

Case Study



Multi-Unit Residential

HEWH-500-AS - High Efficiency Water Heater



Harbour House is a 1960's era, 16-story, ocean-front condominium complex with 457 residential units located in the posh Bal Harbour neighborhood of Miami Beach where the Intracoastal meets the Atlantic. After a full renovation in 2006, the complex was still faced with the high operating costs of traditional boilers providing around the clock heat for Domestic Hot Water (DHW), pool and spa heating and reheat (for humidity control).

In 2013 Albert Shub of FES recommended the condo board meet with Michael Heit of CMH Solutions to learn about a new state of the art technology for water heating. "By utilizing a

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- Allen Scherl, VP, Harbour House Condominium Association

new and unique approach to water heating the Ilios™ gas heat pump (GHP) can cut a facilities' water heating bill in half," Heit explained. The Ilios GHP product line is the newest offering from Tecogen® who has been at the forefront of natural gas engine-driven combined heat and

power (CHP) products for over 30 years. The Ilios GHP is a natural-gas engine-driven heat pump water heater and is offered in both air-source and water-source versions. It utilizes

the unique combination of two well proven technologies, the heat pump cycle and the internal combustion engine. Using a natural gas powered internal combustion engine to drive the refrigeration compressor in a

Heat Differently.™

traditional heat pump cycle allows for the lowest operating cost and the highest efficiency. The operating cost savings come from using low-cost, abundant natural gas as the input fuel and also from harnessing free renewable heat/energy from the surrounding air. The high efficiency, compared to a boiler, is inherent in the heat pump cycle where a small amount of energy is added to capture the heat from the surrounding air and move or “pump” the heat up to a higher more useful temperature and then reject it into the hot water loop in the building.

“A lot of people are confused by heat pumps because they think you are creating energy, which is impossible. In fact you are simply moving the heat/energy from where it is (surrounding air) to where you want it (in the buildings’ hot water loop). It takes a lot less energy to harness and move that heat than it does to heat water by burning the fuel in a boiler,” remarks Stephen Lafaille, Product Manager for Ilios. The efficiency of the natural gas engine-driven heat pump is greater than that of its electric counterpart due to its ability to recover all of the waste heat created by the engine and purposefully re-use it. With electric heat pumps all of that heat is wasted at a large, remote power plant.

In addition to reduced operating costs due to high efficiency and reduced fuel consumption, the Ilios GHP also allows a similar reduction in the building’s carbon footprint. Harbour House is now using about 50% less natural gas and has reduced their carbon footprint by 50% as a result. This, combined with a reduction in criteria pollutants (NO_x and CO) which contribute to smog (thanks to Tecogen’s proprietary Ultera emissions control technology) makes Ilios one of the cleanest and most efficient water heating systems available today. The ability to cut operating costs and become more environmentally friendly at the same time made choosing Ilios easy for the Condominium Association.

“We selected the Ilios water heater not only for the monetary savings the system generates but also because it’s an environmentally responsible choice,” said Allen Scherl, Vice-President of the Condominium Association. “As one of the premier residences on Miami Beach, it’s important that we provide our community with sustainable solutions. With this system, we can cut our carbon foot print and our energy consumption for heating in half.”

Another unique feature of the Ilios GHP product is that all service required by the unit is performed under a factory service contract offered by Tecogen. The contract provides full coverage for all parts and labor



The Harbour House Ilios HEWH-500-AS will save residents/owners more than \$25,000 each year.

needed to keep the machine running as long as the contract is renewed. The equipment is monitored remotely via the internet and as parts wear out over time, factory personnel replace them. Tecogen’s service contract costs only a small portion the savings the Association sees each year.

“The factory service program is what sets Tecogen apart and is one of the reasons we’ve been around for over 30 years,” states Ilios Product Manager Stephen Lafaille. “We recognize that our energy saving equipment has unique service requirements and, by its very nature, adds another piece of equipment into the mechanical room. We need to remove the burden of maintaining the equipment from the customer so they will buy into our technology. The factory service program accomplishes that by putting everyone’s mind at ease, especially the buildings’ facilities engineer. Tecogen has service centers across the United States where we service over 1500 machines under contract, and even some overseas.”

The Ilios machine has logged thousands of run hours at Harbour House and is on track to save the residents/ owners upwards of \$25,000 annually after service costs are accounted for. It will also reduce their carbon (CO₂ or carbon dioxide) foot print by over 100 tons annually, which is equivalent to the carbon produced by 20 passenger vehicles each year.

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