

Chilled water cooling systems were among the first systems used for comfort air conditioning. In 1915, Willis Haviland Carrier, along with other investors, started the Carrier Corporation and became one of the first companies to produce and manufacturer large tonnage, water cooled, absorption chillers. In 1939, Arkla-Servel introduced their first absorption chiller. Many of these first chillers were operated by steam. There are many companies manufacturing large tonnage, water-cooled chillers today and many of them operate by natural gas, steam and even hot water.

In the early 1960's, the Bryant® Corporation introduced the first small tonnage, gas-fired, air-cooled chiller to the HVAC industry. These chillers were available in 3, 4 and 5 ton sizes. Two other companies also manufactured small tonnage, gas-fired, air-cooled chillers during the 1960's; The Whirlpool® Corporation and Arkla® Industries. Thousands of these chillers were installed in residential homes and small commercial office buildings. By 1975, only Arkla® Industries were continuing to manufacture these chillers.

Today, there are many companies who manufacture and produce large tonnage chillers and small tonnage chillers which are totally operated by electric power. Electric operated chillers can be of the water-cooled variety and they can also be air-cooled. Large tonnage chillers are typically water-cooled, while small tonnage chillers can be either water-cooled or air-cooled. Small tonnage water-cooled chillers are typically used for special purpose dedicated cooling systems (e.g. process cooling, computer rooms, etc.). The cooling unit can be incorporated right with the air distribution system or water circulation system and they can be located in or near the area (load zone) being cooled. Air-cooled chillers must be located outdoors and chilled water piping must be installed from the chiller to the load zone.

Small tonnage chillers being adapted for comfort air conditioning were not a popular item for contractors initially, due to first costs. The high initial purchase cost made these chillers prohibitive (or contractors just didn't want to pay this much). The contractors, who did purchase and install these small tonnage chillers, knew the secret of chilled water cooling and they liked being specialists in a competitive world. Just like hot water heating systems which can really shine through load zone diversity (multiple zoning), these contractors were among the first to offer their customers cooling diversity through zoning.

Chilled water systems, just like hot water systems, offer you and the consumer more application and installation variables than any other type of system and at a very competitive cost. Radiant Heating Systems are among the most expensive systems to purchase and install. So, why are so many people getting involved with radiant, when the same people lash out at chillers, saying they cost too much and there is no way I can sell them ?

Radiantologists, have a unique belief in their heating products and systems like no other segment of the industry. They love the fact that they are unique and they believe in radiant systems. They, like their customers, know that a good radiant system can offer a special comfort. This is exactly what makes radiant popular and it is exactly why Radiant Heating is growing year by year. True Radiantologists, are selling a system, they are selling a concept, they are selling comfort.

So, "Where's The Chilled Water ?"

Hydronicists and Radiantologists have stayed away from air conditioning for many reasons. One of the most popular reasons being, "I don't install duct work". Another reason is having to deal with refrigerant piping, refrigerant types, vacuum pumps and all that specialty stuff which air conditioning systems are made of, Right ? Wrong! Today's chillers are available as stand-alone, totally self-contained products, which only require water piping, gas piping (gas-fired chillers) and electrical wiring. All the same components any good hot water radiant system would require. Hydronicists and Radiantologists have an exceptional advantage over other air conditioning contractors when it comes to chilled water cooling. They understand water piping systems and distribution, while other contractors typically understand air distribution systems.

Part of the decrease in the popularity of chilled water cooling systems and chillers for residential and small commercial air conditioning has been due to application and installation issues. This is because more "AirHeads" have been installing chiller systems, than "WetHeads" have. Isn't it time to switch this around? The bad side of this scenario is, that improperly applied and installed systems will not work right, they will not last and they do have frequent service/repair issues. Then to make matters even worse, guess who or what gets the blame for the problem? The Chiller! More specifically, the particular brand name of the chiller and the manufacturer who worked so hard to produce a good product.

SO, "Where's The Chilled Water?"

One of the main reasons why Hydronicists and Radiantologists have not gotten interested in chilled water cooling systems, is that no one has taken the time to talk to them and to provide them with good information about this unique and versatile system. While the radiant industry and radiant associations in the industry do acknowledge the existence of chilled water cooling, the majority of their time and information is devoted to hot water heating systems. While radiant panel cooling has had some investigation, the limitations and system installation requirements have not excited people enough to get on the band wagon. BUT, there are other chilled water cooling options available and no one is better suited to design and install these systems than Hydronicists and Radiantologists. Yes, when it comes to water, be it hot or chilled, the Wonderful World of Hydronics offers the best for all.

I realize that there are many radiant contractors who are 100 % satisfied with the work volume they have and in trying to be the best they can be with the work at hand. But, there must be just as many other radiant contractors who would like nothing more than to expand their business and grow. What better way to become a complete, well rounded Hydronicist, than to offer your customers the best of both worlds? A great hot water radiant heating system and a great chilled water cooling system. Then, to add in a neat plus on the positive side, once you've installed these two great systems, you've also installed a third system. Yes, through some simple applied piping, valves and controls, your customers now have their own forced-air heating system to take the chill out of the air in early spring and late summer.

If I have heard it once, I have heard it many times over and over again. If any customer has any gripe at all regarding their radiant heating system, it's the spring and fall minor heating requirements which typically require total mass heating from a radiant system.

It's slow to respond at first start-up, and once it is heated up, it can create some heating over-ride issues before it cools down. Many contractors have stated that the air-conditioning contractor, who installed the air conditioning system, even installed a furnace too, just for this purpose. It doesn't make since to me, when there are so many better options available and especially when you're the person who should be making the profit.

SO, Have you decided yet?

What are you waiting for?

“Where’s The Chilled Water ?”

OK, so you still need some more convincing. You’re still worried about that almighty duct work system, are you? Maybe it’s still the un-known world of chilled water cooling and all those neat new self-contained air distribution systems? Well, some one once said that “Knowledge is Power”, and if it’s chilled water power your still lacking, you have nothing more to do than to turn the page and turn on the power.

Whether you consider an electric operated chiller or a gas-fired chiller, the world of chilled water applied systems has more similarities than it has differences. Also, if any differences were to exist, the majority of them will exist in the chiller product itself and not in the applied piping system or the air distribution system (load zone areas). The rest of this book will provide information on chiller types, air distribution types, some hydronic basics, some water pumping basics, some chilled water engineering and designs and some typical application and installation information which is generic for all chilled water applied systems.

YES, Here’s the Chilled Water Cooling System !