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2024 – Quarter 4

The AI Issue:

Exploring AI in Our Industry

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President's Message

What a humbling honor it is to be named NEBB President and address this organization. When I got involved with NEBB as a Fume Hood Committee member many years ago, I had no idea that one day I would become President of this prestigious organization. As a committee member and then chair, I preferred to just put my work in and fly under the radar. Once elected to the Board of Directors and then the Executive Finance Committee, I had to change my style and get out in front with the rest of the leadership team. Now that I am President, I have to take an even bigger step out of my comfort zone, and I am ready for that challenge because of the team I have the pleasure of working with.

I want to personally thank Luis Chinchilla for his leadership this past year, as he led this organization with professionalism and positive energy. He reiterates NEBB's mission, vision, and core values to remind us all why we volunteer and to keep us focused on the tasks at hand. I have learned so much from you, my friend, and I am more prepared to take on this new role as President because of your guidance.

Working with current and past members of the Board of Directors during my tenure has been a professionally fulfilling experience and I am looking forward to working with the current directors during this upcoming year. They all volunteer countless hours, serve on committees, and have full-time jobs, and I very much appreciate all the work they do. The NEBB staff is a group of highly dedicated individuals that work extremely hard for the betterment of the organization. They all believe in this organization and do everything they can to support all entities, as well as our firms, professionals, and technicians.

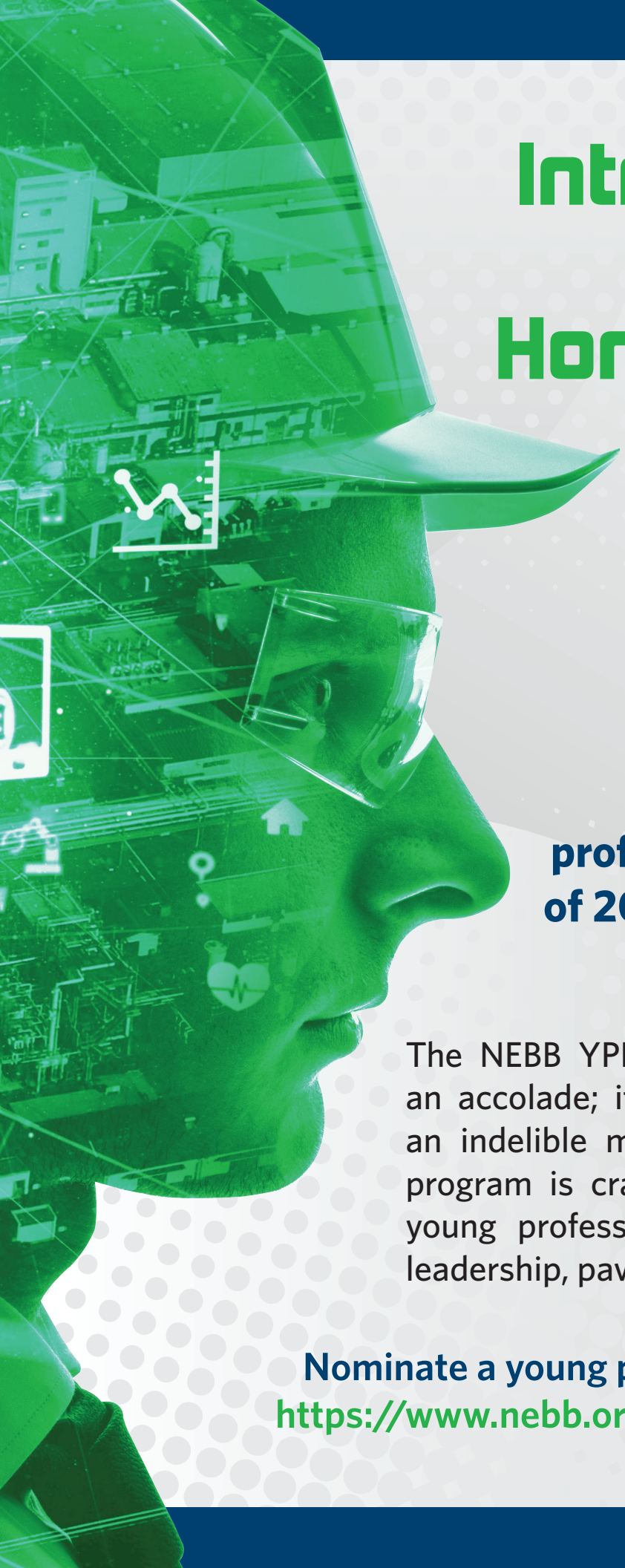
NEBB is thriving, as we currently have 650+ Certified Firms, 1,900+ Certified Professionals, 1,400+ Certified Technicians, as well as 800+ candidates currently in the process of getting certified. The Robert B. Gawne NEBB Technical Education and Training Center is booked with seminars in 2025 and the NEBB Learning Center (NLC) continues to grow with more educational content. Our technical committees are also continuing to work on their procedural standards, publications, seminars, and adding hands-on trainings and practical examinations. Most of the NEBB Chapters have finished their recertification seminars for 2024 and will continue to provide localized support for NEBB and their chapter firms.

I hope many of you had the opportunity to attend the Annual Conference in Litchfield Park, Arizona where we enjoyed three days of technical sessions, networking, visiting with vendors, golf, and sightseeing. Luis and the conference team put on an amazing event, following through on the 2024 platform of "Leading Transformation into a Bright Future." Now, let me be the first to invite you to the 2025 NEBB Annual Conference in Memphis, Tennessee which will be held November 6 – 8. It will take place at the Peabody Hotel, known as the "South's Grand Hotel" and listed on the National Register of Historic Places.

The platform that I want to present throughout the next year is "Guiding NEBB Towards Tomorrow Through Collaboration and Innovation." Those of you who know me know that I am a sports fanatic and I strongly believe in teamwork, so I am stressing collaboration to guide NEBB to continue being the premier certification organization in our industry. Everybody and every entity in this organization is dedicated and has NEBB's best interest in mind. Just think how strong we can make our organization as we work together as one. A team is only as strong as its weakest player, so I am challenging myself, the Board of Directors, staff, technical committees, chapters, and Certified Professionals and Certified Technicians to step up our game and bring NEBB to even greater heights than it has already achieved in the past 50+ years.

Thank you to all involved in this organization, and I am looking forward to working with everybody during the upcoming year as we continue working on NEBB initiatives and following through with our strategic plan.

Mike Kelly
NEBB President



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ypn@nebb.org

Do you know a young professional between the age of 20-39 whose achievements deserve recognition?

The NEBB YPN Honors Program is more than an accolade; it celebrates those who have left an indelible mark on the NEBB industry. This program is crafted to acknowledge and honor young professionals who embody exceptional leadership, paving the way for a brighter future.

