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Efficiency. Performance. High-tech. Superior action. Green. Innovative. Money saving. These are not usually words you would think to use to describe a toilet. Before toilets, people were just disposing of their own waste directly into rivers, which is the reason why disease outbreaks were so much more common in history than they are now. In a way, the invention of the toilet is like preventable medicine that helps keep us healthy. Along with finding the way to safely dispose of our own waste, we also found a way to make the entire process more environmentally friendly, and all with a lower cost. How is this possible? The water-efficient toilet or high-efficiency toilet (HET) was designed as a green, commercially available product that rivaled the older style consumer toilets, and promised better savings and performance.

The green future for toilets was prompted by several factors. There have been many protracted droughts and water shortages throughout the country for years now, and less and less water is available for sale and at higher prices. The U.S. Government took action, and in 1992 the National Comprehensive Energy Policy Act was enacted. The policy "calls for manufacturers to stop producing old-fashioned toilets and to concentrate on more efficient toilets that use a maximum of 1.6 gallons per flush (gpf)" (Kourik). Most toilets prior to this policy used at least 3.5 gpf, or about 20 gallons of water per person per day, which is the most water used by any household appliance. Any home that was built in the mid-1990s or earlier has the water-guzzling toilet model, which in some cases could consume as much as 7 gpf! (Chiras). The new water conserving models will use about 55 percent less water than a conventional toilet. Not only is our own water bill reduced, but installing a high-efficiency toilet can help in many other areas:

> Water-efficient toilets also reduce our collective pressure on limited water supplies and, in urban areas, the amount of waste flowing to sewage treatment plants. Less waste lowers the plants' operating energy and costs. In rural areas not served by municipal wastewater treatment plants, water-efficient toilets reduce the amount of waste flowing into septic tanks and leach fields, extending the lives of these systems. If you use well water, an efficient toilet will also cut down the run time of your well pump, reducing electrical consumption. Plus, the less your pump runs, the longer it will remain in service. (Chiras)

What options do we have when it comes to choosing high-efficiency toilets? There are typically three categories: single-flush toilets at 1.6 gpf, dual-flush toilets at 1.6 gpf/0.8 gpf, and pressure-assist toilets at 1 gpf. The most common type of HET in hotels, restrooms, and commercial buildings is the pressure-assist toilet, which can also be installed in homes. Its technology consists of a plastic pressure tank mounted inside the toilet tank. It uses pressure from the water supply line to compress air inside the pressure tank. It compresses air as the toilet gets filled with water, then the air gets forced out when the toilet is flushed which causes a powerful flushing action that not only whisks away waste but cleans the bowl with only 1 gpf! (Chiras).

Worried about the cost? Water efficient toilets can range in cost from about $50 to a few hundred dollars. For example, here are prices for pressure-assisted toilets from several companies: Gerber $320-$530, Kohler $450-$700, Zurn $500. These are prices for single-flush varieties: American Standard $250-$700, Vitra $325, Western Pottery $325 (Maxwell). These varieties are

going to be a bit more expensive than most general consumer toilet models that range from $50-$200. By installing an HET, not only are you saving thousands in water bills over the years, but also many water departments, especially those with water shortages, offer rebates ranging from $60-$80 or sometimes as high as $200 towards the purchase price of a water-efficient toilet (Chiras). Those who buy the more efficient toilets, such as the dual-flush or the pressure-assist, do receive even higher rebates. It is definitely worth the just slightly higher price! What about performance? Yes, it was known that some low-flush/single-flush varieties that were first introduced after the enactment of the Energy Policy Act in 1994 were not that impressive when it came to performance. But through the years, "the U.S EPA initiated a water efficiency labeling program [WaterSense] to parallel their popular Energy Star program that will require models to flush a minimum of 350 grams of waste" (Maxwell). Through this certification process, we have seen even better performing toilets, and they all are HETs! "Right now, the best-performing 1.6 gallon toilets can eliminate 1,000 grams or more of waste cleanly in a single flush—far more than may of the older 3.5 gallons toilet models that flushed with more than twice the volume of water" (Maxwell). So there you have it; HETs are definitely the more reliable and better performing choice for toilets.

What is to Say About the Greener the Better?

Although the word green is the universal color for life, nature, fertility, and well-being, today it seems to describe vitality: to be energetic and durable. The coined term "Go Green," hardly makes you think to put on a green t-shirt or to push the gas pedal because you had a late start on a green stoplight. Going Green means bringing awareness that our daily choices can affect the environment and illuminate which choices bring vitality to our lives, all living organisms, and the entire planet around us. This is what is called "The Green Movement" that you hear about on TV, radio, magazines, newspapers, word of mouth, etc. This movement was prompted by the global climate change that has become a very increasingly important socio-economic issue and has brought heightened awareness and concern for our environment.

Whether it is global warming, shortages of waste-dumping sites, deforestation, extinction of animal species, economic downfalls, or the consumption of our limited fossil fuels, these are all reasons on which the Go Green effort was founded upon. Of course these are all very controversial subjects. Everyone seems to have a very different opinion on how to combat the issues at hand, or how to approach becoming a more sustainable society. With any societal issue, along with supporters come the critics. Many people have resisted the Green Movement and its call for more renewable energy sources by arguing "fossil fuels are far more reliable than renewable energy since renewable energy is dependent on the weather and therefore cannot create power on demand" ("Update: Renewable Energy"). Instead, the argument made by supporters of renewable energy is that "using fossil fuels to generate energy is environmentally unsustainable, since they generate harmful greenhouse gases that contribute to global warming" ("Update: Renewable Energy"). A big component of the statement made by supporters is that it would cost a lot of money in funding for the research and development in order to find a "cleaner" U.S. energy supply. This is a main reason why Going Green creates a poor attitude among U.S. consumers. Especially with the economy in its current state, consumers are putting a tighter hold on their wallet and many "Green" products and services are sometimes more expensive to purchase, which makes people very hesitant to splurge the extra money on that EnergyStar certified energy-efficient refrigerator for example.

What consumers tend to forget is that alternative energy has proven itself to be cost-effective in the long run. Any "green" product or "green" process that is purchased or implemented will probably be more expensive than its fossil fuel reliant counterpart, but it is an investment; an investment that pays for itself over and over in the future by not only reducing the strain on the environment, but also our bank accounts! A great way to begin "reducing our carbon footprint," as the Green Movement tends to say, is to ease consumers into the entire process using inexpensive

"green" products/processes that can be implemented in their own home, and then gradually offering more expensive replacements for the energy-wasting household items. There are ten easy ways to do so:

> Start using compact fluorescent light bulbs instead of incandescent bulbs. Invest in double or triple-pane windows to reduce utility bill. Install high-efficiency toilets to reduce water bill. Use a water-filtration system instead of constantly using and throwing away bottled water containers. Conserve water by turning off the faucet when you brush your teeth or take shorter showers. Update the insulation using a non-fiberglass type to keep energy costs down. Use paper or canvas bags instead of plastic when buying groceries. Consider a thermostat that programs your heat/air-conditioning to run only when you need them. Unplug any household objects when not in use because they still use power. Replace the power-hungry refrigerator with an energy-efficient refrigerator, and other appliances. (Begley)

Slowly but surely the Green Movement will progress. It is just a matter of time in which we will all be living greener, more sustainable, and more efficient with our energy usage. Unlike in previous decades, with advancements in technology scientists today have found more cost-effective ways to harness and use renewable energy. Going Green is here to stay. With the proper research, education, awareness, help, and resources, we can find ourselves as a society that positively embraces "greenness" on a wider scale and will reap its benefits for generations to come.

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