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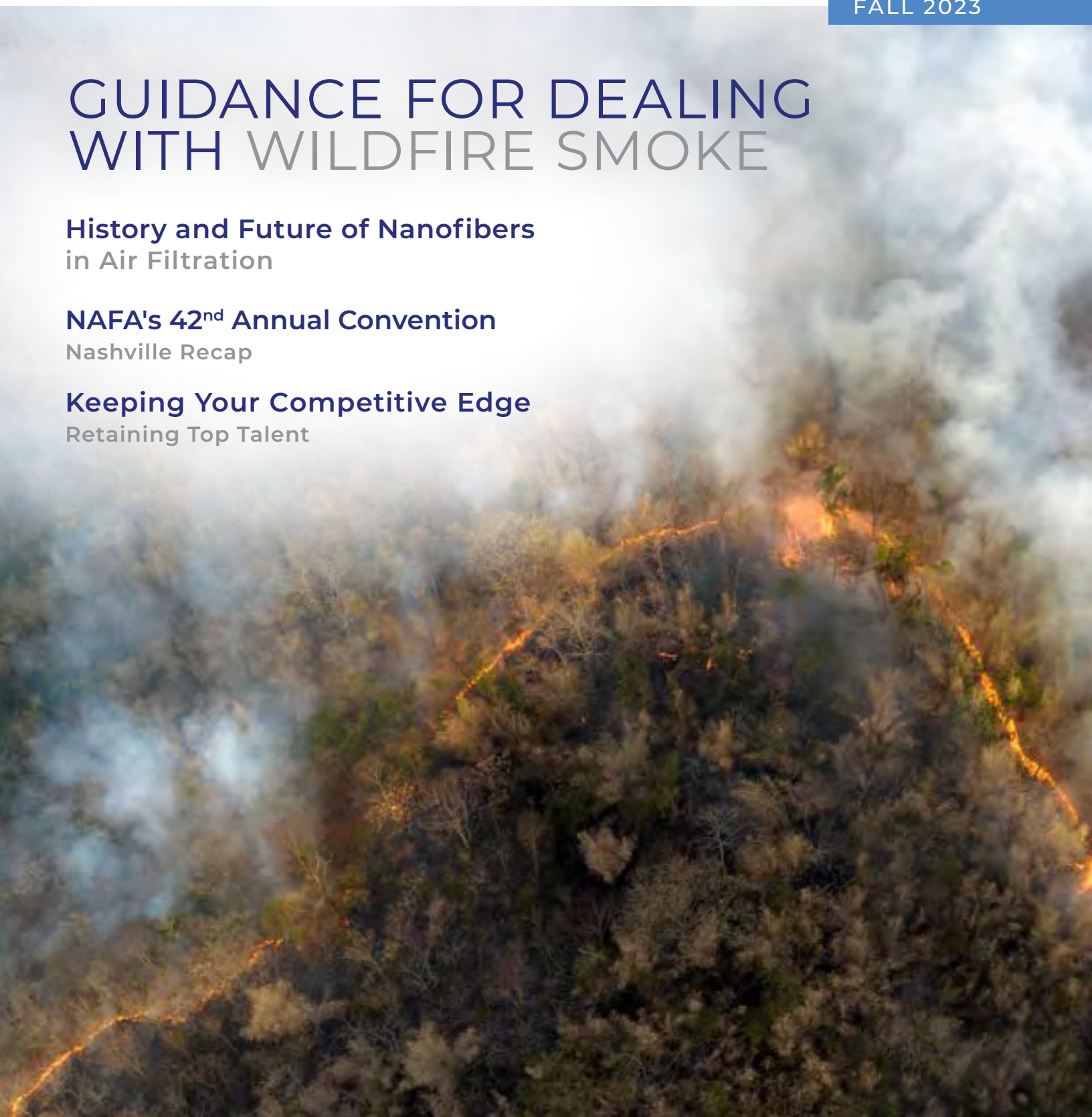
FALL 2023

GUIDANCE FOR DEALING WITH WILDFIRE SMOKE

**History and Future of Nanofibers
in Air Filtration**

NAFA's 42nd Annual Convention
Nashville Recap

Keeping Your Competitive Edge
Retaining Top Talent



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Air Media provides a forum for the free exchange of opinions and information. The views expressed herein do not necessarily represent those of NAFA, its officers, directors, membership or staff. Your contributions help make this magazine an interesting and informative forum for exchanging ideas and recognizing the advancements in our industry.

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PRESIDENT'S MESSAGE

MICHAEL CORBAT, CAFS

NAFA President

Vice President of Engineering, Rensa Filtration

TO MY FELLOW NAFA MEMBERS,

While I sit here writing my last letter to you, I am reminded of all the work that has been accomplished by NAFA, and the filtration world as a whole, so far this year. While there has been some return to normalcy in the world, the importance of indoor air quality is not lost on most of us. This year, when we seemed fully free of Covid, the world was reminded that there are other pollutants beyond infectious diseases. The wildfire smoke that covered a large portion of the country reminded us that we cannot simply hope to address indoor air quality with outdoor air. Filtration is at the heart of protecting our health and remains our best environmental protection.

This year also brought us the first standard to control infectious disease, ASHRAE Standard 241. This standard was written in a record six months and will continue to be updated with feedback from the public. The importance of this standard is highlighted by the fact that the request for it came directly from the White House.

This year included many changes and progress within NAFA itself and we had some major accomplishments. First, I would like to thank the NAFA Foundation for approving a 150% increase in the amount awarded per scholarship. Also, NAFA has begun to explore funding options for research projects.

We have also given our website a major overhaul. NAFA staff have put hundreds of hours into the front and back ends of our systems, providing us a platform to truly modernize the way NAFA works. We will be able to leverage this to help expand the reach of NAFA and the work our committees do. Another change you may have noticed is that we moved the magazine, *Air Media*, to a

virtual format. The goal for this change was three-fold. One was to reduce our carbon footprint, the second was to allow for a more interactive experience in the future, which would allow potential sponsors direct links to their websites and thirdly, we believe this will expand our reach to a greater audience of air filtration professionals.

I am also proud of our two conventions. The Technical Seminar in Atlanta was a success, with a lot of extraordinary speakers and a great tour of ASHRAE headquarters. Our Annual Convention was such a success that we broke a record for attendance for this event. I hope these trends continue in coming years.

Finally, I leave you with a great many thank yous. To the committees, the chairs and vice chairs: the hard work you put in is the backbone of our organization. Your role is all volunteer, but it is so important because you help NAFA grow. Thank you to the NAFA staff, you helped us find these wonderful locations, put out fantastic podcasts, and all the other things that make NAFA look fantastic. Thank you to the board and executive committees, whose support has been unwavering since I took this role.

And thank you to all the members and non-members that took time at conferences to talk to and encourage me. I cannot begin to explain how much of a privilege it has been to be the caretaker of an organization that you all care so much about. It is an experience I will never forget.

Sincerely,

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HISTORY AND FUTURE OF NANOFIBERS IN AIR FILTRATION

WHAT ARE NANOFIBERS?

Nanofibers are defined by being a one-dimensional fiber in length. The diameter is so small that the fiber is practically invisible to the flow of the medium being filtered. Different sources cite varying diameters that classify a nanofiber. Are nanofibers less than 1 micron in diameter? Less than 500 nanometers? Less than 100 nanometers? One practical example I have used to illustrate the scale of a nanofiber is roughly 1000 times smaller than a piece of hair, as seen in **Figure 1**.

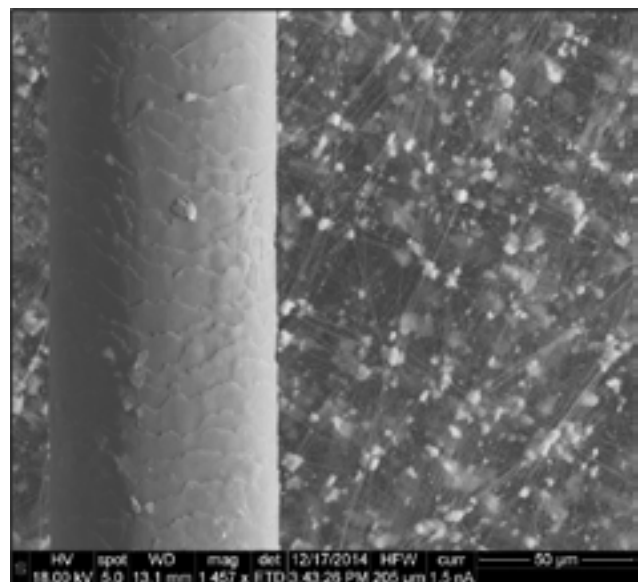


FIGURE 1: Size comparison of ePTFE nanofiber membrane to human hair.

Some physical property advantages that come with having nanoscale fiber diameters include high surface area to volume ratio, high mechanical strength per volume, and the ability to be highly functional. The high surface area to volume ratio allows nanofibers to make a significant impact on the filtration performance with a small amount of material weight added to the filter media. The unique air flow properties come from a phenomenon called “slip flow”, illustrated in **Figure 2**, that occurs when the surface of the fiber is not large enough to impact the velocity profile through the filter media.

As seen in the image, drag forces from the air flow on a fiber causes a zero-velocity condition on the surface of the fiber. With a nanofiber there is not enough surface available to impact the air flow, which creates benefits for the overall filter for low resistance to air flow, or pressure drop, and higher efficiency for capturing ultrafine particulate.

HISTORY

The history of what eventually led to the current state of nanofiber production can be traced as far back as the 1600's. Scientists at that time observed how liquids behaved in an electric field, particularly the fact that the electric field would break the surface tension of the round liquid droplet and form a cone shape (**Figure 3**). This cone would eventually come to be known as a Taylor cone. In the 1800's an English physicist named Lord Rayleigh observed liquid droplets ejecting from this Taylor cone. When the liquid is a polymer solution, the polymer chains entangle and link these droplets to form a continuous fiber being ejected from the Taylor cone. The first patent for producing fibers in this way was granted in the early 1900's. In the 1990's, the term “electrospinning” was coined and research accelerated, especially by a group at The University of Akron led by Professor Darrell Reneker that was on the forefront of studying the properties of and applications for electrospun nanofibers.

Another example of a nanofibrous media was discovered in 1969 when Bob Gore discovered the properties of stretching (or expanding) polytetrafluoroethylene (PTFE) tape, creating ePTFE. Expanding the tape didn't immediately cause a break and close observation of the stretched material revealed a network of ultra-fine fibers. This material was initially used in fabrics but applications in filtration started in the 1970's.