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Letter from the Editor

As we wrap up the year and reflect on a productive annual conference, we're excited to bring you this final issue of *The NEBB Professional* for 2024 and look forward to a future shaped by ideas and innovation in 2025 and beyond.

In this edition, we're excited to dive into a pivotal topic shaping the future of our industry: AI and its transformative role in the building industry. As technology continues to evolve rapidly, NEBB is committed to staying at the forefront of these advancements, and providing insights into how NEBB Certified Professionals, Technicians, and Firms can enhance, streamline, and future-proof their efforts.

We've curated a series of articles that explore the impact of artificial intelligence on the architectural, engineering, and construction sectors. These articles give an overview of AI's broad potential and the innovative changes it's sparking, shed light on how companies are adopting AI and what it means for our industry, as well as outline NEBB's initiatives to incorporate these technologies, and ensure the entire NEBB community is prepared for the challenges and opportunities ahead.

Through these articles, we aim to provide a comprehensive understanding of how AI is reshaping our industry and the proactive steps NEBB is taking to support you in adapting to this dynamic landscape. We're thrilled to be part of this journey with you as we embrace the future of building systems together.

As always, if you have an article idea or there is a topic you would like to see featured in a future issue of our magazine, reach out to me at editor@nebb.org. We value your perspective, and hope you will join in on the exciting future we're building!

Kerri Souilliard,
Editor, *The NEBB Professional*

CONTRIBUTORS

George E. Martin is a commissioning agent at Loring Consulting Engineers. He is currently a NEBB TAB CP and serves as a corresponding member of the NEBB TAB, YPN, and Marketing Committees.

William Bailey has been a member of NEBB since 1997 and a member of ASHRAE since 2003. His hobbies are fishing for largemouth and smallmouth bass on the Tennessee River/Kentucky Lake. William loves teaching classes related to HVAC for Associated Builders and Contractors and Service Group at NMC.

Ryan Kelly is a Project Manager for Air Filtration Management, as well as a NEBB Certified Professional in Fume Hood Testing. With 11 years in the industry, he is a valued member of the NEBB FHT Committee.

Jeff Schools is the Past President of NEBB and currently works with the NEBB Headquarters team, NEBB committee chairs, and Compliance members as NEBB Technical Director.

Executive Vice President's Update

I'm excited to share some thoughts on the opportunities that lie ahead as we close out 2024 and enter 2025. As we strive to strengthen our position as an industry leader, I'd like to focus on a few key areas: NEBB certifications, professional growth, volunteerism, and increasing NEBB's industry exposure.

First, let's discuss NEBB certifications. Our certifications are the foundation of our organization and the standard of excellence that sets us apart in the industry. A NEBB certification is more than just a credential; it's a mark of quality and integrity that reflects deep technical expertise and a commitment to the highest standards.

As Benjamin Franklin once said, "An investment in knowledge pays the best interest." Earning a NEBB certification is an investment in your future. It positions you as a leader in our field, opens doors to new opportunities, and enhances our collective reputation. I encourage those of you who are not yet certified or are interested in obtaining another NEBB certification to take that next step. It will elevate both your career and NEBB's standing as the go-to organization for quality and performance.

In addition to certification, continuous professional growth is critical to your success. In today's fast-paced world, stagnation is not an option. We must continually enhance our skills and knowledge to remain at the forefront of industry innovation. As Henry Ford wisely said, "Anyone who stops learning is old, whether at twenty or eighty. Anyone who keeps learning stays young."

At NEBB, we are committed to fostering a culture of learning and growth. Whether through advanced certifications, ongoing training and seminars, or leadership and volunteer development, we aim to empower each of you to reach your full potential. The stronger you are as individuals, the stronger NEBB is as a whole.

Let's also take a moment to discuss volunteerism. Volunteering within NEBB and your local NEBB chapter is an essential part of what makes us a dynamic and forward-thinking organization. It provides an opportunity to give back while building leadership skills and expanding your network. As Winston Churchill said, "We make a living by what we get, but we make a life by what we give." By volunteering—whether serving on committees, mentoring younger professionals, or contributing to the certification process—you not only help others, but also help to elevate our organization. Volunteerism is a powerful way to drive innovation and ensure the continued relevance of NEBB standards in a constantly changing industry.

Finally, I want to address the important topic of increasing NEBB's industry exposure. Our certifications and standards are gold, but to grow, we must ensure the broader industry recognizes that value. This is where we can all play a role in enhancing NEBB's visibility and influence.

One way to do this is by actively participating in the industry. Attending conferences, delivering presentations, and participating in panel discussions all help to showcase the expertise that NEBB Certified Professionals bring to the table. As Steve Jobs once said, "Innovation distinguishes between a leader and a follower." By taking the lead at industry events, we can position NEBB as an innovator that defines the future of building systems performance.

Additionally, I encourage you to seek opportunities to publish white papers, share case studies, and contribute thought leadership articles. The more we share our knowledge and successes, the more we reinforce the importance of NEBB standards in driving quality outcomes.

Building stronger relationships with key industry stakeholders—whether contractors, building owners, or regulators—will also enhance NEBB's visibility. We must continue to demonstrate how NEBB standards directly contribute to better performance, efficiency, and reliability in building systems. When people understand the value of what we do, NEBB becomes synonymous with excellence.

