



CONSERVATION SOLUTIONS CORPORATION
ENERGY & WATER EFFICIENCY

Gravity Film Drain Water Heat Recovery Systems

Recover & re-use wasted energy before it is lost down the drain

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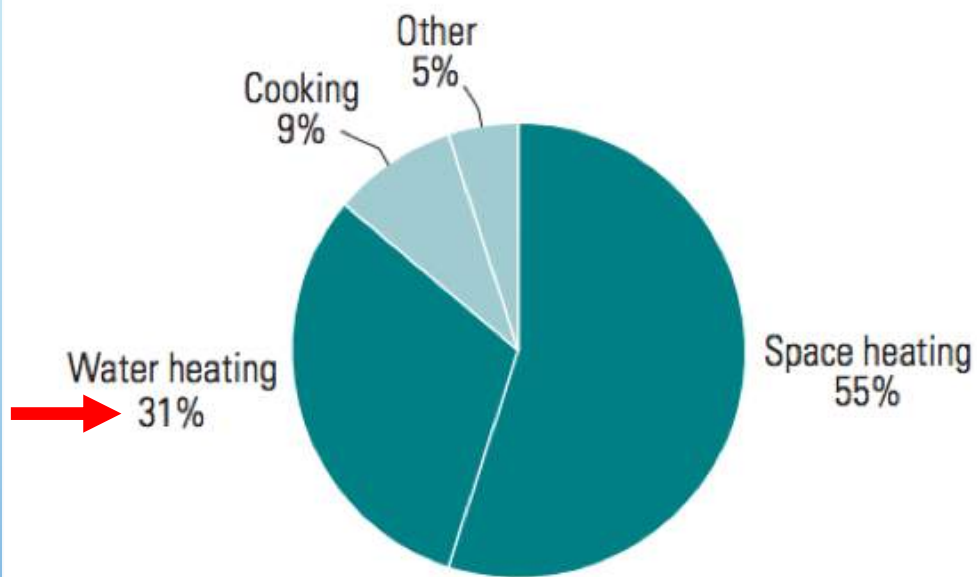
Presentation by: Dan Cook



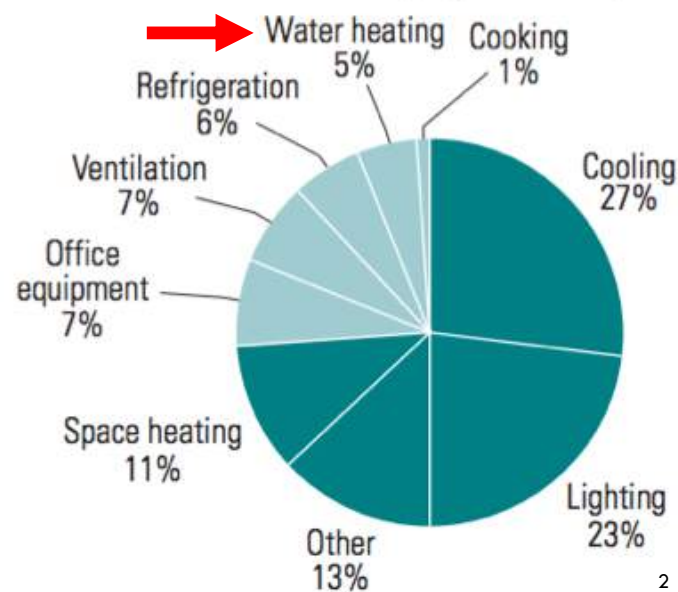
Drain Water Heat Recovery Systems

Hot Water is the 2nd highest Natural Gas cost for Hotels

A. U.S. lodging, natural gas use



B. U.S. lodging, electricity use



Source: E SOURCE, data from U.S. Energy Information Administration



HOT SHOWERS ARE GREAT, BUT... WHAT HAPPENS TO ALL THAT HOT WATER ENERGY WHEN IT GOES DOWN THE DRAIN? ...

- **Wasted Energy** Resources and Increased Operating Costs
- **Heat Energy can be Easily Captured and Reused** with a simple gravity flow passive heat exchanger
- **Potential Energy Savings:** Showers, Faucets, Laundries, Kitchens, Dishwashers
Health Clubs...





Heat Recovery Opportunities

- Showers
- Dishwashers
- Laundries
- Ice Machines
- Refrigeration
- De-humidifiers
- More

**A Variety of Simple Add-on's
FOR any
Water Heating or HVACR System**

- \$ Save millions of BTU's
- \$ Extend equipment life
- \$ Raise system efficiency
- \$ Low or NO maintenance
- \$ Increase hot water supply
- \$ Reduce Carbon Emissions
- \$ Quick and painless lifetime ROI
- \$ Enhance tankless performance
- \$ Decrease equipment workload



**Lower Refrigerant Temperature -
Increase SEER**

GreenFoX

Drain Water Heat Recovery



Water Heater
Booster



Intertek
4001354

DataFoX

Data Logger



See IT Live!
BTU Savings
CO² Reduction
Usage Efficiency
Temperature Rise

ArcticFoX Pre-Chiller

Commercial Ice Machines



Applications start here...