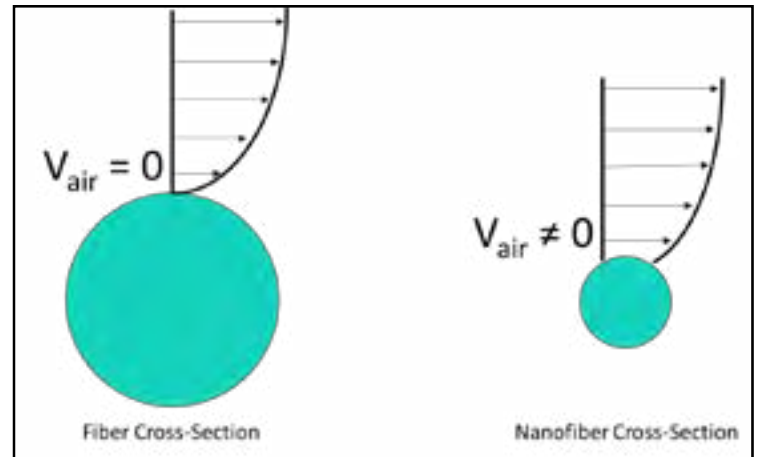


FIGURE 2: Illustration of slip-flow occurring on nanofiber surface in an airstream.

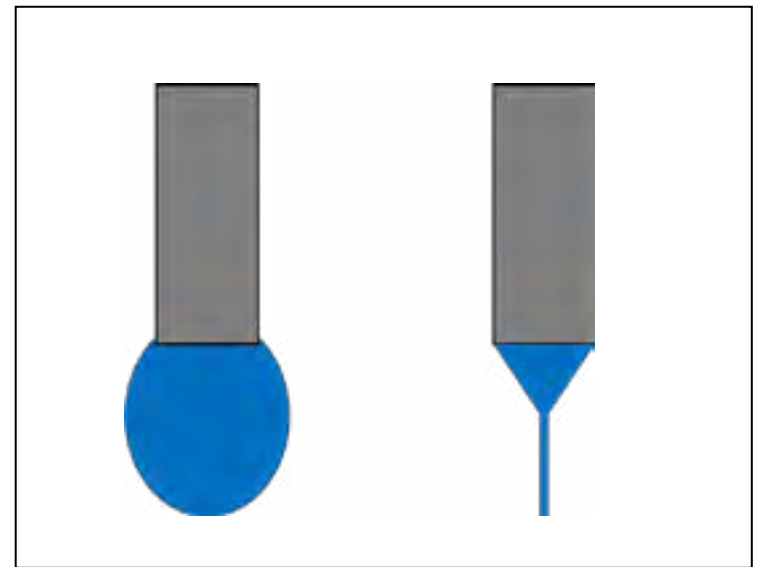


FIGURE 3: Illustration of how a liquid droplet deforms into a cone and ejects a fiber jet in an electric field.

CURRENT STATE OF NANOFIBERS

One air filtration application that has been successfully using nanofibers is ePTFE media in HEPA and ULPA filters. Slip-flow, enhanced particle capture capabilities, and higher mechanical strength properties have led to the development of HEPA and ULPA filters with lower resistance to air flow at the same filter efficiency class and configuration when compared to conventional microglass HEPA and ULPA filter media.

The two SEM micrographs in **Figure 4** show that the structure of the ePTFE media consists of smaller fibers and pores, which helps increase the filter efficiency with reduced pressure drop. This combination of properties also leads to the most penetrating particle size (MPPS) of the filter media to be smaller than that of traditional microglass filter media, which will lead to a more efficient filter at most particle sizes, as seen in **Figure 5**.

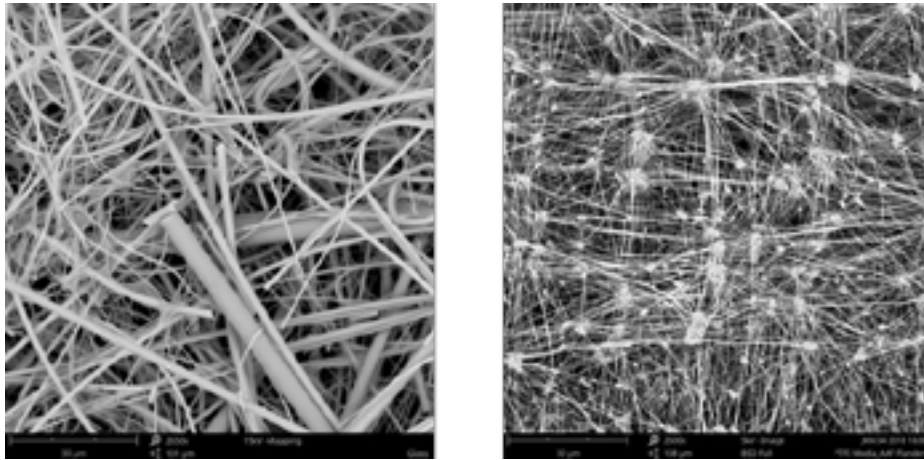


FIGURE 4: Comparison of typical microglass HEPA filter media (left) and ePTFE HEPA filter media (right)

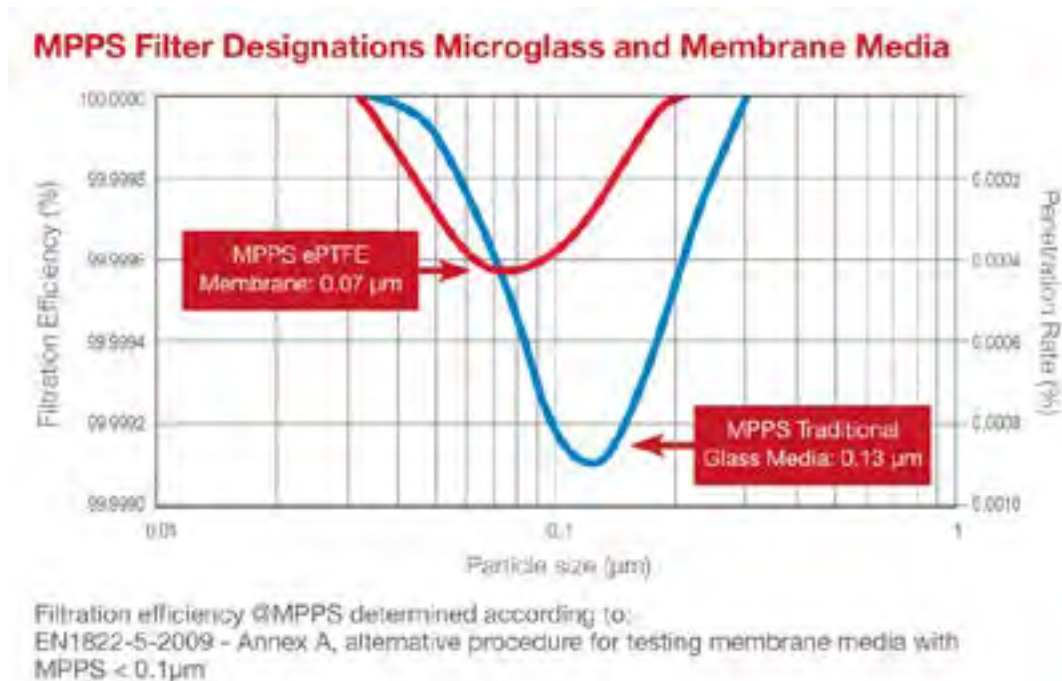


FIGURE 5: Filter efficiency at most penetrating particle size (MPPS) for microglass and ePTFE filters

As **Table 1** displays, the ePTFE filter media has about half the resistance to air flow as microglass filter media, which leads to the construction of a filter of the same configuration with about half the resistance.

TABLE 1 – HEPA FILTER COMPARISON – GLASS VS EPTFE

| Filter Configuration | Filter Depth | Media Pressure Drop at Filter Face Velocity | Filter Pressure Drop |
|------------------------|--------------|---------------------------------------------|----------------------|
| Microglass Box HEPA | 11.5" | 1.01 iwg | 1.45 iwg |
| ePTFE Box HEPA | 11.5" | 0.56 iwg | 0.70 iwg |
| Microglass Supply HEPA | 2" | 0.45 iwg | 0.53 iwg |
| ePTFE Supply HEPA | 2" | 0.23 iwg | 0.27 iwg |

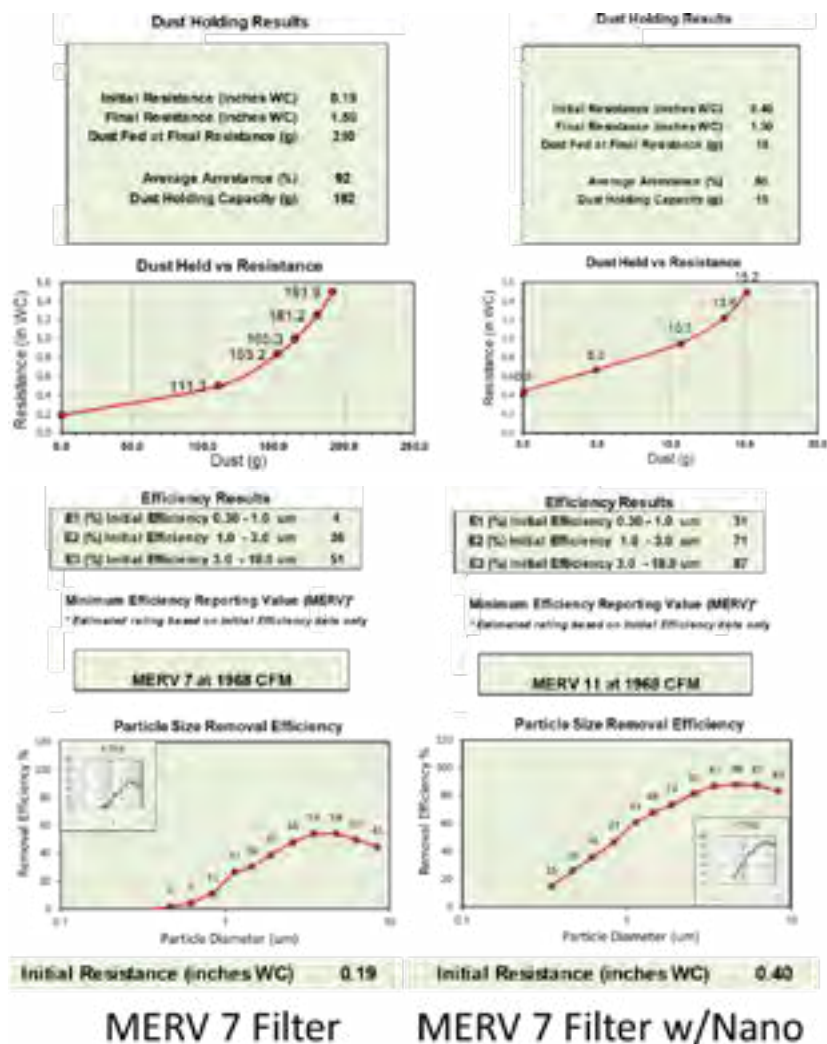


FIGURE 6: Comparing a MERV 7 filter before and after the addition of a nanofiber layer.