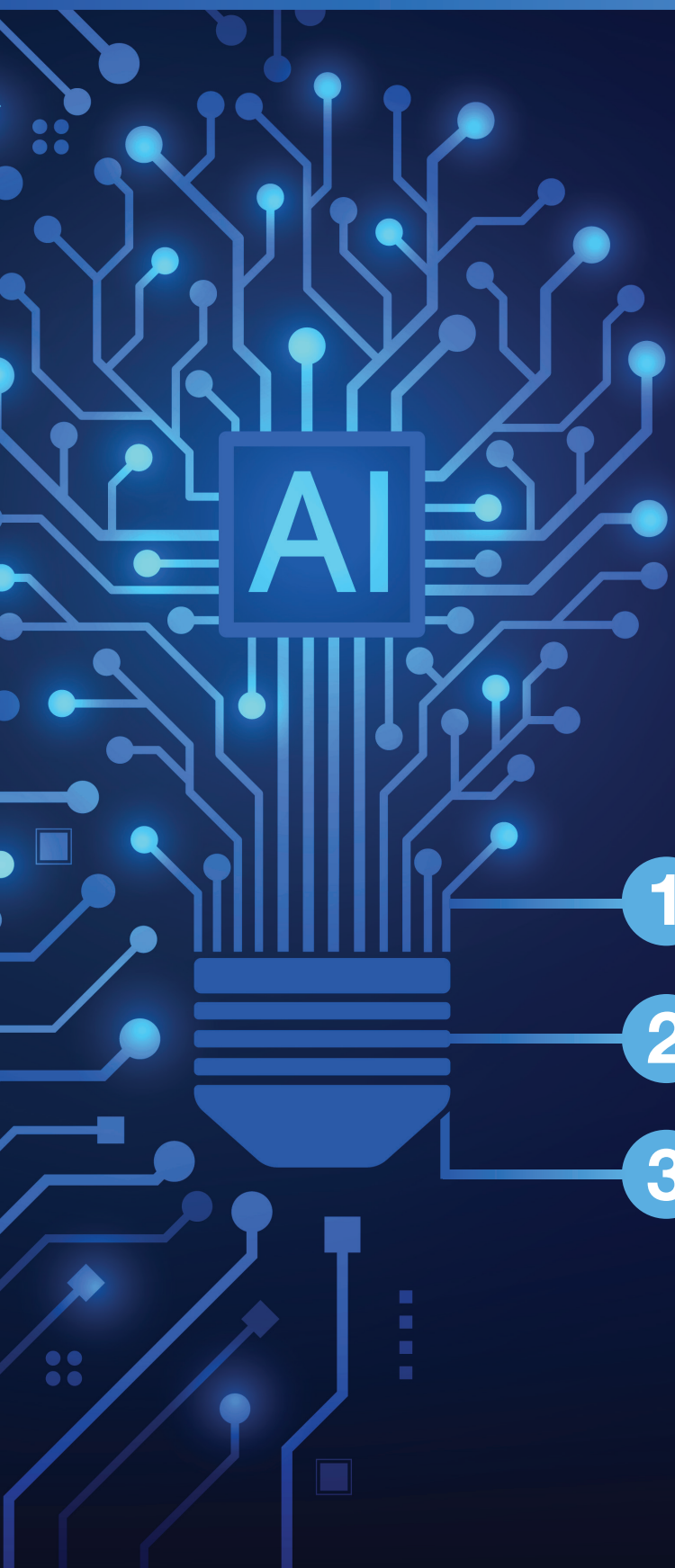
In closing, I want to remind you of the power you hold as NEBB Professionals, Technicians, Firms, and Chapters. By pursuing NEBB certifications, committing to professional growth, embracing volunteerism, and actively working to increase NEBB's industry exposure, we set ourselves—and NEBB—up for continued success.

As Ralph Waldo Emerson said, "The only person you are destined to become is the person you decide to be." Together, we decide the future of NEBB. Let's continue to lead with excellence, expand our influence, and elevate our industry through our collective commitment.

Thank you for your dedication, hard work, and for being part of this incredible organization. Let's keep moving forward—together. ●

Tiffany J. Meyers
NEBB Executive Vice President

The AI Issue

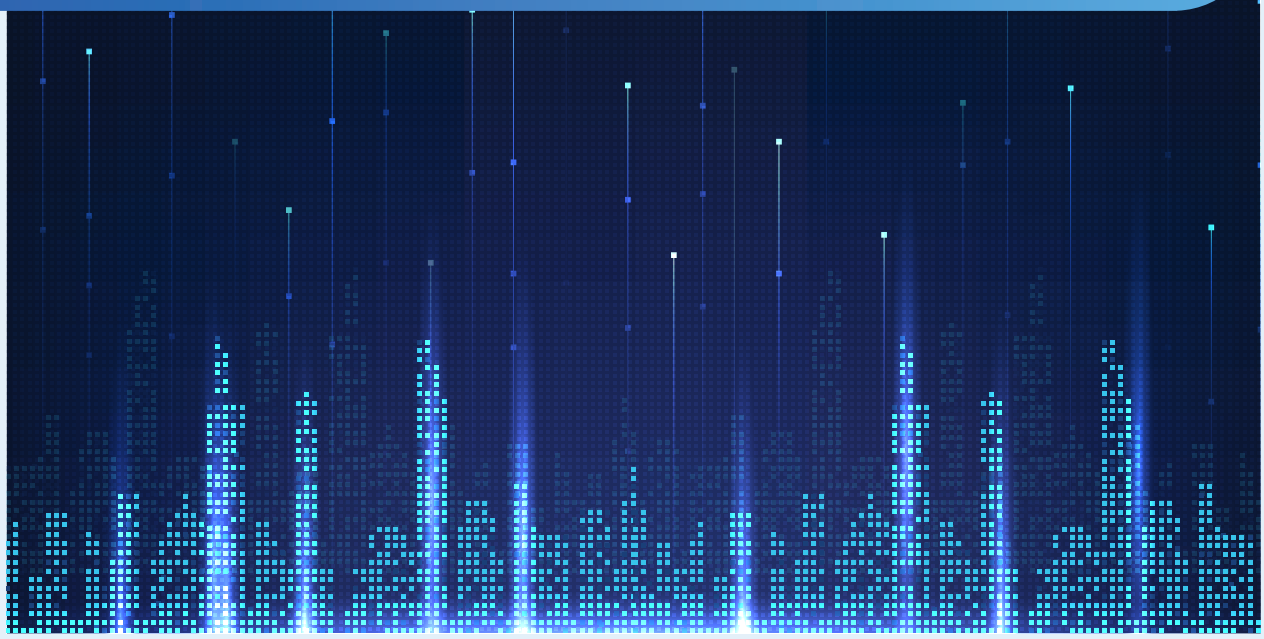


More than a hot topic recently, AI causes us to ask questions like: Should professionals in the building industry be concerned about AI taking their jobs? What is NEBB doing to ensure that the best aspects of AI are integrated into its outlook for the future to help advance the industry? How are other industry leaders incorporating this new technology into their products, and what does that mean for the professionals who work on the systems they manufacture? How is this new technology impacting the future outlook of NEBB, and what may be required of the professionals who comprise this organization?

In this **three-part series**, we will address these questions and share the latest information on what you can expect from NEBB, the premier global certifying organization for building professionals, as we continue to lead the transformation into a bright future.

By George E. Martin

1 AI in the Building Systems Industry



Artificial intelligence has been in the headlines for the past several months. People have expressed concerns that it will take their jobs, alter the operation of the technology and investment industries, and even make people lazier by reducing the need for education and training to solve complex issues. How much of this worry is justified, and how much is overhyped catastrophizing? Let's explore what AI is and what is means for the roles our NEBB Certified Professionals, Technicians and Firms play in the building industry:

What is AI and What Can It Do?

