

# Effective Use of Water and the Energy To Heat it for Builders...The New Frontier **Drain Water Heat Recovery**

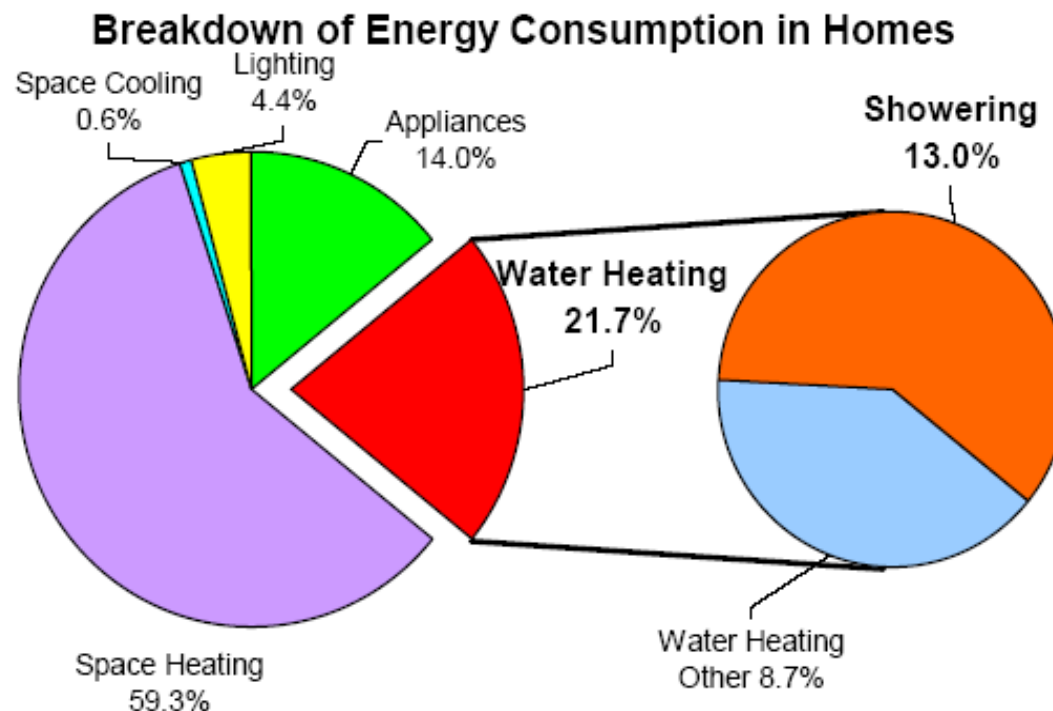
Proven technology with over 35,000 units installed in  
North America



[www.renewability.com](http://www.renewability.com)

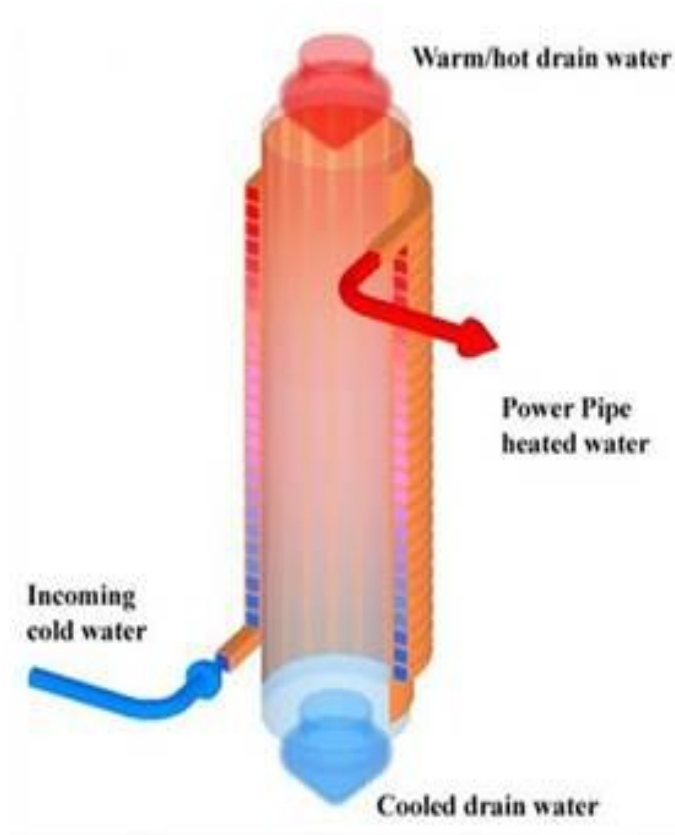
# Residential Water Heating in the USA

Water heating accounts for 20-30% of single home energy consumption, over 60% of this is showering \*



# Drain Water Heat Recovery (DWHR)

DWHR works by  
using  
the outgoing  
warm drain water  
(typically the  
shower)  
to pre-heat  
the incoming  
cold fresh water



# Residential Energy Savings Summary

- Showering can be 60% or more of the hot water energy load in the house / building and 90% of that is wasted down the drain.
- DWHR **recovers approximately 50% of the valuable heat energy** that goes down the drain during showering.
- The recovered heat energy can **reduce** water heating cost by up to **35%** plus increase the capacity of the water heating system.

