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SMAC NEWS

Cleveland's JATC: Next Level Collaboration



CONTENTS

Vol 56 No. 1

Features

10
**Cleveland's JATC:
Next Level Collaboration**

16
**Elevating Comfort
Through Code Expertise**

Sectors

02 Architectural
A Copper Revival

04 HVAC
Closing the Door
on Never-ending
Project Close-outs

06 Industrial
Mastering Demanding
Ductwork

08 Residential
HRVs and ERVs Deserve
Some R-E-S-P-E-C-T

Columns

22 Leadership
Create a Culture of Trust to
Empower Your Employees

23 Financial Stewardship
Learning from the Past to
Prepare For The Future

24 Technology
3 Ways the Right Technology
Makes VDC and BIM
Managers' Lives Easier



CAPITOL HILL UPDATE

The Path Ahead: The Second Session of the 117th Congress Opportunities Abound for the Industry

In the second session of the 117th Congress, SMACNA's Capitol Hill office will be working to build on the many important wins from 2021. However, Democrats have the narrowest possible margins in both the Senate and House, and, historically, bipartisan agreement is hard to come by in an election year. So, the year ahead will require challenging work and strategy to achieve our objectives and will require SMACNA member and chapter engagement.

SMACNA plans to focus on the committees of jurisdiction for our issues and to watch legislative vehicles moving toward passage to which our initiatives can be added and passed. SMACNA also intends to work with the Biden Administration on regulatory policy that will bene-

fit SMACNA members and feels optimistic the Administration will move forward on top industry priorities in the year ahead.

Our regulatory efforts for 2022 will focus on upgrade of prevailing wage rules, promotion of registered apprenticeship programs, stronger independent contractor enforcement and on federal energy efficiency retrofits, all beneficial to the union sector of the industry.

SMACNA is also optimistic about selected legislative policy gains. Many of SMACNA's 2021 priorities, including expanded energy policy, military infrastructure, tax extenders, and pension reform exhibited momentum with the potential for advancement this year. Some are on track for floor votes this

spring or summer.

There is growing support for tax incentives and reforms benefitting the HVAC market, with hundreds of billions of bipartisan tax incentives/grant programs included in the Build Back Better (BBB) package. While there is clear debate on if a big package can pass or whether to pursue more popular initiatives piecemeal, much of the funds in the proposal are directed to boost SMACNA contractors on private and public projects. We know Senate and House leaders are seriously considering a "retooled" BBB package.

So, there is hard work ahead of us but with coalition, industry, and individual effort, much can be done to have a successful year and benefit our member-





FROM THE PRESIDENT

Al LaBella

ship. Time is short but opportunities abound for SMACNA.

2022 Legislative Priorities: Energy Efficiency Policy & Tax Incentives in Build Back Better

To a low carbon, energy efficient residential, commercial, public, and industrial building sector, the package is expected to include comprehensive efficiency tax incentives and simplification for energy efficiency construction, building codes and retrofits. It is expected to include a requirement for prevailing wage and utilization of registered apprentices, which would help address the industry's need to attract new workers and retain a highly trained workforce.

It also includes some important and creative efforts toward improving construction quality for commercial, residential, and industrial CHP systems. For example:

- \$6.25 billion home electrification program
- \$6.25 billion home energy efficiency program
- \$500 million critical facility modernization program
- \$300 million grant program to help states and municipalities adopt the latest building codes, as well as zero-energy building codes.
- Extension of existing tax credits for efficient construction and retrofits, wind, and solar projects, allowing project owners to receive direct payment for investments

- rather than a tax credit
- Enhance 179D Rehab Incentive

The Main Street Efficiency Act to Boost Small Business Efficiency

(H.R. 4903 and S. 2665). To kickstart business energy efficiency retrofits for substantial energy savings to small businesses.

“Manufacturing Clean Energy and Energy Efficiency Act” to Boost Industrial Efficiency

(S. 1956) To enhance national industrial competitiveness, would help America's manufacturers become more energy efficient and productive by boosting energy retrofits, offering technical assistance to small and medium-sized manufacturers.

The Safe Banking Act

(S. 910 / H.R. 1996) Would allow banks, credit unions, and other financial institutions to offer banking services to legally operating cannabis businesses and their contracting allies without fear of punishment by federal regulators.

Multiemployer Pension Plans

Unrelated to the “bailout” legislation in 2021, a different bipartisan pension bill, Secure Act 2.0, is considered a potential vehicle for authorizing some type of variable benefit plan for multi-employer plans. ▼

The Future of Training Centers is Bright

We all know our training centers offer apprentices the opportunity to learn new skills and techniques in a classroom setting augmented by time in the contractor's shop and/or field. It's a powerful example of a Registered Apprenticeship Program in motion. And, when done to the best of our abilities, the graduating apprentices are highly skilled and eager to start the rest of their careers.

In this issue of *SMACNews*, we feature a special JATC training center just outside Cleveland in Parma, Ohio, that stands out and should be a model for other JATCs across the United States and Canada. This training center used to be an average sheet metal apprenticeship school. Now, it has transformed itself into a cutting-edge teaching environment offering the latest and greatest technologies on which to learn. It has even entered into a partnership with Cuyahoga Community College, where trainees can earn credits towards an associate degree.