Before diving too deeply into the impact that artificial intelligence is having on the industry at large, we need to define what exactly AI is and how it operates at present. The form of artificial intelligence that is publicly available today differs significantly from what you may have seen in futuristic sci-fi movies. Current AI technology is not yet at the stage where it can be implanted into robots that are then released to better society by independently making decisions. Rather, current technology has developed to the point where it encompasses several different tiers. Let'sl attempt to break down each of the levels of AI, simplified as much as possible, as it relates to the building industry:

Level 1: You may have heard of the first level of AI, machine learning, which occurs when a computer uses an algorithm to analyze categorized and labeled data, allowing the computer to understand what it is analyzing. The computer then uses that dataset to make decisions. The limitation at this level is that a person must categorize the data, indicating what information is relevant to the decision or calculation the computer is attempting to make. However, once someone sorts through the data and inputs it into the machine, it is the computer itself that processes the information and provides an output.

Level 2: The next layer of AI is called deep learning. At this stage, the computer can pull data from various sources and categorize the information independently. Where it previously required human input to identify which data belonged in which decision box at Level 1, at the deep learning level, the computer can analyze a large pool of unsorted data and determine for itself

which pieces of information to use for a specific decision. This reduces, or even eliminates, the need for human interaction in sorting and categorizing the information. This is the core of how current AI models, like ChatGPT, operate. They use the entire internet as their data pool and can sift through that information, automatically categorizing what is relevant to the question being asked before providing a response. However, it is the manner in which these models respond that determines whether they reach the third—and current—level of artificial intelligence.

Level 3: Once machines could sort through pools of data and make decisions, it became necessary to find a way for them to communicate these decisions in an understandable way. Large language models—essentially vast collections of written works demonstrating various uses of language—were given to computers to help them learn sentence structure and composition. Over time, this led to AI models being able to compose original sentences and communicate with people in written language. Similar processes were applied to pictures, videos, and artwork, allowing AI to create original content in these mediums. This is the level at which AI currently operates, known as generative AI. At this level, all the abilities of Levels 1 and 2 combine, enabling the computer to produce outputs comprehensible to humans. This also means that humans can input queries in common English, and the computer can interpret and provide a logical response.

As an example, you may have heard stories of computer programmers losing their jobs en masse as AI reduces the need for people in that industry. This concern is valid; AI has become adept at translating written prompts into computer code across various programming languages. For this reason, if you have children in school taking programming classes, you have likely heard about the rules their instructors have implemented to guard against the use of AI to complete homework assignments. Students can input the exact word problem from a homework assignment and have an AI model generate an entire executable program in a matter of seconds and at no cost!

Does this mean we should immediately hit the panic button and flee before the machines take over? Not quite. Here's a counterbalancing point: artificial intelligence can scour the internet to quickly review thousands of articles on a given topic, consolidating what would otherwise take hundreds of hours of research into a few paragraphs. However, using it as an advanced research tool has revealed limitations. When

gathering and summarizing information, AI has not yet progressed to the point where it can reliably distinguish between credible sources and misinformation. Therefore, while AI can use programmed models to simulate deductive reasoning and make accurate decisions based on reliable information, it fails if the provided information is inaccurate but appears relevant. In simpler terms, AI is subject to the adage, "garbage in, garbage out." It relies on good data to function effectively, and the internet is hardly a repository of solely reliable information.

You may also wonder whether AI has the ability to learn from past engineering documents to create and produce new systems that fit within a given footprint. Surprisingly, significant progress is reportedly being made on this front. Software developers are diligently working to build libraries of engineered drawings that AI can use as source material to generate new designs for installation in buildings. This capability of AI, like all developing technologies, is improving over time but is still not foolproof. AI models excel in specific tasks, such as dimensioning and checking load and sizing calculations, but skilled engineers are still needed to provide input and ensure that the generated plans will work effectively.

By extension, there remains a demand for skilled tradespeople who understand how building systems function and interact with one another. These professionals need to possess a solid grasp of basic design principles, as well as an understanding of how various devices operate and interact when installed in a given space. AI is advancing rapidly in the building automation space, but at this point it holds a complementary role rather than one of replacing a need for human capital altogether. While it is imperative that we take note of where AI is now, and where can we expect this technology to go in the near future, it is just as important to understand that it is the highly regarded work of NEBB Professionals, Technicians and Firms adhering to NEBB Procedural Standards, which set us apart and help us showcase the meaning of integrity itself. ●

2 AI in Your Buildings

Following our exploration of the transformative potential of artificial intelligence (AI), a pertinent question arises: How will AI impact our daily lives and the building systems industry? To shed light on this topic, we spoke with two major manufacturers in the building systems and controls industry—Siemens and Trane. By sharing insights on how their companies are incorporating AI into their products, we can better gauge how professionals in the field can prepare for these advancements.

The Future Role of AI in HVAC

Kathleen Magee of Belimo Aircontrols, Inc. emphasizes three primary roles AI is set to fulfill in the HVAC industry. First, AI tools, such as conversational AI, enhance efficiency in job execution, a benefit that extends beyond our industry. Second, AI learning models have the potential to replace much of the control logic used in building HVAC equipment today, though these models must align with the existing framework that governs building design, construction, commissioning, documentation, and maintenance. And third, AI-powered predictive maintenance can facilitate repairs or replacements before equipment failures occur, ultimately reducing energy waste and comfort issues. This predictive capability may also replace some aspects of prescriptive maintenance, leading to lower overall labor costs.

Further highlighting the utility of AI in providing valuable insights regarding building assets and their conditions, Johnathan Bonner of Siemens PLC adds that AI can learn from user inputs, enhancing its effectiveness over time. Not to mention, current software developments are increasingly capable of integrating these learning capabilities.

Current Impact of AI on the Industry

While AI is still a nascent technology, its influence on the building industry is already evident. Magee observes that AI's demand has surged, particularly in the cooling systems required for data centers. As AI

usage increases, so does the need for solutions that the HVAC industry traditionally provides. For many AI solution providers, the focus is shifting from air to liquid cooling at the thermal control system (TCS), reflecting the growing demand for AI-related applications. This trend also pushes the industry toward improved data modeling and standardization.

Bonner notes that AI is increasingly utilized for condition monitoring and predictive maintenance. Contrary to the common belief that predictive maintenance forecasts component failures months in advance, it actually serves as a strategy to determine when maintenance should be performed. By analyzing the right data rather than relying solely on large datasets, predictive maintenance can significantly reduce the amount of data collected while still delivering accurate insights. For instance, instead of monitoring a motor's current in real-time, the program could analyze average, minimum, and maximum values over a minute, thereby streamlining data processing. This approach does not replace onsite skillsets, but rather enhances their efforts, enabling maintenance engineers to manage more assets efficiently.

Integrating AI into Future Products and Services

As companies navigate the integration of AI and machine learning into their products, both Belimo and Siemens are taking proactive steps. Magee notes that while Belimo has not yet developed AI-powered damper actuators or control valves, the company is focused on enriching the data generated by its devices. The goal is to make it easier to retrieve and apply algorithms for control, optimization, and analysis using AI and machine learning models.

