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ABATEMENT TECHNOLOGIES PRODUCTS HELP CLEAR THE AIR IN NY CITY & WASHINGTON, DC

Not many organizations have been as involved in providing air purification equipment for potentially hazardous biological pollutants than Abatement Technologies, Inc. This Duluth, Georgia based manufacturer has become one of the leaders for IAQ products. Abatement Technologies has also provided a wide range of air purification equipment for cleanup of the buildings surrounding Ground Zero in New York City, and in Washington, DC.

The following questions and answers are excerpted from a recent interview with David Shagott, president of Abatement Technologies, Inc.

Q: Mr. Shagott, what types of air cleaning products does Abatement Technologies manufacture?

A: *Abatement Technologies markets systems for a variety of air purification applications, including asbestos abatement, mold abatement, air duct cleaning, and isolation rooms for hospitals. Our product lines include both fixed and portable equipment, as well as systems that are installed into a facility's central HVAC systems.*

Because our products are often used for critical applications involving potentially hazardous airborne materials, most of them feature HEPA (High Efficiency Particulate Arrestance) filtration. Some also incorporate other state of the art air purification technologies, such as ultraviolet germicidal irradiation, or UV-C.

Q: Most people associate the word "abatement" with asbestos abatement. Is that the reason for your company's name?

A: *It was when we originally started manufacturing equipment in the mid 1980s, mainly for the asbestos abatement market. We considered changing the name when we began expanding into other markets in 1990, but abatement is defined as "lessening, easing or reducing" and that still*

applies to everything that we try to help our customers do with IAQ problems.

While we remain the leader in the asbestos abatement market, we are also a significant presence in other markets. For example, Abatement's products are used by more than 5,000 HVAC and duct cleaning contractors, and by over 1,000 hospitals in North America alone.

Q: Does Abatement design its own air purification equipment?

A: *Yes, 100% of the product design and development is done in-house. We have an extremely talented team of design engineers and most of us who are involved with the design and development of new products have been doing this for 15 to 20 years or more.*

Q: What is the difference between a HEPA filter and a "HEPA type" filter?

A: *HEPA filtration has been used extensively since World War II to control microscopic airborne contaminants, and this technology has come a long way since then. It will continue to play a major role.*

I am pleased to see the increased awareness about HEPA filtration; however, the confusion between "HEPA type" filters and true HEPA filters concerns me, especially when dealing with hazardous air pollutants. The differences are very significant.

According to the American Lung Association, the actual efficiency of "HEPA type" filters may be "55% or less at 0.3 microns", which means that more than 4,500 out of every 10,000 particles can pass through the filter.

"True HEPA filters" must capture at least 99.97% of 0.3-micron particles, which means that a maximum of three out of 10,000 particles can pass through. In other words, true HEPA filters can be up to 1,500 times more efficient than "HEPA type" filters.

Q: Aren't more commercial buildings already equipped with high efficiency filtration?

A: *Very few facilities use HEPA filters in the HVAC system. The significantly higher initial costs and operating expenses for such an upgrade are often prohibitive.*

The vast majority of HVAC filters in use today, even those with 80% to 90% ASHRAE efficiency ratings, are designed primarily to capture particles 10 microns or larger. These filters provide a lot more protection

for the equipment than they do for protecting facility occupants from exposure to the sub-micron pollutants that can pass through the human body's defense mechanisms. As recent studies have shown, a significant percentage of biological pollutants will pass right through these filters.

Q: You had also mentioned germicidal UV. Is this a viable technology for the commercial and industrial markets?

A: *It absolutely is, as long as the necessary safeguards are in place. Studies have shown that this technology can be effective for controlling some airborne bacteria, molds, viruses and other germs and pathogens by destroying the DNA of these organisms. UV-C is one of the fastest growing segments of our business.*

I think that facility managers and owners have to be a little bit careful here though. UV-C is a viable technology, but not the be-all and end-all that some manufacturers seem to suggest.

I am also concerned about the safety of some of the products out there, particularly some of the portables. Direct exposure to UV-C lamps can be harmful to the eyes and skin and appropriate safeguards must be in place to prevent exposure.

