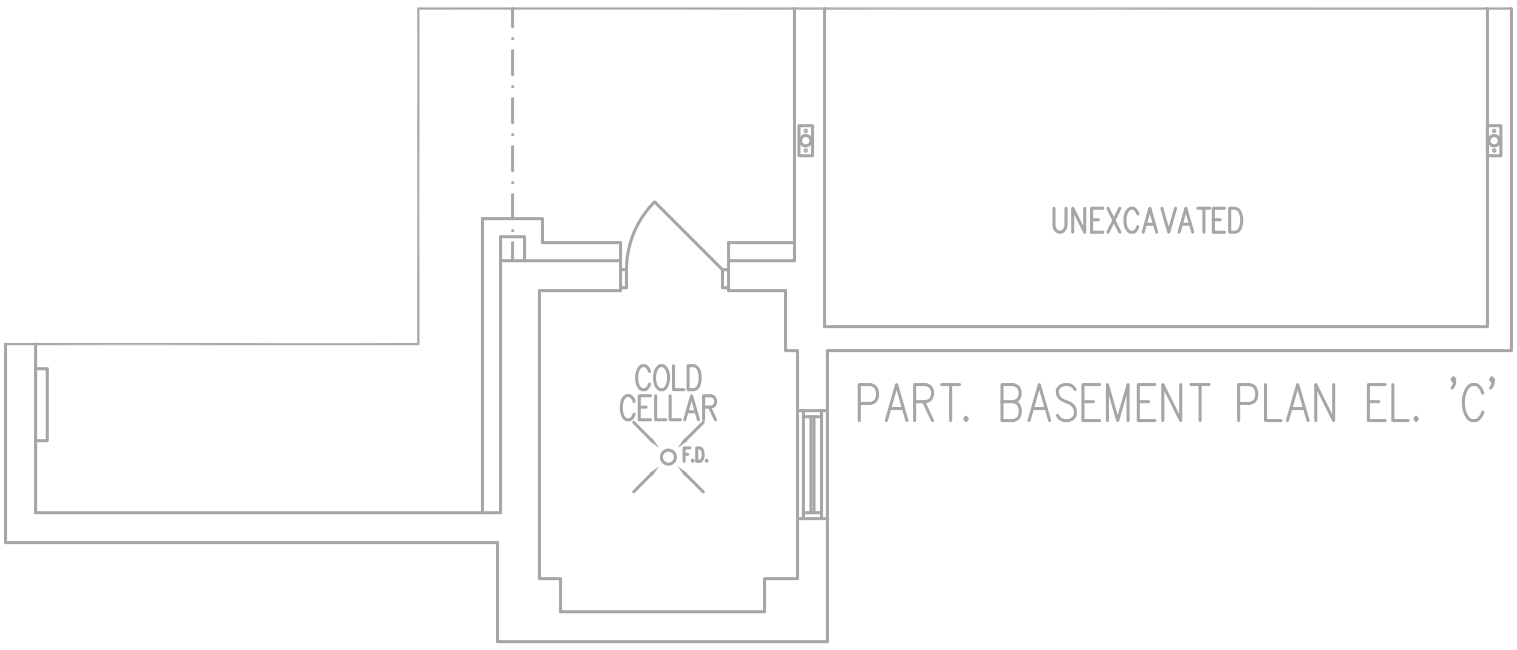
BCIN# 19669
LO# 95285




PART. SECOND FLOOR PLAN, EL. 'C'




PART. GROUND FLOOR PLAN, EL. 'C'




PART. BASEMENT PLAN EL. 'C'

HVAC LEGEND

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Sheet Title
ELEVATION C
HEATING
LAYOUT

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BCIN# 19669
LO# 95285