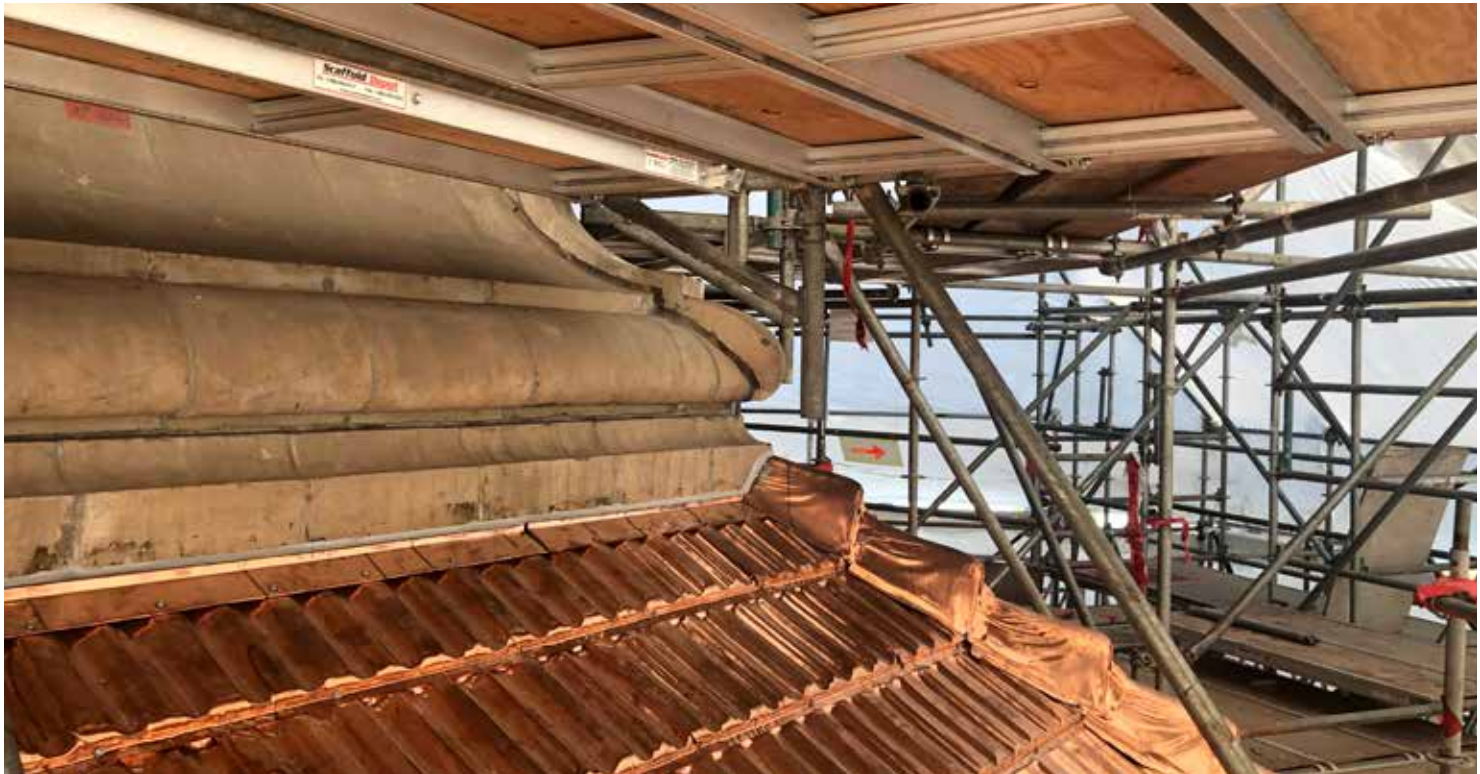
What's the secret to elevating a training center to this level? A fully committed JATC that makes it a point to invest in new technology that reflects the future of construction work, such as virtual-reality technology for welding. Another secret is constantly reviewing the curriculum to keep it relevant and current with today's businesses and job sites.

When JATCs provide the best training resources, they become a powerful recruitment tool for the trade, helping retain apprentices and increasing the skills they acquire prior to graduating. Forward-thinking JATCs, like the Cleveland JATC covered in this issue, take recruitment a step further by connecting the training center with their surrounding communities.

One creative approach to engaging the community is the idea of hosting a camp designed to expose high schoolers in underserved communities to a sheet metal business. This would provide an opportunity for students to test out the trade by providing a place where they can use their hands to build simple projects and get a good feel for what a career in the industry is like. Angie Simon, SMACNA's past president, created a “playbook” to make running these camps simpler and easier for contractors and training centers to host. To find out more about the camp, visit: www.smacna.org/be-involved/communities/camps. ▼

Sincerely,

Al LaBella, SMACNA President



A Copper Revival

Fabricating copper shingles helps to revive an historical dome in Vancouver.

Heather and Little Limited of Toronto recently dominated the annual North American Copper in Architecture (NACIA) competition, winning three of the twelve awards presented by the Copper Development Association.

The award-winning projects were the copper-cladded dome of Christ Chapel at Hillsdale College in Michigan; three sets of bronze-cladded 12-foot-high doors for the Brighton Division Municipal Courthouse in Boston; and the Sun Tower Dome Envelope Seismic Stabilization project in Vancouver, British Columbia.

A sustainable and timeless material, copper is certainly enjoying a revival in recent years in new and restored buildings. As such, the Copper Development Association established the NACIA awards program in 2008 to recognize copper work in the U.S. and Canada.

