

## Heating, Ventilating, and Air Conditioning

Listed in this section are the technology findings that directly or in part could be applied to the mechanical infrastructure (heating, ventilating and air conditioning) of housing.

### 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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### A/C Power Economizer

Airsure, Inc. distributes an "electronic smart box that maximizes the cooling effect of air conditioners" and can be installed on existing units. The A/C Powermizer works by taking advantage of variations in efficiency during the cooling cycle; this unit cuts the compressor off before the thermostat is satisfied, then turns it back on in order to maximize operation at the highest efficiency range. The company distributes a report describing test results from Florida claiming energy savings of around 10-20%.

#### Contact:

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### Condensing Oil Furnace

Until recently, oil furnace efficiencies about the low to mid 80s were rare. The availability of high efficiency oil furnaces could have a significant impact on energy use through installation in new homes or as replacement units. Dornback, a manufacturer in Garfield Heights, Ohio, reports that the Dornback condensing oil furnace has a 95 AFUE (efficiency) rating. To overcome sooting problems with earlier versions of this technology, the Dornback model

was specifically designed with front and rear clean-outs so soot can be easily removed.

#### Contact:

Dornback Furnace Division  
9545 Granger Road  
Garfield Heights, OH 44125  
Phone: (216) 662-1600  
Fax: (216) 587-6807

### Metal Duct with Silver Coating

SPIRO+AgION is a new type of antimicrobial protection for sheet metal ductwork. According to the manufacturer, Lindab, the product provides a controlled and continuous release of silver (Ag) ions when moisture is present. The silver ions provide an added measure of cleanliness where mold, fungi, and bacteria are a concern. Current applications include schools, hospitals, supermarkets, and similar environments. The product could be applied to provide the same level of protection to residential metal ductwork. The product is registered with the U.S. Environmental Protection Agency and is recognized by the U.S. Food and Drug Administration as an acceptable additive in food contact polymers.

#### Contact:

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Two Stamford Landing  
Stamford, CT 06902  
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## Wireless Thermostats

Wireless technology is replacing hard-wired components in almost every area of our lives. The wireless thermostat is no exception as attested by the offerings of several manufacturers. The typical set-up includes the thermostat itself plus one or more receivers and/or remotes. The systems offer variety in their configurations. The basic system comes with the thermostat and a receiver. The thermostat can be located anywhere in the home. More options can then be added to increase the level of control and convenience. For example, multiple remotes or receivers can be added to allow control of a single HVAC system from multiple locations, or multiple pieces of equipment could be controlled from the same system (e.g., multiple window units or baseboard heating units). They may be ideal for equipment retrofits and additions.

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Photo Courtesy: Enernet Corporation



**T-9000 Wireless Thermostat by Enernet**

Honeywell  
Automation and Control  
Solutions  
Golden Valley, MN  
www.honeywell.com/  
yourhome  
(select model T8665 under  
Thermostats)

## Magnetic Bearing Compressors

Magnetic bearings are high tech products designed to improve the efficiency and product life of rotating mechanical parts like compressors, fans, pumps, or other motor-driven devices. Turbocor has developed a bearing system in which the rotor shaft and impellers levitate during rotation and float on a magnetic cushion. Bearing sensors feed back real-time information to digitally controlled bearings. Centered rotation is instantaneously self-corrected and maintained with the shaft being repositioned 6 million times a minute.

Electromagnets maintain clearance between the rotating shaft and the bearings, so there is no lubricating oil. In the case of a power failure, a patented control scheme turns the motor into a generator and when coupled with onboard capacitors will allow for a normal

shutdown of the compressor. The Turbocor model TT300 is the world's first totally oil-free compressor specifically designed for the heating, ventilation, air conditioning and refrigeration industry.

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Courtesy: Turbocor

**Magnetic Bearings**