These properties are highly beneficial for filtration applications because end users are always looking for more durable filter media that has a lower pressure drop, however there are some downsides for nanofiber media. One downside is that nanofibers in filtration act as a membrane, or a barrier, so that the particulate being filtered has a very low probability of passing through to the other side. Traditional filter media has depth to it, so particulate has space to accumulate within the filter media. This downside is not of concern for HEPA filtration, where the HEPA filter is a “last line of defense” to ensure a clean space on the downstream side of the filtration system. HEPA filter applications usually have multiple levels of prefiltration upstream to ensure premature loading of the HEPA filter does not occur. However, nanofibers in HVAC filter efficiency levels (MERV rated by the ASHRAE 52.2 test standard) have shown weaknesses when being tested under standard lab test conditions.

As seen in **Figure 6**, the addition of nanofibers can boost the efficiency a relatively low efficiency filter media (MERV 7) up to a MERV 11, which has significantly better particle capture properties, particularly with smaller particles that are of higher concern to human health.

However, this benefit comes at the expense of higher resistance to air flow (two times increase, from 0.19 iwg to 0.40 iwg) and significantly lower dust holding capacity (more than ten times reduction, from 192 g to 15 g). Part of this is due to the types of dust the filters are challenged with during the lab test and how the filters are tested, there are commercially available nanofiber filters that are able to last long enough in HVAC applications, it is just that the test method isn't kind to nanofiber filter media so it is difficult to quantify in a lab. There is also an inconsistency that can come from depositing nanofibers on a filter media surface, as seen in **Figure 7**.

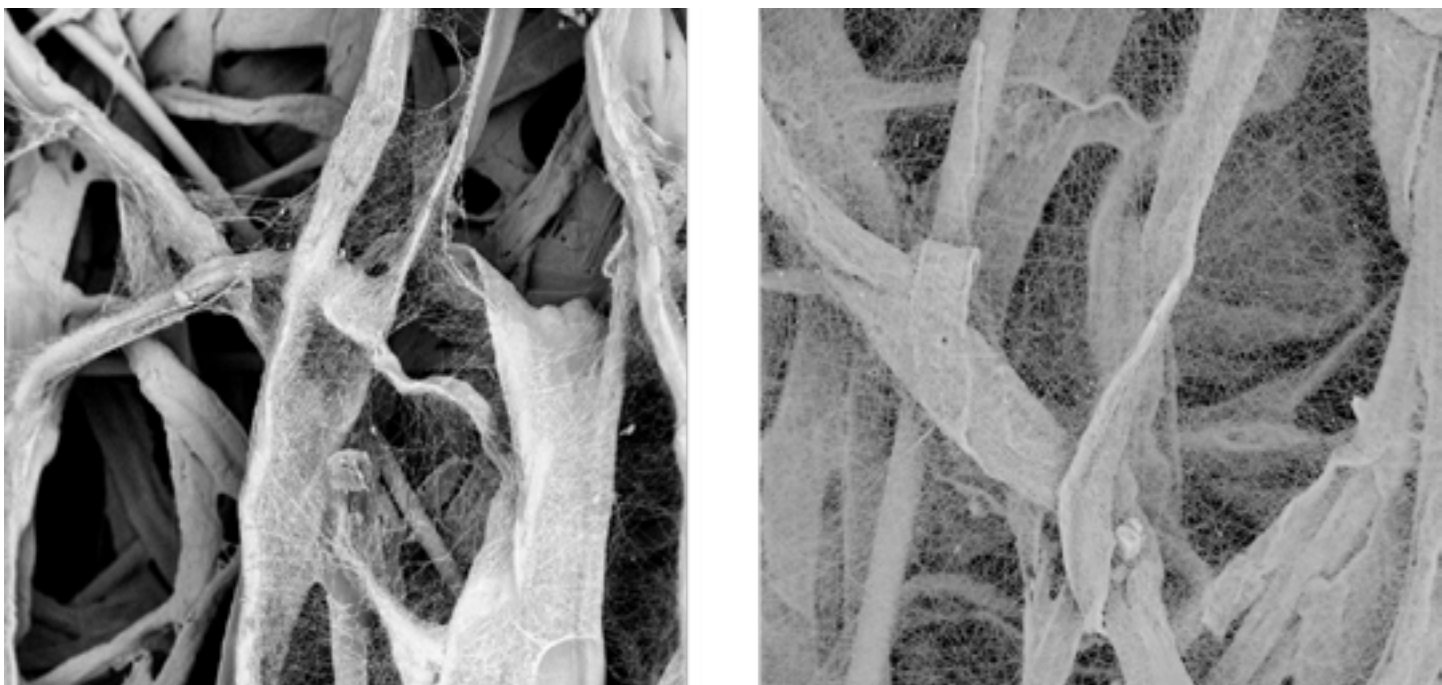


FIGURE 7: Inconsistencies in nanofiber coated filter media

The cause for the variation in nanofiber coating can come from any number of reasons, but there are ways to overcome this by protecting the nanofiber with a support media, or a scrim, that can be used to make a combination filter media. The right combination of filter media technologies can also help solve issues related to pressure drop and dust holding capacity, which leads to where we can go in the future for nanofiber technology.



THE FUTURE OF NANOFIBERS

One particulate HVAC filter application that has seen nanofibers used successfully is in bag filters (**Table 2**). In this particular application the filter media manufacturer is able to add three-dimensional surfaces containing nanofibers within a thicker filter media which reduces the pressure drop penalty of using a mechanical nanofiber filter media (the initial resistance is actually less than that of a traditional microglass media bag filter of the same efficiency) and the three-dimensional media also has a high dust holding capacity, equal to or exceeding that of traditional microglass media. Due to the thickness of this type of filter media it is currently limited to bag filter or pad filter media, but these are the types of advancements that can lead to innovation in pleatable nanofiber filter media as well.

Another area that can be improved in the future is how we test filters. As mentioned previously, the current lab tests and especially loading dusts don't exactly mimic "real-life" conditions the filter will be exposed to in application. Most particles the filters will be seeing under

normal atmospheric air conditions are less than 1 micron, but ASHRAE and ISO loading dusts consist mainly of particles larger than 1 micron and even as large as 100 microns. With recent events, such as COVID and wildfires, drawing more attention to air quality, there is a need for innovation in how we test and use air filters. ASHRAE is funding research for investigating a lab filter loading test that better matches atmospheric dust loading conditions, and filter application standards are putting a larger emphasis on using higher efficiency filters. This combination of standards activity and research will drive innovation to develop a better filter that can maintain a high efficiency rating and perform well in HVAC systems.

TABLE 2: NANOFIBERS USED IN BAG FILTER MEDIA

| | Microglass | | Synthetic Nanofiber | |
|--------------------------|-----------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------|---------|
| |  | |  | |
| | MERV 13 | MERV 15 | MERV 13 | MERV 15 |
| Initial Resistance (iwg) | 0.37 | 0.64 | 0.29 | 0.54 |
| E1 Efficiency | 74 | 93 | 67 | 92 |
| E2 Efficiency | 97 | 100 | 96 | 99 |
| E3 Efficiency | 100 | 100 | 100 | 100 |
| DHC(g)@ 1.5 iwg | 367 | 277 | 363 | 368 |



JON RAJALA, PhD, R & D Manager, AAF Flanders

is a research and development professional in filtration and filter media. He received his PhD in Chemical Engineering from The University of Akron in 2016. Specialties include air filtration, liquid filtration, electrospinning nanofibers, nanostructured ceramics and modeling.



EXECUTIVE PROFILE

JEFF HOLT

President
AIRFLOW PRODUCTS COMPANY, INC.

Jeff Holt, President of Airflow Products Co., Inc. has lived his entire life in the eastern North Carolina Town of Pine Level. A graduate of Appalachian State University in Boone, NC, with a degree in political science, Jeff has served in elected office for 28 years, the last 18 as Mayor of his home town. Since assuming the position of regional sales manager in 1989 with Servodyne, Jeff has served in management roles for other industry leaders including Purolator, Flanders Filters, Inc., and Precisionaire. In 2002, Jeff founded Airflow Products, along with his longtime friend and co-worker Roy Boswell. A Past-President of NAFA, and current President of the NAFA Foundation, Jeff has been married to his wife Sherry for 32 years. They have two grown children: daughter Whitley 28 and son Jackson 24.

COMPANY HISTORY

Established in 2002 by longtime industry veterans, Roy Boswell and Jeff Holt, Airflow provides air filtration products for the control and capture of particulates in commercial and industrial HVAC systems. Market specific pricing programs, protected distributional territories and direct interaction with both sales and manufacturing personnel are just a few of the individualized, customer-driven service features that sets Airflow apart from other air filter manufacturers.

How did you get your start in the filter industry?

A long-time friend, Rupert Langston, was National Sales Manager for a small, privately owned air filter manufacturer in Kenly, NC., Servodyne Corporation. Servodyne was about to merge with FACET Industries and Rupert's territory and responsibilities were about to change. He asked if I'd like to join the new company as a Regional Sales Manager, servicing an assigned group of independent air filter sales and service companies. That was 1989 and all these many years, a few other manufacturers, and who knows how many miles later, I'm still around.

How do you motivate your employees?

When hiring an employee, train them in the job that their position requires, giving them all of the tools and support that they need to complete their daily tasks, and let them do their job. Don't micromanage! Give recognition for going above and beyond what is expected but also point out their weaknesses. Treat employees like important members of the team. Everyone has a role and the success of the team depends on the performance of all the role players.

Did you have a business mentor and if so, who is/was it?

My former business partner, Roy Boswell (passed away August 12, 2022), was a great leader of people. He was firm but in a way that made you appreciate his advice or comments. Even though his nearly 45 years in the filter industry were spent on the operations side, and my 34 years have been spent mostly on the sales side, I recognized that co-workers who respect you, even though they might disagree with you, will work hard for you. That makes you, the employee, and the company successful. Roy had the respect of his employees, suppliers and our customers.

What's the best piece of advice anyone ever gave you?

You may go home at the end of the day tired, and you may go home at the end of the day broke...but if you go home at the end of the day tired and broke, it's time to find a new profession.

What is the most challenging aspect of running a filter company?

During the recent COVID pandemic, and since, finding and retaining employees has been a challenge. Currently, we have an efficient group of 450 employees, so this challenge has improved considerably.

What do you think is the biggest challenge the air filtration industry currently faces?

I can't point to a single, "biggest" challenge. During COVID, supply chain issues affected every industry and ours was no exception. We are still dealing with this to a lesser degree. Shipping and logistics continues to be a challenge, along with rising costs of labor and raw materials. In spite of all this, our company has been able to expand our manufacturing and warehousing operations in order to meet the delivery demands of our existing, loyal customer base.



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KEEPING YOUR COMPETITIVE EDGE:

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In today's post-pandemic, employee-centric world, employees are the center of attention, and the competition for top talent is fierce. So, it's essential for businesses, including those in the air movement industry, to focus on the quality of their workforce. And once you've got that top talent, it's crucial to do everything in your power to keep them, including creating a work culture that fosters loyalty and commitment.

Establishing a constructive and supportive work environment is crucial to ensure employee satisfaction and motivation. Leaders can achieve this by promoting teamwork, open communication, and employee collaboration. Working together is critical in designing and manufacturing top-notch products. In addition, when employees feel connected to their colleagues and the company, they are more likely to remain engaged in their work, leading to increased productivity and success for the business.