The two copper projects in the States were supply only. Heather and Little acted as a subcontractor for the U.S. contractors that did the actual installation. “We work

across North America,” says Mike Papania, executive vice president of operations for Heather and Little. “We have two locations, with a fabrication shop and office in Toronto as well as a shop and office in Ottawa, Ontario. Right now, we’re working on one of the largest heritage projects in Canadian history, which is the Centre Block on Parliament Hill in Ottawa.”

RESTORING A COPPER DOME

The most demanding project to win a CDA award was the 17-story, 269-foot-high Sun Tower, a notable landmark in Vancouver since 1912. The Sun Tower was originally topped with terracotta tiles that had been painted green. “People in Vancouver always referred to that building roof as copper,” says Papania. “It wasn’t copper at all, but everybody thought it was.”

When the terracotta tiles deteriorated, actual copper was the most cost-effective replacement. “The Sun Tower dome required engineered scaffold to access,” Papania explains. “When they put up the scaffold for a project like that, the cost is significant. They want to use a material that will last, because it costs so much to get back up there.”

Heather and Little was the natural choice for the restoration because they have specialized in copper since 1925. “We’ve been in business for 96 years. The contractor asked if we could reproduce the existing terracotta shingles using copper material to match. We fabricated the

A SUSTAINABLE AND TIMELESS MATERIAL, COPPER IS CERTAINLY ENJOYING A REVIVAL IN RECENT YEARS IN NEW AND RESTORED BUILDINGS.



LEFT and FAR LEFT: The Sun Tower is a Vancouver landmark that's been around since 1912. Originally topped with terracotta tiles that were painted green, everyone thought they were made of copper. As the terracotta tiles deteriorated, copper was the most cost-effective, long-lasting replacement.

UP FOR THE CHALLENGE

The distances in Canada would daunt most contractors. The Sun Tower project started with a five-hour flight to study the site. But with nearly 100 years of experience, Papania says, "setting up a job in Vancouver is not really a challenge for us." They shipped the fabricated pieces 2,725 miles to Vancouver and flew a team of four coppersmiths to the site for installation. "They were up there for

copper shingles from our Toronto location and went out to Vancouver to install it."

Heather and Little used samples of the original tiles to create the mold that reproduced the terracotta profile. "That's a heritage building, so everything has to be exact," says Papania. "We stamped each shingle individually in copper. One challenge was designing the shingles to accommodate the curve of the dome. Each tile curves in both directions, but copper is soft enough to take on the shape we required."

The team used 20,000 pounds of 20-ounce, 99.9 percent unalloyed copper to replicate 4,580 existing terracotta shingles for the Sun Tower. The stamped shingles are 12 inches wide by 33 inches long and 1.5 inches thick. Heather and Little also provided the custom stainless-steel grids, on which the standing seam copper roof rests. "The dome is copper now and it'll change color in stages," Papania says. "Eventually it will be green again."

about seven months in total."

"Some of these team members have been with our company for over 40 years," Papania says. "We're very fortunate because what we do is so unique. Only a handful of us do this kind of restoration, so the people who work for us are artists. When you find the right ones, they are very passionate about their efforts."

The workforce values the opportunity for artistic expression and the unique training that Heather and Little provides. "We don't have many coming to us with experience. We train them to recreate these heritage reproductions. Our people serve a five-year apprenticeship as sheet metal workers, and we train them as coppersmiths."

Training is continuous, Papania emphasizes. "The majority of our jobs are one-offs," he says. "Our experience doesn't always necessarily help us with our next project because they're all so different." But that experience does give them a chance to tackle new challenges head-on. ▼



LEFT: New Horizons guide
BELOW: Tom Martin Jr.



Closing the Door on Never-ending Project Closeouts

New Horizons guide offers tips on making the process smoother and easier

For Tom Martin Jr., one of the most frustrating experiences in his three-decade career involved a university lab and cleanroom project that seemed to drag on forever.

The president of Cleveland mechanical contractor T.H. Martin Inc. said there were problems getting several components of the laboratory's new HVAC system working properly, including the makeup air, fume hood exhaust and HVAC controls.

"(We had) too much exhaust in one room, not enough air in another," he said. "Our people weren't really sure how these HVAC control systems worked, because we had never really worked with them before."

Solving those problems didn't seem to bring the \$5 million project any closer to completion, however. The general contractor and construction manager were always adding scope changes to the mechanical contractor's to-do list.

"It seemed like there were rounds of punch lists that drove us crazy," he said. "They generate a punch list;

we try to fix (the items on) it. Then as we're working on getting it fixed, here comes another punch list or change request.

"It was just delay, delay, delay," Martin said. "We thought we had everything fixed, everything running right."

PROBLEM PREVENTION

Preventing other SMACNA members from experiencing the frustrations and delays Martin endured is among the goals of an upcoming publication from the New Horizons Foundation, "Effective Project Closeout for HVAC/Sheet Metal Contractors: Successful Practices Guide."

Written by two Clemson University professors with insights drawn from in-depth interviews with 21 SMACNA members, the 28-page guide on streamlining the closeout process is broken down into two parts — one aimed at mechanical contractors and another aimed at sheet metal contractors.

Sections cover common concerns during the closeout and turnover process, such as communication, technology and documentation. It also discusses aids that can make the task easier, such as software.