As the CDC pointed out clearly in its engineering guidelines for tuberculosis in hospitals, UV-C is NOT a substitute for HEPA filtration. Abatement's philosophy for commercial air purifiers is to incorporate UV-C in combination with HEPA filters or other mechanical filtration rather than relying solely on UV-C. For safety reasons, virtually all of our products are designed for installation into the HVAC system.

Q: Let's talk about bioterrorism and the events of September 11. How significant is the threat to office buildings and is everyone taking recent FBI warnings seriously?

A: *The odds of an incident of bioterrorism occurring in office buildings are difficult to determine but most experts agree that HVAC systems would be a viable means of introducing contaminants into buildings. Many companies and organizations have decided that it is important to take steps to protect their occupants, and are taking action to do so. You may not hear about it since most organizations are taking these steps very quietly.*

However, it does seem that the closer one gets to New York City or Washington, DC the greater the level of awareness and concern.

Q: What are some of the IAQ problems created in New York City as a result of the events of September 11?

A: *An exceptionally large number of commercial and governmental facilities in lower Manhattan and in the nearby areas, as well as residential buildings, were contaminated with large quantities of dirt, concrete dust, insulation materials, asbestos, lead, molds, and other potentially hazardous contaminants.*

These materials became aerosolized after the explosions and the collapse of the buildings. Once airborne, they infiltrated through blown out windows or, in many cases, were sucked into these buildings through their fresh air intakes on September 11 and the days that followed.

Q: How are the products Abatement Technologies manufactures being used for the cleanup efforts in New York City and Washington, DC?

A: *I would venture to say that few if any companies in our industry have shipped more types of IAQ-related equipment into these areas. We are exceptionally proud of the role that Abatement Technologies products – and our customers who use them - have played in the cleanup efforts. We have given and will continue to give the highest priority to these requirements.*

Our products are being primarily used for several aspects of the cleanup process:

- *Cleaning and decontamination of residential and commercial HVAC equipment and components and air duct systems.*
- *Portable air scrubbers used for air cleaning and deodorization during the facility cleanup and renovation process.*
- *Systems used in hospitals to help protect patients and staff from airborne pollutants.*
- *Air filtration equipment for asbestos and lead abatement.*
- *Video inspection systems for assessing the contamination in hidden areas.*
- *Air purification systems installed into commercial and residential HVAC systems to help prevent recontamination after cleanup.*

Q: Are your products being specifically used for biological contaminants such as anthrax?

A: *While our equipment has been used in a number of applications related to possible anthrax exposure, I would prefer to comment discreetly, given the sensitive and confidential nature of this subject.*

One specific example I can give you where our products were used for a suspected anthrax incident is the Anacosta Naval Air Station, which houses the presidential helicopter. Abatement's products are also in a number of companies' "safe rooms", in the mailrooms of a number of newspaper and television stations and postal facilities, and even in a number of residential high rise buildings.

Q: You can find a lot of amazing anthrax claims on the internet. Is HEPA filtration a viable technology for anthrax and other biological pollutants?

A: *Some of these claims are pretty outrageous. To my knowledge, no meaningful, "real life" efficacy studies against anthrax have been done with anyone's products, primarily because this is a threat few might have envisioned prior to recent events.*

I do know that HEPA filtration products can substantially reduce the level of microscopic airborne contaminants, but I do not know exactly what level of reduction will be achieved with anthrax.

I also know that The Centers for Disease Control and Prevention has endorsed HEPA technology in combination with directional airflow as an effective engineering control for tuberculosis, and the effectiveness of our products in TB isolation rooms is well documented.

The similarities between tuberculosis and anthrax are remarkable. Both are rod-shaped bacteria, with a typical size of two to four microns in diameter and five to 10 microns in length. It would therefore seem logical that similar guidelines could be issued for anthrax. It would not surprise me at all if this happens.

Q: What about germicidal UV?