Here are some ways you can increase engagement and retention with your team:

Acknowledge Excellence: Recognizing and rewarding employees for their hard work and dedication is crucial to creating a positive and productive work environment. It is a powerful motivator that can boost morale and increase employee engagement. There are many ways to recognize and reward employees; it doesn't always have to be expensive or complicated.

For instance, a simple verbal thank-you can go a long way in showing appreciation for an employee's hard work. Recognizing their effort and positive impact on the business is essential. Another way to reward employees is through small tokens of appreciation, such as a gift card or a day off. These gestures show that the company values and appreciates its employees and can help build loyalty and commitment.

Moreover, acknowledging and rewarding employees can encourage them to strive for excellence. Employees who feel their work is recognized and appreciated will likely remain motivated and engaged. This can increase productivity and better job performance, ultimately benefiting the business.

Invest in Your People: Most employees want to be better tomorrow than they are today. They want to learn new skills, advance their careers, and stay competitive. For this reason, businesses must provide opportunities for growth and development, including training and development programs such as workshops or seminars, allowing employees to take on new responsibilities and advance in their careers.

In the air movement and filtration industry, where technological advancements are constant, providing employees with growth and development opportunities is even more critical. These opportunities are necessary for employees to stay caught up and succeed in keeping up with the latest industry advancements, ultimately hindering their ability to produce high-quality products.

Investing in employee growth and development opportunities is a win-win situation for employees and the company. By offering such opportunities, businesses show that they care about their employees' career growth and development, which can lead to increased employee satisfaction and retention. Furthermore, when employees are well-trained and up to date with the latest technology and advancements, they can produce higher quality work, resulting in increased productivity and profitability.

Offer Fair Wages: Offering competitive compensation packages is also vital in retaining employees. They're more likely to remain motivated and committed to the company when they feel compensated fairly. Of course, a solid company culture means something other than being the highest paying in the area or industry but providing comparable market wages and benefits is essential.

Employees who feel they are being paid fairly for their efforts are likelier to provide excellent customer service, increasing

customer loyalty and satisfaction. Customer satisfaction is crucial in the air movement and filtration industry since high-quality products are necessary for maintaining clean and healthy indoor air quality.



Empower Your Employees: Involve employees in the decision-making process. They will likely remain engaged in their work when their opinions are valued and heard. Regular feedback on their performance is also crucial, allowing them to understand their strengths and weaknesses and improving their performance and motivation.

Find out where your employees want to go in your organization and look for ways to help them get there. Employees who understand how to advance in the company are more likely to stay motivated and engaged—assisting employees to identify the skills and experience required for different positions, providing employees with the necessary training and resources to advance, and communicating job openings and promotion opportunities.

Take Care of the Personal Side: Nowadays, with demanding and fast-paced work, employees often feel overwhelmed and overworked. Allowing employees to balance their work and personal life can help reduce their stress and increase their job satisfaction. In this industry, where employees work long hours or have unpredictable schedules, it's crucial to provide flexible work schedules and allow for time off when needed.

Along the lines of work-life balance is investing in employee wellness programs. These programs can offer activities like yoga classes, health coaching, and healthy eating programs. They help employees stay healthy and can reduce healthcare costs for both the employer and the employee. It also shows that the company values its employees' well-being and cares about their contribution to the company.

Get Feedback: Employee engagement surveys are an effective tool that businesses in the air movement and filtration industry can use to gauge employee satisfaction and identify improvement areas. By allowing employees to provide feedback on their experiences in the workplace, companies can gain valuable insights into what they're doing well and where they need to improve.

These surveys can cover a wide range of topics, including job satisfaction, work-life balance, compensation and benefits, communication, leadership, and opportunities for growth and development. By analyzing the results of these surveys, companies can identify patterns and trends, which can help them develop targeted solutions to address any issues that may arise.

By acting based on the results of employee engagement surveys, companies can demonstrate that they value their employees' opinions and are committed to creating a positive and supportive work environment. This, in turn, can lead to increased employee satisfaction and retention. In addition, when employees feel that their opinions are heard and their feedback is taken seriously, they are more likely to remain engaged in their work and motivated to help the company succeed.

Model the Behavior You Want: Leaders play a critical role in shaping the workplace culture and setting the tone for employee behavior. To model the behavior they want to see from their employees, leaders must prioritize open communication, teamwork, recognition and reward, growth and development, work-life balance, and employee wellness.

Fostering open communication is crucial for leaders to model. Leaders must create an environment where employees feel comfortable sharing their thoughts and ideas, expressing concerns, and asking questions. Leaders need to be approachable, listen actively, and respond thoughtfully. When leaders model open communication, they encourage employees to do the same, leading to better collaboration, improved problem-solving, and increased trust and respect in the workplace.

By implementing these strategies, you will retain top talent, increase satisfaction and keep your top talent from becoming someone else's.

About the Author:

As an award-winning speaker, podcast host and author of eleven books, Lisa Ryan, CSP, works with organizations to keep their top talent and best clients from becoming someone else's.

Learn more at: LisaRyanSpeaks.com



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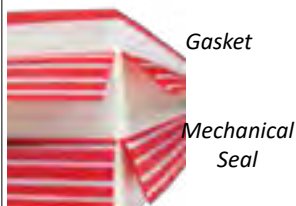
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GUIDANCE FOR DEALING WITH WILDFIRE SMOKE



The frequency of wildfires and the range of their impact is on the increase. What has often been considered a west coast phenomenon made its presence felt on the east coast starting the week of June 4th, 2023, when the prevailing wind patterns brought wildfire smoke down from Canada as far south as the Carolinas.

Some of the consequences of wildfires include a reduction in the quality of both indoor and outdoor air, a reduction in water quality, public health issues that are more acute for those with asthma and other pre-existing medical issues, damage to the ecosystem, and negative economic impact to local economies.

Many communities are exposed to wildfire smoke for days, weeks, or even months at a time. The smoke can easily enter the indoor environment through natural ventilation, infiltration, and mechanical ventilation. The primary contaminant of wildfire smoke is particulate matter. Wildfire smoke can contain up to 90% of PM_{2.5}. In addition to the particulate matter, wildfire smoke contains gas-phase contaminants such as ozone, sulfur dioxide, carbon monoxide, carbon dioxide, and volatile organic compounds.

Most public health guidance over the last five years advises staying indoors and closing all windows and doors during a wildfire event. In 2020, the EPA worked with the National Institute of Standards and Technology (NIST) to propose that the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) develop a wildfire smoke guideline.

This guideline was released in February 2021 and it focuses on reducing fine particle (PM2.5) exposures from smoke in commercial buildings, schools, healthcare facilities, multi-unit residential structures, and similar buildings.

Based on this guidance, there are steps that can and should be taken in advance of a wildfire event. These steps include, but are not limited to the following:

- Buying supplies early (filters and portable air cleaners)
- Evaluating your HVAC system to determine if it can handle a higher efficiency filter
- Reviewing the building envelope, weatherizing it, and sealing it as needed
- Conducting a full maintenance check on the HVAC system and making repairs as needed
- Checking for the ability to reduce the outdoor air volume while maintaining positive pressure
- Investigating the addition of supplemental filtration at intakes or in the occupied spaces
- Consulting a qualified HVAC professional where necessary
- Installing air monitors with a PM2.5 sensor and pressure sensors

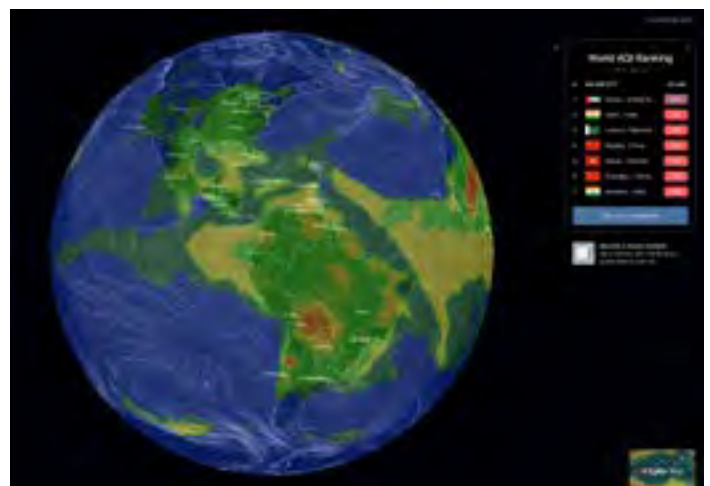
Once a wildfire event begins, there are an equal number of actions to take. The actions to take during an event include:

- Maintaining supplies (filters and portable air cleaners)
- Conducting frequent maintenance checks on the HVAC systems and all filters
- Limiting outdoor air intake while maintaining adequate air flow to maintain positive pressure
- Adding supplemental filtration where possible
- Utilizing MERV 13 or higher filters
- Utilizing combination particulate/gas-phase filters
- Monitor the PM2.5 concentration in the occupied areas of a building and/or at air intakes
- Use differential pressure sensors to measure the pressure difference between the building interior and the outdoor air
- Add portable air cleaners with HEPA filters as needed

If portable air cleaners are used, make sure that the air cleaner is rated by The Association of Home Appliance Manufacturers (AHAM). Units with a sufficient smoke clean air delivery rate (CADR), sized for the application, and with low noise ratings are recommended. For wildfire smoke, AHAM updated their sizing recommendation to a smoke CADR equal to the size of the room in square feet from the 2/3 the room area rule of thumb. Keep in mind that multiple air cleaners may be needed for larger rooms. Additional information on the selection and use of portable air cleaners can be found on the Environmental Protection Agency (EPA) website.

The time to act is before a wildfire event occurs. Ensure that you have a smoke readiness plan before you need one.

Utilize sources such as weather websites and fire.airnow.gov for tracking wildfire events, smoke patterns, and the Air Quality Index (AQI). Use these sources to help determine when you should enact your smoke readiness plan. Additional information and guidance can be found on the NAFA, EPA, and ASHRAE websites.





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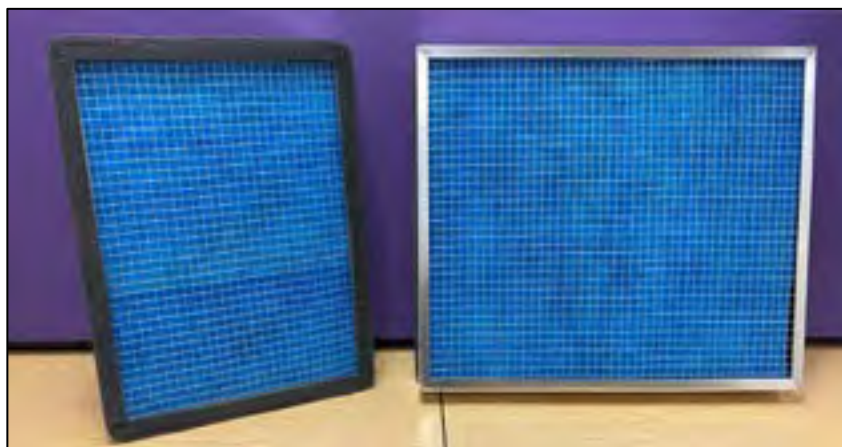
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 - Smoke
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 - Odorous Fumes

Captured Air Kitchen Exhaust Filter

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Inside the filter is Hydrosil's odor control media also known as XB-17. XB-17 contains active potassium permanganate and activated carbon for effective removal of odors. For unique applications, a custom blend may also be used. A gasket may be installed surrounding the frame of the filter to ensure a tight seal against the air handling unit. This filter can be installed indoors or outdoors air handling units. By arranging the filters in a v-bank configuration, as shown to the left, you will increase filter area and reduce static pressure.