Martin, a SMACNA national vice president and former board member, was part of the task force that helped draft the guide.

In the case of the lab project, the constantly expanding punch lists delayed its close — and T.H. Martin's payment — by almost three months.

"And it held our retainage for an additional six months," he added.

EXPENSIVE DELAYS

Altogether, Martin said, the long closeout on the project probably cost his company \$50,000. He only budgeted a fifth of that amount for the process.

"As an owner, that drives you nuts," he said. "Planned and efficient project closeouts are so important in our industry."

Martin's experience is far from unique. According to the New Horizons study, "the closeout process tends to linger on way past project completion." Every missed deadline risks delaying final payments, which can be crippling, especially for small and midsize construction firms.

"(Delays) can eat up their profit at the end of the job," Martin said. "If they (contractors) don't look at or tighten up their policies and procedures on closeouts, it could definitely affect their bottom line."

Unfortunately, many sheet metal contractors do not have any standard procedures at all when it comes to closing out projects, if the feedback from participants in the New Horizons study is any guide. Of the seven sheet metal companies interviewed by the Clemson professors, only one said it had a formal closeout process. However, company officials described it as a generic process.

Mechanical contractors surveyed were more likely to have formal closeout procedures. Of the 14 mechanical contracting companies interviewed for the guide, 71% had established procedures.

A COMMON PROBLEM

However, simply having procedures doesn't mean that they're implemented correctly, as the New Horizons guide noted.

Martin agreed.

"It's a big problem in the industry," he said. "Our company, we do \$50 million a year. Our sheet metal-only contractors that do maybe \$5 million a year, they have some of the same problems. And then your national contractors, your huge contractors, they have problems as

PREVENTING OTHER SMACNA MEMBERS FROM EXPERIENCING CLOSEOUT DELAYS IS AMONG THE GOALS OF THE PUBLICATION FROM THE NEW HORIZONS FOUNDATION.

well. Everybody in our industry realizes that they can be more efficient, and they can tighten up their internal policies or procedures on project closeouts. The customer and owner appreciate efficient closeouts and timely turnovers, allowing use of the space."

The guide outlines seven general steps that sheet metal and mechanical contractors should implement to improve the project closeout experience:

Step 1. Identify your key project team participants (project manager, engineer, coordinator, supervisor, etc.) responsible for project closeouts.

Step 2. Review current closeout process protocols and/or structure, if any.

Step 3. Talk to key team members to discover all the different closeout processes used at your company.

Step 4. Compare them to create your company's standard closeout process. See if the standard process differs from the one most used in practice.

Step 5. Compare your standard process to the separate suggested procedures for mechanical contractors and sheet metal contractors.

Step 6. Determine what activities from the model closeout process might be right for your company and its typical projects.

Step 7. Update your existing, or create a documented new closeout process for your firm.

Martin said he endorses the guide's suggestions. At T.H. Martin, they've learned the importance of having key people responsible for ensuring closeouts go smoothly.

"What we've tried to do is identify a savvy veteran journeyman, who has a service background, who can be involved with some of the closeout paperwork, training and actually fix things on site if needed," he said.

Contractors who implement the suggestions in the New Horizons guide may find that in addition to streamlining project turnover, it also makes for happier clients, Martin said.

"By and large, they like the proactive approach and the collaborative approach," he added. "I think it speeds up things, expedites the punch list, correcting the punch list and getting things working per the design, and quicker turnover to the customer."

And that's good for business, he said. ▼



Mastering Demanding Ductwork

Specialized ductwork experience enables Black & McDonald to complete a complex industrial installation

David MacDonald, project manager for Black & McDonald in Scarborough, Ontario, has extensive experience with industrial air handling systems, including removing explosive dust from woodworking facilities.

But a recent industrial project presented him with a challenge he'd never faced before. "We built a fire suppression system inside the fume collection ductwork for this job," MacDonald says. "The ducts are not explosion-proof, but there's a potential buildup of tar, which can catch fire. We tapped holes every 10 feet and inserted sprinkler heads inside the ductwork." The unique system prevents the tar from burning through the duct from the inside out.

IKO Industries Ltd. manufactures asphalt shingles in Canada, the U.S., and Europe. When it was time to enlarge their major Brampton, Ontario plant, IKO trusted Black and McDonald's wholly owned subsidiary, Roberts Onsite, with the millwrighting and mechanical needs for the entire expansion. Roberts Onsite then subcontracted the air movement parts of the contract to Black & McDonald because of their specialized experience with ductwork. The facility includes three air systems, the base building system for heating and cooling, the dust collection system

to control granular dust, and the fume collection system to remove chemical fumes from the workspace.

Besides the need to prevent tar fires inside the ducts, Black & McDonald also prepared the system for the destructive action of sand flowing through the ductwork. "Asphalt shingles are topped with a sand-like material, so the dust collection and air movement systems have to be corrosion resistant," MacDonald explains. "Just imagine the effects of sandpaper going through the duct at all times."

Black & McDonald provided extra-durable duct in 11-gauge steel to compensate for the equivalent of continuous sandblasting. The sheer size and the mass of the material presented installation challenges. "With all of the duct being 11-gauge steel," MacDonald says. "The most unique challenge was getting the very large diameter, heavy gauge duct routed through many interferences to make it look good and function as required."

