

CASE STUDY

SHARC Sewage Heat Recovery System Installed in Seven35 Building - North Vancouver, BC, Canada

Nestled deep in the breathtaking natural surroundings of the North Shore of Vancouver British Columbia, the seven35 building offers a variety of features designed to uphold a deep commitment to sustainability. Adera Developments commitment to sustainable development lead them to choose to install the first SHARC sewage heat recovery system in a private project in North America. Seven35 is a multi-award winning development consisting of 60 urban stacked townhomes, each with one or two bedrooms. The SHARC sewage heat recovery system recycles the heat from the raw sewage before it exits the building to the municple sewer line.



Design Data

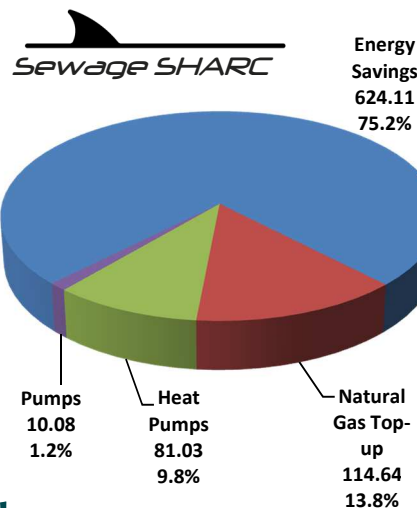
Seven35 is comprised of 60 one and two bedroom townhomes with an average of 1000 square feet per suite.

The average water usage per suite is 250 gallons per day at an average exiting temperature of 20°C (68°F). The SHARC system has 2-5 ton FHP heat pumps w/ double walled, vented heat exchangers that recover waste heat from the exiting raw sewage and moves the heat into 6 – 120 gallon DHW storage tanks. The DHW storage tanks are heated to 52°C (126°F) by the heat pumps.

About Us

International Wastewater Systems is a team of professionals dedicated to the widespread implementation of Sewage SHARC systems as an alternate energy source.

With over 100 years of combined experience in alternative energy projects we are positioned to achieve this goal.



Operational Data

At the seven35 building, flow meters, temperature sensors and electrical meters were installed throughout the sewage heat recovery system in order to monitor and log both the system operation and the amount of energy used and recovered by the SHARC system. It was determined that the domestic hot water heating requirement using a conventional 90% efficient natural gas boiler was 829.86 kwh/day. Analysis of the captured data indicated the heat pumps used 81.03 kwh/day, 10.08 kwh/day for pumping energy and 114.64 kwh/day for natural gas to raise the water to 57°C (135°F) to meet the local code.

The total energy required to operate the SHARC sewage heat recovery system was 205.75 kwh/day resulting in a 75.2% energy savings.^[1] The heat pumps net operational efficiency COP is over 5.1.

1. Operational data source: Stantec Consulting Ltd., September 20, 2012



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