Case study for HOTEL **Wasted GREY / BLACK Water Heat Recovery.**

By DDI Heat Exchangers Inc.

Grey and Black Water – (now Wasted)

SAMPLE CASE

Number of Hotel rooms or Hospital beds 500

With restaurant and Laundry

Very small flow	41	usg/min	(2.6 L/S)
Temp	86	deg F	(30 deg C)

Cold Water from underground
Flows to Central Boiler

Temp	45	deg F	(7.2 deg C)
Delta T	10	deg F	(5.6 deg C)

Pressure drop 0.1 PSI (0.2 ft water)

Weighed Capacity 200,000 BTUH (60 KW)

Max **Design capacity 2 Million BTUH (586 KW)**

Max Design flow	1,000 usgpm	(63 L/S)
Pressure drop at Max flow 17 psi		(39 ft water)
Max Design pressure 50 psi		(115 ft water)

Assumed Variables

El Utility Cost	0.06	USD/KWh
NG Utility Cost	0.25	USD/m3
NG plant eff.	75	%

Equipment max

DDI Heat Exchanger 30- 1,000 usgpm
Space of 1 car garage (Design can be smaller)
14 ft long x 4.8 ft wide x 6.6 ft high
4.2 meter long x 1.5 meter wide x 2.1 meter high
Need extra 3 ft (1 meter) in one length, free space for cleaning
Weight 17,600 lb. (7,980 kg)
Design Pressure max 50 psi (35 meter)

Economics

Cost

DDI Heat Exchanger	60,000	$ US
Installation	10,000	$ US
Operation	1,000	$ US/ year
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Total Cost =	71,000	$ US

Savings

60 KW x 24 hours x 364 days =525,000 KW / Year
525,000 KW x 0.06$ = 31,500 $ US / year

ROI 2.2 years

Plus MARKETING benefit to the Hotel / Hospital

Green Energy via Wasted Heat Recovery.

Erwin Schwartz / B. Eng. / Management.
President
DDI-Heat Exchangers Inc.
Tel: 514-696-7961 Cell: 514-531-3794
Email: erwin@ddi-heatexchangers.com

www.ddi-heatexchangers.com

www.energyrecoverysolution.com

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