Industrial
Dairy Farms
Power Plants
Cooling Towers
Food Processing

Government
Ships
Barracks
Hospitals
IT Rooms

Residential
Retrofits
Multi-family
Single Family
New Construction

Commercial
Hotels
Laundries
Restaurants
Fitness Centers



Showers



UL STD 462
CSA B55.2

Intertek
4001354

GreenFOX Drain Water Heat Recovery

residential - commercial - industrial

Tankless Water Heater Booster

STOP RUNNING OUT OF HOT WATER!

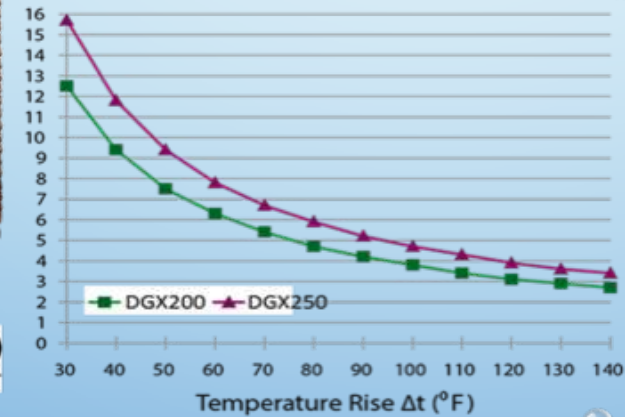
Heat incoming cold water from 50° to 80°
Boost heater output up to 9.5 GPM
Increase GPM rating 30% to 50%

ZERO ENERGY PRODUCT

Get more hot water with less energy
Recycle heat energy
Lower utility bills



GPM Flow Rates at Various Temperature Rises



All Temperature Values Approximate

Benefits

- Quick install
- No maintenance
- Year round operation
- 30+ year plumbing life
- Reduce heating time
- Extend water heater life
- Increase system efficiency

