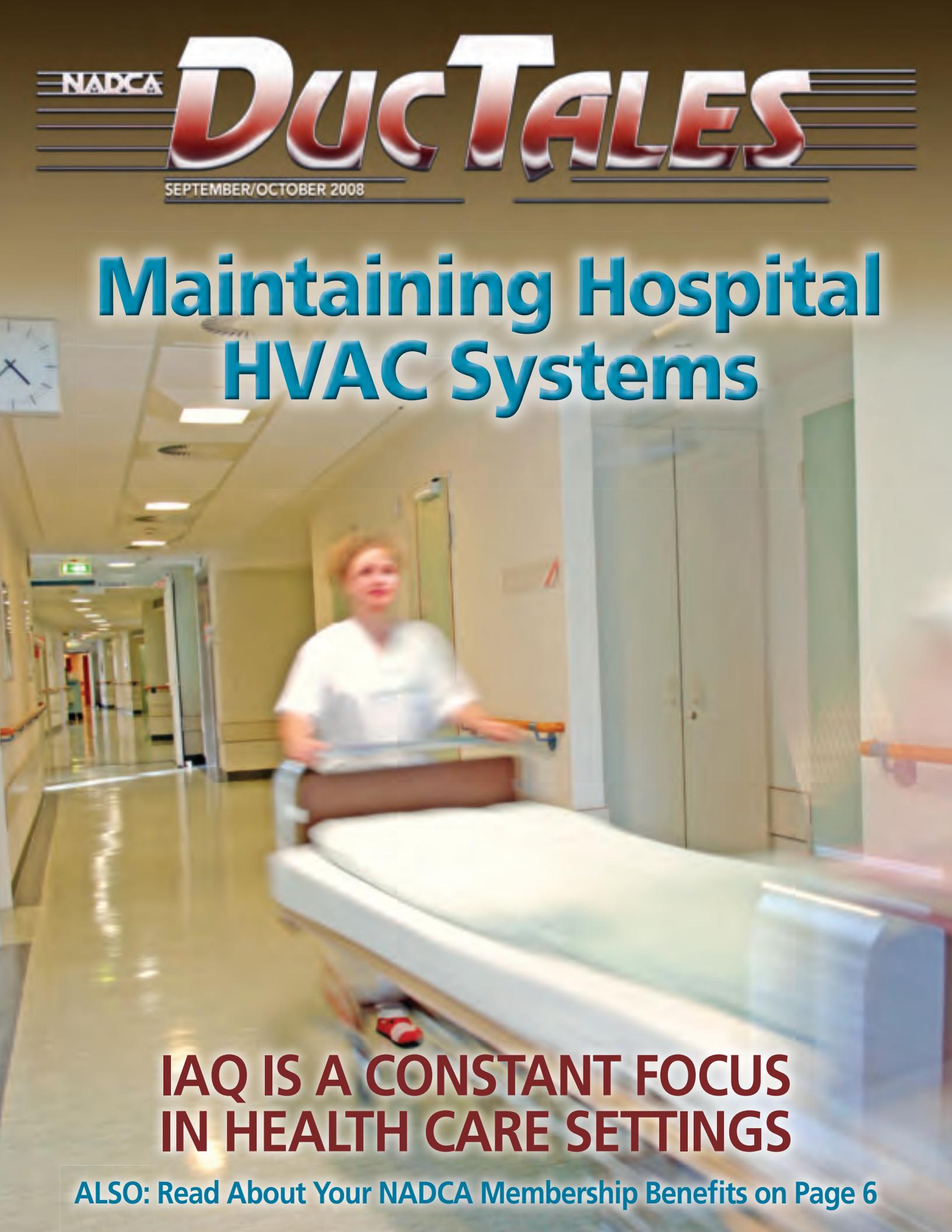


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ALSO: Read About Your NADCA Membership Benefits on Page 6

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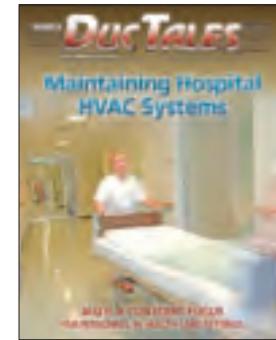


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Cover Story: Hospitals are among the most sensitive commercial environments, so HVAC maintenance professionals should be aware of the preparation and risks involved with taking on this type of work. The article on page 26 presents perspectives of NADCA members and hospital personnel. This article highlights the most important things to consider and remember before taking on a hospital job.

The article includes discussion on industry standards, and how HVAC maintenance companies must prepare employees for the nuances of this niche. As Charlie Cochrane of Cochrane Environmental said: "Cleaning hospitals is not anything that someone should take on lightly. Think long and hard before you start doing this kind of work, because it takes a lot of planning and effort."



Also in this issue: As member and certification renewal time comes to a close, NADCA members should be aware of the many benefits of belonging to the Association. On page 6, Michael Vinick, chairman of the Membership Committee talks about some of the most important benefits of a NADCA membership. Membership statistics are also available on page 7, and you can see where your company stands.

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Sunbelt Rentals Affinity Program results in serious savings for NADCA members.

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HVAC maintenance professionals realize that hospitals cannot be treated like any other commercial building.

EDITOR Alexis Andrews
PUBLISHER Sufka & Associates

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The National Air Duct Cleaners Association (NADCA) prints *DucTales* Magazine to provide its members and the HVAC system cleaning industry with a forum for the discussion of topics of interest. To that end, NADCA tries to include within *DucTales* a wide range of ideas and opinions. The ideas and opinions expressed by the authors who write articles for *DucTales*, however, are solely the views of the person expressing them, and do not necessarily represent the views, positions, or policies of NADCA, its members, or its officers, directors or staff. NADCA is not responsible for claims made in advertisements. NADCA does not endorse any particular manufacturer or supplier of equipment, chemicals or related products, nor any particular model of equipment.

Editorial and advertising closing dates are the fifth day of the month of each issue. Issues are January, March, May, July, September, and November.



NADCA President Brad Kuhlmann (pictured) and NADCA Executive Director John Schulte visited China for the 2008 International Air Duct Cleaning Summit. Read more about this trip on page 4.

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P R E S I D E N T ' S M E S S A G E

By Brad Kuhlmann, ASCS, VSMR



Brad Kuhlmann, ASCS
NADCA President

t's that time again—the NADCA Board of Directors nominations are just around the corner and there are four seats open for this upcoming election. If you or someone you know is interested in a leadership position on the NADCA Board of Directors, please contact headquarters for more information. Volunteering on the Board is a highly rewarding opportunity and a chance for you to make a difference within NADCA.

Now would certainly be an exciting time to serve on NADCA's Board. There is a growing importance and recognition of NADCA throughout the industry. As our ACR Standard

and ASCS certification continue to gain acceptance among commercial and residential customers, the value of NADCA membership continues to increase.

