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GreenFoX Drain Water Heat Recovery

residential - commercial - industrial

Tankless Water Heater Booster

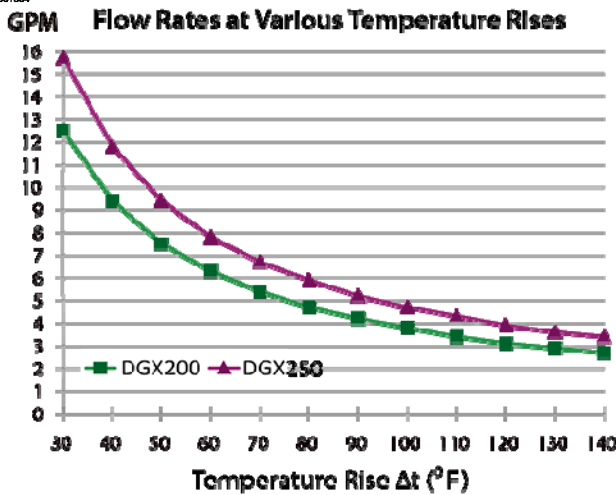
STOP RUNNING OUT OF HOT WATER!

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

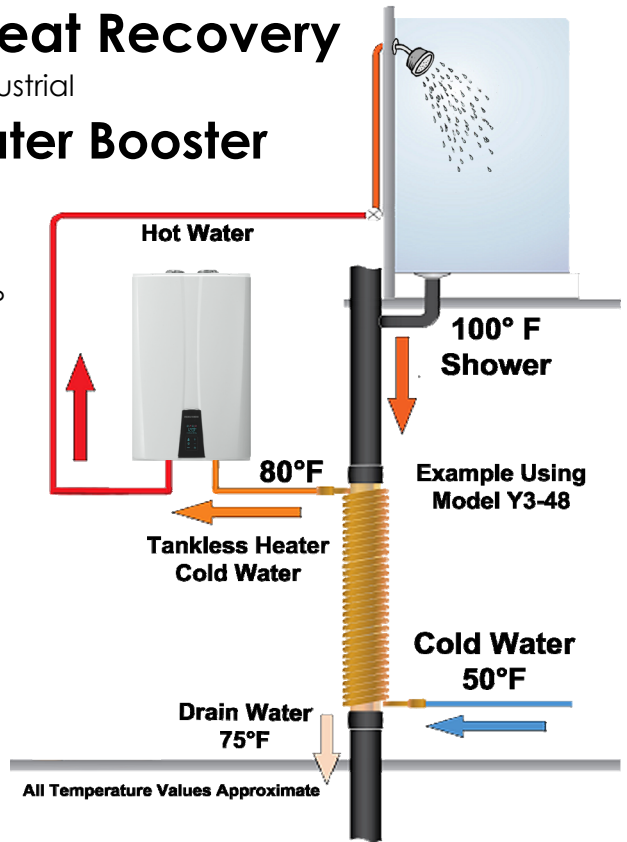
Get more hot water with less energy

Recycle heat energy
 Lower utility bills



GREEN Benefits

- ◆ HERS Index
- ◆ LEED points
- ◆ Utility rebates
- ◆ Tax incentives
- ◆ 100% recyclable
- ◆ Conserve energy
- ◆ USDOE recognized
- ◆ Reduce CO² emissions
- ◆ Quick install
- ◆ No maintenance
- ◆ Year round operation
- ◆ 30+ year plumbing life
- ◆ Reduce heating time
- ◆ Extend water heater life
- ◆ Increase system efficiency



2015 International Code Council
Energy Conservation Code
 Section C404.8, Section R403.5.4
 Chapter 4 [CE] Commercial Energy Efficiency
 Chapter 4 [RE] Residential Energy Efficiency
Green Construction Code Section 607.5
 Chapter 6 Energy Conservation, Efficiency
 and CO² Emission Reduction
Residential Code Section N1103.5.4 (R403.5.4)
 Chapter 11 [RE] Energy Efficiency

Intertek ETL/Warnock Hersey 3rd party test
IAPMO PS 92 Standards for Heat Exchangers
IAPMO 2012 Green Plumbing and Mechanical
 Supplement Code Section 606.0
CSA B55.1 Performance Standard
CSA B55.2 Safety Standard

Green Energy Waste Heat Recovery Solutions

DataFoX
 Heat Recovery Monitoring
 See your savings LIVE

Save even more with other
Swing Green products
 ©May 2016

AirFoX and **PoolFoX**
 HVACR Superheat Recovery
 Heat water, pool or spas



Case Study Residential Home – Colorado Springs, CO

Application Information

Installation Type:	Residential	Location:	Colorado Springs, CO
Occupancy:	4	Fuel Type:	Natural Gas
Heating Type:	Shared Hydronic/Hot Water		
Heat Recovery Type:	DWHR	Model:	Y3-48
Winter Ground Water Temp	43 °F	Summer Ground Water Temp	65 °F

