



Oikos Green Building News

April 1, 2002: Multi-family Project Includes 202 GFX Drainwater Units

The Troutdale Terrace development project is aimed at providing affordable housing, which naturally includes affordable utilities. The residents at this apartment complex, located in Troutdale, Oregon, will enjoy half-price showers thanks to the 202 GFX drainwater heat recovery units installed in the new project.

The GFX (Gravity Film eXchanger) is a plumbing device that replaces a section of vertical drainpipe with an all copper heat exchanger. The heat exchangers consist of 2-inch and 3-inch diameter by 60 inch lengths of copper drainpipe with half inch tubing coiled tightly around them. As hot water is used it goes down the drain clinging to the inside surface as a thin film that efficiently transfers the heat through the copper drain line to the cold water as it simultaneously flows up through the GFX coils.

Between 50 and 85 percent of the heat going down the drain can be transferred to the cold supply water without risk of contamination. The heat transfer significantly preheats the incoming water, therefore reducing the work of the water heaters and cutting the amount of energy and money spent to heat water.

With a 55 percent heat transfer from 96-degree drain water into 45-degree supply water, a full sized 60-inch GFX will save Troutdale Terrace residents 2.06 kWh per 12-minute shower. If electricity costs 7¢ per kWh, 14.4¢ can be saved on every shower. If 404 people are taking one a shower every day, the potential savings is \$1,772 a month or \$21,264 a year for the 202 GFX's. The avoided energy costs means the system will pay for itself in 2-3 years. The project is also receiving Oregon tax incentives for energy efficiency.

If this project had been located in an area with electric rates of 11¢ per kWh, the annual savings would have been \$30,106.

The US Department of Energy's Energy Information Administration (EIA) estimated that in 1995 residential water heaters consumed 740 billion kWh of energy and commercial water heaters consumed 320 Billion kWh. Approximately 80-90 percent of all this hot water energy goes down the drain carrying with it billions of kWh and billions of dollars. Much of this wasted heat/energy can be recovered with the GFX technology.

"There is a huge amount of energy to be mined from our waste stream" says Tom St. Louis, President of TR Strong Building Systems, Inc. GFX is long lasting, has no moving parts and requires no maintenance, so it will return the investment quickly and provide continuing energy cost reductions in any location using and draining hot water.

Troutdale Terrace is being developed by Winkler Development, Inc. and designed by Shawn Sullivan Architects, Inc. The general contractor is R+H Construction and the plumbing contractor is Tapani Plumbing, Inc. The Troutdale Terrace apartment project is the largest installation to date of GFX drain heat recovery units. Some of the other recent installations have included flight-type commercial dishwashers, commercial laundry facilities, salons and single-family residences. (From: www.oikos.com/news/2002/04.html)