



Home comfort news
for the customers of
Atlas Air & W. Skerratt

An Engineer's Opinion

SPECIAL
EDITION



Editorial

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You can't beat boilers for comfort

Sometime during the 1st century A.D., the Roman statesman Seneca wrote that several Roman homes had "tubes embedded in the walls for directing and spreading, equally throughout the house, a soft and regular heat." The type of heat Seneca was referring to is radiant heat, a form of heat given off in gentle waves by a warm object. The system used to deliver radiant heat in Seneca's day—a network of warmed terra cotta tubes called a hypocaust—has long gone out of style. However, the comfort of central radiant heating has not, and is still delivered to many homeowners through boiler-heated systems.

This special edition of *An Engineer's Opinion* is all about heating with boilers, or as it is known in the industry, hydronic heating. We have many customers who love the comfort of their hydronic system but are concerned about rising energy costs and wonder whether they should replace their older boiler and water piping with a gas furnace and duct work. Forced-air systems do have benefits, but if you already have a hydronic system, it makes a lot more sense in terms of both comfort and economics to upgrade your system rather than change it.

Like everything else, boiler heating has changed with the times, and we've produced this newsletter specifically to introduce you to the new generation of hydronic systems. The

most important change in boiler heating is the improved efficiency of the boilers themselves. Today's boilers are tightly constructed with pilots that use one fourth the fuel of older units. Whereas older boilers have a typical efficiency of about 60% or less, modern boilers are rated at 82%. At the current cost of natural gas you could pay for a new boiler in just a few years.



Nevertheless, the hallmark of a boiler-heated system has always been superior comfort, and today's hydronic systems come with an array of remarkable new options that make day-to-day living more comfortable than ever.

It is even possible to add air conditioning, ventilation, humidification, and air cleaning systems to a boiler-heated home. You can find out more about these and other hydronic heating features inside this issue.

Atlas has been in the boiler business from our earliest days, and as hydronics have changed over the years, we've updated our knowledge of boiler systems and our skills in installing them. If you do have an older boiler system that you'd like to upgrade, please call us.

Roger Grochmal

About *An Engineer's Opinion*

An Engineer's Opinion is published to assist homeowners in creating the healthiest, most comfortable environment in their homes at the most reasonable cost. If you have questions, criticism, or input, we want to hear them. Please call me personally at (905) 279-3440 or e-mail me at rgrochmal@atlasair.ca.

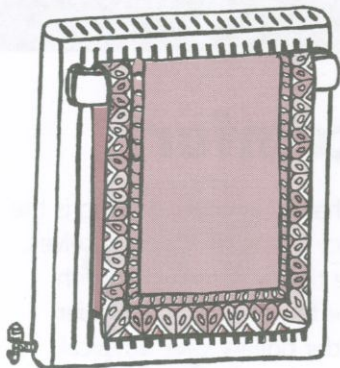
Boiler systems are back in style and better than ever

The primary function of a hydronic system has always been central heating, but newer cast-iron boilers can accommodate a variety of practical and comfortable heating applications that go well beyond space heating. For example, you can add an indirect water heater to provide a plentiful supply of domestic hot water for bathing, laundry, and dish washing. With the aid of a heat exchanger, the system can efficiently heat a pool or spa. A special type of radiator can be added to warm towels.

Perhaps the most comfortable application of all is radiant floor heating. Underfloor heating is not a new idea—the ancient Romans used

heated tubing under the floors of their bath houses. Today, using a special form of plastic tubing, you can circulate heated water under otherwise chilly tile, stone, or wood floors. The same tubing can be embedded in concrete to warm basement or garage floors. When applied under driveways and sidewalks, snow and ice will simply melt away, and you can retire your shovels.

It's worth noting that hydronic systems are pretty flexible when it comes to adding on extra features. You can upgrade your boiler to a more efficient one and enjoy the fuel savings now and then add on other options in the future when you're ready for them.



You can have comfortable, efficient heating and be fashionable too

When people talk about upgrading their hydronic system they're usually referring to their boiler. But boilers are only half of the hydronic story. Radiators actually deliver the heat, and they are certainly the most visible part of the system. You don't necessarily have to upgrade your radiators when you upgrade your boiler, but if you do, there's quite a variety of styles to choose from. For example, if you want to preserve the character of an old house, you can choose

radiators that have new technology but are styled with the traditional elegance of ornate cast-iron moldings and brass valves. At the other end of the style spectrum are the sleek European-style flat panel radiators that come in a variety of colours. Since there is such a wide variety of types and styles of radiators to choose from, we can't describe them all here. If you'd like more information about what's available, please feel free to call the Atlas location nearest you.