# RESNET Inclusion of DWHR

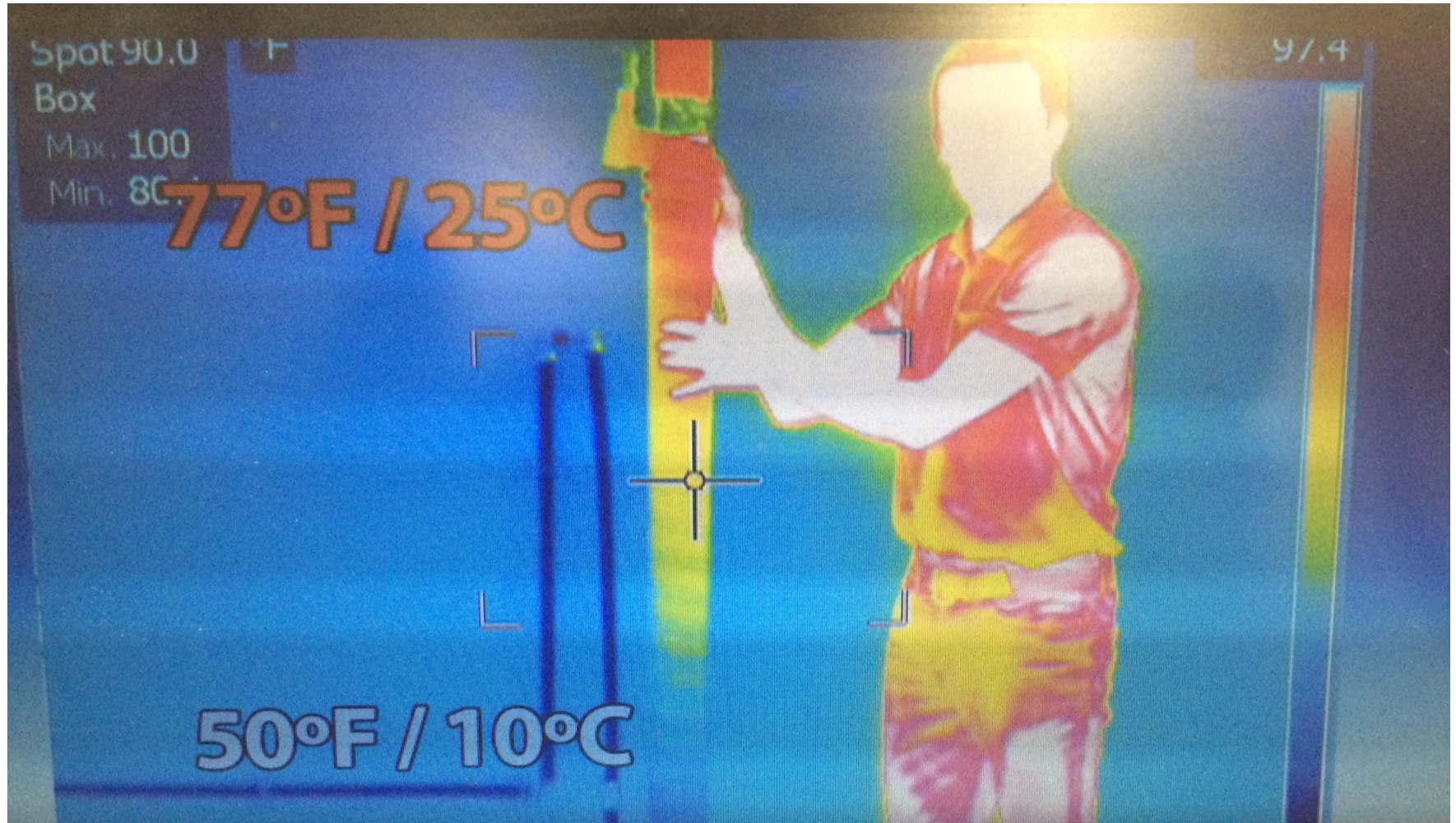
The screenshot shows the RESNET website header with the logo and tagline 'CERTIFIED ENERGY AUDITORS/RATERS AND QUALIFIED CONTRACTORS/BUILDERS'. A navigation bar includes links for Home, Rater/Auditor Information, Contractor Information, Builder Information, Provider Information, Quality Assurance, RESNET Standards, and RESNET Conference. A red button in the top right corner says 'ARE YOU A... Visit our Home'.