NADCA's reputation abroad is also continuing to build. This September, I traveled with NADCA Executive Director John Schulte to Shanghai, China for the 2008 International Air Duct Cleaning Summit. This inaugural event, sponsored by the Shanghai Air Duct Cleaning Association (SHADCA), attracted participants from across China and throughout the region. In addition to presenting some of the technology used in the U.S., I also had an opportunity to learn more about issues related to HVAC in other countries. I'd like to thank the SHADCA Board of Directors for inviting us to attend their Summit and for their gracious hospitality. I would also be remiss if I did not thank Mrs. Monique Tang, our primary contact with SHADCA, for her help in making our visit to China possible.

The trip to Shanghai also provided an opportunity for us to connect with our colleagues from the Japan Air Duct Cleaning Association (JADCA). JADCA recently celebrated its 20th anniversary—a major milestone for any organization. Congratulations to the leaders and members of JADCA for the fine work they have done. We look forward to working with JADCA into the future.

NADCA's international activity this year also includes participation in the inaugural conference of the Italian Association of HVAC Systems Hygienists (AIISA), scheduled for October 22-25, in Rome, Italy. In addition, NADCA is sponsoring the 2008 Quebec Summit, November 3-5, in Quebec City on behalf of our members in Region 9.5. These events—and the relationships that result—all help to build NADCA's support around the globe, while also providing invaluable opportunities for collaboration and research.

Lastly, I would like to recognize the NADCA Regional Coordinators Committee for putting together the 2008 Technical Seminars. With the help of these volunteers, NADCA sponsored three seminars this year, providing a combination of classroom instruction and hands-on training. Special thanks to the Regional Coordinators Committee and chairman Tim Hoysradt for another fine job. These guys put in a lot of time as volunteers to provide training for the members of the Association and their efforts are greatly appreciated. ●

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Committee Spotlight: Membership Benefits

The mission of the Membership Committee is to promote the benefits of NADCA to current and prospective members in order to increase and retain membership. NADCA's Membership Committee has been focused on making 2008 an excellent year of retention and recruiting.

"Members should know that NADCA's scope within the HVAC community has grown and will only continue to do so," said Michael Vinick, chairman of the Membership Committee. "This year we also focused on furthering NADCA's reputation in the HVAC industry. We've changed our tagline to read 'HVAC Inspection, Maintenance & Restoration' to position ourselves industry-wide for the benefit of our members."

Many benefits come with a NADCA membership. Your company has an advantage over non-members that do not have access to NADCA's resources for marketing, public relations, education and more. This article highlights both new and old benefits that provide added value to your NADCA membership.

NADCA Member Marketing

Marketing tools such as brochures, referrals and videos are available to NADCA members, and the Association is constantly looking for ways to make its members stand out to consumers. You can use these tools to educate commercial and residential consumers, and to distinguish your services from the services provided by low-quality contractors.

If you are searching for ways to market your business to consumers, NADCA is here to assist you. The residential brochure, available for download on the Members Area of the NADCA Web site, is customizable. This means you can take the residential brochure to a local printer, add your own logo and distribute it to your customers. The residential brochure highlights the basics of HVAC maintenance and restoration, including why and how it needs to be done. This is a great tool for introducing your company to new prospects, and it also provides education to existing clients.

NADCA has also implemented marketing assistance for commercial members. NADCA and its certifications are listed in specifications like Masterspec and Speclink. For many commercial jobs, the requirements for HVAC cleaning and restoration call for proof of ASCS certification or NADCA membership. When contractors read these specifications, they are likely to contact NADCA in order to hire a member company in their area. NADCA's recognition in these specifications directly translates to money for the members who have received jobs as a result of Masterspec and Speclink.

Another way for you to market your business to consumers is by becoming an Energy Star partner. NADCA is a partner of the Energy Star program and strongly supports the mission of Energy Star. When your company participates as well, you are

taking part in the growing "green movement" toward energy efficiency, which most consumers recognize. This identifies your company as a provider of services that help conserve energy.

Consumers in general often seek services that will help them save money in the long run. This is one reason why NADCA partnered with Colorado University for a study to quantify and define the energy-saving benefits of HVAC maintenance and restoration. This research project, in addition to NADCA's recent acceptance as an Energy Star partner, will increase public awareness of the energy-saving services provided by the Association's membership.

Public awareness is vital to the success of the HVAC inspection, maintenance and restoration industry. Perhaps the most prominent tool for marketing members is the NADCA Web site. The Association helps generate business for members through the Web site referrals and listings that include a company's certifications and when they joined NADCA. The Association's headquarters also receives a steady stream of phone calls from consumers who are looking for HVAC maintenance professionals in their area. Whether members are aware of it or not, chances are that many new clients found out about them through the NADCA Web site, or by calling NADCA Headquarters.

New Public Relations Firm

Members will also benefit from a recent hiring of a public relations firm that will help strengthen NADCA's position at the forefront of the industry. Starrconstand Business Communications, a public relations firm located in Detroit, Mich., will help consumers understand why HVAC inspection, maintenance and restoration services are important.



Starrconstand Business Communications has other clients within our industry so they have been able to kick start their understanding of NADCA's needs and its position within the HVAC industry. Starrconstand will be executing a residential and commercial consumer awareness program for the benefit of all NADCA members. The money NADCA spends with Starrconstand will directly translate into education and consumer awareness of our Association.

NADCA Education & Certification

NADCA educational meetings are a core component of the membership. Business owners and technicians are now able to receive training from the comfort of their home or office through the Webinar series and the ASCS Online Training Course. In addition, NADCA still offers traditional, in-person training at both the Annual Meeting and the Technical Seminars.

The Board of Directors is constantly looking for ways to make training more accessible and more affordable. NADCA's education programs provide a wide range of instruction, whether you are new to the industry or need training for an advanced certification. Developing your company's personnel remains one of the best investments you can make.

If you are considering taking the ASCS certification exam, rest assured that registering for this exam is easy and can be done online in about 10 minutes. Test centers throughout the United States, Canada and abroad ensure that most NADCA members will not have to travel far to take the ASCS exam.

Continuing education credits, needed to renew NADCA certifications, are also much more accessible than they were in the past. To earn CECs toward certification renewal, you can either attend a training or education event sponsored by NADCA, or another industry organization. You can also earn CECs by taking an online, open book quiz to renew certification – the most popular way to get re-certified. The options for CEC renewal are various – it just depends on your personal preference. NADCA has made a lot of progress in making certification and re-certification convenient and cost-effective.

To learn more about NADCA's many member benefits, please take a look at the Members Area of the NADCA Web site. Log-in for this area of the Web site is available by sending an e-mail to info@nadca.com. Once in the Members Area, you can also download marketing materials, the NADCA logo, and view archived member communications, including past issues of the E-News and DucTales. The Members Area is an important resource for all NADCA companies.