Meanwhile, Siemens is advancing its efforts through the Maintenance Copilot Senseye program, a virtual maintenance assistant powered by generative AI. This program is designed to support data-driven decision-making by providing clear, accessible insights. Senseye not only retains knowledge from experienced workers but also translates this information into various languages, facilitating global collaboration. Users can interact with the program using natural language, making it easier to access manuals and maintenance information instantly.

Preparing for the Future

As the HVAC industry anticipates these changes, more and more companies are committing to equipping their employees for the future. Belimo has implemented comprehensive policies and training initiatives aimed at familiarizing employees with current AI applications, emphasizing data protection and compliance. Siemens, on the other hand, offers employees access to "My Learning World," a resource offering a vast array of courses on AI and generative AI to ensure employees understand how to interact with these technologies effectively.

Magee advises HVAC professionals to embrace AI as a tool to enhance their current roles, encouraging them to stay informed and proactive in their learning. Bonner adds that manufacturers and service providers must prepare their facilities and infrastructures to support data availability and compatibility with new technologies, ensuring customers can derive maximum value from their systems.

Looking Ahead

Overall, the future of AI in the building industry appears promising. Magee foresees significant growth and rapid advancements in cooling solutions, particularly for data centers. She draws parallels to how NASA innovations eventually influenced consumer products, suggesting that new cooling solutions for data centers will filter down into traditional HVAC applications. Similarly, AI tools will enhance efficiency, enabling the construction of more energy-efficient buildings with the same technical workforce.

Bonner points to Siemens' initiative, "Building X," which aims to leverage AI to monitor all aspects of a building, including HVAC systems. This project will utilize Senseye to provide real-time insights into asset conditions, energy monitoring, and more.

As NEBB continues to focus on cultivating qualified professionals in the face of evolving technologies, it is essential for industry participants to stay informed and adaptable. NEBB is actively exploring new initiatives to enhance training and certification for professionals, preparing them for the challenges and opportunities that AI will bring to the building industry, as well as incorporate these advancements into its operations and support its members in navigating the future.

3 AI and the Future of NEBB

The building industry is undergoing significant changes, and the future is approaching rapidly. For NEBB to maintain its status as the premier global certifying organization for building systems professionals, it must adapt to these changes, integrate new technologies into its procedures and training methodologies, and advocate for ongoing education to ensure its professionals remain at the forefront of developments. To do so, NEBB is currently implementing or pursuing four initiatives to allow the NEBB community to thrive in the evolving building environment:

A New Technical Committee

To formalize its commitment to innovation, NEBB has recently formed the Future Technologies Ad Hoc Committee (FTAC). This committee is primarily tasked with staying informed about new developments in building technologies, distinguishing between advancements that could significantly impact the building systems industry and those that are merely trends. The FTAC communicates regularly with other NEBB Technical Committees to ensure awareness of developments that may affect their specific disciplines. This responsibility is substantial, as AI influences nearly all eight NEBB disciplines. However, this diligence is essential for keeping Technical Committees updated and ensuring that relevant information reaches NEBB Certified Professionals.

Updated Procedural Standards

As NEBB Certified Firms and Certified Professionals know, the NEBB Procedural Standards for each discipline are routinely revised and updated. This standard practice, upheld by all Technical Committees, ensures that new trends in system design, control, and best practices are integrated into the standards that all

NEBB members follow. One initiative currently under investigation is the incorporation of AI into the online versions of the published Procedural Standards for each discipline.

Consider this scenario: you are employed by a NEBB Certified Firm and encounter a system design or layout you have never seen before. While the latest publication notes that a key advantage of being a NEBB Certified Firm is the ability to contact NEBB HQ or fellow Certified Professionals for guidance, what if there were a faster option? In the first article of this series, we noted how AI programmers utilize Large Language Models (LLMs) to teach AI how to respond to inquiries. What if AI could be trained on the NEBB Procedural Standards? With such a tool, you could theoretically consult "NEBB-Bot" (or whatever the chatbot is named) to ask specific questions about your project and how to implement the NEBB Procedural Standards effectively. This readily accessible tool could be immediately utilized by all Certified Firms as a primary resource for fieldwork or office direction, saving time and money on projects while ensuring all NEBB members know the necessary steps and their order to deliver quality results. While this may seem ambitious, the FTAC is actively exploring ways to provide these benefits to NEBB members. Stay tuned; the future promises to be even brighter for NEBB.

NEBB Mobile App

Did you know NEBB has its proprietary mobile app? Based on a recent survey of current NEBB members, you are not alone if you were unaware. The NEBB app features a built-in calculator that helps users navigate the formulas on the NEBB Formula Sheet to obtain essential information on the spot. For instance, you can calculate airflow at a traverse location or water flow through a coil based on pressure differential readings. While these functions are undoubtedly useful, what if the app offered access to additional NEBB resources, documents, or even the chatbot mentioned earlier? The possibilities are vast, and NEBB is committed to further developing its app into a tool that meets all its members' needs.

Training in Virtual Reality

Virtual reality (VR) has gone mainstream and appears to be here for the long term. With major companies like Meta, Sony, and Microsoft heavily investing in VR and augmented reality technologies, there is much potential to maximize this resource. NEBB has begun exploring the possibility of offering online training using VR to assist its members and anyone seeking certification.

Imagine registering for a NEBB seminar from the comfort of your home and being able to interact verbally with classmates and instructors over the internet. This would significantly reduce the cost of attending a seminar by eliminating the need for travel while providing the same high-quality education from Certified Professionals nationwide.

Additionally, NEBB HQ has been utilizing its new Robert B. Gawne Training Center, which is equipped with the tools, equipment, and controls necessary for trainees to learn everything from balancing a diffuser to setting up a hydronic system. Normally, in-person attendance would be required to benefit from this training. However, with VR technology combined with AI data, you could theoretically access these resources remotely, taking readings that demonstrate how a system responds to various adjustments. This could all occur in real-time, providing world-class training to NEBB members globally.

Furthermore, anyone seeking certification as a NEBB Certified Professional or Certified Technician must pass written exams in their chosen discipline. Currently, preparing for these exams involves studying books from the body of knowledge associated with that discipline. The online NEBB Learning Center has recently been updated with newly published sample problems relevant to each discipline, helping users identify areas for review. This resource is accessible to anyone free of charge (Simply visit NEBB.org > Education > NEBB Learning Center and create an account if you haven't done so already). The NEBB Learning Center will continue to be enhanced with more tools to benefit all of NEBB.

When Will These Changes Happen?

