



- Floratech
- Cleanroom Systems
- Wine Guardian
- OEM and Custom Products

Summer 2009

## Air Innovations donates cleanroom to Clarkson University

Air Innovations has donated a demonstration cleanroom to Clarkson University's Center for Air Resources Engineering and Science (CARES), AI President and CEO Michael Wetzel, P.E. reported. CARES will use the cleanroom for indoor air quality research, including studies of re-suspension and particle transport related to the causes of childhood asthma and upper respiratory disease. "CARES' work on researching aero-allergens in children's bedrooms and re-suspended particles will be greatly advanced with the use of AI's cleanroom because of its ability to isolate, differentiate and quantify various airborne particulates," Wetzel said.

Air Innovations' modular cleanroom contains ultra-low particulate air (ULPA)

filters and has a raised perforated floor to attain laminar flow within the space. An ante-room is attached for gowning and infiltration control, Wetzel explained. It is categorized as an ISO Class 3 cleanroom by the International Organization for Standardization, which means it will permit no more than 35 particles of 0.12 microns in size or larger per cubic foot of air — particles about the size of viruses, small bacteria, fumes, and tobacco smoke. By way of example, a typical office space contains hundreds of thousands of particles that size per cubic foot of air. "The raised floor is ideal for wiring and instrumenting the space for airflow and particulate characteristics, while the full height *continued on back page*



AI Chairman Larry Wetzel (center) and AI President and CEO Mike Wetzel (right) observe the dismantling of the AI cleanroom with Steve Ronese, manufacturing assembler.

## New AdvancAir orders for unique cleanroom applications

The Cleanroom Systems division is working on a variety of orders for AdvancAir® equipment. These are custom-designed, critical environment control units that have been designed and manufactured at the factory since 1983. Each is built to the customers' exact specifications and matches any automation or tool-specific feature required.

### Here's a sample of recent AdvancAir applications:

**Aerospace:** Eight units are being designed to hold a precise temperature spec in a four-zone cleanroom that will be used in the manufacture of a satellite-based laser that measures environmental conditions on earth. Each AdvancAir unit requires approximately 150 hours to fabricate, plus engineering seat time.

**Medical Devices:** Two AdvancAir units have been ordered to replace AdvancAir equipment that has been running 24/7 since its original purchase in 1988.

**Research/Education:** Two 5-ton units were shipped to a university physics laboratory.



The AdvancAir unit in the background provides 15 tons of cooling, heating and humidification to a special cleanroom located more than 150 feet above the ground that is protecting sensitive cargo being loaded inside a rocket. The equipment in the foreground is a desiccant dehumidifier required because of the equipment's proximity to the ocean. The system is rated Class 1, Division 1 (explosion-proof/hazardous location).

## Cleanroom Systems

# HEPAiRx awards for product development efforts

For the past 2 years, AI has been developing and testing HEPaiRx®, an air purifier and ventilator designed for the bedrooms of those who suffer from asthma. The purpose of the unit is to improve the level of indoor air quality, which should allow asthmatics to get a restful night's sleep and be better able to handle the next day's respiratory stresses. The unit draws in fresh outside air to dilute the indoor pollutants that are causing the respiratory irritations, and does not use any chemical filtration as is commonly found in existing products.

In clinical trials conducted by Clarkson, first-generation HEPaiRx proved to be effective for reducing particle and gas concentrations in the bedrooms of asthmatic children, controlling bedroom temperature, and mitigating the children's asthma symptoms. These encouraging results led to AI receiving a \$150,000 Technology Application and Demonstration award for HEPaiRx generation 2 product development from the Syracuse Center of Excellence in Environmental Engineering and Energy Systems; this funding was made possible through a grant from the U.S. Environmental Protection Agency. AI also received \$50,000 in support from the University at Buffalo Center for Advanced Biomedical and Bioengineering to continue clinical studies on the pediatric asthma population; this funding was made possible by the New York State Foundation for Science, Technology and Innovation (NYSTAR) and is administered by the New York State Center of Excellence in Bioinformatics and Life Sciences. ▲



In the United States 22 million people have asthma, including 6 million children.