Vinick said, "Members need to know that NADCA is also here to help them weather the tough economy." ●

NADCA Member Facts At-a-Glance

The following NADCA membership statistics were compiled recently, and provide an accurate overview of the Association. See where your company fits in!

Residential vs. Commercial Service Offerings

NUMBER OF COMPANIES	PERCENTAGE OF TOTAL	SERVICES PERFORMED
45	4%	Residential services only
897	79%	Residential services offered
852	75%	Residential and commercial
1,035	91%	Commercial services offered
183	16%	Commercial services only

Annual Gross Revenue

NUMBER OF COMPANIES	PERCENTAGE OF TOTAL	ANNUAL GROSS REVENUE
121	11%	Under \$150,000
40	4%	\$150,000-\$250,000
47	4%	\$250,000-\$500,000
125	11%	\$500,000-\$1,000,000
150	14%	\$1,000,000-\$2,500,000
73	7%	\$2,500,000-\$5,000,000
71	6%	More than \$5,000,000

Why Renewing NADCA Membership & Certification is Important

For several months per year, the Membership Committee is focused on member and certification renewals, which are due annually by July 1. Michael Vinick, of Duct & Vent Cleaning of America Inc., heads the Membership Committee, and said there has been a strong focus on making sure NADCA members understand the requirements and the bylaws. The "grace period" is about to expire for members who either do not have an ASCS on staff or who have not yet renewed their membership.

Members companies that do not have an ASCS certified in their office are not on a level playing field with those who invested the time and training toward certification, Vinick said. He said that with the addition of the new online ASCS Training Course, it is now easier and more cost-effective than ever to become compliant with NADCA bylaws.

Vinick said one of the biggest roadblocks to retaining members is ensuring that HVAC maintenance and restoration companies understand the great value of a NADCA membership. NADCA is dedicated to making members aware of the benefits of membership and how they can translate into money for its membership.

If you have questions or concerns about NADCA membership and certification renewals, please contact Headquarters at (202) 737-2926.

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Company Overview

Armacell, an Associate member of NADCA, is a leading manufacturer of flexible foam insulation. More than 50 years ago, the organization introduced Armaflex—the first closed cell flexible foam insulation and duct lining—to a world just beginning to focus on things like air conditioning and refrigeration, energy costs, environmental issues and safer building practices.



Photo: www.armacell.com

Today, Armaflex is offered as a fiber-free, mold resistant insulation and is used to keep buildings more energy efficient. AP Armaflex Duct Liner provides a method for insulating and quieting air ducts while protecting indoor air quality. Armacell's customers in the HVAC maintenance industry use AP Armaflex because it doesn't decompose, and cleans easily without shredding, according to the company's representatives.

As the former insulation division of Armstrong World Industries, Armacell employs 2,500 people at 20 production sites in 13 countries worldwide. Five of the plants are located in the U.S. and include the North American headquarters facility in Mebane, N.C.

Armacell places a strong emphasis on quality processes with ISO 9001:2000 certification, which is the globally implemented standard for providing assurance about the ability to satisfy quality requirements and to enhance customer satisfaction in supplier-customer relationships. Armacell backs each product with reliable and comprehensive service. The company adheres to the U.N. Global Compact supporting environmental responsibility and is committed to environmentally sensitive practices.

*API/Armaflex Pipe
(Tube) Insulation
is a mold resistant,
flexible elastomeric
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Photo: www.armacell.com

Question & Answer with Armacell's Kartik Patel, General Manager, Mechanical Insulation for North America

1) Does someone from Armacell attend the NADCA Annual Meeting each year? If so, for how many years has Armacell been represented at the meeting?

Armacell values its NADCA membership and its relationships with other members, and believes the company should demonstrate its support through active involvement. We have attended the Annual Meeting & Exposition since joining NADCA approximately five years ago.

2) From your point of view as a supplier, what do you see as the big challenges facing the HVAC cleaning industry today?

Although as a supplier we would not claim to speak directly for the industry, there seem to be several critical issues. Today, nearly all challenges begin with the economy. The HVAC cleaning industry will surely be impacted by reduced budgets and cutbacks in facility maintenance. Another consequence of the economic downturn is that reputable firms are sometimes competing with unqualified contractors offering lower pricing and inferior quality.

The age of much of our country's installed duct work creates another challenge. Much of it is fibrous material that is further damaged during the cleaning process, creating additional problems.

3) What was Armacell's primary reason, or motivation, for joining NADCA?

There are several reasons, all tied to the stature and influence of NADCA. As market leaders ourselves, Armacell wants to align with organizations that set the highest standards and can help us continually learn how to improve as a supplier.

NADCA is serious about providing a quality service, and it sets the highest standards and procedure specifications for the HVAC maintenance industry. There is also a natural fit in that both NADCA and Armacell provide services and products that create and maintain healthy environments. That is something Armacell takes very seriously on a worldwide basis.

We also wanted the opportunity to inform NADCA members of the advantages of closed cell elastomeric foam duct lining as a value-adding alternative to fibrous materials.

4) What aspects of the air duct cleaning industry do you think are the most interesting?

As a supplier, we are fascinated by the ability of the industry professionals to restore—and many times improve—the functioning of HVAC systems. Anyone familiar with it knows it requires great craftsmanship and ingenuity.

5) NADCA has grown tremendously and has set many standards since its start in 1989. How would you like to see NADCA grow over the next 10 years?

Indoor air quality and the overall commitments to green building practices and indoor environmental protection are here to stay at a national level. We would like to see NADCA continue to take a leadership position in advocating the importance of duct maintenance and its impact on indoor air quality.

NADCA members are seen as experts. They can become even more influential through greater product knowledge and awareness of solutions offered by industry suppliers and manufacturers. In other words, there is great growth potential through closer collaboration. ●



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Timothy Borgne
DST Duct Seal Technologies
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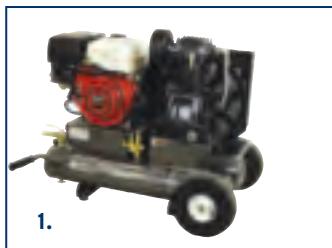
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Exit Planning: Preparing for Your “Great Escape”

By Bob O’Hara

It may be a high priority consideration for the near future or merely something you are mulling over for the long term, but chances are at some point the need or desire to sell your company will become reality.

The sale of a company requires a comprehensive action plan and can take up to a decade to transpire, but with the proper measures taken and advisers in place, this critical transaction can be conducted with minimal stress. When it comes right down to it, there are but five ways for owners to leave their companies: sell to a third party, sell to a family member, sell to key employees, die owning the business or liquidate the company.

For those in the beginning stages of an exit, consider that leaving your company is a process that, if it is to be successful, requires a written plan. This plan should set your exit objectives—financial and otherwise—and document how you will achieve those goals.

