

## Project Information

Project #: \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Location: \_\_\_\_\_

Notes: Design based on information provided by the customer and generalized R-values are used for heat loss summary. For a 100% accurate calculations exact building specifications must be given (eg. R-values of walls, floors, ceilings, windows, doors etc)  
 The hydronic designer is not responsible for an improperly installed existing/new hydronic heating system. Please ensure all local codes and proper piping practices are used when installing hydronic heating systems.

## Project Summary

|                          |                  |                        |                      |                           |                |
|--------------------------|------------------|------------------------|----------------------|---------------------------|----------------|
| Load Calculation Method: | CSA F280-12      | Total Circuit Lengths: |                      | Component Losses:         | 71,000 Btu/hr  |
| Design Location:         | Calgary, Alberta | Barrier PEX 1/2"       | 5,358 ft             | Infiltration/Ventilation: | 32,112 Btu/hr  |
| Outdoor Temperature:     | -22.0 °F         |                        |                      | Radiant Back Losses:      | 8,012 Btu/hr   |
| Floorplans / Levels:     |                  | Total RH Circuits:     | 23                   | Total Heating Load:       | 111,123 Btu/hr |
| Main Floor               | 4,152 ft²        | Total Manifolds:       | 4                    |                           |                |
| Loft                     | 1,159 ft²        | Total Zones:           | 2                    | Radiant Heating:          | 100,585 Btu/hr |
| Total Area:              | 5,311 ft²        |                        |                      | Radiant Back Losses:      | 8,012 Btu/hr   |
|                          |                  | Fluid Type:            | 30% Propylene Glycol | Other:                    | 2,527 Btu/hr   |
|                          |                  | Total Tubing Volume:   | 49.32 USG            | Total Heating Load:       | 111,123 Btu/hr |
|                          |                  | Glycol Volume (30%):   | 14.80 USG            |                           |                |

## Zone Heating Summary

| Zone #   | Gross Area | Construction       | Heating Types | RH¹ Circuits | Total Tubing | Manifolds | Flowrate | Head Loss (Circuit Only) | RH Load² | Supplemental | Zone Load³ |
|----------|------------|--------------------|---------------|--------------|--------------|-----------|----------|--------------------------|----------|--------------|------------|
| Zone 101 | 4,152      | Embedded Slab      | RH,OTH        | 18           | 4,237        | 3         | 9.91     | 7.2                      | 89,359   | 2,527        | 91,886     |
| Zone 201 | 1,159      | Concrete Thin Slab | RH            | 5            | 1,121        | 1         | 2.42     | 3.9                      | 22,954   | 0            | 22,954     |

(1) Complete circuits assigned to this zone. (2) Total Radiant heating load for rooms in zone, including all panel backloss. (3) Total load for zone including all panel backloss. Does not account for reclaimed loss within building envelope.

## Room Heating Summary (By Construction Type)

## Embedded Slab

| Zone #   | Room Name                 | Heating Type | Floor Area | Heated Area | Manifold # | Tube Size | RH Circuits <sup>1</sup> | Tube Spacing | Tubing In Room | Floor Cover RV | Required Temp. | Unit RH Load | RH Load <sup>2</sup> | Supplemental | Total Load <sup>3</sup> |
|----------|---------------------------|--------------|------------|-------------|------------|-----------|--------------------------|--------------|----------------|----------------|----------------|--------------|----------------------|--------------|-------------------------|
| Zone 101 | Bed Hall                  | RH           | 56         | 56          | n/a        | n/a       | 0                        |              | 64             | 0.5            | 0              | 7.4          | 417                  | 0            | 417                     |
| Zone 101 | Bedroom 1                 | RH, OTH      | 255        | 255         | Manifold 4 | 1/2"      | 2                        |              | 262            | 0.5            | 135            | 36.7         | 9,355                | 1,149        | 10,504                  |
| Zone 101 | Bedroom 2                 | RH           | 203        | 203         | Manifold 4 | 1/2"      | 1                        |              | 209            | 0.5            | 134            | 34.6         | 7,026                | 0            | 7,026                   |
| Zone 101 | Bedroom 3                 | RH           | 187        | 187         | Manifold 4 | 1/2"      | 1                        |              | 180            | 0.5            | 126            | 29.4         | 5,504                | 0            | 5,504                   |
| Zone 101 | Bedroom Bath              | RH           | 71         | 42          | Manifold 4 | 1/2"      | 1                        |              | 43             | 0.5            | 134            | 21.6         | 899                  | 0            | 899                     |
| Zone 101 | Den                       | RH, OTH      | 147        | 147         | n/a        | n/a       | 0                        |              | 149            | 0.5            | 0              | 31.3         | 4,596                | 793          | 5,390                   |
| Zone 101 | Ensuite                   | RH           | 233        | 233         | Manifold 3 | 1/2"      | 1                        |              | 235            | 0.5            | 114            | 23.7         | 5,510                | 0            | 5,510                   |
| Zone 101 | Garage                    | RH           | 896        | 896         | Manifold 2 | 1/2"      | 4                        |              | 947            | 0.5            | 120            | 26           | 23,265               | 0            | 23,265                  |
| Zone 101 | Hallway                   | RH           | 152        | 82          | n/a        | n/a       | 0                        |              | 102            | 0.5            | 0              | 8.1          | 661                  | 0            | 661                     |
| Zone 101 | Kitchen/Living/<br>Dining | RH           | 1,047      | 1,047       | Manifold 3 | 1/2"      | 6                        |              | 1,055          | 0.5            | 112            | 20.1         | 21,032               | 0            | 21,032                  |
| Zone 101 | Laundry                   | RH           | 76         | 76          | Manifold 3 | 1/2"      | 1                        |              | 75             | 0.5            | 94             | 0            | 2                    | 0            | 2                       |
| Zone 101 | Mech Room                 | RH           | 94         | 94          | n/a        | n/a       | 0                        |              | 174            | 0.5            | 0              | 12           | 1,133                | 0            | 1,133                   |
| Zone 101 | Mudroom                   | RH           | 48         | 48          | n/a        | n/a       | 0                        |              | 58             | 0.5            | 0              | 0.1          | 2                    | 0            | 2                       |
| Zone 101 | Owners Suite              | RH           | 224        | 224         | Manifold 3 | 1/2"      | 1                        |              | 214            | 0.5            | 128            | 30.6         | 6,845                | 0            | 6,845                   |
| Zone 101 | Pantry                    | RH           | 80         | 80          | Manifold 3 | 1/2"      | 1                        |              | 79             | 0.5            | 134            | 14.8         | 1,174                | 0            | 1,174                   |
| Zone 101 | Powder Room               | RH, OTH      | 56         | 56          | Manifold 3 | 1/2"      | 1                        |              | 58             | 0.5            | 134            | 34.7         | 1,938                | 585          | 2,523                   |