All these initiatives are being explored by NEBB HQ and its Future Technologies Ad Hoc Committee. Some will require additional infrastructure, such as more servers and video recording equipment, which will take time to implement. Nevertheless, NEBB is committed to supporting its members with the latest technology and resources to ensure you have everything needed to succeed in your trade.

The robots aren't here to take our jobs yet, but they can be used to enhance both you and your buildings. This new technology can improve our built environment, making it more efficient, run more smoothly, and provide greater comfort to occupants. It can also help us hone our respective crafts, become better tradespeople and skilled engineers, and continue to progress as our industries evolve. AI is still relatively new, but it has become an integral part of our world and is not going away anytime soon. Rather than fearing this new technology, be prepared to embrace it, with NEBB as your guide into the future. ●

NEBB Across the Generations

Since 1971, NEBB has been serving firms and individuals that deliver high performance buildings and systems. As the premier international certifying association in the building industry today, NEBB thrives as a result of collaboration across various generations that all bring different experiences and perspectives to the table. We sat down with NEBB Fume Hood Testing Committee Member Ryan Kelly to discuss his personal journey with NEBB below:

The NEBB Professional (NP): What generation do you identify with?
Ryan Kelly (RK): Millenial.

NP: How did you initially get involved with NEBB? What committees have you been involved with?
RK: I initially got involved on the Fume Hood Testing Committee as a corresponding member when Mike Kelly, my father and your 2025 NEBB President, asked if I wanted to join the committee. What made me want to get involved was that I was young in this industry and I thought it would help me get my name out there and connect with people in this industry. Right now I'm a corresponding member of the committee, but in the future, I would like to become a full-time voting member of the committee.

NP: Is it difficult to find the time to volunteer with NEBB?
RK: Finding time for NEBB is very difficult at this point in my career. Thankfully, I only have to dedicate a little of my time to it, but it's hard enough. I hope to get to a point where that changes. Seeing all the time my father dedicates to NEBB is inspiring.

NP: How do you feel your involvement with NEBB has been an investment in yourself and your career?
RK: NEBB has definitely been a great investment for me and for my career. Going to the local chapter seminars and the annual conferences for all the networking, not to mention all the presentations that have been given, has taught me a lot. To have a community of people to constantly learn from and be able to call on is irreplaceable.

NP: What would you like to see for the future of NEBB?
RK: As for the future of NEBB, I would like to see it continue to grow and hopefully get a little bit younger. All the people who volunteer now are great, but there will come a time when they move on to retirement, so we (younger generations) need to be able to step up and continue all the great work that everyone before us has done.

NP: How do you think this transformation can happen?
RK: We need to continue to work to attract younger members to volunteer with NEBB now. With a variety of generations participating in NEBB at the same time we can all learn from each other, and the older generations can show the younger ones the ropes in certain areas while the younger generations can help move the needle to future-proof NEBB and guide it through essential changes like technology and trends that are just picking up now but will be here to stay. ●

The NEBB TOOLBOX

NEBB Industry Networking

By Jeff Schools

When it comes to industry networking, our active participation in industry associations, conferences, and trade shows helps us stay connected and visible.

We attend conferences like **AHR, ASHE, I²SL, IFMA,** and **IHACI** because these events are key platforms for building connections, staying informed, and contributing to the latest developments in industries related to building operations, energy efficiency, and environmental health. Here's why each is relevant to us:

The AHR Expo (Air Conditioning, Heating and Refrigeration Expo) is one of the largest HVACR trade shows, where new technologies and innovations in heating, cooling, and ventilation are showcased. We attend this expo to stay updated on the latest equipment and methodologies, which are crucial for our NEBB Certified Firms, Professionals, and Technicians who test and balance HVAC systems for efficiency and performance. This event is also co-sponsored by ASHRAE, and it puts us in front of a lot of engineers who specify projects.

The ASHE (American Society for Healthcare Engineering) Conference focuses on healthcare facility management and engineering. Since our certifications involve testing and balancing systems, critical in environments like hospitals where air quality and system reliability are essential, this event aligns with our focus on delivering high-quality standards for health and safety in such facilities.

I²SL (International Institute for Sustainable Laboratories) focuses on high-performance laboratories. Our Certified Firms often work in highly technical environments where precision is necessary for maintaining energy efficiency and environmental conditions. The I²SL trade show allows us to connect with laboratory professionals and keep up with standards and technologies that ensure these environments meet the highest operational benchmarks.

IFMA (International Facility Management Association) events focus on facility management, a key area for our firms. IFMA members represent facilities from small office builds to NFL Stadiums. Our NEBB Certified Professionals and Technicians often work on optimizing building systems such as HVAC, plumbing, and electrical systems. Attending IFMA allows us to stay updated on the needs of facility managers and to promote standards for commissioning and testing.

The IHACI (Institute of Heating and Air Conditioning Industries) Conference brings together professionals from across the HVAC industry, providing us with the opportunity to connect with contractors, engineers, manufacturers, and other stakeholders. We use this platform to showcase that we are an approved ATTCP (Acceptance Test Technician Certification Provider) and can provide testing and training to both employers and technicians who wish to become Title 24 certified through our mechanical acceptance testing training program.

By attending these conferences, we reinforce our expertise in certifying NEBB Firms, Professionals, and Technicians who ensure systems are performing at peak efficiency, ensuring both energy savings and occupant health.

The Unexpected Culprit: A Sewer Gas Mystery

By William Bailey

The Situation: Our team was called in to address a severe sewer gas issue affecting tenants occupying the first three floors of a high-rise building in downtown Nashville, TN. The odors were so overwhelming that tenants were leaving the building. The issue was puzzling because it only occurred after lunchtime, even though the building design was typical and had not faced such problems until 2014 - when my team and I were called in to investigate.

Initial Inspection: We began by checking the usual suspects. We inspected floor drain traps to ensure they were not dry, as this could lead to sewer gas escaping. Everything seemed properly sealed, as all traps appeared to contain water. We also reviewed the exhaust systems and building pressure. The building pressure was slightly positive, which ruled out issues with, or cracks in, the sanitary riser. The restrooms had nearly two air changes per hour (ACH), which is normal for older designs. Despite these checks, the source of the problem remained elusive.

Further Investigation: Given the building's age, we suspected potential issues with the old cast iron sanitary pipes behind the walls. We inspected the accessible pipe chase, but found no substantial cracks or breaks, nor any noticeable sewer gas odors.

The Turning Point: Realizing we needed a more in-depth approach, we enlisted our service plumbing division to conduct a smoke test of the common sanitary riser. We scheduled this for a Saturday to minimize any

disruption to the building occupants. The problem's timing—after lunchtime—suggested that increased restroom usage might be a factor.