No matter how skilled or experienced a business person you are, carrying out an exit plan is not something that should be done solo. If you opt to go it alone, chances are you will leave a lot on the table—in terms of money, time and perhaps even your emotional well-being. A successful exit plan involves a number of elements—legal, financial, and tax, to name a few. It is in your best interest to hire an experienced team of professionals, including an attorney, CPA and financial advisor

to assist you through the exit plan process, including how to wade through financial statements.

The importance of financial statements cannot be overstated when going through the exit plan process. Whether you intend to transfer your business to someone within the company or sell to a third party, demonstrating financial stability is a crucial step in establishing a successful exit.

These all-important statements provide cash flow information, which is used to determine the value of your business

“When it comes right down to it, there are but five ways for owners to leave their companies...”

and the appropriate price of sale. Financial statements show historic earnings, cash flow results and trends that have been established over the years, in effect creating an indicator of the company’s financial future. If you plan to sell your business during the first half of 2009, you should have cash flow projections for the remainder of that year, in addition to the years 2010 through 2013. Understand that these projections must be grounded in the reality of past actual performance, rather than your rosy hopes for the future.

Evaluating various tax consequences is also paramount to your choice of exit plans. This assessment will include

several factors, such as the form of business entity as well as any changes that must be made. This is another area where that team of professionals can help in making a decision.

For HVAC systems company owners seeking to sell outright, there are both advantages and disadvantages to dealing with a third party. On the plus side, if the business is properly prepared for sale, you can get cashed out—in other words, you can get the majority of your money at closing.

One significant disadvantage to selling to a third party is more emotional than monetary. Regardless of what the buyer says, the personality and culture of your business will undergo a radical change. Maintaining the culture and core essence of a business is normally best achieved by selling to someone other than an outside third party.

Ultimately, your exit plan must integrate your personal desire—when you want to leave, how much money you want for the business and who you want to own the business. With the proper guidance and a firm grasp on realistic expectations, your exit plan could be the start of something very good—for both you and your employees. ●

Bob O’Hara, CPA/PFS, MST is the owner of O’Hara & Company, PC. He is a financial planner and exit planning advisor who works exclusively with business owners. O’Hara can be reached by phone at (978) 244-9860 or by e-mail at rohara@oharaco.com. His Web sites are www.oharaco.com and www.exitplanning-edu.com.

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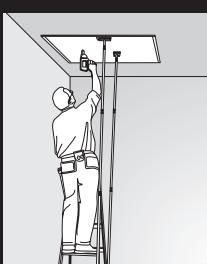
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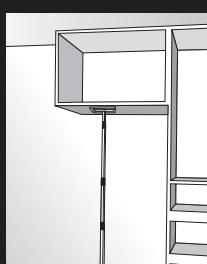
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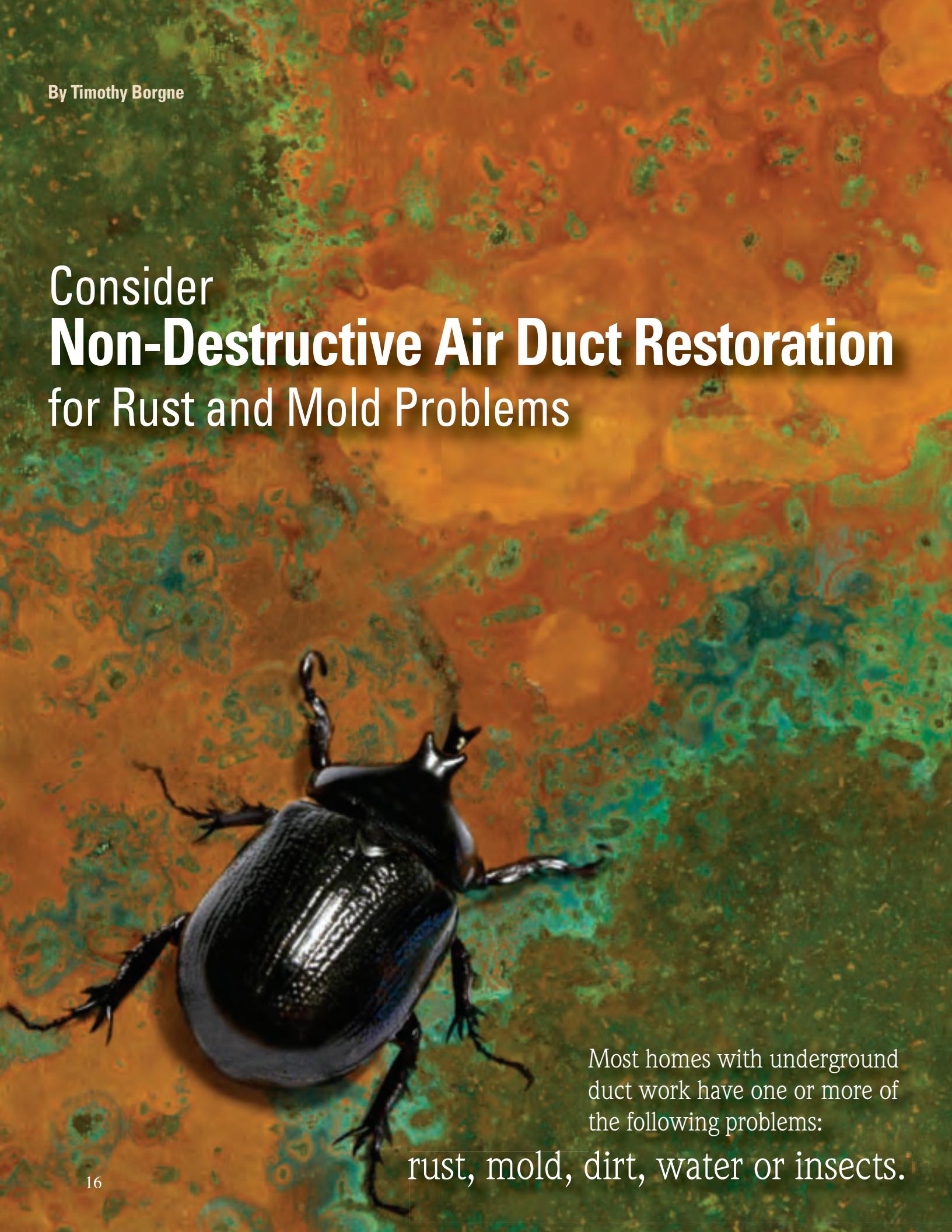
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Setting ceiling tiles and panels

By Timothy Borgne

Consider **Non-Destructive Air Duct Restoration** for Rust and Mold Problems



Most homes with underground duct work have one or more of the following problems:

rust, mold, dirt, water or insects.