A: *Studies have shown that a sufficient dose of UV-C irradiation can kill anthrax spores. We believe that a well-designed system that utilizes both UV-C and HEPA filtration combines the two technologies in 2002 that combines 99.99% HEPA filtration with a powerful bank of germicidal UV-C lamps in a unique way.*

Q: What specific types of air security measures would you recommend to facility owners and managers?

A: *I would strongly consider adding safeguards for HVAC fresh air intakes and mechanical rooms. I would also suggest that at least one area on each floor of the building be converted into a “safe room” and that measures be taken to ensure that mailrooms and mail sorting areas are properly protected.*

I would particularly recommend these measures for high rise office facilities, government buildings, facilities housing high profile companies, and for any other large buildings. These types of systems can be put into place quickly and without a huge cash outlay. They can improve air safety and security as well as their employees’ sense of well being.

I would also agree with industry experts who are recommending that health care facilities add more isolation rooms.

Q: You had mentioned “safe rooms” earlier. What exactly is a “safe room” and what is the cost for such a room?

A: *A safe room is a room within the facility designated for occupants to go to in the event of a possible air quality emergency. The technology is very similar to that used for positive pressure isolation rooms in hospitals.*

There are two principles at work to help keep potentially contaminated air from flowing into the room: HEPA filtration to capture microscopic air pollutants, and positive pressure to prevent pollutants from flowing into the room from surrounding areas. Most facilities select our ceiling-mounted systems for this application, but portable units are also available.

UV-C lamps can also be added to provide an extra level of protection.

Q: Sounds expensive; what kind of costs are involved?

A: *Actually, these measures can be done quite inexpensively in many facilities. Installed costs are typically about \$8,000 to \$15,000 per room, versus perhaps \$40,000 to \$60,000 for dedicated HVAC systems.*

Q: Does Abatement Technologies market these types of products?

A: *We do not offer any type of security systems for HVAC inlets or mechanical rooms. We do offer HEPA filtration systems that can be used*

to convert a typical office or conference room to a “safe room”, and for addressing potential contamination problems in mailrooms.

The products we manufacture for commercial facilities are marketed primarily through American Air Filter, a leading air filtration company. AAF sells these systems under the trade name AirShelters, and also offers bag in/bag out rooftop systems for larger applications.

Q: What type of equipment would be used in a mailroom?

A: *This equipment is virtually identical to the safe room equipment, but the objective in a mailroom is to prevent potential contaminants from becoming airborne and escaping into other parts of the facility. For this reason these rooms must be kept under continuous negative pressure, not positive pressure.*

As with “safe rooms” most users select fixed systems that are mounted into two foot by four foot or two foot by two foot drop ceiling panels to keep them totally out of the way. Some select portable systems if they need to move the units from room to room.

Q: Will legislation be needed to motivate facility owners and managers to take these steps?

A: *I doubt it. Many of the markets in which we sell air purification equipment, such as asbestos abatement, are subject to government regulations.*

However, I can tell you that there are five other main driving forces for the vast majority of building owners: (1) a sincere desire to properly protect employees and occupants; (2) maintaining property values; (3) the threat of litigation, (4) loss of tenants; and (5) the difficulty of financing or insuring the property if environmental hazards are present.

I suspect that the same will be true for air safety and security measures.

Q: You mentioned property value and tenant retention. Will buildings with air-security measures make better long-term investments?

A: *I think so. If I were a building owner or manager I would institute a number of common sense safeguards and proactively promote these to my*

tenants. I would do this because it is the right thing to do, but I would also do it for peace of mind and for legal and marketing purposes.

If I were a tenant or prospective tenant in a high rise building or a high profile building it would certainly be one of the first questions I would ask.

Mr. Shagott was one of the founders of Abatement Technologies, Inc. and has served as president of this privately held company since its inception in 1985. A 1971 graduate of General Motors Institute with a degree in industrial engineering, he has been involved in indoor air quality since the mid 1970s. Mr. Shagott holds several U.S. Patents for air purification systems. Abatement Technologies can be reached at (800) 634-9091 or via its website, www.abatement.com.