

Right Sizing Hydronics

Understanding the Basics

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Think about Size

- Size of a vehicle pulling a boat?
- A boat pulling a skier?

Calculating Heating Load

- Manual J
- Software
- Plans and Specifications
- Walk through Take offs

Boiler Sizing

- Oil
- Gas
- Chimney
- Water Temperatures
- Condensing or Non-Condensing

Near Boiler Pipe Sizing

- Pipe Size Calculations
- Flow Requirements
- Temperature Requirements
- Insulation

Expansion Tank Sizing

- Formulas
- Manufacturers Data
- Software Calculations
- Total Water Volume
- Placement

Air Elimination

- Location
- Size
- Types

Circulators

- Calculating Size
- Flow – GPM
- Head Requirement – Ft of Head
- Brass
- Cast Iron
- Stainless Steel
- Variable Speed
- Internal Flow Check

Piping System Layout

- Reverse Return
- Primary Secondary
- Balancing Valves
- Air Purging
- Check Valves

Distribution Piping

- Calculating Pipe Size
- Pressure Losses
- Pipe Branching

Water Temperature Control

- Mixing Valves
 - Thermostatic
 - Electric Motor
 - Manual
- Pump Injection
- Set point Controls

Heat Emission

- Radiators / Panel Heating / Baseboard
- Fan Coils
- Radiant Floor Heating
- Indirect Domestic Hot Water
- Heat Exchangers
 - Pools
 - Snow Melt
 - Hot tubs

Controls

- Outdoor Reset Controls
- Thermostat Controls
 - Non – electric
 - Electronic