What is the Best Application for your Organization?

Firetube vs. Watertube vs. Condensing Boilers. What's right for you?

A lot of times customers will ask, "We have a commercial building where we are looking to install some new high efficiency heating equipment, what should we do?" There are numerous factors when deciding what system is right for you and your organization. Such as:

- ✓ What type of system do you currently have? Is it a new building?
- ✓ Fuel type(s)?
- ✓ What are your desired efficiency levels?
- ✓ What type of longevity are you expecting?

Some of these questions may sound rather elementary but they are the necessary critical steps. Every site is unique and different variables are more important to some than others. Before we get into the questions we need to understand the differences between fire tube, water tube and condensing boilers. They are a lot easier to understand than you may think!

Firetube/Watertube

What is the difference between a fire tube boiler and a water tube boiler? A fire tube boiler is a pressure vessel consisting of numerous steel 'tubes' (you guessed it) where the products of combustion travel through the steel 'tubes' which are surrounded by hot water. A water tube boiler is just the opposite where the water travels through the tubes which are surrounded by the by-products of combustion. Firetube and water tube boilers can produce steam, superheated steam or hot water (also known as a Hydronic boiler). Firetube boilers are much more prevalent in 1 MBTU to 50 MBTU applications due to their price and ease of maintaining. Water tube boilers have much greater performance capabilities but are generally more expensive and more difficult to maintain.

Firetube boilers come in 2 (historically, but not anymore), 3 or 4 'pass' applications. The more 'passes' a boiler has; the more heat extraction from the steel 'tubes'. The more passes, the more efficient the boiler becomes. A simple way of figuring out whether a boiler is three or four 'passes' is where the stack (exiting flue gases), or vent is positioned on the unit. In a three 'pass' application the stack is on the rear of the boiler. In a four 'pass' boiler the stack is positioned on the front of the boiler.

Some excellent examples of high quality fire tube boilers that George T. Wilkinson, Inc., installs are Hurst (Coolidge, GA) and Easco (Bronx, NY). George T. Wilkinson, Inc. proudly installs Bryan (Peru, IN) water tube boilers.

Condensing Boilers

In today's world, condensing boilers are the 'rage' and for good reason. These strictly hydronic boilers extract the most amount of heat from the boiler thus providing the utmost efficiencies. Like their counterparts the fire tube/water tube boilers, the condensing boiler also contain 'tubes' (although not steel) where the products of combustion travel through the single set of 'tubes' and the water engages around these 'tubes'. These boilers operate by supplying hot water to the necessary source(s) anywhere from 140 degrees Fahrenheit to 210 degrees Fahrenheit. The key is low return water temperature (returning water from heating loop to the unit). Any temperature below 135 degrees Fahrenheit is when condensing occurs and boiler efficiencies increase dramatically. The lower the temperature the more efficiency gained.

Condensing boilers work in the opposite manner of the fire tube and water tube boilers. In a fire tube/water tube boiler its efficiency rises as its burners firing rate increases. Whereas in a condensing boiler the lower the firing rate the greater the efficiency. The reason: fire tube and water tube units must maintain at least 140 degrees Fahrenheit at all times (during firing process) in order to prevent boiler condensing and integral damage. Fire tube and water tube boilers are made of steel and can be destroyed if the water temperature isn't adequate. Condensing boilers are generally made of stainless steel or copper nickel and are durable enough to maintain all conditions. They are rugged, have a smaller footprint but are ultimately a bit more expensive. Be careful though, some condensing boiler manufacturers promise 'the world' but will not have the longevity! Ask a Wilkinson specialist for the pros and con's of all condensing boilers today!

What Type of System do you currently have?

Is your existing building steam or hot water? If you have forced hot water you'll be able to achieve greater efficiencies with a hydronic condensing boiler. If not, a steam fire tube or water tube boiler will suffice with efficiencies expected in the 85-88 percentiles.

All of us who are familiar with Boston and our surrounding areas know that our city isn't exactly new. We are rich in history, tradition and culture. With that being said a lot of the buildings have been around for well over one hundred years so upgrading a heating system sometimes isn't as easy as 1-2-3. Fortunately, we have all the solutions. For example: What do you do when you have a building that was built around a couple of 'monstrous' boilers and they fail? Build a new mechanical room? No. You purchase an Easco Boiler. Easco invented the 'field erected' boiler. Their highly efficient fire tube boilers come in pieces and are welded together on site. We are proud to have installed numerous Easco's for one of the top institutions in Massachusetts: Boston University.

Fuel Type?

What fuel are you currently utilizing and/or what are your options? If you are a customer who has strictly #2 or heavy oil then the fire tube and water tube application is your only option. If you are a customer with natural gas or propane you can choose a condensing model or any fire tube or water tube boiler.

What are the desired efficiency levels?

Most customers obviously want to get the most 'bang for their buck'. With condensing hydronic boilers some customers (depending on load configurations, etc.) can achieve efficiencies upwards of 99%! With fire tube boilers there are various options such as what type of burner do you want to fire into the boiler? What type of control system do you have in mind? All of the questions can be handled by the professionals at George T. Wilkinson, Inc.

What type of longevity are you looking for?

It is an important question that cannot be overlooked. In a perfect world we want a customer's equipment to last forever. We will never tell you a boiler will last forever because it won't. Every manufacturer offers a specific warranty; some are prorated while others are 100% guaranteed. Be sure to get the FACTS before investing in any high efficiency equipment.

Wilkinson Proudly installs the Following High Efficiency Equipment

Fire Tube Boilers	Water Tube Boilers	Condensing Boilers
Easco	Bryan	Aerco
Hurst		

Cast Iron	High Efficiency Burners	High Efficiency Controls
Weil McLain	Powerflame	Autoflame