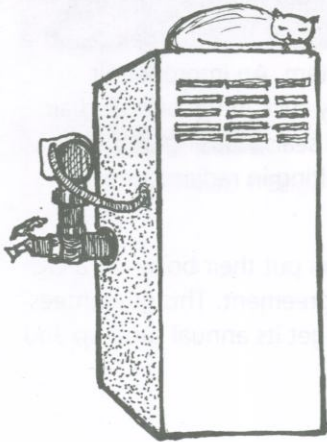
The best of both worlds: combining forced-air and hydronic systems

If you have a forced-air system it is possible to enjoy the superior comfort of hydronic heating and yet keep the duct work that allows you to easily clean, condition, and ventilate your indoor air. The furnace can be replaced with an air handler fitted with a hot water coil. (An air handler is essentially the blower part of the furnace without any heating component.) Because the hot water pipes in a hydronic system are fairly small,

they're relatively easy to add to a home. On the other hand, duct work takes up quite a bit of space and would be much more troublesome to add to a finished home. Of course, if you have a home in which you are doing extensive renovations involving big holes in walls and ceilings, you might consider adding a combination forced-air and hydronic system.

Enjoy clean, fresh, cool air without giving up your boiler

Just because boiler systems are ductless doesn't mean that you can't enjoy central air conditioning, ventilation, or air cleaning. If you have a hydronic system, here are some of your options.



Air conditioning

The Space Pak attic system is specifically designed to cool ductless homes. It has its own air distribution system that operates independently from the heating system. We also have ductless split air conditioners that mount on an inside wall and use ultra-quiet fans to blow cool air into your home.

Air cleaning, ventilation, and humidification

Because there is no air blowing around a boiler-heated home there is less dust moving

about. There is also no need to filter air going into a furnace. Homeowners who suffer from allergies or asthma can get relief from stand-alone portable HEPA air purifiers or can have whole-house HEPA air purifiers installed in conjunction with an energy recovery ventilator (ERV) to provide fresh air. The ERV has its own air distribution system to capture stale air and replace it with fresh air from outside.

There are stand-alone humidifiers available, such as steam models from Nortec and the model 350 from Aprilaire. These can be installed completely independent of the heating system. Humidified air is supplied through a single outlet located centrally and, because it is a vapour, equalizes throughout the home.

Burnham boilers deliver comfort that lasts

Two years ago we looked for a premium boiler supplier who had the technical knowledge, products, and service that we have always demanded from our other suppliers. We found what we were looking for in the Burnham Boiler Company, a family-owned company that has been in the hot-water heating business for over 125 years. They are the largest manufacturer of hot water

boilers in North America, with first-class products and excellent warranties. Most importantly, they have an exemplary reputation for service. Burnham's excellent engineering and application support ensures that every boiler system provides maximum comfort.

For replacement applications, Atlas offers the Burnham Series 2 gas-fired hot water boiler. Rugged cast iron

sections are produced in Burnham's own plant to ensure the highest quality. The Series 2 boilers are built with features that ensure a long life: all heat-exchanger components are made from the same materials so that everything expands and contracts at the same rate, which prevents leaks; the burners are made with stainless steel so they won't rust, and the step opening gas valve ensures quiet operation. The Series 2 boiler comes with a limited lifetime warranty on the heat exchanger. And because all controls are located inside the cabinet, out of reach of small hands, these boilers are a good choice for safety as well as comfort and durability. We're confident that this is the ideal replacement for your old, inefficient, or worn-out boiler.



What to expect from a boiler inspection

You can't expect any appliance to run efficiently and trouble-free year after year without some maintenance.

Boilers are no exception. An annual efficiency and safety inspection performed on your boiler system can save you many hard-earned dollars. A good service technician will perform the following tasks during an annual check-up.

- ◆ Inspect the chimney and vent piping for signs of carbon monoxide leakage;
- ◆ Test the high temperature limit control to prevent the boiler from overheating;
- ◆ Check the pressure relief valve for proper operation and safe discharge;
- ◆ Inspect the gas valve for leaks and proper operation;



- ◆ Check the heat transfer surfaces of the boiler for leaks and to maintain peak efficiency;
- ◆ Inspect the circulator and lubricate if needed;
- ◆ Inspect the expansion tank to ensure that it has the correct amount of air to maintain the pressure in the system. An improper air charge can actually suck in uncontrolled air through vents and seals, causing gurgling in the pipes and resulting in radiators not heating properly.

Most Atlas customers put their boiler on a GC Plan maintenance agreement. This guarantees that your boiler will get its annual tune-up and safety check.

A word about hydronic contractors

If you decide to upgrade your hydronic system it's important to shop carefully for a contractor. Many heating contractors will sell you a boiler and attempt to install some of the specialized hydronic applications described inside this newsletter. But if the contractor does not have the expertise to do the job right, the results can be disastrous. Imagine going to the trouble and expense of installing a new marble floor, only to have it crack because the underfloor heating temperature has been set incorrectly. Alternatively, many traditional

plumbing contractors, while competent when it comes to the boiler and pipes, have little or no knowledge of air conditioning, ventilation, or indoor air quality systems. To ensure that you end up with a comfortable, reliable system, you'll need a contractor with a coordinated team of design, application, installation, and service personnel. Atlas has been installing and servicing boiler systems for 70 years in the greater Toronto area. Our technical representatives would be happy to discuss your home comfort needs.



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