Residential Usage and Energy Recovery

Year to Date		Last 30 Days	
Hot Water Used (Gal):	14,948.53	Hot Water Used (Gal):	913.60
BTUs Saved :	2,364,603	BTUs Saved :	156,469

Natural Gas Energy Savings

Water Heater EF Rating:	0.86		
Therms Saved :	27.50	Therms Saved :	1.82
Lbs CO2 Saved	303.08	Lbs CO2 Saved :	20.06

Electrical Energy Equivalency

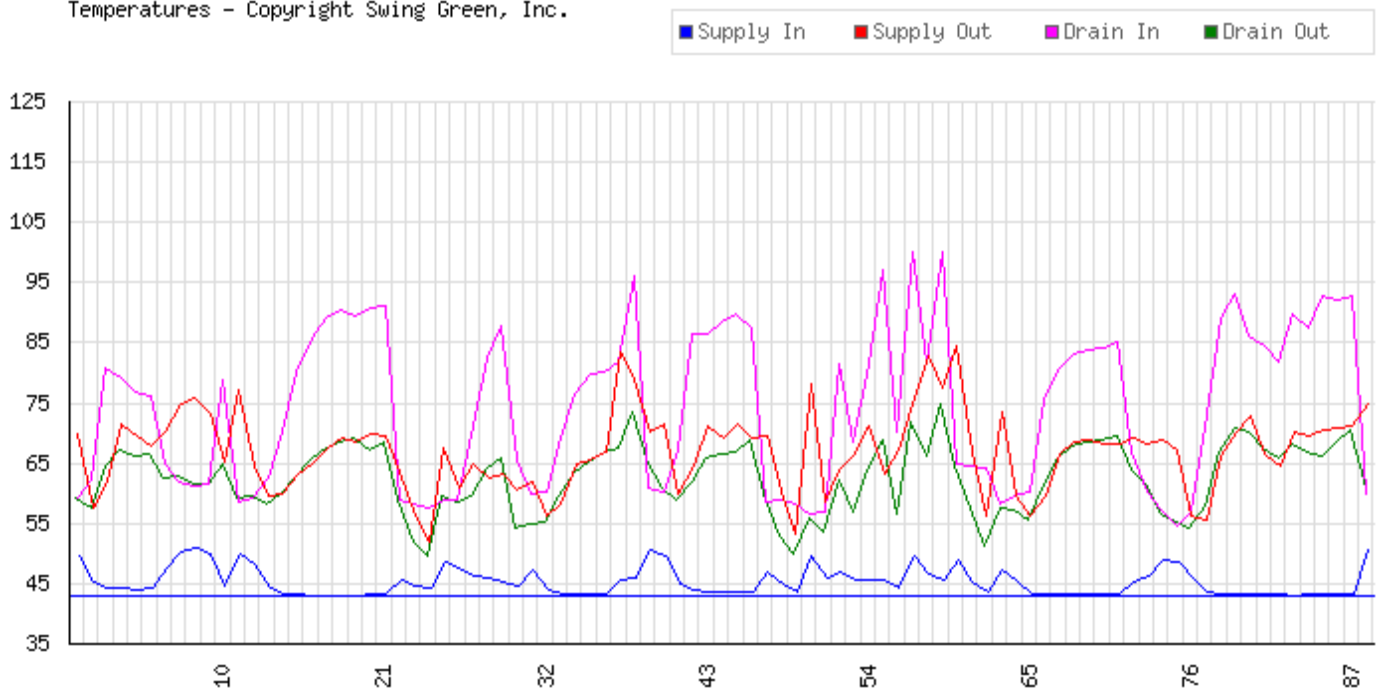
Water Heater EF Rating:	0.96		
KWH Saved :	721.70	KWH Saved :	47.76
Lbs CO2 Saved Coal Fired Plant:	1,501.13	Lbs CO2 Saved Coal Fired Plant :	99.33
Lbs CO2 Saved NG Fired Plant:	880.47	Lbs CO2 Saved NG Fired Plant:	58.26

NOTES:

- 1). The graphs below show live data for periods of hot water flow only.
- 2). Flow and Temperature readings are averaged over 1 minute polling periods.
- 3). Graph shows 36 hour time period.

Supply and Drain Temperatures

Temperatures - Copyright Swing Green, Inc.



2015 ICC International Green Construction Code

CHAPTER 6 ENERGY CONSERVATION, EFFICIENCY AND CO₂e EMISSION REDUCTION

SECTION 601 GENERAL

601.1 Scope.

The provisions of this chapter regulate the design, construction, commissioning, and operation of buildings and their associated building sites for the effective use of energy.