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The National Air Filtration Association (NAFA) Annual Conference 2023, held in Nashville, Tennessee, from September 13th to September 15th, provided a dynamic platform for knowledge exchange and networking in the air filtration industry. With a record-breaking attendance of 239 participants (surpassing our expected 180), Nashville was abuzz with air filtration professionals.

Before the official conference proceedings began, the Board of Directors Meeting convened to discuss the organization's future, budgeting, sponsorship, and strategies for membership growth.

For those eager to begin networking early, the Young Professional Social event occurred at Mason's Bar in the Hotel. This relaxed gathering offered young professionals an excellent opportunity to connect with peers, setting the stage for a vibrant and engaging conference experience.

The conference kicked off on Wednesday with a warm welcome from Michael Corbat, NAFA President, who set the tone for three days filled with insightful discussions and networking opportunities. He introduced Steve Griffiths, the Annual Convention Chair, who skillfully emceed the convention throughout the week.

Alyson Van Hooser, the morning's keynote speaker, delivered an engaging session on effective leadership strategies for engaging and retaining employees and customers in a multi-generational workforce. Her emphasis on the power of authentic leadership and storytelling left a lasting impression. To see Alyson's and other available presentations, [log into your account](#) and go the "Resources" tab.

Attendees and their guests looking to explore Nashville participated in the "Taste of Nashville Food and Sightseeing Tour," providing an

excellent opportunity to savor the city's culinary delights.

The morning also featured informative sessions, including one on selling filtration in the healthcare market led by Jacob Schneider and a panel discussion on the significance of frames and latches in air filtration systems.

Several attendees supported the NAFA Foundation that afternoon by throwing axes at Bad Axe Throwing in Nashville and helped raise thousands of dollars! Everyone reportedly returned with all fingers and toes!

The day concluded with a lively Welcome Reception, offering attendees the chance to unwind, socialize, and continue networking.

On Thursday, we began the day with a business meeting breakfast where NAFA leadership shared updates on the year's activities and the organization's overall health.

Using the analogy of a musical ensemble, Jason LeVasseur, an award-winning speaker and performer, inspired attendees to recognize their contributions to team success. We all came away with excellent ways to greet new friends with "milking" and the "butterfly!"

Guests explored the Belle Meade Historic Site and Winery that morning. The day also featured sessions on Filtration Testing and strategies for submitting Clean Air Awards while strengthening client relationships.

After lunch, several attendees went to do a final study session for the CAFS Exam that afternoon or attended one of our vital committee meetings.

The evening was highlighted by a Reception and Awards Dinner, celebrating outstanding achievements by NAFA Volunteers and fostering camaraderie among attendees. Michael Corbat, CAFS,



also ceremoniously handed the President's gavel to Patrick Rosenthal, CAFS. Patrick gave an inspiring and clear vision of what's to come during his presidency in 2024. His term formally begins on January 1.

Jim Rosenthal shared that the Foundation, by passing a "hat" around to the attendees and combined with several matching pledges, was able to raise over \$21,000 for the NAFA Foundation.

On Friday, September 15th, the conference's final day began with registration and a networking breakfast, offering one last opportunity for attendees to connect.

Committee meetings allowed members to collaborate on industry advancements, followed by a session on ChatGPT by Beth Z, a transformative technology that presented ethical and practical considerations.

The conference concluded with a session on green concepts within filtration, exploring the intersection of alternative energy, filter recycling, and air filtration.

As the NAFA Annual Conference 2023 ended, participants departed with a wealth of knowledge, new connections, and a deeper understanding of the dynamic air filtration industry. The overwhelmingly positive feedback from surveys has reaffirmed the success of the event. NAFA looks forward to hosting air filtration professionals at Tech Seminar in Irving, TX, April 17 - 19, 2024 and Maui for the Annual Convention, October 1-3.

We extend our heartfelt gratitude to all the attendees who joined us in Nashville. Your presence and active participation made this event a resounding success. The enthusiasm, knowledge, and camaraderie you brought to the conference created a vibrant, memorable atmosphere.

We would also like to express our sincere appreciation to the NAFA Sponsors who generously supported and contributed to the success of this conference. Your invaluable support allows us to continue fostering a community of air filtration professionals dedicated to innovation and excellence.



As we bid farewell to Nashville and the NAFA Annual Conference 2023, we look forward to future opportunities to come together, share insights, and advance the air filtration industry. Together, we will continue to shape the future of air filtration.

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We are pursuing our "Carbon Zero" strategy: In it, we set a goal for ourselves to make our own production and ultimately our entire value chain completely CO₂-neutral by 2050.

We received a gold medal in the EcoVadis sustainability ranking: This puts us in the top 5 % of companies in our industry rated by EcoVadis.

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EMBRACING THE FUTURE: RECRUITING FOR A NEW GENERATION



In the rapidly changing 21st-century business landscape, companies face the challenge of attracting and retaining talent from the new generation.

Millennials and Gen Z bring fresh perspectives, technical expertise, and a strong desire for purpose-driven careers. For 18 months, I have interviewed, studied, and recruited new team members for myself and my audiences. I knew that to do so; we needed to find pioneering innovative recruitment strategies that appeal to the aspirations and values of the new generation.

Recruiting the younger generation comes with unique challenges. Millennials and Gen Z candidates seek workplaces that align with their values, offer opportunities for career growth, and foster a positive work-life balance. They yearn for positions that allow them to make a meaningful impact and contribute to a more significant cause. Additionally, their tech-savviness demands seamless digital experiences throughout the recruitment process.

Understanding the Needs of the New Generation

Recruitment Success lies in the ability to understand and address the needs of the new generation effectively. Traditional

recruitment must go out the window, and we must adopt new practices to attract the best talent. Therefore, embracing a more holistic and human-centric approach that prioritizes personal growth, transparency, and open communication.

To meet the expectations of the younger workforce, you can offer flexible work arrangements. I understand the significance of work-life balance for employee satisfaction, so I encourage remote work options for office employees, flexible hours, and job-sharing arrangements. This approach empowers employees to manage their personal lives, enhancing productivity and job satisfaction.

The new generation is eager for continuous learning and development opportunities to enhance their skills and knowledge. Fostering a learning culture ensures my employees feel valued and prepared to take on new challenges, resulting in higher engagement and loyalty.

I understand that a compelling sense of purpose drives Millennials and Gen Z. They want to be part of something bigger than themselves. This purpose attracts top talent and fosters a sense of pride and loyalty among my employees.

Recognizing the importance of staying ahead in the competitive market, I have adopted cutting-edge recruitment techniques that resonate with the younger generation. These include leveraging social media platforms, video job ads, reverse recruiting, and AI-driven tools to streamline the application process.

In today's fast-paced and ever-changing world, embracing the new generation's aspirations is essential for any organization's success. We need a commitment to cultivating a forward-thinking, inclusive, and purpose-driven work environment that will make you a trailblazer in recruiting and engaging the younger workforce.

By recognizing the unique needs of Millennials and Gen Z and responding with innovation, you can ensure the future success of your own company and set an inspiring example for other businesses to follow suit.

As the professional world evolves, my recruiting methods will continue to shape how we approach talent acquisition, ultimately driving positive change and growth in the workplace for years to come.

About the Author:

Susan's workshop, "Recruiting for a New Generation," is a 3-hour interactive session designed to empower her clients with the tools and know-how to create their own successful recruiting plans. Participants will learn how to craft compelling recruitment videos and scripts, which will help them stand out in today's competitive job market. By attending this workshop, clients can immediately put their newfound skills into practice and become Rockstar Recruiters.

Susan can be reached at: susanfrewspeaks.com



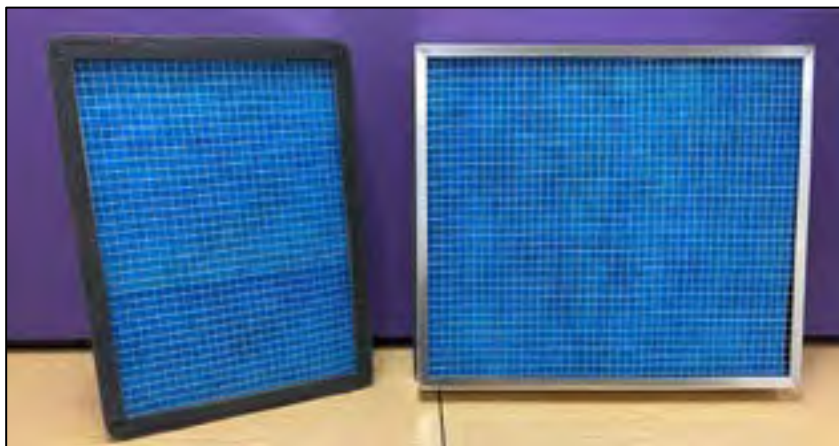
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- Filled with XB-17 for Removing Odors Such As:
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 - Cooked Herbs & Species
 - Burned Food
 - Smoke
 - Fried Food
 - Odorous Fumes

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The Captured Air Kitchen Filter is designed for removing odors from kitchens. This filter removes smoke, grease, and other odors commonly found in commercial kitchens.



Inside the filter is Hydrosil's odor control media also known as XB-17. XB-17 contains active potassium permanganate and activated carbon for effective removal of odors. For unique applications, a custom blend may also be used. A gasket may be installed surrounding the frame of the filter to ensure a tight seal against the air handling unit. This filter can be installed indoors or outdoors air handling units. By arranging the filters in a v-bank configuration, as shown to the left, you will increase filter area and reduce static pressure.



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2023 NAFA CLEAN AIR AWARDS



NAFA Announces 83 Clean Air Award Recipients for 2023

The National Air Filtration Association has announced its recipients of the Clean Air Awards for 2023.

The Clean Air Award is presented each year to the building owners and managers who take steps to significantly improve the quality of their indoor air by increasing the level or efficiency of their HVAC air filtration system in 10 specific categories.

NAFA's Executive Director, Emily Bardach, CAE, congratulated the award winners by saying, "The 2023 Clean Air Award program received an unprecedented number of submissions this year. The past few years have been a challenge for our members and their clients. Responding to the need for stricter indoor air quality specifications, the nominated facilities have all increased the level of indoor air cleanliness with filtration and improved system hygiene."

