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Under Armour started with a simple innovation that provided moisture transport and temperature regulation. Interestingly, so did the Power-Pipe, an energy-efficiency product we're using on the LEED-Platinum Habitat for Humanity House we're building in Baltimore City.

Jonas Risen, our project architect and active blogger from Ziger Snead, describes the Power-Pipe in a recent blog post at the [Ziger Snead Blogsite](#) ....

So what does happen to hot water once it disappears down the drain? Water in most houses is heated for hours in big tanks just waiting for the opportunity to be used for a moment to clean dishes, clothes or our bodies. Isn't it a shame that all of that effort to heat and maintain the precise temperature of water is used so casually and then dumped into the sewer. Wasteful isn't it? Especially when what we generally keep asking for more of the same... An open loop. Not sustainable.

Enter the [Power-Pipe](#), a simple and elegant solution to extracting heat from the wastewater stream (sewer line). In essence the Power-Pipe is a copper pipe heat exchanger wrapped around a specially installed section of your building's sewer line. The product falls into a category of Drain Water Heat Recovery (DWHR) devices which use "falling water film" technology to capture heat flowing along the inside of the sewer line.

There are several varieties of DWHR but (as stated on Power-Pipe's website):

“First generation DWHR units suffer from high water pressure loss in the freshwater supply, which causes flow problems. Second generation DWHR units resolve the pressure loss issue by adopting a non-counter flow heat exchanger design, which delivers a low heat transfer performance.

The Power-Pipe features multiple coils wrapped in parallel around a central drainpipe. This patent-pending design resolves the pressure drop issue while keeping a counter flow configuration, thus maximizing heat transfer performance.”

The devices are useful in many situations where preheating water before reheat saves energy. For example, Ziger/Snead and the rest of the Sandtown Habitat for Humanity LEED Platinum rowhouse renovation team are currently installing a Power-Pipe at our as a way of preheating water before it is heated by a Takagi Model T-H2 tankless water heater. This configuration reduces the difference between the desired and incoming water temperatures. Here in Baltimore for instance, tap water can be as low as 55°-60° in the wintertime. This means the tankless unit has to heat the water up 45° for use in showers and bathing. The downside of such a high delta T is that the tankless unit might A) not sufficiently heat the water leading to cold showers, or B) use excess energy to overcome the large temperature difference. The Power-Pipe doesn't eliminate the need for a heater, it just simply makes the heater work more efficiently. This benefit is not exclusive to tankless units by the way, but I suspect the advantages are more obvious than when a tanked water heater is used.

A BTU saved is a BTU earned!