The Smoke Test: Starting from the 30th floor and working our way down to the 3rd floor, we introduced smoke into the plumbing system. Floors 30 to 10 showed no issues as smoke introduced into the riser at this point was visible at the roof. However, when we reached the 3rd floor, where the odors were most severe, we saw no smoke venting to the roof. Thus, we were able to diagnose a likely blockage between the 3rd and 10th floors.

The Revelation: We tested the 5th floor and found smoke successfully venting to the roof, confirming that the blockage must exist between the 3rd and 4th floors. Since clean-outs were not required by Tennessee codes, we decided to cut out the affected section of the riser to clear the obstruction.

The Discovery: Upon removal of the piping, we encountered a large nest of cockroaches—each one 2 to 3 inches long—blocking the vent. This obstruction prevented proper venting, causing sewer gases to be forced back through the traps of sinks, water closets, and drinking fountains, and into the lower-level spaces.

Resolution: We replaced the affected piping and removed the cockroach nest. The sewer gas issue was resolved, and tenants could return to living without unpleasant odors. Both the building owner and the lease management group were relieved and grateful for the resolution.

The Lesson: This situation underscores the importance of being "practical experts" in our field. While testing, adjusting, and balancing (TAB) services typically focus on air systems and balancing, this experience highlights how issues can stem from unexpected sources. The ability to adapt and investigate thoroughly, even when this requires going well beyond our traditional scope, is crucial in resolving complex problems.

Despite the expertise of these engineers and the experience of our TAB professionals, we often find that we must lean on the service group of our firm to get the refrigeration circuits and controls components set to the proper values. Once these are achieved through the review by the RCx team, you would be amazed at how quickly and smoothly things come together. Currently, the owner of the residence is extremely happy with the service we provided and now has a service agreement with our company to maintain the equipment and keep everything operating as it should. Sometimes, even on a residential project, you may find that you need to apply TAB, Retro-Cx, and HVAC service principles to successfully resolve an issue! ●

Chapter News

Bonneville EBB

Shelley Lester, Chapter Coordinator

The Bonneville EBB chapter will host an in-person Technician Training program on February 20 and 21, 2025 in Salt Lake City, UT. Interested parties can contact Shelley Lester at bonnevillechapter@nebb.org for details.

The Bonneville EBB Annual Meeting and Recertification Seminar will take place on Friday, April 11, 2025 at The Hilton Garden Inn located in Sandy, Utah. For details, contact Shelley Lester at bonnevillechapter@nebb.org.

Capital-MarVa International NEBB

Barbara Huber, Chapter Coordinator

Capital-MarVa International NEBB is pleased to announce that its chapter education room upgrade is complete. We are now able to host both virtual and in-person seminars. We have invested in MS 365, which allows us to host virtual classes. A smart TV, education laptop, and rolling dry erase board has been added to the room. The chapter hosted its very first virtual CT Seminar on November 7, 2024.

North Central NEBB

Ashley Lang, Chapter Coordinator

The North Central NEBB Recertification Seminar was held on Thursday, October 10th at the Doubletree in Roseville, MN. We had 50 attendees, 5 speakers, and 6 vendors.

Florida EBB Chapter

Terry Wichlenski, Chapter Coordinator

The Florida EBB Annual Business Meeting and Recertification Seminar will take place May 8 - 9, 2025 at The Margaritaville Resort Orlando, FL. For details and registration, please contact our FEBB Chapter Coordinator at: febbchapter@nebb.org.

We are working on our TAB Practical Test Dates for 2025 and will have them listed on NEBB's website shortly. Please note when we have at least two candidates and one of our exam sites available, we can accommodate you. Contact our Chapter Coordinator, Terry, at 727-240-4254 or febbchapter@nebb.org.

MAEBA Chapter

Trish Casey, Chapter Coordinator

The MAEBA chapter held its annual recertification seminar in September at the Tropicana Casino and Resort in Atlantic City, NJ. After the MAEBA business meeting, Greg Wharton, SMCA Safety Director gave a safety presentation followed up by an update on NEBB National by NEBB Board of Director turned NEBB President Michael Kelly.

The following topics were presented during the seminar: In-Depth Chapter Review of Instrumentation, Firm Recertification Selection, and Personal CEC Submission.

James Barrett and Seth LaPorta of Phoenix Controls presented on New Field Calibration App Introduction, followed by a Vendor Interaction Session. TJ Lyle from Greenheck presented on Stair and Lift Pressurization, Laboratory and Fume Exhaust Systems and Control. NEBB Technical Director Jeff Schools and MAEBA Technical Committee Chairman Dave Wood led the FAQ Session.

Mid-South EBB (MEBB) Chapter

Ginger Slaick, Chapter Coordinator/Executive Vice President

MidSouth EBB held its Recertification Seminar and Vendor Expo in Atlanta, GA September 13-15, 2024. Highlighted as one of MidSouth's best seminars yet,

A group of attendees with Stanton Stafford at ASHRAE headquarters.

the event began with a tour of ASHRAE's headquarters including a presentation on Replicable, Net Zero Energy Retrofits in Hot, Humid Climates by Stanton Stafford, a partner and mechanical engineer with Buro Happold's Atlanta office and LEED Fellow. Stafford served on the design team for the ASHRAE renovation.

We kicked off Saturday's technical sessions with a field trip to the Kendeda Building for Innovative Sustainable Design where we divided into groups for interactive presentation and a tour of the Living Lab. The Kendeda Building is the first building in Georgia and 28th in the world to earn Living Building Challenge (LBC) certification, the world's most ambitious and holistic green building achievement. The building is net-positive energy and water over the course of each year. The building's mission is to prove that we can design, construct, and operate regenerative buildings in our region.

The technical sessions continued Saturday afternoon with Highly Efficient Motor Technologies by Greg Allen with Greenheck, Testing Building Enclosures for Air Tightness by Sam Myers with Retrotec, and On the Job Safety by Rob Walden with SMART Safety Group. To finish out the technical sessions Sunday morning, we were honored to have 2024 NEBB President Luis Chinchilla present Artificial Intelligence and NEBB. Following his technical presentation, President Chinchilla provided an informative update on NEBB.

A vital part of the event was the Vendor Expo. An attendee favorite, the expo provided an opportunity to network with vendors and to learn about the latest industry technology. A special thanks to Instruments Direct, Ameritech, Retrotec, Evergreen Telemetry, TSI, and Building Start for their continued support of this annual event. Attendees are encouraged to share real-life issues they are encountering on projects so vendors can pass the information on to their research and development teams for upgrades, and new products, instruments, and software.