Each angle was reinforced with quarter inch plate steel, but even plate steel can't stand up to sand forever. "Every time the dust collection ductwork takes any kind of turn, the outside part of the elbow has to be removable so it can be replaced before it wears out," MacDonald says. Black and McDonald installed flatback elbows through-

LEFT (ALL PHOTOS): Extra durable, 11-gauge steel duct was used to endure the continuous effect of sandblasting, which results from asphalt production.



"WE PULLED THE INFORMATION OFF THE PLAN IKO PROVIDED US, THEN USED SMACNA INDUSTRIAL STANDARDS AND OUR AUTOCAD/ BIM TEAM TO GENERATE SPOOLS."

— DAVID MACDONALD

MacDonald explains. "The field team maxed out at four, and a full-time welder and a full-time fabricator worked at the project every day in our shop. We had a small CAD/BIM crew of two and two indirect team members, a project coordinator and me."

IKO's inhouse team designed the systems, and Black & McDonald fabricated all components and duct inhouse. "We pulled the information off the plan IKO provided us, then used SMACNA Industrial Standards

and our AutoCAD/BIM team to generate spools," MacDonald says. "These detailed sections of the ductwork contained all the information we needed. We would send a spool off to the shop, and they built a piece to the correct specifications."

Black & McDonald used the newest technology to design and coordinate the work. "We have all kinds of different software systems," MacDonald says. "We used Procore for the construction management side of things and AutoCAD and Revit modeling with Trimble for the design. The computer team tells me what we need, gives me the information, and we decipher and build it."

This is a huge change from the days when his crew would work problems out on paper, but MacDonald was pleased with the results they were able to deliver. "It worked out really well. We had a super good team on that job." ▼

out the plant. "We don't use these every day. My foreman only used these in one previous project, and he's been around for 30 plus years. The back part of the elbow is a flat piece of metal that you can unbolt while the inner part of the elbow stays in place. When it's worn, you simply unbolt and replace that back plate."

The Brampton, Ontario IKO plant is three stories high with two giant five-story silos behind the building that carry the asphalt material. Black & McDonald installed about 65,000 pounds of round ductwork in the \$100 million, 200,000 square foot facility.

Because the client already had a functioning asphalt shingle manufacturing facility, the project was briefly delayed as a Covid precaution. With delays, the project took over a year to complete, adding that Black & McDonald used some of their most experienced personnel for this demanding, one-off project. "The timeline wasn't condensed down, so we didn't have a big crew,"



HRVs and ERVs deserve some R-E-S-P-E-C-T

Residential HVAC contractors are missing out on the high performance and profits the technology offers, manufacturers say

In the alphabet soup of industry terms that residential contractors discuss with homeowners — HVAC, IAQ, Btu, etc. There's at least a couple that don't come up as often as others: ERV and HRV.

That's according to the makers of energy recovery ventilators (ERVs) and heat recovery ventilators (HRVs), mechanical systems that can save energy on heating and cooling loads, improve air quality and lower homeowners' utility bills year-round.

Many air quality experts say such systems are essential in modern construction. While homes today are more energy efficient because they are built extremely "tight," most lack the natural ventilation of homes built in decades past. Spending hours in these "tight" indoor environments can lead to comfort complaints as well as symptoms of so-called sick building syndrome.

ERVs and HRVs can solve many of those issues, manufacturers say, since they ensure that "tight" structures can remain that way while also having the airflow they need to maintain comfort and increase the air exchange rate.

And for residential HVAC contractors, they offer excel-

lent profit potential, whether sold with a new furnace and air-conditioning system, or installed as a retrofit with an existing unit.

HOW THEY WORK

HRVs work by capturing much of the heat that's retained in system air being exhausted and preheating the fresh outdoor air entering the system. The result is a boost in the energy efficiency of HVAC systems. ERVs also capture and transfer moisture as needed. That means they precool and dehumidify during summer and preheat and humidify in colder seasons.

The result is a home that is able to maintain ideal relative humidity levels of around 30% to 50%, depending on the season, and comfortable occupants.

Unfortunately, the advantages of such systems are not always conveyed to builders or homeowners, said Nick Agopian, the vice president of sales and marketing with RenewAire, a Madison, Wis.-based manufacturer of ERVs.

"Contractors should think about the point of sale for ERVs and HRVs when a contractor is in a person's home,



FAR LEFT and MIDDLE: ERV and HRV units can help keep humidity levels between 30% to 50%, depending on the season.

RIGHT: Matt Finch, Welch Heating

looking for an upgrade or changing the system or even working with the builder, Agopian said. That contractor should see the opportunity to sell the ERV option at that point. ...

They can't go back to the homeowner and say, 'Oh, by the way, do you want to buy an ERV?' It doesn't work."

Agopian is an expert in building systems, having studied mechanical engineering in Montreal. He's also a board member with the Home Ventilating Institute (HVI), and a voting member for ASHRAE committees 62.1 and 62.2, which deal with indoor air quality standards.

U.S. LAGS OTHER NATIONS

He pointed out that the U.S. is behind other countries in embracing ERV and HRV technology. For example, in Canada, such equipment is often required by local or provincial building codes.

While that's not the case in the U.S., Agopian said some states, such as Vermont, do offer rebates to homeowners who install the equipment.

"What we recommend is that contractors follow SMACNA guidelines across the board," he said. "Length of duct, static pressure in the duct, should the duct be insulated because it's handling outdoor air. Simply follow the SMACNA guidelines."

