

## Indoor Environmental Quality

*Indoor environmental quality includes technologies that hold potential for improving the health and comfort for occupants of homes.*

### Technology Scanning

One of PATH's major research support services is Technology Scanning. *Technology Scanning* tells us about technology developments in other industries, from other nations, from federal laboratories, and from other building sectors. PATH looks for breakthroughs in other industries that could be transferred and applied to housing. *Technology Scanning*-published by the U.S. Department of Housing and Urban Development/PATH and prepared by Newport Partners LLC-is updated as technology developments dictate.

This issue of *Technology Scanning* is one in a series. Each issue in the series falls into one of the following categories:

- *Design and Internet Tools*
- *Safety*
- *Surfaces and Interior Finishes*
- *Building Envelope Technologies*
- *Heating, Ventilating, and Air Conditioning*
- *Energy/Power Systems Generation*
- *Basic Materials*
- *Information Technology*
- *Thermal and Moisture Protection*
- *Indoor Environmental Quality*

For other available Technology Scanning issues, log onto [www.pathnet.org](http://www.pathnet.org).



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### Enhanced Catalytic Oxidation/Photoionization

Advanced anti-microbial air purification technology used to destroy micro-organisms in food processing plants is now available for the home-building industry. The PHI CELL Probe™ is easily integrated into the air conditioning and heating system's air ducts, and is designed to reduce indoor air pollution and sick-building-syndrome risks. By engineering the proper light wavelength, RGF Environmental claims to have effectively created an anti-microbial air purification system. The process utilizes a combination of UV rays, passive ozone, hydro-peroxides, hydroxyl radicals, and super oxide ions. These "friendly" oxidizers travel throughout the home, helping to neutralize gases and odors, and cleansing the air of mold, bacteria, germs and other pollutants.

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### Aerosol Decontamination Systems

Foster-Miller, Inc. has developed an aerosol system for decontaminating soldiers and spaces exposed to chemical contamination. Their ECADS (electrostatically charged aerosol decontamination system) process is the delivery system for a variety of decontamination media. Foster-Miller is working with a company from California called EnviroSystems to evaluate using ECADS to deliver a cleaner/disinfectant for biological contaminants.

This technology may have application to house mold problems. It may be possible to

use it to economically decontaminate a complete home or various parts of the home like a basement or attic.

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### Air Quality Sensors and Related HVAC Controls

A new breed of air quality sensors is being installed in automobiles with control strategies that automatically operate the outside air inlet door. The aim is to reduce the amount of pollution carried into the vehicle cabin through the HVAC system by closing the intake port when the vehicle enters high pollution areas. This provides significant health, safety and comfort benefits for drivers and occupants of motor vehicles and significantly extends the life of cabin air filters. Manual operation of the recirculation switch is not as effective as an air quality sensor because of the limitations of the human ability to detect pollution. Drivers can only detect the odor of some gases that are coincident with harmful gases, but many noxious gases are odorless. Similar sensors could be used in residential buildings to detect the presence of various pollutants - both indoors and outdoors - and operate control strategies through the HVAC system.

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