Each year attendance at the Recertification Seminar & Vendor Expo increases and our reach to local design engineers improves. This year was no different with an attendance of over 125 CPs, CTs, design engineers, speakers, vendors, and spouses. While we always strive to improve the event year after year, and we look to advance our reach to local design engineers and firms, let us also be mindful of the next generation with whom we should be sharing all this industry has to offer. With that, please meet Scott James Moore, Jr. better known as SJ. He is the son of Scott and Shelley Moore, both of whom are NEBB CPs. Dressed in his NEBB polo, SJ eagerly attended the field trip to the Kendeda Building, as well as several other technical sessions where he was intently focused on the speaker and the content being presented. NEBB's future is bright!


Luis Chinchilla and SJ.

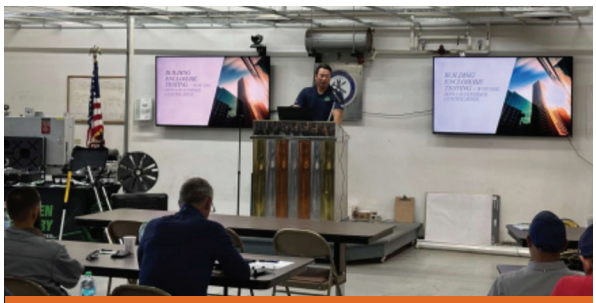
Rocky Mountain NEBB

Shandre Guy, Chapter Coordinator

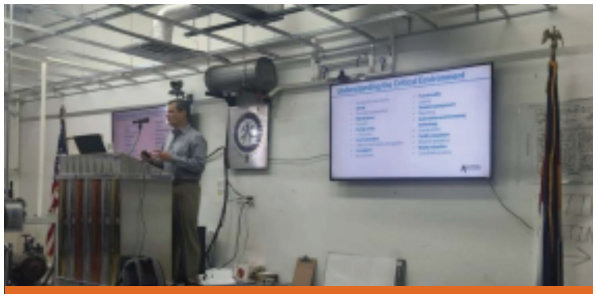
Rocky Mountain NEBB (RMNEBB) held its 50th Annual Recertification Seminar and Chapter Business Meeting on September 27, 2024 at the Colorado Sheet Metal Workers' Joint Apprenticeship & Training Center in Denver, CO.

RMNEBB would like to congratulate our 2024 Officers and Board of Directors: Kevin Shaw, President (Elite Balancing); Joshua Uncapher, Vice President (TAB Services); Brian Sharkey, Secretary/Treasurer (Airadigm Solutions); Tim McLean, Technical Com-

Mike Peak provided the NEBB National Board of Directors Update and a training session on Building Enclosure Testing, called "Reasons Why You Should Consider Certification."



Mark Labac with Edge Mechanical gave a training session on "Technology of Airflows," covering the different technologies on airflow, laboratory, and fume hoods controls regarding test and balance activities.



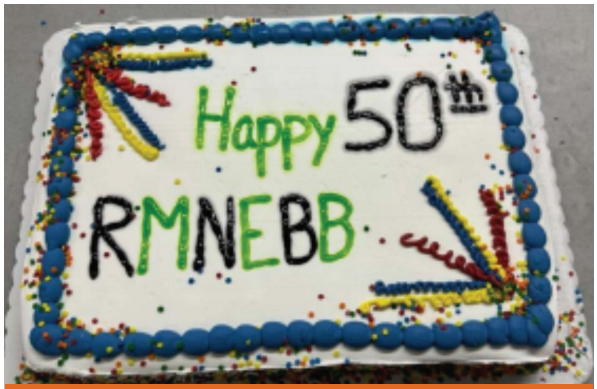
Russell Taylor with Ameritech provided a training session on "Office Management," including preparing and tracking bids, estimates, and awarding through completion.

mittee Chair (Precision Test & Balance); Stuart McGregor, Immediate Past President (Engineering Dynamics); Larry Bartley, Director and Past President (B & B Balancing); Ron Matthews, Director (Precision Test & Balance); Donald Pittser, Director and Past President (JEDI Balancing); and Joe Marshall, Director (Lawrence H. Finn & Associates).

RMNEBB Vice President Joshua Uncapher (TAB Services) started the conference welcoming RMNEBB Chapter Coordinator Shandre Guy and the membership, discussing this past year. Mr. Uncapher continued with the business meeting, covering 2024 topics such as the 50-year celebration of the RMNEBB Articles of Incorporation dated December 21, 1973. RMNEBB sent its Chapter President, TCC, and Coordinator to the 2024 NEBB National Conference in Phoenix, AZ. They were joined by RM NEBB Board of Directors Donald Pittser (JEDI Balancing), NEBB Board of Director, NEBB TAB Committee Chairman, and Brian Sharkey (Airadigm Solutions), NEBB TAB Committee Member. Mr. Sharkey discussed the TAB Certified Technician CT Seminar where he was one of the two TAB Instructors in Phoenix. Also attending was Stuart McGregor (Engineering Dynamics), RMNEBB Board of Directors, NEBB Sound & Vibration Committee member and Past Chairman. RMNEBB congratulates Mr. McGregor for volunteering on the NEBB Sound and Vibration Committee since 1995, serving NEBB over the last 29 years.

Josh Uncapher (TAB Services), RMNEBB Vice President discussed the RMNEBB Practical TAB Lab updating and future Practical Exam schedules. Anthony Kocurek (Energy Balance & Integration) RMNEBB member and Past National SMACNA President was introduced to Mike Peak, NEBB Board of Director, and NEBB BET Committee Chairman. Mr. Peak provided a great presentation on behalf of the NEBB Board of Directors and enjoyed our Colorado hospitality.

RMNEBB conducted 2024 Annual Seminar refresher courses for the Continuing Education of NEBB Certified Professionals and NEBB Certified Technicians. Scott Fielder with Evergreen Telemetry held a training session on "Limitations of Passive Flow Hoods" assisted by Toni Angres.



RMNEBB celebrated its 50th year anniversary with a special cake.

Evergreen Telemetry sponsored the conference lunch and provided a vendor's giveaway worth $3,000.

Russell Taylor with Ameritech awarded a $1,200 certificate to Curtis Tunick with Double T Balancing Company.

NEBB's policy requiring a NEBB Certified Professional or NEBB Certified Technician onsite each day TAB is being performed on NEBB Certified Report projects, has been in place since January 1, 2012. RMNEBB continues to provide the needed technical training for Continuing Education Credits (CECs) for annual recertification. Our Recertification Seminar attendees earned 6.5 NEBB-approved CECs.

Evergreen Telemetry sponsored the conference lunch and provided a vendor's giveaway worth $3,000. Evergreen Telemetry also donated over $12,000 to the Colorado SMART Union JATC TAB Training facility, which will be used to teach the future TAB technicians and professionals in the Rocky Mountain Region. ●

General view of attendees to RMNEBB's Recertification Seminar.

AHR®

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