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## BATTELLE EXPERTS PREDICT THE TOP TEN HEALTHY HOME TRENDS FOR 2010

Should we be walking around our homes wearing blue decontamination suits? Not quite yet, but the health of our homes will be a challenge at the forefront of home technology in the coming years.

Nasty spores, mites and bacteria may fall victim to an explosion of new home products like self-sanitizing materials and air or water purifiers. People could be taking care of routine health monitoring from their homes instead of the doctor's office.

The carbon monoxide monitors and home security alarms we use today are considered the first generation in the wave of home health and security trends on the horizon.

"The market is here for these types of products in the health conscious Baby Boomer generation. People are concerned about maintaining their health and want to make sure they take every step in their own homes to do so," said Steve Millett, Thought Leader and Futurist for Battelle. "Technologists are working on these home products now and you'll see them become a reality by 2010."

A group of Battelle scientists and researchers have pinpointed the Top Ten Trends in Healthy Homes for 2010. They are, in order of importance:

**(1) Breathing Easy: Indoor Air Quality** - Increasingly energy efficient homes have created interiors that are a virtual soup of odors and fumes from indoor pollutants. Americans spend 90 percent of their time indoors and often the quality of air is worse than what we find outdoors. Homes and commercial buildings are sealed so well that despite circulation by heating and cooling systems, odors and particulates swirl around with nowhere to go but your lungs. Respiratory problems including asthma and allergies are on the rise and can be attributed, in part, to mold and mildew spores; outgassing from synthetic fiber used in building materials and carpets; pet hair and dander; outdoor pollens that become trapped indoors; and inadequately vented cooking and food odors. What's a gasping and wheezing homeowner to do? What you're likely to see on the market and in homes by 2010 are products for advanced air venting, air filtration and biosensors that help fight humidity, mold and other indoor pollutants.

**(2) The Doctor is Always In: Home-based Medical Monitoring, Diagnosis and Care** - Healthy lifestyles and disease prevention have never been more important than they are today. If you could find out the status of your health as easily as you find out your weight when you step on a scale-wouldn't you do it? Health-conscious consumers, the middle-aged, and the elderly will welcome the ability to monitor blood pressure, cholesterol, blood sugar and more in the privacy of their own homes. And, when problems do arise, we'll want health care in our homes too. This will be easily achievable with the use of the Internet and wireless communications with attending physicians, nurses and clinics. Rising medical costs and the health care industry's increasing reliance on home-based care and outpatient procedures will go far toward making this a reality.

**(3) Better than a Nosy Neighbor: Monitoring and Sensing for Home Safety and Personal Protection** - Ever wonder if you left the iron on, or forgot to close a window? Or if a water pipe has burst while you're on vacation? People often worry about their homes when they're not there. Those worries will be easily put to rest with remote home security monitoring through home sensors and cameras that can transmit pictures and information to you via the Internet and other wireless devices. Computers can be trained with data and software to match the correct home motions with disruptions to normal activity. Members of the "Sandwich Generation" also will welcome these monitors in their efforts to care for children, the elderly and the ill. Affordable biosensors also will be able to alert you to the presence of potentially harmful bacteria and viruses.

**(4) New Appreciation for Electricity: Absolutely Reliable and High Quality Power** - Before the recent, and very public, electric power shortages in California, most people took their electricity for granted. We are starting to appreciate the plentiful availability of power. We will need even more power, and of a higher quality, as new electronics, computers and appliances become commonplace in homes. Many homes are seriously underpowered for the electric conveniences we use today.

What's the answer to this dilemma? Home power generators, especially highly efficient Micro-turbines and engines that run on natural gas. Fuel cells also are a solution that will grow in popularity over the next

decade. Equipment that generates both heat and electricity-known as microcombined heating and power-is already used in Europe and is likely to make the ocean crossing by 2010.

**(5) Water. Water Everywhere, but is it Pure? Whole-house Water Quality** - Pure water has become important to most people-witness the \$22 billion bottled water industry and the interest in faucet filters. Homeowners desire, and will demand, better tasting, better smelling and clearer water in their homes. Municipal water systems are generally safe, but deadly accidents do occur. When a water system is compromised by E coli or cryptosporidium, people can become seriously ill and die from the water coming into their own homes. In the future, homes will have whole-house water safety systems-new appliances not yet developed-to supply the best water for all home uses.

**(6) Healthy and Safe Foods: Food Quality and Safe Handling, Storing and Cooking** - The risks involved with eating these days can be scary. People want to enjoy safe and nutritious foods and want to eat healthy food as long as it tastes good and is convenient. We've been spoiled by lettuce torn up for us by someone else, and fresh carrots and broccoli chopped, packaged and ready to go. The explosion in food products makes the mind reel in the aisles of the supermarket. This may lose allure over the next decade as people tire of having to choose among 200 different salad dressings. Households will shift back to traditional, tasty and high-quality foods that can be prepared quickly. Food safety comes to the forefront and homes are likely to have tools for the detection of bacteria in food and water. Waving a wand over your countertop or cutting board will tell you if you have removed bacteria from uncooked meats. Foods of the future also may be engineered to have disease-preventing qualities.

**(7) The Baby Boomer Factor: They Don't Want to Get Old** - Can financial clout fend off aging and ill health? If it's possible, this demographic group will find a way. The Baby Boomer generation of 78 million people, currently at its peak earning and spending years, packs a lot of consumer clout. Combine this with the Baby Boomers' tendency to be self-conscious about their appearance and health and you've got a built-in market for healthy home products and services. Witness the popularity of home gymnasiums, teeth whitening home treatment kits and anti-aging skin creams. It's probably not too far-fetched to predict that if there is a way for Baby Boomers to perform minor plastic surgery at home, they'll do it.

**(8) Mite Wars: Battling Mites and Molds in Bedding, Furniture and Carpets** - These buggers are hard to get rid of and increasingly are being blamed for a host of different major allergies. Mites, which look ferocious when viewed under a microscope, are tiny insects that can be found throughout the home. They particularly love warm, dark and damp fabrics that are typically found in bedrooms. Researchers today are exploring the ways to kill mites using light and to fight mold by reducing humidity. This work will be stepped up in the coming years as the government and companies declare war against mites and mold.

**(9) Drudgery-free Housecleaning? Bring it on** - There is a great need among two-career families to reduce the time and drudgery of housecleaning because those families have less time and energy. Although stay-at-home mothers have likely been claiming the same need for years, when Baby Boomers claim it's a problem, the market responds. Super products and services can make the crucial difference in the hygiene of a home. Some of those might include a single cleanser for all surfaces and one appliance that will clean all fabrics. Laundry time may be greatly reduced with machines that might wash and dry in the same appliance.

**(10) Sterile Surfaces: Germ Resistant Materials, Coatings and Fabrics** - The same type of coating that keeps stains off your carpet could be put to work keeping bacteria and viruses off your countertop. Clean surfaces are easy to re-infect, be it from a grungy toddler hand or a freshly washed pair of hands that just touched the aforementioned grungy toddler. Homeowners are looking for new cleansers that provide lasting protection on kitchen and bathroom surfaces. This protection from disease-causing microorganisms might be built into surfaces with disinfectant treatment and materials.

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