Candidates are nominated for the award by NAFA members and must submit detailed and specific steps taken toward cleaning the indoor environment through "best air filtration practices" and system hygiene. A NAFA Certified Air Filter Specialist confirms these improvements. Nominees are judged by the NAFA Clean Air Award Committee, and each recipient receives a custom-designed award, building signage and recognition for their efforts.

2023 facilities that utilize best air filtration practices in their buildings:

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Submitted by: Jason Burgess, CAFS
Independent Filter Service

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Submitted by: Sharon Needham, CAFS, NCT
BGE Indoor Air Quality Solutions

88 Tactical

Submitted by: Kaleb Betzold, CAFS
The Filter Shop

ADAC Strattec de Mexico

Saul Cazarez Velazquez

Submitted by: Jorge Velasco, CAFS, NCT
Air Quality de Mexico

Administration Building - City of Calgary

Submitted by: Sharon Needham, CAFS, NCT
BGE Indoor Air Quality Solutions

AgeCare - Miller Crossing

Submitted by: Robert Shepard
BGE Indoor Air Quality Solutions

Amazon Air KCVG Sort Hub

Submitted by: Alex Rixner, CAFS
Filter Services of Indiana

Apple, Inc.

Submitted by: Stacy Wilson, CAFS
Joe W. Fly Co.

Bayshore Medical Center

Engineering Department

Submitted by: Christina Calhoun, CAFS
Calhoun Associates

Bridgeland Crossings

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Submitted by: Dylan Burrows
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Centre of Forensic Sciences

Submitted by: Joshua Guthrie, CAFS
Camfil Canada

City of Grapevine

Submitted by: John Wooldridge
Joe W. Fly Co.

City of San Antonio Building and Equipment Services

Submitted by: Patrick Rosenthal, CAFS, NCT
TEX-Air Filters

Clayton Community Centre

Submitted by: Shayne McCaskill, CAFS
B. C. Air Filter

Cloverdale Recreation Centre

Submitted by: Shayne McCaskill, CAFS
B. C. Air Filter

CommonSpirit Health | College Station

Submitted by: Mollie Maldonado, CAFS, NCT
The Filter Man

CommonSpirit Health | St. Joseph Hospital

Submitted by: Mollie Maldonado, CAFS, NCT
The Filter Man

Deakin University | A E Smith

Submitted by: Aaron Fraser, CAFS, NCT
Independent Filter Service

Devon Research Center

Submitted by: Gracy Mwamba
BGE Indoor Air Quality Solutions

Duval County Public Schools

Submitted by: Wilson Meadows, CAFS
FilterPro USA

Emporium Melbourne

Vicinity Centres & Airmaster

Submitted by: Jason Burgess, CAFS
Independent Filter Service

Gainbridge Fieldhouse

SVC Practice Facility

Submitted by: Nick Scoville, CAFS, NCT
Filter Services of Indiana

Gay Lee Foods

Submitted by: Joshua Guthrie, CAFS
Camfil Canada

Gerresheimer Queretaro

Emmanuel Porras and Jose Lis Garduno

Submitted by: Jorge Velasco, CAFS, NCT
Air Quality de Mexico

Grandview Heights Aquatic Centre

Submitted by: Shayne McCaskill, CAFS
B. C. Air Filter

Heartland Housing - Clover Bar Lodge

Submitted by: Robert Shepard
BGE Indoor Air Quality Solutions

Holy Trinity Academy

Submitted by: Gracy Mwamba
BGE Indoor Air Quality Solutions

Houston Methodist | Baytown Hospital

Submitted by: Nathan Wittman, CAFS, NCT
Filter Technology Company

Hunter Student Commons

University of Calgary

Submitted by: Sharon Needham, CAFS, NCT
BGE Indoor Air Quality Solutions

Indianapolis Public

Transportation Corporation (IndyGo)

Submitted by: Jack Fillenwarth, CAFS
Lumin-Air

ISO New England | Roland Lucier

Submitted by: Paul Paonessa, CAFS
Air Filter Sales

JB Tecnics Mexico**Miguel Alejandro Martinez Franco**

Submitted by: Jorge Velasco, CAFS, NCT
Air Quality de Mexico

JLL**Methodist Southlake Med Ctr.**

Submitted by: Nathan Wittman, CAFS, NCT
Filter Technology Company

LALA US

Submitted by: Keith Jordan, CAFS
Colorado Air Filter

Langara College Library

Submitted by: Brad Behiel, CAFS, NCT
FilterPro Services Canada

London City Centre (Europro)

Submitted by: Jon Holmes, CAFS
Camfil Canada

Manulife Place

Submitted by: Doug Edwards, CAFS
BGE Indoor Air Quality Solutions

Mathison Hall - University of Calgary

Submitted by: Sharon Needham, CAFS, NCT
BGE Indoor Air Quality Solutions

Metro Tower I

Submitted by: Shayne McCaskill, CAFS
B. C. Air Filter

Metro Tower II

Submitted by: Shayne McCaskill, CAFS
B. C. Air Filter

Metropolitan Nashville Public Schools

Submitted by: Wilson Meadows, CAFS
FilterPro USA

Minghua de Mexico**Jose Angel Morales Robles**

Submitted by: Jorge Velasco, CAFS, NCT
Air Quality de Mexico

Monroe County Community**School Corporation**

Submitted by: John Kelly, CAFS
Filter Services of Indiana

Municipal Building - City of Calgary

Submitted by: Sharon Needham, CAFS, NCT
BGE Indoor Air Quality Solutions

Museum of Surrey

Submitted by: Shayne McCaskill, CAFS
B. C. Air Filter

New Orleans | VA Medical Center

Submitted by: Clare Hoffman, NCT II
Gulf GeoExchange and Consulting Services

Ocean University Medical

Center: Plant Operations
Submitted by: Christina Calhoun, CAFS
Calhoun Associates

Palliser South | 140 10 Ave SE

Submitted by: Sammy Isawode, CAFS, NCT
BGE Indoor Air Quality Solutions

Portals II | 445 12th St SW

Submitted by: Josh Howell, CAFS
Dynamic Air Quality Solutions

Preston Centre Mall

Submitted by: Dylan Burrows
BGE Indoor Air Quality Solutions

RBC Convention Centre Winnipeg

375 York Ave
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BGE Indoor Air Quality Solutions

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Submitted by: Dylan Burrows
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Richardson Centre Limited

One Lombard Place
Submitted by: Sharon Needham, CAFS, NCT
BGE Indoor Air Quality Solutions

Riverview Medical Center

Facilities Department
Submitted by: Christina Calhoun, CAFS
Calhoun Associates

Rotella's Italian Bakery

Submitted by: Dave Cherrington, CAFS, NCT
The Filter Shop

Safran Aircraft Engines | Engines Mexico

Submitted by: Jorge Velasco, CAFS, NCT
Air Quality de Mexico

Shell Scotford | Upgrader Control R20501

Submitted by: Brian Worsdall, CAFS
BGE Indoor Air Quality Solutions

St. Joseph's Hospital Health Center

Submitted by: Kathy Garuccio, CAFS, NCT
Camfil USA

Sunridge Mall

Submitted by: Thomas Leary, CAFS
Camfil Canada

Tarneit Central SC | Airtron Services

Submitted by: Brad Emmett, CAFS, NCT
Independent Filter Service

Telus Garden Offices

Warrington PCI Management
Submitted by: Shayne McCaskill, CAFS
B. C. Air Filter

Terry McConnell | Music City Center

Submitted by: Connor Patton
Camfil USA

The Ampersand | 140 4th Avenue SW

Submitted by: Sammy Isawode, CAFS, NCT
BGE Indoor Air Quality Solutions

The BSF | Bowview Manor

Submitted by: Dylan Burrows
BGE Indoor Air Quality Solutions

The BSF | Cambridge Manor

Submitted by: Dylan Burrows
BGE Indoor Air Quality Solutions

The BSF | Clifton House

Submitted by: Dylan Burrows
BGE Indoor Air Quality Solutions

The BSF | Heart Home Network

Submitted by: Dylan Burrows
BGE Indoor Air Quality Solutions

The BSF | Tudor Manor

Submitted by: Dylan Burrows
BGE Indoor Air Quality Solutions

The BSF | Wentworth Manor

Submitted by: Dylan Burrows
BGE Indoor Air Quality Solutions

The Edison | 150 9th Ave SW

Submitted by: Sammy Isawode, CAFS, NCT
BGE Indoor Air Quality Solutions

The Northern Hospital | AG Coombs Servicing

Submitted by: Brad Emmett, CAFS, NCT
Independent Filter Service

The Stack Oxford | Properties Group

Submitted by: Shayne McCaskill, CAFS
B. C. Air Filter

Toyota Motor Manufacturing

Guanajuato Joel Salazar
Submitted by: Jorge Velasco, CAFS, NCT
Air Quality de Mexico

UBC Allard Hall

Submitted by: Glenn Connell, CAFS, NCT
Filtration Group

UBC Earth Sciences Building

Submitted by: Glenn Connell, CAFS, NCT
Filtration Group

UBC Life Building

Submitted by: Glenn Connell, CAFS, NCT
Filtration Group

UBC Walter C. Koerner Library

Submitted by: Glenn Connell, CAFS, NCT
Filtration Group

United Super Markets

Submitted by: Michael Holdman
Joe W. Fly Co.

University of BC | Okanagan Campus

Submitted by: John Bishop, CAFS
B. C. Air Filter

University of Iowa | Schaeffer Hall

Submitted by: Troy Miller, CAFS
The Filter Shop

University of Nebraska-Lincoln**Love Library South**

Submitted by: Josh Brandl, CAFS
The Filter Shop

West Edmonton Mall

Submitted by: Doug Edwards, CAFS
BGE Indoor Air Quality Solutions

Zanini de Mexico

Submitted by: Jorge Velasco, CAFS, NCT
Air Quality de Mexico

About NAFA

The National Air Filtration Association (NAFA) is a nonprofit trade association whose members include air filter and component manufacturers, sales and service companies, and HVAC and indoor air quality professionals across the United States and in several foreign countries. NAFA is comprised of individuals and companies engaged in the sale, service, and manufacture of the air filtration products.



NAFA NEWS

MANN+HUMMEL Reshapes Air Filtration Business



Ludwigsburg (Germany), May 31
Dr. Mark Müser to assume responsibility as President Air Filtration Americas

Effective June 1, 2023, Dr. Mark Müser, Group Vice President Global Operations Life Sciences & Environment will assume the responsibility as President Air Filtration Americas in addition to his current role. The 41-year old engineer holds a Ph.D. in Production Economics from RWTH Aachen.

You can find further information on MANN+HUMMEL at
<https://www.mann-hummel.com/>

Glasfloss Industries Expands Jacksonville, FL Plant



Desoto, TX, June 6 – Don Kingston, CEO, today announced the completion of the Glasfloss Jacksonville, FL plant expansion.

The new Jacksonville plant expansion has added approximately 30,000 square feet and 13 new dock doors to the facility. "Our newest expansion of the Jacksonville plant will give us added manufacturing and shipping capacity. In addition, the ongoing modernization in the current plant will provide for a better work environment for our valued employees," said Don Kingston, CEO.