## Wine Guardian

# New wine cooling unit withstands high temperatures

The Wine Guardian division now offers a high ambient line of cooling systems, perfect for when the space where the unit is located is not insulated and subjected to high heat loads. "This situation arises when wine cellars are installed or expanded within existing buildings where space is at a premium," noted WG Sales Manager Mike Militi.

Cooling systems located in attics, crawl spaces and covered outdoor enclosures are often subjected to high temperatures, especially in summer weather. Wine Guardian's high ambient models are engineered to perform reliably even when subjected to outside air temperatures of 125°F. The high ambient option should be considered when outdoor air has to be ducted to the condenser section and the temperature will be above 95°F during parts of the year.

The high ambient product line includes special coils, condenser fan and refrigeration controls. Quarter-ton and half-ton high ambient models are currently available. Wine Guardian will offer 1-ton and 2-ton high ambient units later this year. ▲



AI President and CEO Mike Wetzel shows his mother, Glenda Wetzel, the ceiling details he hand-built into his new 600-bottle cellar under construction in Skaneateles, New York. A ducted, water-cooled Wine Guardian with humidifier is installed in an adjacent mechanical room and mounted over the entrance door to conserve space.



## Floratech

# Floral cooler sales continue to expand around the world

Division Manager John Patalita reports that Floratech's South American sales continue to grow. "We've made our first sale in Chile, to that country's largest supermarket chain," he said. Floratech also has recently exported its floral coolers to Ecuador and is expanding its relationships in several other Latin American countries. Patalita is fluent in Spanish and travelled widely in Latin America while at an international air conditioning company prior to joining Air Innovations. ▲



Allen and Henrik Klinge, Floratech®Europe principals, left and center, met with John Patalita, right, at our Syracuse factory, and observed final testing on custom-colored Low Profile units destined for Norway and Finland. FloratechEurope, headquartered in Copenhagen, is selling these unique products to a large Scandinavian garden center chain (shown at top of page).

## 2009 manufacturing plant updates

AI has always prided itself in its modern, state-of-the-art manufacturing facility. Recent increases in volume orders and production of larger systems, coupled with the availability of new technology and more sophisticated manufacturing practices, have led to major changes on the factory floor.

Rich Gozigian, director of manufacturing, cites an analysis done by the company in 2008 as the impetus for the expansion and upgrade. In addition to the capital expenditures for the project, he reports that AI was able to apply and receive financial assistance from several New York State agencies.

A grant from New York State Empire State Development underwrote the purchase of machinery and equipment that supports production testing and factory expansion. A fully automated evacuation and charging system reduces time required to prepare units for testing, and insures that all units are charged to exact specifications. A new generator allows testing on multiple 50Hz units, expediting international shipments. "Work station re-configuration has led to a more streamlined flow of material and units through the shop by reducing material handling time and improving productivity," Gozigian added. As part of the project, a cleanroom on the factory floor was dismantled (see Clarkson University story on page 1) to make way for a fully functional and self-contained subassembly area.

A detailed energy analysis prompted a complete upgrade in the company's lighting grid and an immediate increase in illumination throughout the facility. AI received a rebate from the New York State Energy Research and Development Agency (NYSERDA) for the new lighting and expects to realize lower energy costs in the future. With a NYS Department of Labor grant all shop employees received formal electrical training, including both classroom and hands-on practice.

A semi-enclosed, climate-controlled area in the factory was constructed this spring to more accurately test units during times of high temperature and humidity. ▲

## AI to showcase products at Healthy Buildings 2009

The Syracuse Center of Excellence in Environmental and Energy Systems, of which Air Innovations is a founding partner, will host Healthy Buildings 2009, an international forum for indoor air quality that is expected to draw more than 1,000 participants to Syracuse in September. AI will exhibit HEPAiRx (see story on facing page) and IsolationAir®, a contamination control unit used for infectious disease control (in its negative pressure mode) and for burn and trauma patient care (when operating as a positive pressure unit). ▲



IsolationAir is portable, can be installed quickly with no special tools, and be used for incremental isolation, a "surge" event or spot cooling.