And in the case of ERVs, they offer a lot of flexibility, he added. "You can install it upside down. You can install it on an angle. You can install it right-side up," Agopian said. "You can install it in any orientation you want, because there are no drain pans."

HIGHLY PROFITABLE

Agopian pointed out another reason he recommends the technology to consumers: profits. For residential HVAC contractors, few pieces of equipment are as lucrative as ERVs, he said.

"It's extremely profitable. They can make as much mar-

gin on this one component as they probably do on the entire furnace and air conditioner," he said.

Welsch Heating & Cooling Co. has long sold ERVs from brands such as Panasonic, Trane, Lennox and Fantech. They've installed the units in million-dollar homes as well as in Habitat for Humanity projects that are more modest but require Energy Star certification.

However, Matt Finch, a vice president at Welsch, said the St. Louis residential contractor doesn't recommend them to a lot of homeowners, only putting in about 25 energy recovery ventilators per year, he said.

Finch said the company finds that other means of ensuring fresh air, such as using ventilating dehumidifiers, are a better fit in the humid Missouri climate. "We do a lot of the ventilating dehumidifiers," he said, adding that builders prefer that technology in his area.

Like an HVAC system, ERVs and HRVs must be properly sized for where they're going to be installed. Timin Musallam, a RenewAire product manager, said the formula for determining the right ERV or HRV is based on ASHRAE's IAQ standard 62.2. However, Musallam added, those calculations might be different depending on the homeowner's ventilation goals. "It's important to note that the ASHRAE standards only specify the minimum rates, and that it may be prudent to look at increased ventilation rates depending on the customer's need," Musallam said. And fighting airborne viruses such as SARS-Co-V2, the coronavirus that causes COVID-19, is one reason why many homeowners are more interested now in indoor air quality than ever before.

PANDEMIC HAS INCREASED INTEREST

The COVID-19 pandemic has focused attention on IAQ in home environments, Agopian said. Balanced ventilation, high-quality filters such as MERV-13 and greater emphasis on disinfection all work to reduce the risk of coronavirus and other airborne viruses. ERVs can help boost a homeowner's defense system.

"The pandemic has been devastating for a lot of people," he said. "But the pandemic has also shown us that the buildings we live in can be potentially susceptible to adverse situations. Building systems really need to be resilient and a protection for us. And that's opened our eyes to what we have to do inside buildings. ... If you're looking at all cognizant authorities, they're all recommending increased ventilation. The United States has by far one of the lowest ventilating standards of homes among most developed countries in the world."

That's something that the HVAC industry, with a focus on technology such as ERVs and HRVs, can help change, Agopian said. ▼





COVER STORY

Cleveland's JATC: Next Level Collaboration

**An ideal labor management partnership
boosts JATC best practices**

Joint apprenticeship and training committees, more commonly known as JATCs, are nothing new for the sheet metal industry. For decades, tradespeople have relied on them for training and continuing education.

Over time, however, JATCs have grown more sophisticated. To help workers stay on the leading edge of best practices in the construction sector, administrators are beefing them up with new technology and training.

A partnership between the local chapter of SMACNA and the Sheet Metal, Air, Rail and Transportation (SMART) Local #33 union has produced a top-notch JATC training center in Cleveland, Ohio. A closer look offers an example of how stakeholders can maximize the benefits of these training centers to help the entire sheet metal sector in a market thrive.

“There are many labor management organizations in the sheet metal industry that are extremely jealous of our strong relationship between labor and management here in the city of Cleveland,” remarked John E. Sickle, president of Cleveland-based Duct Fabricators Inc. and co-chair of

shop fabrication and lab space. The JATC moved out of its old facility in downtown Cleveland and into the current one in the suburb of Parma, Ohio, in the early 2000s. “At that time, we went from just a standard sheet metal apprenticeship school atmosphere of learning the trade to teaching the latest and great-

“THERE ARE MANY LABOR MANAGEMENT ORGANIZATIONS IN THE SHEET METAL INDUSTRY THAT ARE EXTREMELY JEALOUS OF OUR STRONG RELATIONSHIP BETWEEN LABOR AND MANAGEMENT HERE IN THE CITY OF CLEVELAND.” – JOHN E. SICKLE

the management side of JATC leadership. “This is a labor-management collaboration to better our industry and better our contractors and better our union employees,” SMACNA Cleveland President Tom Martin says.

LEVELING UP

The SMART Local 33 Cleveland Training Center contains 32,000 square feet of classrooms and

est technology that is available to an individual to not only learn the HVAC and sheet metal trade, but to become the best possible journey person that’s available,” says Sickle.

Enrollees in the union’s program attend classes and workshops there as part of a five-year apprenticeship. Each class of apprentices includes approximately 20 people, so there



*LEFT & ABOVE:
Cleveland training center TABB Lab*



are typically between 100 and 120 apprentices overall enrolled in the five-year program at a given time.

The application process is open to anyone who is at least 17 years old and holds a high school diploma or GED. Applicants must take a standardized test to receive an interview. Workers get paid in the process of completing the apprenticeship, and they owe no tuition once they’ve completed the program. Through a partnership with Cuyahoga Community College, trainees can even earn credits towards an associates’ degree.