Glasfloss Industries Forms New "ESOP" 100% Employee-owned Company

Desoto, TX, June 28 – Scott Lange, President, today announced the restructuring of Glasfloss Industries into an Employee Stock Ownership Plan or "ESOP". This change involves ownership only, the company remains unchanged.

"Our new corporate structure reduces uncertainty about the future by strengthening our workforce and our commitment to the air filtration industry. Our current Management Staff will remain in place and continue to operate the company and our new ESOP platform will provide our employees with a greater role in the growth and success for the future," said Scott Lange, President.

Glasfloss Industries Hires New COO



Desoto, TX, September 25 – Don Kingston, CEO, today announced the hiring of Darryl Heffline for the position of COO

"It is with great pleasure that I announce the appointment of Darryl Heffline to the newly created position of Chief Operating Officer for Glasfloss. Mr. Heffline brings over 25 years of experience in manufacturing, logistics and serving customers. With his degree from Penn State in Business Logistics and his years of experience with companies such as Kimberly-Clark and Bell Helicopter, he will bring depth to our already talented leadership team. His philosophy of employee and customer first fits perfectly with the established Glasfloss business philosophy," said Don Kingston, CEO.

For more information on Glasfloss and its products, please visit: www.glasfloss.com



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FOR IMMEDIATE RELEASE MEDIA CONTACT:

Karen Buckley Washington
Senior Public Relations Specialist
kbwashington@ashrae.org

ATLANTA (June 24, 2023) – ASHRAE announced the approval for publication of its highly anticipated airborne infection risk mitigation standard for buildings, bringing numerous benefits to occupants and promoting healthier environments.

ASHRAE Standard 241, Control of Infectious Aerosols establishes minimum requirements to reduce the risk of disease transmission by exposure to infectious aerosols in new buildings, existing buildings, and major renovations. Infectious aerosols are tiny, exhaled particles that can carry disease-causing pathogens and are so small that they can remain in the air for long periods of time and be inhaled. Use of this standard would reduce exposure to SARS-COV-2 virus, which causes *COVID-19*, *influenza viruses* and *other pathogens that cause major personal and economic damage every year*. Standard 241 provides requirements for many aspects of air system design, installation, operation, and maintenance.

Important aspects of the standard include:

- **Infection Risk Management Mode** – Requirements of Standard 241 apply during an *infection risk management mode* (IRMM) that applies during identified periods of elevated risk of disease transmission. AHJs (Authorities Having Jurisdiction) can determine when the enhanced protections of Standard 241 will be required, but its use can also be at the discretion of the owner/operator at other times, for example, during influenza season. This aspect of Standard 241 introduces the concept of resilience – ability to respond to extreme circumstances outside normal conditions – into the realm of indoor air quality control design and operation.
- **Requirements for Equivalent Clean Airflow Rate** – Other indoor air quality standards, including ASHRAE Standards 62.1, 62.2, specify outdoor airflow rate and filtration requirements to control normal indoor air contaminants. Standard 241 breaks new ground by setting requirements for *equivalent clean airflow rate*, the flow rate of pathogen free air flow into occupied areas

of a building that would have the same effect as the total of outdoor air, filtration of indoor air, and air disinfection by technologies such as germicidal ultraviolet light. This approach allows the user of the standard flexibility to select combinations of technologies to comply with the standard that best satisfy their economic constraints and energy use goals.

- **Requirements for Use of Filtration and Air cleaning Technology**

Dilution of indoor air contaminants by ventilation with outdoor air can be an energy intensive and expensive way to control indoor air quality. Standard 241 provides extensive requirements for use of filtration and air cleaning to effectively and safely achieve meet equivalent clean airflow requirements efficiently and cost effectively. These include testing requirements to establish performance and to demonstrate that operation does not degrade indoor air quality in other ways, for example by elevating ozone levels.

- **Planning and Commissioning** – Standard 241 provides assessment and planning requirements culminating in the development of a *building readiness plan*, a concept carried over from the work of the ASHRAE Epidemic Task Force. It also describes procedures for commissioning systems to determine their installed performance.

"Standard 241 represents a significant step forward in prioritizing indoor air quality," said 2022-23 ASHRAE President Farooq Mehboob, Fellow ASHRAE. "By implementing the requirements outlined in this standard, we can improve the health, well-being and productivity of building occupants. This standard empowers building owners, operators and professionals to take proactive measures in safeguarding indoor environments. It's an essential tool for creating healthier indoor environments and promoting sustainable practices."

While not an ANSI standard, the consensus process from project approval, development and final approval of this standard, including a public review, took six months from authorization to completion and only four months of development time dating from the first meeting of the project committee.

"Volunteers and staff dedicated their expertise and thousands of hours of their time to address this urgent industry and societal need," ASHRAE Presidential Fellow and Standard Project Committee 241 chair William Bahnfleth, Ph.D., P.E. "The development of this standard shows not only ASHRAE's ability to respond rapidly to a societal need, but also a steadfast commitment to the health and safety people in buildings everywhere. This is a significant achievement and milestone in connecting building design and operation with public health."

The Standard 241 committee will continue and work on improving sections of the standard adding additional requirements, clarifying requirements and developing tools to help the public use the standard. Industry and consumer-friendly resources such as courses, podcasts, factsheets and information events will be introduced in the future.

Standard 241 available now for [presale](#) in the ASHRAE Bookstore.

About ASHRAE

Founded in 1894, ASHRAE is a global professional society committed to serve humanity by advancing the arts and sciences of heating ventilation, air conditioning, refrigeration, and their allied fields.

As an industry leader in research, standards writing, publishing, certification and continuing education, ASHRAE and its members are dedicated to promoting a healthy and sustainable built environment for all, through strategic partnerships with organizations in the HVAC&R community and across related industries.

The Society is showcasing integrated building solutions and sustainability in action through the opening of the ASHRAE Global Headquarters building in metro-Atlanta, Georgia.

For more information and to stay up-to-date on ASHRAE, visit ashrae.org and connect on Instagram, LinkedIn, Facebook, Twitter and YouTube.



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NAFA FOUNDATION 2023

MAKING DREAMS REALITY



SCHOLARSHIP PROGRAM

NAFA awards academic scholarships that honor students who demonstrate outstanding personal and academic characteristics. The scholarship program is supported by the NAFA Foundation. In 2023 the NAFA Foundation Board voted to increase the scholarship amount from \$1,000 to \$2,500, and the number of awards from 3 to five (5). Applications can be submitted at any time; the deadline for each calendar year is August 1.

Eligibility

The scholarship competition is open only to the immediate family of NAFA Distributors, Manufacturers, Supplemental and Affiliate members in good standing, or family members of employees of NAFA member firms. Grandchildren of NAFA members are also eligible to compete.

Requirements

- Minimum ACT score of 22/SAT score of 900
- Rank in the top 35% of your high school graduating class.
- For transfer or current college students, have a minimum cumulative grade point average of 2.75 on a 4.0 scale

Process

All applicants must submit their academic information, a 1-2 page typewritten essay addressing work experience, career objective, leisure interests and activities, as well as two letters of recommendation. All applications are evaluated anonymously by the NAFA Foundation Board, and winners of the scholarship are announced at the Annual Convention. The application deadline is August 1 of each year.

Support

The NAFA Foundation Scholarship is funded by the NAFA Annual Convention's golf tournament and generous NAFA members.

[LEARN MORE](#)

NAFA FOUNDATION 2023 SCHOLARSHIP RECIPIENTS

The NAFA Scholarship program helps to make the dream of a college education a reality for the winners. We encourage all NAFA members and their employees to become involved in the scholarship program.



Grace Harriman

Major: Media and Communications

*Daughter of Michael Harriman
Aeolus Filter Corporation*

Grace's family has been a positive influence her life. She credits her parents for teaching her how to be strong and the value of a good work ethic.

Through her father, she was given the opportunity to work at Aeolus Filter Corporation where she learned the value of good communication, time management and the value in hard work.

In addition, to her work experience at Aeolus she has also worked as a Latin tutor for a foreign exchange student and as a babysitter and discovered her love of working with and helping children.

She plans on majoring in communications potentially with a focus on marketing. She also wants to hope to learn more about nonprofit organizations because it is another field about which she is passionate.

She will also participate in basketball and possibly track and field. Among her other interests is sports photography, photo journalism. Ella also enjoys taking portraits of family and friends.

I feel honored and extremely grateful to be a recipient of the NAFA Foundation Scholarship. This scholarship and your generosity will help me accomplish my goals without worrying about the financial burden. I thank you all for your support and aid in my journey.



Kendall Gentry

Major: Exploratory Studies

*Daughter of Jeff Gentry
Fibrix Filtration*

Kendall Gentry is currently a senior at Little Miami High School. She is in the Top 10 of her graduating class. She is planning to attend The Ohio State University and participate in their exploratory program, although she has a strong interest in science. Her goal is to find a field of study that she is passionate about and has good career opportunities.

Kendall Gentry has served as an active member of her school community. She was a part of the soccer, swim, and lacrosse teams, all of which she played at the varsity level, and served as captain of both the soccer and lacrosse teams.

In the classroom, Kendall Gentry has taken honors, Advanced Placement, and dual enrollment courses, which have earned her a 5.58 weighted GPA.

She also played clarinet for three years in the Marching Panther Band and continues to practice music in the symphonic band.

Kendall has also been a part of many clubs throughout her high school career and has actively participated in numerous community service events.

I'd like to extend my sincere gratitude to the NAFA scholarship committee. I am honored to have been selected to receive a NAFA Foundation Scholarship and greatly appreciate the support as I pursue my academic career at The Ohio State University.



Emily Sparks

Major: Law and Justice, Pre-Law

*Daughter of Amber Sparks, CAFS, NCT
BFC Solutions*

At Fairhope High School, Emily participates in many clubs. She is a member of Interact Club, Future Business Leaders of America, National Honor Society, National Society of High School Scholars, Mu Alpha Theta, and Spanish Honor Society.

At her church, she volunteers for Vacation Bible School in the summers. She was also employed as a nanny four days a week in the summer as part of the Co-Op program at Fairhope High School.

Emily will be attending Auburn University in the fall. She looks forward to her pre-law classes and will be minoring in Honors Business.

She has been accepted into the Honors College at Auburn University and looks forward to the wide range of intellectual and academic experiences, as well as the personal connections and academic opportunities presented through the Honors Program.

She looks up to her mother, Amber Sparks for the dedication and passion she has for the air filtration industry. She is the oldest of three girls and sets a positive example for her younger sisters.

I am honored to be chosen as a recipient of the National Air Filtration Association Scholarship. While at Auburn University, this scholarship will aid me in obtaining my undergraduate degree in Pre-Law. I intend to go to law school after graduating. I am so thankful for you all supporting me in my academics.