## AIR INNOVATIONS EMPLOYEE NEWS

### AI employee lets down his hair And, then shaves it off!

**Brian Clarke**, manufacturing assembler, held the spotlight at a St. Baldrick's Foundation "Shaving the Way to Conquer Kids' Cancer" event. Brian, who hadn't had a haircut since 1996, donated his long white ponytail and collected more than \$4,600 in pledges. AI's Charitable Contributions Committee matched employees' contributions to Brian's cause.

### Congratulations to AI employees reaching these important service milestones:

#### 15 YEARS

**Jim Penfield**, manufacturing electrician

#### 10 YEARS

**Debbie Pelow**, Wine Guardian account manager

#### 5 YEARS

**Deborah Emery**, director of finance and purchasing



Employee of the Quarter

**Dave Stastny**, manufacturing assembler, was named "Employee of the Quarter" for his conscientiousness in the subassembly and incoming parts inspection departments.

### Welcome

AI welcomes **Rich Gianotti** and **Kyle Greene** as summer interns in our engineering group. Rich, a mechanical engineering senior at the State University of New York's Institute of Technology at Utica-Rome, has been assigned to the quality control inspection and testing department. Kyle, a mechanical engineering junior at Rochester Institute of Technology, will be working on SolidWorks 3D design modeling.



Rich Gianotti, above, and Kyle Greene, below





**AIR INNOVATIONS**

**7000 Performance Drive  
North Syracuse, NY 13212**

PRSR STD  
US POSTAGE  
PAID  
SYRACUSE NY  
PERMIT #999

**AdvancAir®**

**Floratech®**

**HEPAir®**

**HEPAiRx®**

**IsolationAir®**

**Wine Guardian®**

**AI Air Innovations®**

This newsletter is online at  
[www.airinnovations.com](http://www.airinnovations.com)

For more information  
on Air Innovations  
or its divisions:  
[info@airinnovations.com](mailto:info@airinnovations.com)  
800-825-3268

### **AI donates cleanroom to Clarkson**

*continued from front page*

windows on two sides allow for visual demonstrations and student interaction,” Wetzel added.

The cleanroom also features an aluminum distribution plenum plus lights and filters in a flush grid. A floor-mounted, vertical Air Innovations AdvancAir® unit is installed adjacent to the room to control temperature and humidity. The AdvancAir unit controls temperature inside the cleanroom within plus or minus 0.5 degrees Fahrenheit, and is a conditioning system similar to those Air Innovations builds for pharmaceutical and semiconductor plants around the world. Two recirculation blowers produce 7,000 cubic feet/minute of airflow through the room, which is the equivalent of about 1 mile per hour or 550 air changes per hour.

For the past two years, AI has collaborated with CARES on the R&D and product development of Air Innovations’ patent-pending HEPAiRx®, an air purifier and ventilator, which is designed to improve air quality in the bedrooms of people with asthma. In



AI cleanroom before dismantling

clinical trials conducted by Clarkson, HEPAiRx proved to be effective for reducing particle and gas concentrations, controlling temperature in participants’ bedrooms, and improving the partici-

pants’ asthma symptoms. The Clarkson research, which is being expanded and continued through 2010, is led by Philip K. Hopke, Ph.D., and Andrea R. Ferro, P.E., Ph.D. Hopke is CARES director, Bayard D. Clarkson Distinguished Professor, and Jefferson Science Fellow with the U.S. Department of State; Ferro is an associate professor at Clarkson and a U.S. National Science Foundation “CAREER” award recipient.

Wetzel, a 1988 graduate of Clarkson, estimated the replacement value of the 8-ft wide x 18-ft long x 12-ft high cleanroom at \$140,000. He said the cleanroom was originally erected for a demonstration to the semiconductor manufacturer Intel Corporation. Wetzel added that space gained by its dismantling will be used to expand AI’s factory, including the build-out of additional cleanroom facilities for controlling environmental conditions during design, testing and production of original equipment manufacturing (OEM) equipment for AI customers in the aerospace, homeland security, pharmaceutical, semiconductor, health care and metrology industries. ▲