Jack May of Aberdeen Mechanical, Inc., Paul Maitino of Qual-Air HVAC, Inc., Michelle Maitino of Qual-Air, John Sindyla CEO SMACNA-Cleveland, US Congresswoman Shontel Brown, John Sickle of Duct Fabricators, Inc., Rob Schimmelpfennig of HAVE, Inc., Craig Berman of Geauga Mechanical, Trevor Cost of Warren Roofing & Insulating, Dan Findley, Business Agent SMART 33, Hank Strahan Business Agent SMART at a Tour of the Training Center on 8/23/21

In addition to welding and metal fabrication courses offered at the facility, the Cleveland JATC also includes computer-aided drafting and manufacturing, architectural sheet metal and project management. Martin, who has been a member of the Cleveland JATC for more than 10 years, says the committee makes a point of investing in equipment that reflects the future of construction work, such as virtual-reality technology for welding.

"We are always looking at revamping the curriculum on a year-to-year basis," Martin says.

"We're very proactive in identifying future trends in our industry and then making adjustments to the curriculum."

The daytime curriculum at the Cleveland JATC is taught four times per year at one-week intervals of 40 hours, adding up to a total of 160 hours of classroom

and shop instruction per year. The day classes generally consist of sheet metal fabrication and installation for HVAC and architectural applications, as well as detailing and CAD and mathematics. The night curriculum includes six to eight classes for three hours per class, sprinkled



John Sindyla, CEO SMACNA-Cleveland, Bobby Ina - SMACNA-Cleveland Political Consultant, SMART 33 Business Manager Mike Coleman, Ohio Lieutenant Governor Jon Husted, SMART 24 Business Manager Rodney French, SMART 33 Financial Secretary Tom Wiant and Tom Martin, SMACNA-Cleveland President and TH Martin, Inc. President

“WE ALWAYS TELL THE JOURNEY PERSON, ‘BESIDES THE TOOLS IN YOUR POUCH, YOU WANT TO MAKE YOURSELF THE TOOL THAT’S NOT ONLY VITAL TO THE CONTRACTOR, BUT TO YOUR COMMUNITY AND TO YOUR UNION,’” – JOHN E. SICKLE

throughout the year. The night classes typically cover safety, infectious control risk assessment, welding and HVAC services.

In addition to schooling new trainees, Journey person workers can come to the Cleveland JATC for retraining and learning new skills. Sickle points out that the JATC has grown from focusing strictly on sheet metal duct work to installing HVAC units to servicing and maintaining the HVAC units. The center’s TAB Lab includes a mock-up with air handler units, duct work, exhaust fans, safety features

and more.

“We always tell the journey person, ‘Besides the tools in your pouch, you want to make yourself the tool that’s not only vital to the contractor, but to your community and to your union,’” Sickle says.

A MODEL OF COLLABORATION

John Sindyla, CEO of SMACNA Cleveland, serves as an alternate trustee for the Cleveland JATC. Sindyla says he looks at the training center as a powerful tool to educate policymakers about

the realities of the work attendees do there and on the job. SMACNA Cleveland has hosted prominent politicians from both sides of the aisle for tours of the training center. Sindyla says he has yet to hear any criticism from the high-profile visitors.

“They’re extremely impressed because every single thing in that facility is paid for by money from both of our organizations and donations of equipment from our associate members, vendors, and suppliers,” Sindyla notes. “So there’s not one dollar coming from federal, state or local entities.”

According to Sickle, the objective of taking prominent figures such as U.S. Senator Sherrod Brown of Ohio and Ohio Governor Mike DeWine on tours of the training center is to give them a true-to-life picture of what the apprentices

are learning and what their jobs entail. “We take pride in the fact that we put a quality product out there,” Sickle says. “This contributes to good, quality craftsmanship and craftspeople.”

The JATC also gives stakeholders in the industry a powerful recruitment tool. Relationships with area vocational schools enable the union to bring in students from local high schools to tour the facility. Additionally, the training centers are used to recruit military veterans into the industry. Martin also emphasizes the role that the Cleveland JATC can play in grooming new leaders to step into roles now being vacated due to retirement. Meanwhile, Sickle points out that other associations and trade groups visit

the center to take notes on how it is set up and equipped.

The Cleveland training center is funded by contributions from contractors and union dues. Representatives of both contractors and laborers work together to decide how best to allocate those resources within the center.

Sindyla praises the endeavor as a model of collaboration between the labor and management sides of the construction industry.

“People see labor and management as Godzilla versus King Kong, and it’s exactly the opposite here in Cleveland,” Sindyla remarks. “This JATC is a perfect example of what a partnership between labor and management should be.” ▼

Virtual welding machine



“THIS JATC IS A PERFECT EXAMPLE OF WHAT A PARTNERSHIP BETWEEN LABOR AND MANAGEMENT SHOULD BE.”

— JOHN SINDYLA



ELEVATING COMFORT THROUGH CODE EXPERTISE

New Energy Code requirements don't slow down progressive, Washington-state-based UMC Inc.

C403.3.5 Dedicated outdoor air systems (DOAS). For buildings [with certain occupancy classifications], outdoor air shall be provided to each occupied space by a dedicated outdoor air system (DOAS) which delivers 100 percent outdoor air without requiring operation of the heating and cooling system fans for ventilation air delivery.