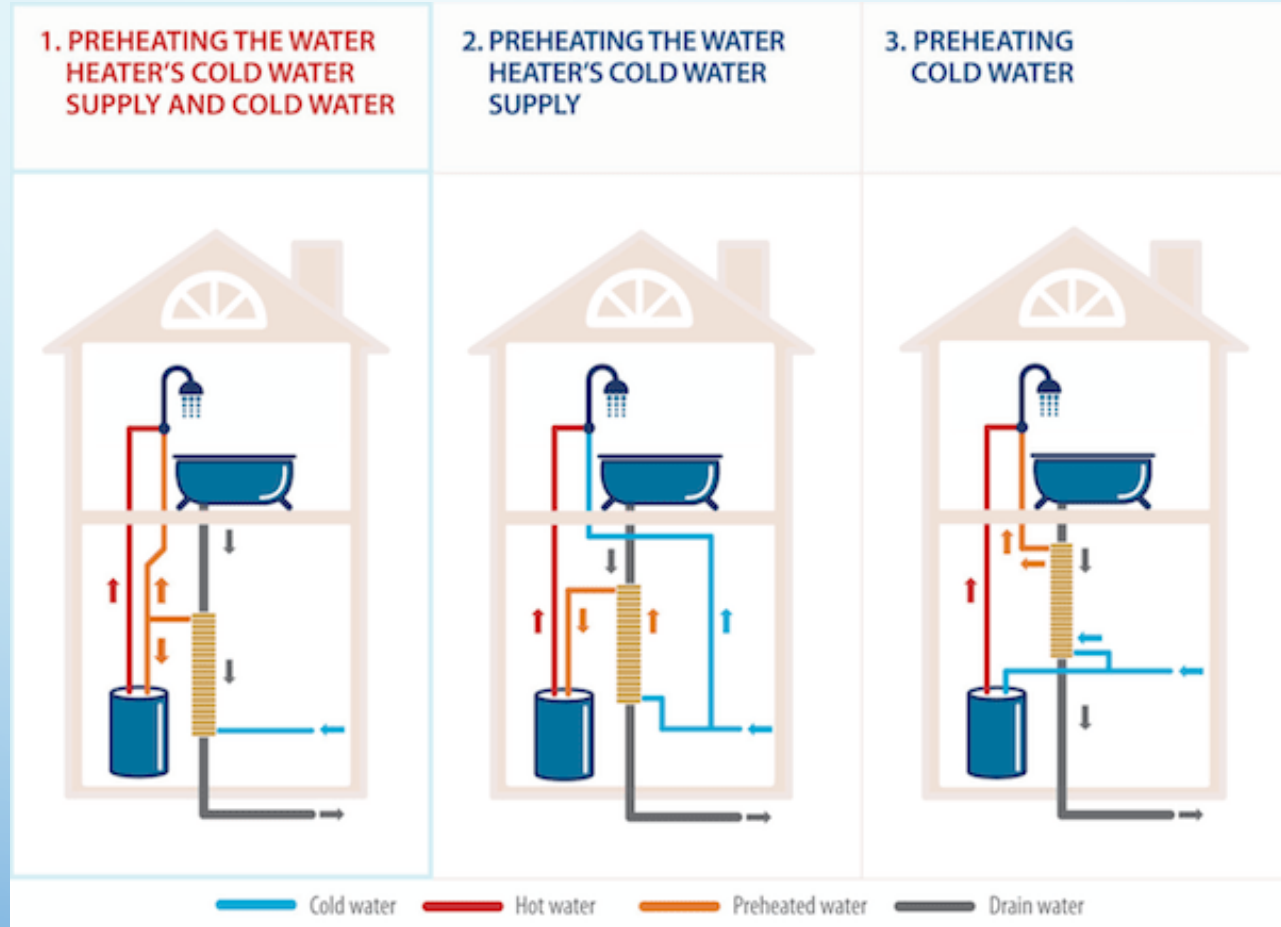
GREEN

- HERS Index
- LEED points
- Utility rebates
- Tax incentives
- 100% recyclable
- USDOE recognized
- Reduce CO₂ emissions
- Reduce everyday energy use



TYPICAL INSTALLATIONS

Showers





SIMPLE INSTALLATION



Connect Building Cold Water Supply to bottom of Heat Exchanger (HEX), & Pipe Top of HEX to a.) Hot Water Heater or b.) Cold Water Riser to reduce hot water heating requirements.

Simply Replace Section of the Drain Pipe





Piping Options with Manifolds & BTU Meters



BTU Meter

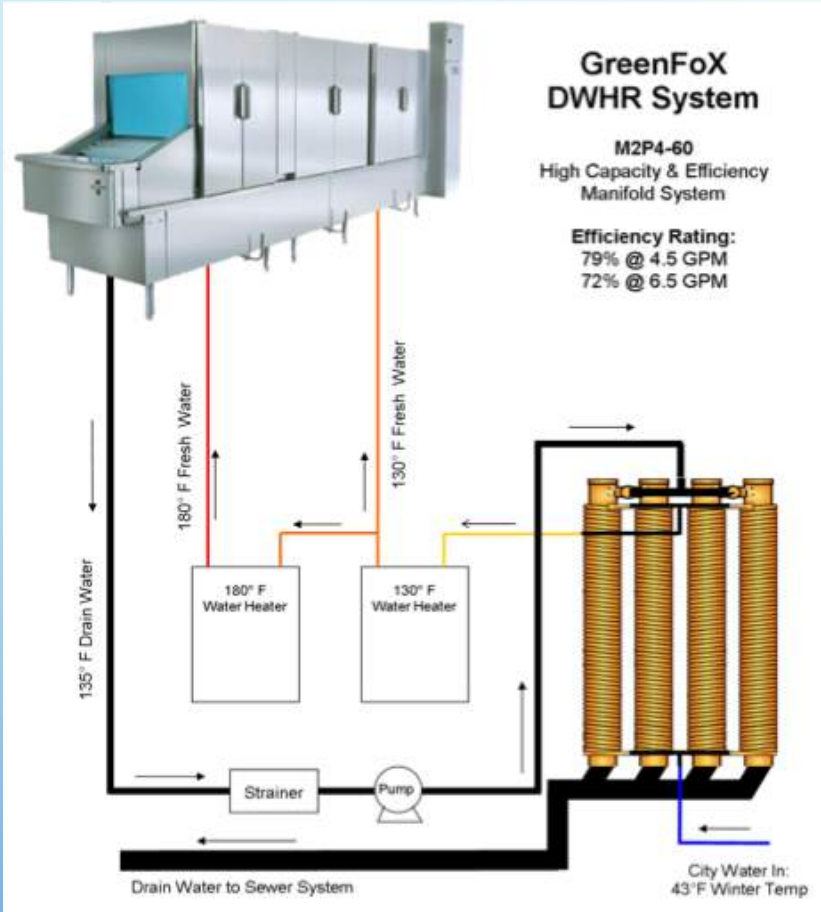


**Saving Energy
on recovering
otherwise lost
heat energy
from Hotel
Showers.**

Full Service Hotel Energy Savings		
Number of Rooms	290	Average Occupancy 66%
Gallons per person, per day	30	Occupancy - 2 person per room
Typical Annual Expenditures		Annual Savings
Gallons of hot water per Year	4,191,660	GreenFoX DWHR
Annual Electric Water Heating Savings:		\$44,411
Annual Gas Water Heating Savings:		\$17,135
Therms Used	40,082	Therms Recovered
		16,319
Project Cost:		\$74,710
Utility Incentives Available:		TBD
Return on Investment (ROI)		22.9%
Simple Payback - Natural Gas (years):		4.4



Recover Hot Water Energy from Dishwashers





Recover Hot Water Energy from Laundries





Thank you

CONSERVATION SOLUTIONS CORPORATION
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Contact Us to Recover Wasted Energy & \$

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