VISIT US: Booth #N1919

| NAFA MEMBER EXHIBITORS | BOOTH |
|-------------------------------------------------|--------------|
| ADS Laminaire/Flow Air Filters | S9779 |
| Alkegen | S7383 |
| American Metal Filter Company | S7976 |
| Bestorq | S9030 |
| Clean & Science Co., Ltd. | N1849 |
| CMS Global (Excelair Filters) | S9052 |
| D-Mark | N1134 |
| Dynamic Air Quality Solutions | N2000 |
| Fresh-Aire UV | S6969, S6575 |
| Genesis Air Inc. | N3319 |
| Glasfloss Industries | N3213 |
| Hangzhou Srilan Filtration Technology Co., Ltd. | N1430 |
| Healthway Family of Brands | N1370 |
| Hot Melt Technologies, Inc. | N1943 |
| Hydrosil International Limited | S6510 |
| MANN+HUMMEL - Air Filtration Americas | S6764 |
| Mikropor | S9941 |
| National Air Filtration Association (NAFA) | N1919 |
| Parker HVAC Filtration | S7136 |
| Permatron Corporation | N1134 |
| Rensa Filtration | N1134 |
| Research Products Corporation | S6612 |
| Sanuvox Technologies Inc. | S9956 |
| Specialty Filter, Inc. | S9586 |
| Viskon-Aire Corp. | N1134 |

Volunteer for the NAFA Booth at the AHR Expo (and earn CEUs towards your certification)

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Register to take the CAFS Exam: To sign up for the CAFS Exam complete this [CAFS Exam Form](#).

To order the NAFA Guide to Air Filtration, visit the [NAFA Store](#).

During the Expo, Kevin Delahunt, CAFS, Senior Technical Advisor at BGE Indoor Air Quality Solutions Ltd. and Marisa Jimenez de Segovia ASHRAE Fellow, CAFS, NCT, Owner, Air-Care de Mexico will be presenting (in both English and Spanish):

English: Tuesday, 1/23/2024, 1:00 PM – 2:00 PM; S404bc

Spanish: Tuesday, 1/23/2024, 2:30 PM – 3:30 PM; S404bc

Design and Maintenance of MERV 13 Filter Systems for Optimum Performance | Diseño y Mantenimiento de un Sistema con Filtros MERV 13 para un Resultado Optimo The recent pandemic has elevated the importance of filtration, specifically MERV 13, as a key driver in providing a safe, healthy, and productive built environment. This presentation will discuss why MERV 13 is the performance criteria of choice emphasizing two important, but equal elements; the filter itself and the hardware it sits in. We will look at options to maximize the efficacy of your filter system focusing on filter system performance, not just the filter's rated performance.

INDUSTRY CALENDAR

2023

RETA Conference

November 14 – 17
Jacksonville, Florida

Eighth International Conference on Energy Research and Development

November 28 – 30
Kuwait University City, Kuwait

2024

2024 ASHRAE Winter Conference & AHR Expo

January 20 – 24
Chicago, Illinois

CTI Annual Conference and Expo

February 4 – 8
Houston, Texas

NADCA 35th Annual Meeting & Exposition

March 4 – 6
Las Vegas, Nevada

ACCA 2024 Conference and Expo

March 11 – 14
Orlando, Florida

NAFA Technical Seminar

April 17 – 19
Irving, Texas

NAFA Annual Convention

October 1 – 3
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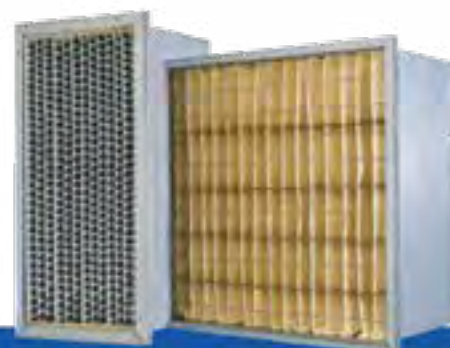
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Shauna-Lee Boyle, CAFS

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Jessica Erickson, CAFS

BFC Solutions/Pure Air Sales

Brian Fletcher, CAFS

Airex Filter Corporation

Eric Gomez, CAFS

BFC Solutions/Pure Air Sales

Julie Hoffman Smith, CAFS

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Jose Felipe Jimenez Maese, CAFS

Columbus Industries, Inc.

Dirk Kelsch, CAFS

Keystone Clean Air Solutions

Brady Kennedy, CAFS

Puremaxx Filtration

Frank Lord, CAF

BFC Solutions/Pure Air Sales

Dr. Bryan Louis, CAFS

BL Technical Consulting Inc.

Rachel Lucey, CAFS

Air Filter Superstore, LLC.

Michel Mercier, CAFS

DAFCO

Giri Nandagopal, CAFS

Century Mechanical Systems Factory, LLC

Octavio Rodriguez, CAFS

Columbus Industries, Inc.

Carlos Alberto Rodriguez Sanudo, CAFS

Airedinamica

Ryan Schauble, CAFS

Filtration Group

Angel Titus, CAFS

TEX-AIR Filters

Felix Venegas, CAFS

Parker HVAC Filtration

Cameron Walker, CAFS

Puremaxx Filtration

NCT

Roger Agan, NCT

Vancouver Convention Centre

Cody Benjamin, NCT

Air Filter Plus, Inc.

Hector Ernesto Blancas Salazar, NCT

VECO, SA de CV

Seth Britton, NCT

Upstate Medical University

Erick Alain Camacho Mendoza, NCT

Servicios Nuevos de Filtracion

Joseph Herman Chavarria, NCT

The Filter Man, LLC

Jeff Chesney, NCT

Calhoun Associates, Inc.

Ron Chesney, NCT

Calhoun Associates, Inc.

Dave Chesney, NCT

Calhoun Associates, Inc.

Dara Chhan, CAFS, NCT

TEX-AIR Filters

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Upstate Medical University

Eric Cooper, NCT

Upstate Medical University

James Corbett, NCT

Upstate Medical University

Elizabeth Cortens, NCT

The University of British Columbia

Ira Davis, NCT

The Filter Man, LLC

Alfonso Eugenio Pio Fernandez Obregon, NCT

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Joaquin Javier Fuertes Jarque, NCT

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Anderson David Gonzalez Cruz, NCT

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Juan Alejandro Gonzalez Gonzalez, NCT

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Fernando Hernandez-Pena, NCT

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The Filter Man, LLC

Joseph Johnston, NCT

The Filter Man, LLC

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Kelly Stires, NCT

Air Filter Plus, Inc.

Matthew Thompson, NCT

Air Filter Plus, Inc.

WELCOME TO NAFA

Continued from page 5

PNF Manufacturing

Mike Denniston

Kingston Springs, TN

Sartek Industries, Inc.

Carl Saieva

East Setauket, NY

Stitch Partners

Keval McNamara

Apex, NC

Vietfil Corporation

Dean Nguyen

Thu Dau Mot, Binh Duong Viet Nam

Service Provider/Allied Partner

Lovely Goswami

Applied Photonix LLC

Tampa, FL

Professional Individual

Kimberly Hand

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Luis Almanza Llanos

Barranquilla, Atlantico Colombia

Luis Cintron Rodriguez

El Capitolio, Arecibo Puerto Rico

Life Member

Gerald Festian

Troy, MI



National Air Filtration Association

TECHNICAL SEMINAR

April 17 - 19, 2024
Irving, Texas



NAFA
National Air
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Association



FROM THE EXECUTIVE DIRECTOR

EMILY BARDACH, CAE
NAFA Executive Director

NAFA INTRODUCES NEW SPONSORSHIP PROGRAM FOR 2024

We are thrilled to announce the launch of the National Air Filtration Association's (NAFA) new Sponsorship Program. This initiative is designed to create a seamless and mutually beneficial partnership between your organization and NAFA, ultimately elevating your engagement with the air filtration community and maximizing your return on investment with customers.

WHY SPONSOR NAFA?

NAFA is the premier association for professionals and organizations in the air filtration industry. With over four decades of experience, we are dedicated to promoting clean and healthy indoor air through expertise, education and best practices in air filtration. By becoming a NAFA sponsor, you'll gain invaluable benefits, including:

1. **Membership:** A company membership which includes access to member benefits for your team, providing access to exclusive resources, industry insights, and networking opportunities.
2. **Event Registration and Sponsorship:** Sponsorship packages encompass a wide range of benefits, such as conference registrations and recognition at NAFA conferences.
3. **Visibility Throughout the Year:** Showcase your organization's commitment to clean air through prominent visibility in NAFA's digital and physical channels. From our website and newsletters to our annual conference, your brand will be front and center.
4. **Advertising Opportunities:** As a sponsor, you'll have the exclusive chance to advertise your products and services to a highly targeted audience of air filtration professionals. This means your brand gets to feature prominently in NAFA Air Media magazine, email newsletters, promotional materials, and on our website, giving you a distinct edge in the industry.

5. **Support of the National Air Filtration Association:** Your sponsorship contributes to the growth and advancement of NAFA's mission, which ultimately benefits the entire industry.

SPONSORSHIP TIERS

We offer a range of sponsorship levels to suit the needs and preferences of your organization, with benefits starting at \$2,500 and reaching up to \$25,000. Whether you're a small business looking to make an impact or a large corporation seeking unparalleled industry exposure, there's a sponsorship level that's perfect for you.

One of our proud sponsors had this to say: "NAFA was fundamental in helping us grow our customer base. NAFA is a one-stop shop to see all of our customers."

If you're interested in partnering with NAFA as a sponsor and tapping into these incredible benefits, please complete our [Interest Form](#), and our team will be in touch with you promptly.

Don't miss this unique opportunity to enhance your involvement with NAFA, foster growth in your customer base, and demonstrate your commitment to clean and healthy indoor air. Join us as we continue to lead the way in air filtration excellence, and together, we can make the air we breathe safer and healthier for all.



Uniform Componentry. Uniform Prices.

At Ver-Mac Industries, Inc., we consider our customers to be part of our Ver-Mac family. One way we do this is to provide consistent products with consistent pricing. Visit our website to learn more about our products and why you should become a part of the Ver-Mac family, too.

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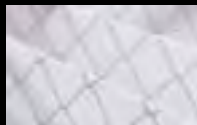
VER-MAC
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Throughout the years, Wallner Expac has partnered with filter manufacturers to supply them with expanded metal for residential, commercial, and industrial applications. As a 100 percent employee-owned company and North America's largest manufacturer of light gauge expanded metals for filtration, we provide strong and sustainable solutions that help deliver optimal air quality, contributing to a healthier environment.



- ◇ Founder and leading manufacturer of expanded metal used in pleated filters.
- ◇ Developers of X-Mesh®, the patented industry standard in filter media backing. U.S. Patent 8,696,781
- ◇ Post-production services include conical, corrugation, powder coating, and more.
- ◇ Customizable specifications to achieve open area and breach test requirements.
- ◇ Manufactured in our U.S.-based plants: California, Georgia, Texas.

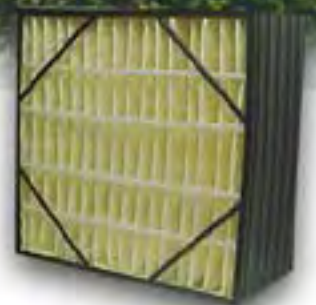


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