The main content area features a blog post titled 'RESNET ADOPTS INNOVATIVE DESIGN REQUEST FOR THE DETERMINATION OF DRAIN WATER HEAT RECOVERY (DWHR) SYSTEM HERS INDEX CREDITS'. The post is dated 'October 2nd, 2014' and is categorized under 'Hot Topics' and 'RESNET News'. The text of the post discusses the installation of DWHR units in homes and commercial buildings, the IECC 2015 performance requirements, and the Ontario Building Energy Code. It also mentions that Natural Resources Canada has had credits for DWHR for more than 7 years. The post concludes by stating that RESNET has adopted an Innovative Design Request to calculate energy savings for DWHR systems and provide an appropriate HERS Index score credit where these systems are properly installed in homes.

On the right side of the page, there is a sidebar with a list of links: Conf, Energ, Energ, Hot, Hot, Job, Legis, New, Rater, Reco, RESN, RESN, Tech, Train, Upco, What. Below this list is a section titled 'If you you v resid comr subm Post'.

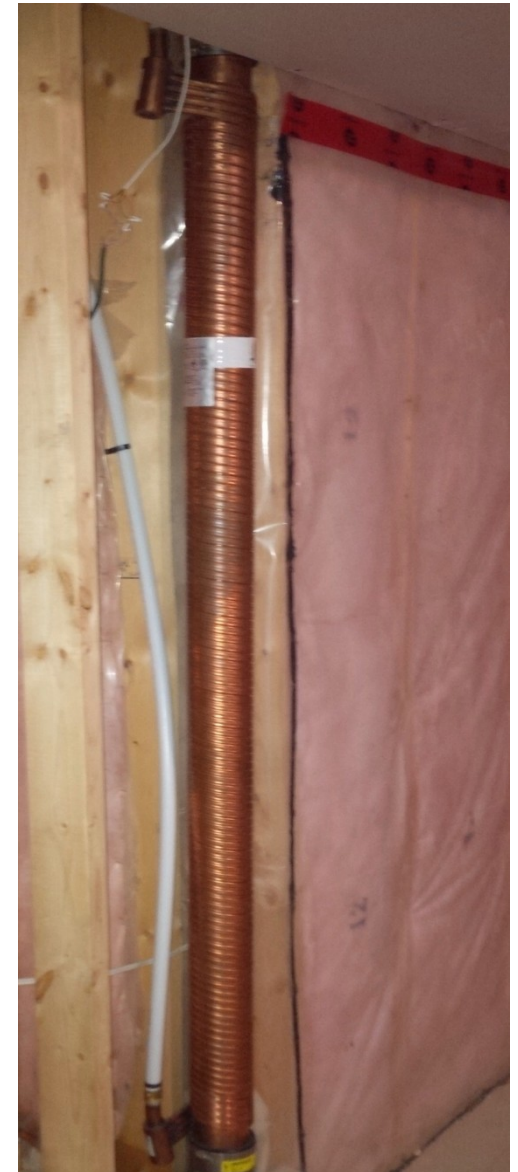


# Infrared Imaging of a DWHR Unit in Operation



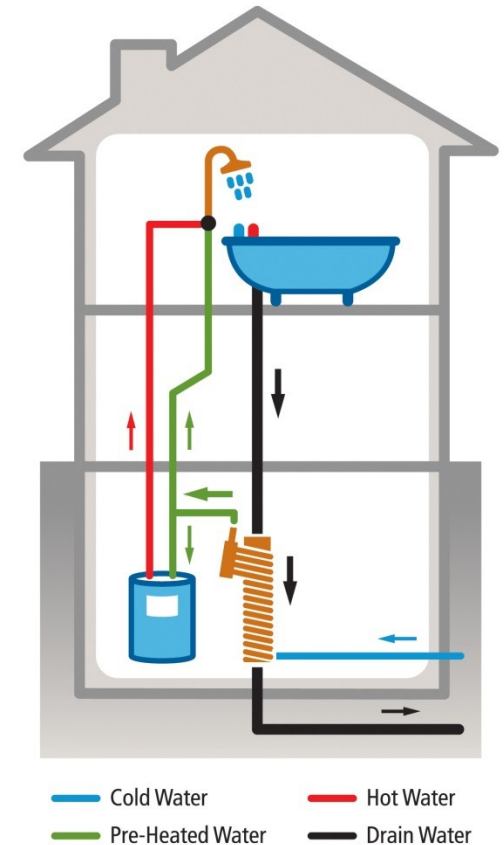
# Reasons Why KB Home Utilizes DWHR

- Low cost for HERS points /energy savings
- Increase water heating capacity
- Easy installation, works with any water heating system
- 50+ year life
- No maintenance required
- Compliments grey water recovery system