A large number of homes have underground duct work, and many homeowners are not aware of the technology that is available to restore it. Most homes with underground duct work have one or more of the following problems: rust, mold, dirt, water or insects.

Mold and rust not only negatively impact air quality within a home, but continued rusting deteriorates the air ducts. This eventually leads to the collapse of the entire duct system. Replacing a home's HVAC equipment can cost the owner thousands of dollars. A multi-level house will have to be remodeled inside to accommodate the new duct work—and this costs the homeowner big bucks.

Traditional Repair

Traditionally, air duct repair for underground ducts has involved converting the HVAC ducts to an overhead system, which abandons the ducts in the ground or involves breaking up the concrete slab to replace the ducts. These repairs are very costly and time consuming. Often, homeowners are required to leave their homes while the renovations are being completed, which adds to the expense of the process. Converting to an overhead HVAC system also tends to reduce comfort levels and energy efficiency within the home. Often when homeowners convert to overhead HVAC systems, they run the risk of purchasing fancy new equipment that might be less efficient and less comfortable than their original system. New overhead systems may also dramatically reduce the amount of living or storage space in the house and/or attic.

Reason to Keep Ducts in Ground

Floor ducts capitalize on the natural physics of hot air rising from the floor to the ceiling, where the return ducts are located. When using the heat, a house that has been converted to overhead ducts ends

up with the warm air at the ceiling and cold air at floor level.

In a home with underground ducts, the conditioned air does not blow directly on the inhabitants of the home, since the cool air is drawn upward by the return air in the ceiling. When air is drawn upward, it often produces a comfortable and efficient environment more effectively than when cold air is blown down on the homeowner.

When air ducts are located in the ground, there is less temperature differential between the ground and conditioned air. When ducts are in the attic, there is a huge difference that may result in the system functioning inefficiently. When the new overhead system is not as efficient as the replaced underground duct work, the home owner has essentially paid a lot of money to waste a lot of money. Keeping the ducts in the ground is more comfortable, and saves money—so your customers will love you.

New System of Restoring Ducts

There is a patented (U.S. patent #7,112,350b1) duct restoration system, which is non-destructive and can be done without the homeowner having to stay somewhere else during the process. The average home can be restored in three to six hours by a two-man crew.

The process begins with a video inspection of the entire duct system, which is done using a full color camera. After reviewing the video, a strategy is developed to outline the condition of the system and a proposal bid indicating the restoration cost is provided to the homeowner.

The next step is to clean the ducts. The aggressiveness you use when cleaning depends on the condition of the ducts. In other words, if the system is about to collapse,

approach cleaning carefully. The fourth step is to use the patented aspect of the process. This involves the use of special equipment with full color video to stream through the entire system a liquid liner that will harden into a rubberized duct. This is not just a coating. Coatings are great for overhead duct work but not underground systems. This system is self-supportive, so when the metal continues to deteriorate, the home will be left with a rubber duct system. A second application of the product offers the ability to verify that all the holes and breaches have been filled and restored. Prior to leaving the house, the HVAC system is returned to normal working order.

Other Uses

This procedure was originally invented to restore metal duct systems. The original metal systems were galvanized to prevent corrosion. The galvanizing is an electroplating process that uses zinc, and an additional benefit was that mold will not grow on zinc. Over time, even in dry climates, the zinc is depleted, corrosion starts, and mold may begin to grow as a result. Other methods of duct work have been used over the years to combat the rust problem, such as concrete, transite and PVC. These methods were often successful in the prevention of corrosion, but mold was still able to grow readily. It has been found that the lining is a legitimate way to eliminate the mold and seals dirt out and can encapsulate organic matter, mold spores and more. The next step is to get approval for asbestos encapsulation. ●

Timothy Borgne is president of DST Duct Seal Technologies in Tulsa, Okla. For information about licensing Duct Seal's patented technology, contact Borgne by e-mail at tim@rustyducts.com or by phone at (918) 230-5826. Duct Seal Technologies is also on the Web at www.ductsealtehnologies.com.

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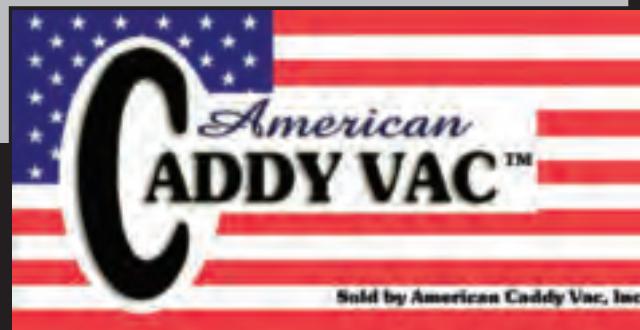
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The logistical aspects of ordering equipment are easier through this program, and allow members more time to concentrate on satisfying and providing services for their own customers.

Ordering is done through a toll-free phone number (800-508-4760) that is answered by a live operator. In addition, local or outside sales representatives are given the NADCA membership list so that they may develop relationships with each member on a personal level.

Sunbelt developed a benefit for NADCA members that allows pay terms of a discount that is considerable in the competitive rental business and is based on regional book rates.

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Sunbelt will give NADCA members special "Quick Pay" discount terms. All discounts are calculated from the invoice date, and the discount schedule will not appear

on the original invoice. Eligibility for this discount will be determined from the USPS postmarked date on the envelope, and if postmarked within 30 days of invoice, NADCA members will receive 10 percent off. Payment may also be submitted by credit card to take advantage of the discount. The discount applies to all rental (except scaffold), Sunbelt labor (except E&D scaffold labor) and delivery charges on trucks.

Sunbelt will pay NADCA headquarters a volume allowance on their total yearly rental volume of all members. This volume allowance will be tracked and based on a calendar year and payable approximately 90 days after each calendar year, and will include a summary report on the schedule below.

The yearly volume allowance will be calculated back to dollar one and will be figured from January 1 to December 31 each year. The volume allowance program applies to rental revenue only and does not include such items as: retail sales of equipment or merchandise, transportation, fuel, environmental fees, labor, repair charges, damage charges, parts, taxes, rental purchase options, rental protection plan, scaffold rental or any full service scaffolding projects.

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Rental Volume	Volume Allowance
\$100,000-\$499,999	1%
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\$1,500,000-\$1,999,999	4%
\$2,000,000+	5%

To view and print the full terms of agreement between Sunbelt Rentals and NADCA, please visit the Members Area of the Web site.