(1) Circuits assigned to this room. Leaders from other rooms may not be counted. (2) Includes panel backloss. (3) Total load including panel backloss. Does not account for reclaimed loss within building envelope.

## Concrete Thin Slab

| Zone #   | Room Name | Heating Type | Floor Area | Heated Area | Manifold # | Tube Size | RH Circuits <sup>1</sup> | Tube Spacing | Tubing In Room | Floor Cover RV | Required Temp. | Unit RH Load | RH Load <sup>2</sup> | Supplemental | Total Load <sup>3</sup> |
|----------|-----------|--------------|------------|-------------|------------|-----------|--------------------------|--------------|----------------|----------------|----------------|--------------|----------------------|--------------|-------------------------|
| Zone 201 | Loft      | RH           | 1,071      | 1,001       | Manifold 1 | 1/2"      | 5                        |              | 1,091          | 0.5            | 110            | 22.9         | 22,954               | 0            | 22,954                  |

(1) Circuits assigned to this room. Leaders from other rooms may not be counted. (2) Includes panel backloss. (3) Total load including panel backloss. Does not account for reclaimed loss within building envelope.

## Manifold Summary

| Manifold Name | # Zones | # Circuits | Flowrate | Head Loss <sup>1</sup> | Required Temp. | Supplied Temp. | Temp Drop | Manifold Type | Control Type | # Actuators | S/R Length <sup>2</sup> | S/R Pipe |
|---------------|---------|------------|----------|------------------------|----------------|----------------|-----------|---------------|--------------|-------------|-------------------------|----------|
| Manifold 1    | 1       | 5          | 2.42     | 4.9                    | 110            | 120            | 20        | None Selected | Manifold     | 0           | -                       | -        |
| Manifold 2    | 1       | 4          | 2.45     | 6.8                    | 120            | 120            | 20        | None Selected | Manifold     | 0           | -                       | -        |
| Manifold 3    | 1       | 10         | 4.82     | 7.3                    | 134            | 135            | 20        | None Selected | Manifold     | 0           | -                       | -        |

Length = ft Area = ft<sup>2</sup>

Temperature = °F

Flowrate = USGPM

Air Flow = cfm

Heat Loss = Btu/hr

Unit Heat Loss = Btu/hr-ft<sup>2</sup>Rv = hr-ft<sup>2</sup>-°F/btu

Created Using LoopCAD 2017 (1/23/2022)

Head Loss = ft water

RH = Radiant Floor Heating

BB = Baseboard

FA = Forced Air

OTH = Other Heating

SM = Snowmelt

N = Not Heated

Version:17.0.0280 R

See end of report for important Notes and Disclaimers.

Name:Dmitri Bobko

Project #:

## Heating System Summary

January 22, 2022

|            |   |    |       |     |     |     |    |               |          |   |   |   |
|------------|---|----|-------|-----|-----|-----|----|---------------|----------|---|---|---|
| Manifold 4 | 1 | 4  | 2.63  | 8.2 | 135 | 135 | 20 | None Selected | Manifold | 0 | - | - |
| Total      | 2 | 23 | 12.33 | 8.2 | 135 | -   | 20 | -             | -        | 0 | - | - |

(1) Total Head loss includes manifold, circuits and supply/return piping if specified. (2) S/R Length = one way

## Disclaimers

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The calculated values shown in this report are based on the data input by the user of the software. Inaccurate or erroneous data input will result in inaccurate or erroneous results. You are strongly advised to review all input data carefully, and to have the calculated results reviewed by an experienced heating professional to ensure reasonableness and suitability for your application.

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Length = ft Area = ft<sup>2</sup> Temperature = °F Flowrate = USGPM Air Flow = cfm Heat Loss = Btu/hr Unit Heat Loss = Btu/hr-ft<sup>2</sup> Rv = hr-ft<sup>2</sup>-°F/btu  
Head Loss = ft water RH = Radiant Floor Heating BB = Baseboard FA = Forced Air OTH = Other Heating SM = Snowmelt N = Not Heated

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