



## Technical Bulletin

By Joe Fazzari, P.E., Vice President, Colmac Coil Manufacturing, Inc.

### VALUE ENGINEERING A COIL REPLACEMENT

#### Introduction

We are often called upon by our customers to visit a jobsite and measure an old coil for replacement. Instead of simply replacing the coil in kind, try adding some value by taking a technical approach and perhaps solving a problem for your customer.

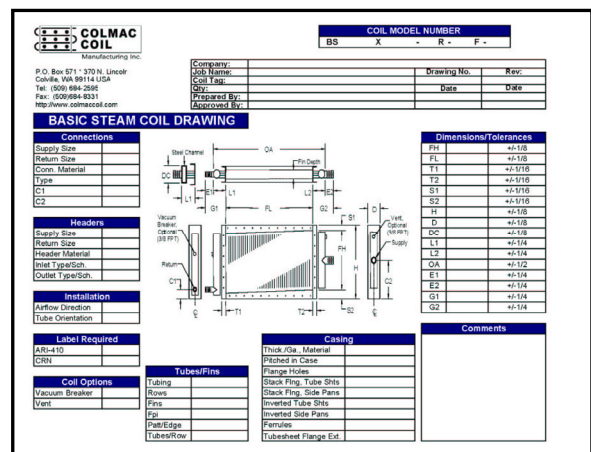
The first thing to do is to determine what type of coil needs replacing: basic water, booster, standard steam, steam distributing, condenser, or direct expansion evaporator. For more details on coil types, you can visit [www.colmaccoil.com](http://www.colmaccoil.com) and browse the Colmac website.

The next thing to do is to start measuring the coil to be replaced. You can obtain blank coil drawings from Colmac, where all you do is simply measure the coil and fill in the blanks on the data sheet drawing. Having this in hand takes you step by step through the coil and all of its characteristics, including the materials of construction and critical dimensions.

Next, take some digital pictures of the coil from as many different angles as possible. If you happen to be missing any information when you get back to the office, you can then refer to the photos and identify the missing information. Pictures are especially helpful for the more custom coil that might have some special features in its construction.

Once you've gathered the physical measurements and taken some pictures, you should ask yourself the following questions:

- 1) Is this the 'best' coil for the application?
- 2) Can I add engineering value to *improve performance, prolong life*, or to improve the *ease of installation*?"



#### What to look at when value engineering a replacement coil

**Tube Thickness:** Thicker, heavier weight tubing translates into longer coil life – Colmac offers coil tubing up to 0.049" thick!

**Casing:** Stainless steel casing for corrosion resistance – Colmac offers 304L or 316 stainless steel casing options in addition to galvanized steel, aluminum, or copper casings. The most common solution to a corroded casing is to use a stainless steel casing.

**Ferrules:** Sometimes adding ferrules to the coil tube sheets is another option that greatly extends the life of a coil. A ferrule is a small copper collar that is placed around the tube where the tube passes through the sheet metal (tube sheet) and prevents the tube from rubbing on the sheet metal and therefore over time causing a leak at that spot on the tube. Ferrules are commonly used on steam coils where the coil tubing experiences a great deal of expansion and contraction during operation.

**Tube and Fin Materials:** Sometimes tube and fin materials are incorrectly specified for a coil's environment. For example, aluminum fins should not be exposed to a marine atmosphere because this environment will corrode an aluminum fin. A

copper fin is more suitable for this application. Sometimes a coil might need to be constructed of stainless steel tubes, or cupro nickel tubes, etc. Contact Colmac for a recommendation if you aren't sure.

**Coatings:** Offering a surface treatment such as a Heresite or Electrofin type coating is also another option you can offer for the coil that is experiencing severe corrosion. Contact Colmac for more information on these coatings.

**Circuiting:** You may be able to improve coil performance by taking the time to review circuiting. For example, a water coil performs best when circuited for counter flow circuiting. Circuiting coils properly insures the correct fluid velocities in the coil tubes. Fluid velocities that are too low result in poor heat transfer. Tube velocities that are too high can lead to premature failures from velocity erosion. You can either use CoilPRO selection software, or contact Colmac to help you design a coil with the proper circuiting for the application you are working on.

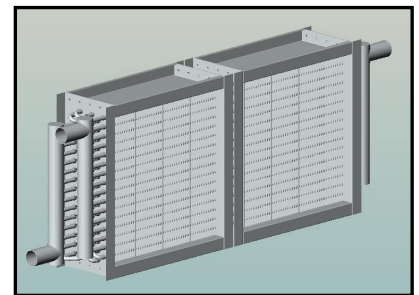
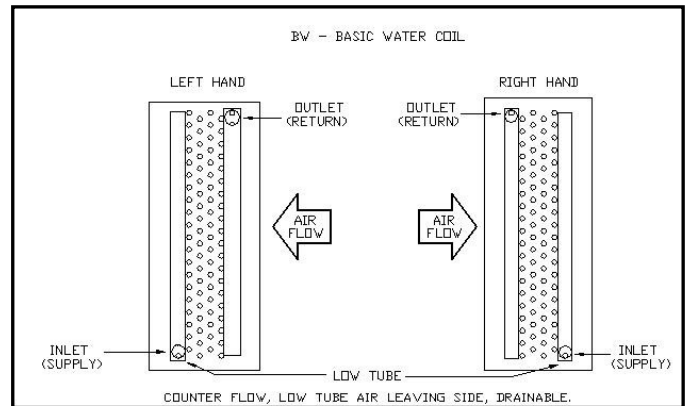
**Configurations:** Try to determine if the old and new coils will fit through an existing hole in the cabinet it's installed in. Installation of the new coil is sometimes easier if you design it as a stack of two smaller coils.

Another option is to replace the coil with two smaller coils placed side by side. Smaller coils are generally easier to handle and install; this will save the installer time and money.

## Conclusion

As you can see, it is easy to add value to a replacement coil by taking a technical approach and offering your customer some of these options. Generally you'll find this is a great way to solve a problem for your customer and keep them calling you for all of their replacement needs. If you have any questions about value engineering a replacement coil, please feel free to contact the Sales Engineering Department at Colmac Coil Manufacturing.

The best way to select a coil is with our user-friendly CoilPRO Heating/Cooling coil selection software. To request access to the program send request via online contact form at [www.colmaccoil.com](http://www.colmaccoil.com)



For more information contact Colmac Coil Manufacturing, Inc.  
[www.colmaccoil.com](http://www.colmaccoil.com) | (800) 845-6778 | (509) 684-2595  
P.O. Box 571, Colville, WA. 99114-0571  
© 2016 Colmac Coil Manufacturing, Inc.