NADCA members can rent directly from Sunbelt and receive discounts as part of the Association's Affinity Program. For more details or to sign up, contact David Drinard at (704) 409-5362 or e-mail ddrinard@sunbeltrentals.com. ●



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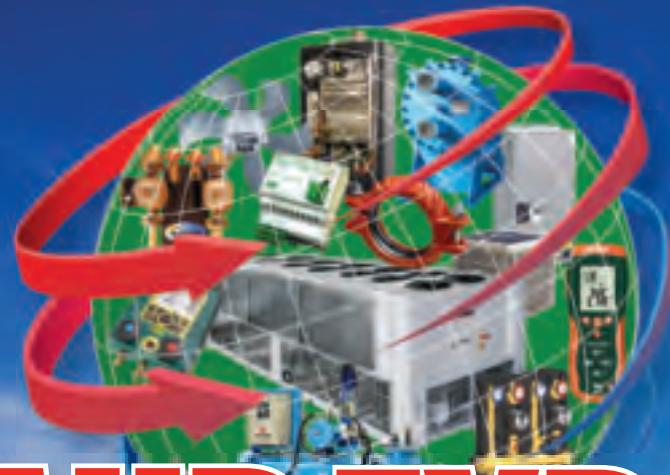
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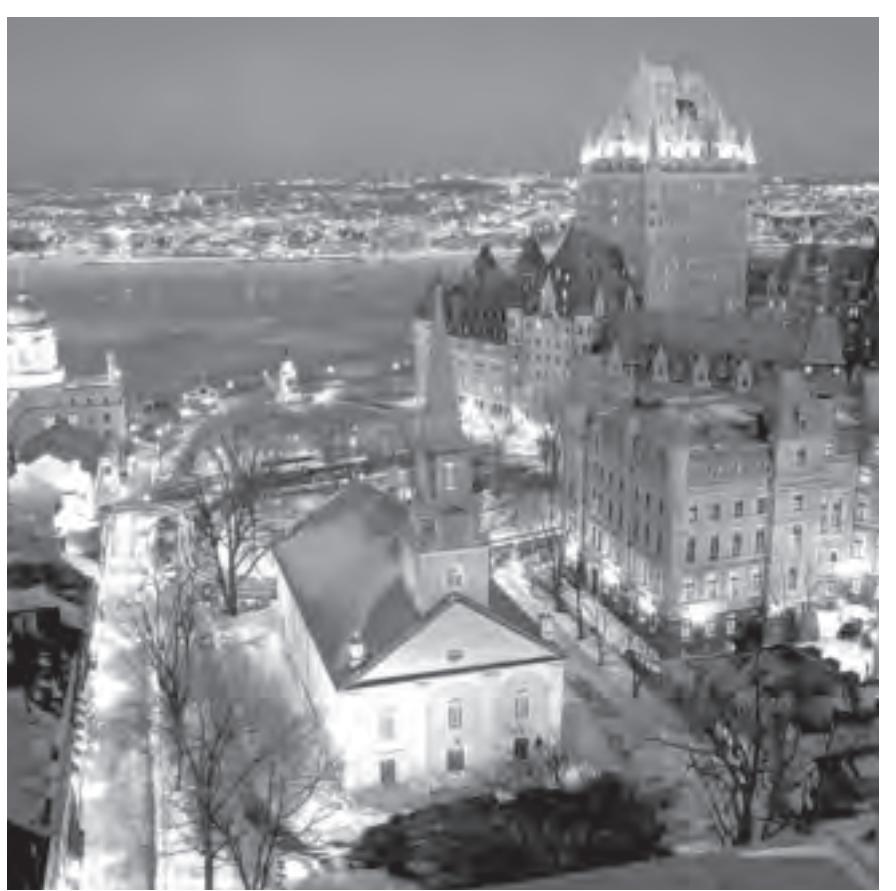
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When Working in a Hospital, Containment and Safety Issues Come First

By Alexis Andrews

HVAC maintenance professionals realize that hospitals cannot be treated like any other commercial building. When it comes to maintaining hospital HVAC systems, the challenges and safeguards associated with this type of work make it an area best handled with caution.



"The process of cleaning duct work isn't any different in a hospital. It's what you're doing to protect the people in the environment that is different."

— Charles Cochrane



Hospitals contain many different types of environments, including public areas, sterilization facilities, operating rooms, intensive-care units, and pediatric care units—and each of these needs to be addressed individually.

Since hospital patients may be more likely to become sick from contaminants in the air, IAQ is a constant focus for personnel in health care settings. In order to assure that IAQ is excellent, hospitals enforce strict regulations surrounding the cleaning and maintenance of hospital HVAC systems.

In hospitals, the HVAC systems transports air at about 15 to 30 cubic feet per minute, which is a considerable amount when compared to the average commercial building, which delivers about 5 to 15 cubic feet per minute (Babineau).

Charles Cochrane, of Cochrane Ventilation in Wilmington, Mass., said hospital HVAC cleaning is a rewarding niche for those who want to do it and are prepared to do it well. Cochrane has been a NADCA member since 1990, and about one-third of his company's jobs are in health care settings.

"A lot of homework needs to be done before you start cleaning hospitals," Cochrane said. "Having only a little bit of knowledge is dangerous. You might never get caught for making little mistakes or cutting corners, but you wouldn't be doing the right thing for the hospital and its patients."

Compliance with a hospital's Infection Control Risk Assessment (ICRA) is a major consideration, said Cochrane. Each hospital has its own ICRA, which examines the risks posed by projects on a case-by-case basis. HVAC maintenance contractors are expected to implement the ICRA requirements, which can take many elements into account, including any possible disruption to the environment or patients, and the prevention of cross-contamination.

"When you're working around patients, you have to make sure what you're doing won't be injurious to them. You can't just open a ceiling panel like you would normally," Cochrane said. "Yet the process of cleaning duct work isn't any different in a hospital. It's what you're doing to protect the people in the environment that is different."

Barry Harris, of Professional Abatement & Remediation Technologies (PART) in St. Louis, Mo., said since his company was established, it has focused largely on hospital HVAC inspection, maintenance and restoration. PART has been a NADCA member since 2001, and Harris said the company has relied heavily on the ACR Standard.

Harris said hospital work is unique due to the focus on preparation and contamination. "Also, everyone is watching what you're doing, and that includes safety managers, infection control representatives and other personnel."

Containment is a major focus of HVAC cleaning in a hospital. In some hospitals, Harris said, HVAC maintenance contractors must always work in a pop-up cube, no matter where they are in the building. Harris said every time a ceiling tile is moved, there must be a containment center.

During the takedown of containments, particular attention is paid to odor control, while anti-microbials also come under a significant amount of scrutiny and are not allowed in all hospitals, Harris said.

Cochrane said technicians need to get in the safety practice of cleaning themselves off before walking out of the contained area. "As soon as a person walks out who has been lifting ceiling tiles or similar work, they have just usurped the environment," he added.

Hospital regulations vary, Cochrane said, so the HVAC maintenance contractor must always be sure their equipment would pass the most stringent guidelines. "Even when you think you're being good and taking extra precaution by purchasing new equipment, you still have to test and be extremely careful," Cochrane said.