# Typical KB Home DWHR installation

- install DWHR unit in wall of main floor or basement collecting all showers for maximum energy savings and possible incorporation of grey water recovery system
- 2 inch or 3 inch DWHR units commonly used
- 2 paths for warm water to reach shower from top of DWHR





# KB Home RESNET DWHR HERS CREDIT Report for Denver

Instructions Input Sheet **Credit Report**

## DWHR HERS Credit Calculation Output Report

### Home Address:

2366 W 165th Pl  
Broomfield, CO  
80134

### TMY Location:

Denver, CO  
Annual Average Outdoor Temperature  
46.4 F

### Certified Rater:

Name: Robby Schwarz  
ID: 185534056

### RESNET QA Provider:

Name: EnergyLogic  
ID: 1998-069

### DWHR Specifications:

Manufacturer: Bradford White  
Model No: MITW 40S\*BN1

### HERS Software Tool:

Name: REM  
Version: 14.61

### DWHR Installation:

Showers/Baths connected all  
Equal Flow? yes  
DWHR Efficiency 53.3%  
Fixture Efficiency standard

### Rated Home Characteristics:

Conditioned Floor Area 2344  
Number of Bedrooms 3  
Conditioned Floor Levels 3  
Unconditioned Basement No

### Rated Home Standard Rating Results:

Home End Use	Energy (MBtu)	Fuel Type	MEPR
Heating	33.80	gas	0.92
Cooling	2.20	elec	13.0
Hot Water	18.30	gas	0.62
Lgt & Apl	21.80	n/a	n/a
net OPP	0.00		

### Reference Home Standard Rating Results:

Home End Use	Energy (MBtu)	Loads (MBtu)
Heating	61.40	37.30
Cooling	5.50	15.80
Hot Water	20.80	16.30
Lgt & Apl	28.80	28.80

### DWHR Energy Savings:

Hot water energy savings 25.5%  
Whole home energy savings 5.1%

### Certification:

I hereby certify that the information  
submitted in this report is accurate  
to the best of my knowledge.

### HERS Credit Calculation Results:

Standard HERS Index score	61.9
DWHR HERS Index credit	-2.9
<b>Revised HERS Index score</b>	<b>59</b>

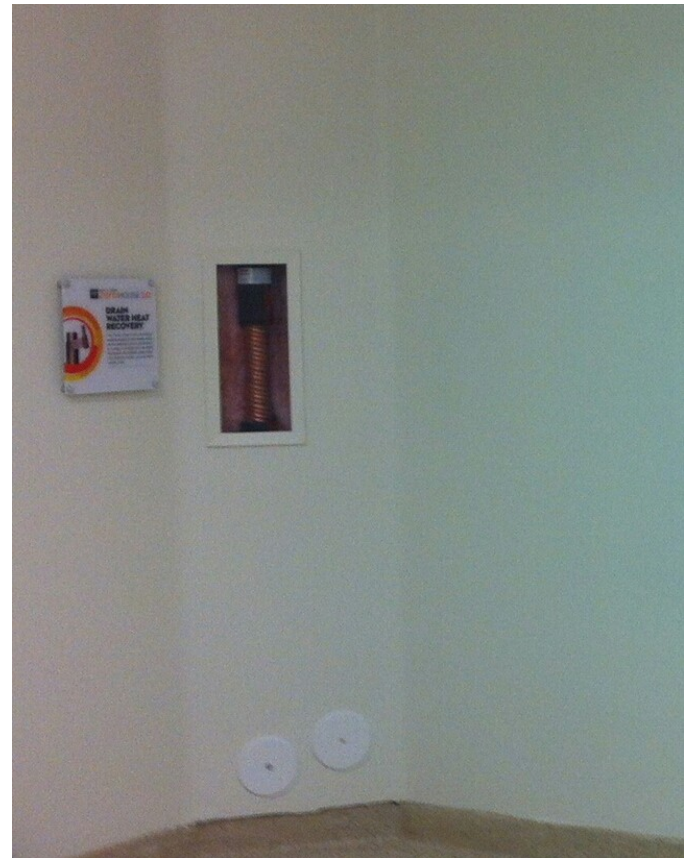
Robby Schwarz

- DWHR credit is **3 points** in this example going from a HERS 62 to a 59!
- 53.3 % CSA efficient DWHR unit is used in this example

# KB Home Denver Basement Installation



# KB Home Lancaster Ca Garage Installation





# Part of Lancaster Dawn Creek Zero House 2.0



# Possible Builder Incentives

- Potential for \$ 150 incentive for 5 % whole home energy reduction through Xcel Energy new home program in Colorado
- Partnership in the development of a builder DWHR program with SoCalGas in Southern California