

# Case Study

## - Drainwater Heat Recovery

Est. Flow Rate [litres/min]	9.5
Time in Shower per Person (ASHRAE) [min]	12.0
Months per Year at 100% Occupancy	8.0
Months per Year at Other % Occupancy	4.0
Other % Occupancy	70.0%
Average Annual Occupancy	90.0%
Cp H2O [kJ/kg/K]	4.187
Temp. Drain [C]	37.0
Temp. Fresh [C]	8.0
Water Heating System Efficiency	75%
Energy Content of Natural Gas [KJ/m3]	37230
GFX Startup Derating	98%
Heat Cold Water Only Derating	75%
GHG Conversion Factor [tonnes/m3]	0.001880

University of Regina						
Year		Fuel Rate	Savings	U of R	Cumulative	Infl. Rate
		cents / m3		25%	Savings	5%
1	Sep-04	23.8	\$ 5,412	\$ 1,353		
2	Sep-05	22.3	5,071	1,268	\$ 2,621	
3	Sep-06	40.0	9,095	2,274	4,894	<b>** New Fuel Contract</b>
4	Sep-07	42.0	9,550	2,388	7,282	
5	Sep-08	44.1	10,028	2,507	9,789	<b>...Etc...</b>
18	Sep-21	83.2	18,909	4,727	56,414	
19	Sep-22	87.3	19,854	4,964	61,377	
20	Sep-23	91.7	\$ 20,847	\$ 5,212	\$ 66,589	
<b>For the remainder of the life to 50 years with 100% to U of R</b>						
30	Years		\$ 1,385,031		\$ 1,451,620	