He added, "Companies should seriously consider testing on-site before you start working in the hospital setting. Otherwise, you could have a huge liability on your hands. At the very least, the customer is expecting you to do the job right, and the prudent contractor needs to be thinking about whether their equipment passes for the job."

From the Hospital's Perspective

George Player, engineering director at Brigham and Women's Hospital (BWH) in Boston, Mass., said in his experience, the most important aspect of HVAC cleaning projects is successfully coordinating communications between the staff and the contractors. "The contractors need to understand that they cannot spread contaminants, and safety is the utmost important thing in a patient environment."

Player said all HVAC maintenance contractors at BWH must go through a training and orientation program before they are given badges to work in the facility. In addition, HVAC contractors should be aware that the hospital may hire outside environmental and safety experts to oversee the cleaning.

Florida Hospital in Orlando is an acute health care system in the central region of the state, with more than 3,000 beds. Larry Nielson, Florida Hospital's Administrative Director of Safety and Security said that when hiring an HVAC maintenance contractor, it is important for a company to have a good, verifiable reputation in the area.

"Because we are dealing with health care, normal contractors need the proper licensing and insurance, and we want the equipment to be well maintained," said Nielson. "For HVAC work, we also educate contractors about the process of working around our patients."

Nielson added, "Patients can pick up diseases from mold spores, and one of the big steps we emphasize is that contractors know to set up barriers with negative pressure when they are doing any kind of work that would generate dust." Nielson said that if an HVAC contractor is opening part of a ceiling, it can't be more than one tile every 50 square feet in a patient occupied area.

Some hospitals have begun to use ultraviolet light as an additional measure against airborne microbial contaminants. Florida Hospital uses UV lights in many of its HVAC systems, and is going through the process of placing them throughout the entire ventilation network. Cleveland Clinic in Ohio also uses UV lights in its ventilation system, which includes more than 200 air handlers. HVAC technicians working around UV lighting systems must take proper precautions to protect against eye injuries from exposure to UV, and should also be have a response plan in place in the event a UV lamp breaks.

Basic preventative maintenance is also important in hospitals. Staff members at Cleveland Clinic change pre-filters every four months and final filters every 12 months. Mike Duncan, associate director of facilities engineering said, “We found by keeping up with regularly scheduled filter changes, it ensures our duct work is well-maintained.”

HVAC contractors should understand the significance of the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO), which has standards regulating the environment of care in hospital settings. The Joint Commission doesn't have specific regulations for air duct cleaning, but if an accredited hospital organization decides to have this work done, testing is completed to verify the cleanliness and pressure relationships, said John Maurer, associate director of the organization's Engineer Standards Interpretation Group.

Maurer said, “We would ask an organization for documentation showing that all the safety measures and procedures were in place at the time of the cleaning. When planning HVAC maintenance, the hospital would use a risk criteria assessment to define the scope of the work.”

The Joint Commission exists to ensure that a hospital is implementing its own safety measures and policies. Since accreditation through the Joint Commission is voluntary, each organization's policy is submitted and reviewed.

Regulating Hospital HVAC Maintenance

It is common for hospitals to adopt the National Fire Protection Association's (NFPA) Standard 90-A, Cochrane said, which covers the maintenance of systems for air conditioning and ventilating, including filters, ducts, and related equipment, to protect life and property from fire, smoke, and gases.

The ANSI/ASHRAE/ASHE Standard 170-2008, “Ventilation of Health Care Facilities” also addresses duct cleanliness. Section 8.6 states:

“The duct supply system shall meet the following requirements for cleanliness:

The duct system shall be free of construction debris. New supply duct system installations shall comply with level ‘B,’ the Intermediate Level of SMACNA Duct Cleanliness for New Construction Guidelines.

The supply diffusers in the Class B & C operating rooms shall be opened and cleaned before the space is used.

The permanent HVAC systems shall not be operated unless protection from contamination of the air distribution system is provided.”

An annex of the standard (which is not part of the standard itself) recommends that filters and filter frames be inspected for pressure drop and bypass on a monthly basis. It also recommends that fan-coil unit and heat pump drain pans under cooling coils be cleaned monthly, or on an effective preventative maintenance cycle.

Proceed Only When Fully Prepared

Cochrane encourages HVAC maintenance professionals to take classes to prepare for work in hospital environments if this is not a familiar area. NFPA and some health care organizations have educational sessions as well, he said. In addition, Cochrane said contractors should be prepared to submit their employees for testing to clear them of tuberculosis and other diseases.

“Hospitals are very cautious that new diseases are not brought in. You'll probably have to wear a badge saying you were tested for TB before you can begin working in the hospital,” Cochrane said.

Harris said the training level needed for hospital work is worth it, because the crew members take pride in the level of skill they have attained. Harris said his company focuses on crew retention, since so much time is spent training.

“We have to give our technicians an opportunity to be successful and grow with the company,” Harris said. “We try to make them realize they are professionals in what they do. They take a certain pride and respect about what they have learned and become leaders in their own right. It's important to have quality control at a very high level, because you can't just throw people in there.”

Still, Cochrane cautions, “Cleaning hospitals is not anything that someone should take on lightly. Think long and hard before you start doing this kind of work, because it takes a lot of planning and effort. There could feasibly be a whole certification just dedicated to ICRA alone and how to clean hospitals in accordance with their risk assessment.”

Despite the risks and the training needed, Cochrane does recommend hospital work if you are willing to make the effort. “I definitely think it's worth it,” he said. ●

References: ANSI/ASHRAE/ASHE Standard 170-2008. “Ventilation of Health Care Facilities” 2008. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. Section 8.6, Annex A1.4, A2.1.

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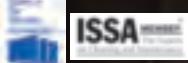


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"We purchased our first Super Collector E1.5 collector in the fall of 2007. We have used it on a wide variety of marine, industrial and light commercial projects. It has very good suction, it's very portable and the cleanable pre-filter is a real labor saver. We liked it so much we just bought a second unit!"

David Holms & Ken Sedlack
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Built on 15 years of "hands-on" experience the new Super Collector E1.5 gives you more suction for greater productivity and profits, the lowest possible operating cost for substantial savings and the lowest overall cost and one person portability! Ask for a competitive comparison of the Super Collector E1.5 with any unit you choose and you'll see the difference and the value the E1.5 delivers!

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Enjoy the Benefits of Training at Home with ASCS Online!

The ASCS Online Course is a fantastic benefit to members and potential members in search of convenient methods of training.

Until now, ASCS training has only been available several times a year as an eight-hour in-person course. The ASCS Online Course enables this training to be accessible online 24 hours a day, seven days a week. When payment is submitted, access to the ASCS Online training is granted through the Internet and users may complete it at an individualized pace. Users will have the ability to pause the training course and return to it again at a later time.

