THE CITY OF CALGARY

DEVELOPMENT AND BUILDING APPROVALS
Building Regulations Division #8114

HYDRONICS HEATING SYSTEMS BULLETIN

From: The CITY OF CALGARY Plumbing and Gas Section of the Building Regulations Division

ATTENTION ALL BUILDERS, PLUMBERS, HYDRONIC INSTALLERS

Effective **SEPTEMBER 1, 2010** in order to meet the requirements of CSA Standard B214-07 for the installation of hydronic heating systems as well as the City of Calgary permit requirements:

1. All hydronic heating systems will require approved drawings to be on-site at the time of inspection. (Reference: ABC – Directors Interpretation 97-DI-009R1)

2. An Air Test will be required at the time of inspection on all in-floor hydronic systems. (Reference: B214-07 - 4.5.1 Standard – 60 psi or 1.5 times operating pressure for 1 hour)

3. All radiant under-floor or panel type systems will have insulation installed on the underside or back side of the tubing. (Reference B214-07 - 14.4.4: Soil contact R5 under the tube, slab on grade R5 on edges, all other systems R12).

4. Each radiant loop will be tagged to indicate the length and area serviced. (Reference B214-07 - 14.3.3)

5. Each zone or radiant loop must have a method of system balancing (Reference B214-07 – 13.4).

6. The permit holder must request an inspections before covering and a Safety Codes Officer will inform the permit holder the day of the inspection if there will be a site visit.

This NOTICE applies to **Hydronic Heating Systems** that are designed as the **primary heat source** in the building or as a **secondary heat source** (i.e. a house heated with a forced-air furnace that has hydronic radiant under floor tube in the basement).

Examples of hydronic heating systems would include, but not be limited to:

- Poured-floor radiant tubing
- “Staple-up” radiant tubing
- Convective-plate in-floor tubing
- Radiators
- Baseboard heaters
- Fan-coil units

DESIGN REQUIREMENTS : Hydronic heating systems may be:

1. Submitted as a pre-engineered package for review by the authority having jurisdiction, or
2. Custom designed by
A. a professional engineer licensed to practice in the province of Alberta,
B. an individual who holds one of the following qualifications:
i. A Certified Hydronics Designer, as certified by the Canadian Hydronics Council, or
ii. A Residential Hydronics Design Technician, as certified by the Heating, Refrigeration and Air Conditioning Institute of Canada.

Pre-engineered packages shall consist of basic generic system specifications and installation details prepared by a professional engineer and any additional system design data and floor plans specifically applicable to the project. The additional specific system design must be performed by

1. A professional engineer licensed to practice in the province of Alberta, or

2. An individual who holds one of the following qualifications:
a. A Certified Hydronics Designer, as certified by the Canadian Hydronics Council, a council within the Canadian Institute for Plumbing and Heating, or
b. A Residential Hydronics Design Technician, as certified by the Heating, Refrigeration and Air Conditioning Institute of Canada.

SUBMISSION REQUIREMENTS
For all hydronic heating system designs, the plans and specifications submitted shall include, but not be limited to, the following information:

1. The schematic arrangement of the system and the equipment specifications including, but not limited to, boilers, pumps, expansion tanks, zone controls, mixing valves and other system components such as supplementary baseboard and/or fan-coil units, water heater, etc. connecting to the system.

2. Boiler room layout, and if required venting and combustion air provisions for all gas appliances.

3. Piping specifications, spacing, sizes, maximum loop lengths, and pipe support details. Floor plans showing a general layout of the piping loops required for each room or space and the location of the main headers, if applicable.

4. Locations, sizes and specifications for all heat terminal units, such as baseboard heaters, radiators, fan-coil units, etc., if applicable.

5. Cross sections through typical floor assemblies to show piping loop locations and the type of insulation to be provided.

6. System operating parameters including supply and return water temperatures, design flow rates and heat output coefficient of individual piping loops.

7. Room by room heat loss calculations.

For further information contact: Peter Steele at 403-268-2559.