601.2 Intent.

This chapter is intended to provide flexibility to permit the use of innovative approaches and techniques to achieve the effective use of energy.

607.5 Drain water heat recovery.

One or more drain water heat recovery units shall be installed in the drain piping system for the indicated plumbing fixtures and appliances in the following building occupancies:

1. Laundry washing machines for laundry services in Group F occupancies.
2. Laundry washing machines that are connected to hot and cold water supplies, for boarding houses, hotels and motels in Group R-1 occupancies.
3. Shared shower facilities and laundry washing machines in Group R-2 occupancies.
4. Laundry washing machines that are connected to hot and cold water supplies, and showers for health clubs and spas in Group A-3 occupancies.

Exception: Drain water heat recovery units shall not be required for:

1. Laundry washing machines that are used by guests.
2. Laundry washing machines that are supplied with cold water only provided that space and access are available for adding a drain water heat recovery unit to the drain system in the future.
3. Fixtures and appliances that are located on a concrete slab on grade.
4. Applications where a drain water heat recovery unit cannot increase the incoming water temperature by 36 percent of the temperature difference between the incoming cold water and the drain water.
5. Applications where any portion of a drain water heat recovery unit would be required to be located in a sump below grade.
6. Applications where a drain water heat recovery unit would convey grease-laden waste that requires the installation of a grease or oil separator in accordance with Section 1003 of the *International Plumbing Code*.

Drain water heat recovery units shall comply with CSA B55.2. Potable water-side pressure loss shall be less than 10 psi at maximum design flow. For Group R occupancies, the efficiency of drain water heat recovery units shall be in accordance with CSA B55.1.

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CHAPTER 4 [CE] COMMERCIAL ENERGY EFFICIENCY

SECTION C401 GENERAL

C401.1 Scope.

The provisions in this chapter are applicable to commercial *buildings* and their *building sites*.

C401.2 Application.

Commercial buildings shall comply with one of the following:

1. The requirements of ANSI/ASHRAE/IESNA 90.1.
2. The requirements of Sections C402 through C405. In addition, commercial buildings shall comply with Section C406 and tenant spaces shall comply with Section C406.1.1.
3. The requirements of Sections C402.5, C403.2, C404, C405.2, C405.3, C405.4, C405.6 and C407. The building energy cost shall be equal to or less than 85 percent of the standard reference design building.

C404.8 Drain water heat recovery units.

Drain water heat recovery units shall comply with CSA B55.2. Potable water-side pressure loss shall be less than 10 psi (69 kPa) at maximum design flow. For Group R occupancies, the efficiency of drain water heat recovery unit efficiency shall be in accordance with CSA B55.1.

CHAPTER 4 [RE] RESIDENTIAL ENERGY EFFICIENCY

SECTION R401 GENERAL

R401.1 Scope.

This chapter applies to residential buildings.

R401.2 Compliance.

Projects shall comply with one of the following:

1. Sections R401 through R404.
2. Section R405 and the provisions of Sections R401 through R404 labeled "Mandatory."
3. An energy rating index (ERI) approach in Section R406.

R403.5.4 Drain water heat recovery units.

Drain water heat recovery units shall comply with CSA B55.2. Drain water heat recovery units shall be tested in accordance with CSA B55.1. Potable water-side pressure loss of drain water heat recovery units shall be less than 3 psi (20.7 kPa) for individual units connected to one or two showers. Potable water-side pressure loss of drain water heat recovery units shall be less than 2 psi (13.8 kPa) for individual units connected to three or more showers.

2015 International Residential Code

Part IV – Energy Conservation

CHAPTER 11 [RE] ENERGY EFFICIENCY

SECTION N1101 GENERAL

N1101.1 Scope.

This chapter regulates the energy efficiency for the design and construction of buildings regulated by this code.

Note: The text of the following Sections N1101.2 through N1105 is extracted from the 2012 edition of the International Energy Conservation Code—Residential Provisions and has been editorially revised to conform to the scope and application of this code. The section numbers appearing in parenthesis after each section number are the section numbers of the corresponding text in the International Energy Conservation Code—Residential Provisions.

N1103.5.4 (R403.5.4) Drain water heat recovery units.

Drain water heat recovery units shall comply with CSA 55.2. Drain water heat recovery units shall be tested in accordance with CSA 55.1. Potable water-side pressure loss of drain water heat recovery units shall be less than 3 psi (20.7 kPa) for individual units connected to one or two showers. Potable water-side pressure loss of drain water heat recovery units shall be less than 2 psi (13.8 kPa) for individual units connected to three or more showers.