Through ASCS Online, your employees will receive the training they need to receive ASCS certification, without the hassle of travel and missed work days. The program will save time and money for business owners and their employees, as users have the ability to take the ASCS course, in whole or in parts, at any time, from home or office.

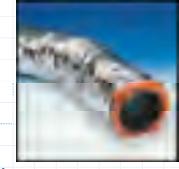
The ASCS Online Course was created to enhance the value of a NADCA membership. The cost of the ASCS Online Course is \$395 for members. Please call NADCA Headquarters at (202) 737-2926 for non-member pricing and registration information. Keep checking NADCA's Web site for new information on the ASCS Online Course.

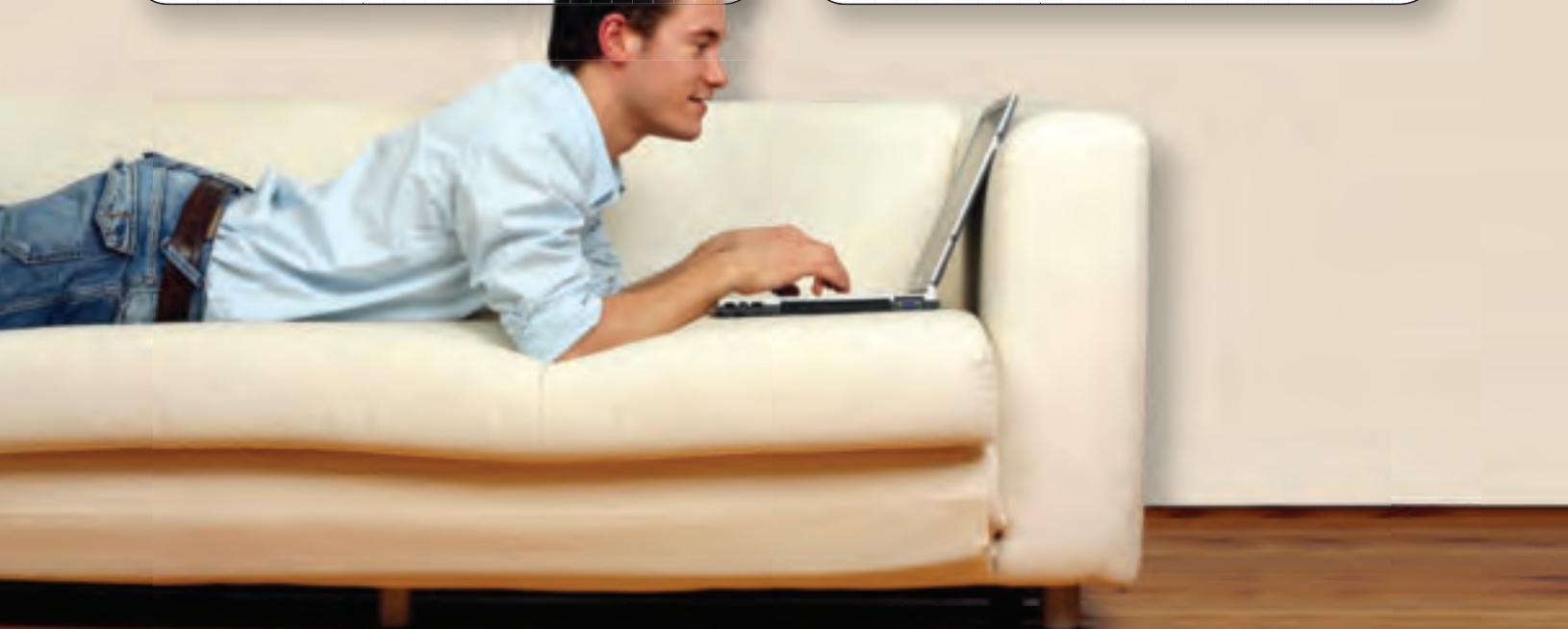
Below are some sample slides from the actual ASCS Online Course.

Domain breakdown and distribution

Domain	Percentage of Questions
A. Assessing Problems	13% to 17%
B. Assessing Mechanical Systems	22% to 28%
C. Protecting the Health and Safety of Employees, Building Occupants and the Indoor Environment	22% to 28%
D. Performing the Cleaning	31% to 39%

B. Assessing Mechanical Systems - System Type - Visual

 Metal	 Ductboard	 Double wall lined
 Spiral Oval High Pressure Duct	 Flexible	 Metal Wrapped



INDUSTRY CALENDAR

To include your event, please contact NADCA Headquarters at (202) 737-2926, or write publications@nadca.com. For the most complete and current calendar of events, please visit www.nadca.com.

NADCA TRAINING EVENTS

November 2008

Quebec Summit, Quebec City, Canada, November 3-5

Basics of Residential HVAC Cleaning Webinar, November 7, 11 a.m.-6 p.m.

December 2008

VSMR Training Class & Exam, Ft. Lauderdale, Fla., December 8-9.

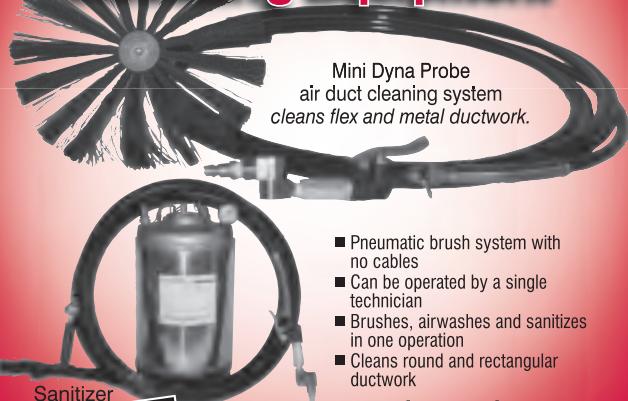
March 2009

NADCA's 20th Annual Meeting & Exposition at the Caribe Royale Orlando All Suites & Convention Center, March 9-12.

For a complete calendar of events, please visit www.nadca.com. The full NADCA Training Schedule, complete with registration forms and pricing, is available as a PDF download on the home page.

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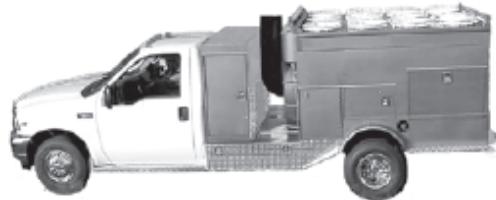
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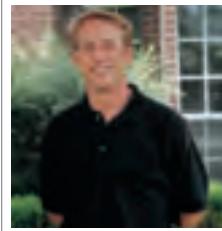
"Every month I have had the equipment, it has paid for itself — and many months it has paid for a lot of my other equipment."

- Doug Rochelle



"We are able to go in with video and actually show the customer that we are able to solve their problems in the ductwork. It gives us credibility."

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