In some states, this new energy code requirement would create an uproar among HVAC contractors, but not in the state of Washington. Washington is known to have some of the most progressive energy efficiency building codes in the country. So, when the final version of the 2018 energy code included a requirement for DOAS, SMACNA firms like Mukilteo, Washington-based UMC were prepared.

Typical DOAS unit serving a single floor of the building.



ABOVE: A DOAS system uses a ventilation supply air fan and an exhaust/relief air fan. A heat exchanger between the two airstreams helps temper outside air to a neutral temperature.

“As a design-build contractor with in-house engineering capabilities, UMC is actively involved in helping shape the direction of energy codes in our area,” said Peter Boileau, UMC project executive/senior project manager. “Knowledge of not only what current energy code requirements are, but where future code requirements are going, is critical to advising our customers on the right HVAC system selections for their projects.”

Energy code expertise has been important to UMC’s work on a new 42-story building at 555 108th Street, NE, Bellevue, Washington — a suburban city seeing dramatic growth. When

complete in 2023, the 600-foot office tower will be the tallest building by 150 feet in this high-tech city. Designed for occupancy by a single high-tech company, the building will be LEED certified and will also feature tailored systems designed to allow employees to do their best work in comfortable environments. DOAS systems will enable building users to experience the fresh, natural breeze of outside air.

“Our Bellevue office tower project was especially interesting in that the building qualified for the earlier 2015 energy code that did not require DOAS,” Boileau said. “With our help the

RIGHT: At nearly one million square feet and 600-feet-tall, the 555 tower is the first high-rise built under Bellevue's new zoning for taller building heights. With 42 stories above grade and 980,000 square feet of shell and core office space, UMC is providing HVAC and plumbing design-build preconstruction and construction services, including detailing and coordination, manufacturing, garage systems, and a 2,000-ton capacity central cooling plant.

Rendering courtesy of NBBJ



developer decided to build a code-forward building incorporating DOAS as they believed it would attract long-term 'green' tenants, and they were right."

According to Boileau, one DOAS unit will be installed on each floor of the Bellevue tower. A DOAS system typically provides a ventilation supply air fan and an exhaust/relief air fan, with a heat exchanger between the two airstreams to temper outside air to a neutral temperature of around 70 degrees F. The units on the 555 108th Street project are sized to provide minimum code required ventilation per floor occupant, plus 30% extra capacity to provide increased outside air 'flushing' if needed. The installed DOAS units supply outside air for ventilation, exhaust for the building restrooms and relief air to maintain building pressurization requirements. The energy recovery heat exchanger pre-heats outside air in the winter and pre-cools it in the summer, which means no new energy is required to handle ventilation loads in the building, a significant reduction in energy use. DOAS units can be incorporated into smoke control/life safety systems if appropriate for life safety code compliance on high-rise buildings. They can also be used to offset high-rise "stack effect" in tall buildings located in cold climate regions, a strategy that was used in the 555 108th Street project.

The 555 108th Street devel-

AS A DESIGN-BUILD CONTRACTOR WITH IN-HOUSE ENGINEERING CAPABILITIES, UMC IS ACTIVELY INVOLVED IN HELPING SHAPE THE DIRECTION OF ENERGY CODES IN OUR AREA.

“USING DOAS IN YOUR BUILDING DECOUPLES THE VENTILATION SYSTEM FROM THE THERMAL COMFORT SYSTEM, WHICH MAINTAINS INDOOR TEMPERATURES. DOAS SYSTEMS CAN, HOWEVER, ASSIST CERTAIN THERMAL COMFORT SYSTEMS DEPENDING ON THE SYSTEM SELECTED.”

— PETER BOILEAU



is provided by electric resistance coils, with no heating required for interior spaces which is typical of buildings of this type constructed in Western Washington.

“Using DOAS on your building decouples the ventilation system from the thermal comfort system which maintains indoor temperatures,” Boileau explained. “DOAS systems can, however, assist certain thermal comfort systems depending on the system selected. An example of this is the use of chilled beams or sensible-cooling only VAV systems. Since these systems cannot remove latent heat from the spaces they serve, the DOAS unit can be used to do this utilizing heat recovery and in some cases with additional pre-cooling coils to absorb latent heat and humidity as needed.

opment consists of a 5-story underground parking garage, a 42-story tower, and a retail/restaurant pavilion sharing a common outdoor plaza space. The mechanical system includes a 2,000-ton central plant which provides cooling to a distributed fan coil system. Perimeter heat

Boileau said Washington’s target is to reduce energy consumption on new residential and commercial buildings from 2006 code levels by 70% by 2031. This ambitious goal means an average of a 14% reduction for each code update compared to the previous code’s requirements to

RIGHT: DOAS systems help limit the use of overall fan motor energy use.

meet the 70% energy reduction target.

"In our state, we have optimized envelope, lighting systems and equipment efficiencies to reduce energy," he continued. "A current focus is to limit the use of large, central fan systems to reduce overall fan motor energy use. This lines up with the increased use of DOAS and small/distributed thermal comfort systems we are currently seeing in our market."

"Where states do not subscribe to progressive energy codes, contractors are probably not installing DOAS because first costs are typically higher than traditional systems," said Boileau.

UMC President Steve Brooks agrees with this statement and believes this is a unique market. "Developers are spending more to comply with codes that reduce energy use and the carbon footprint of a building. Tenants want to be in a building that shares these goals."

The future of energy codes in Washington State could include the elimination of both natural gas and electric resistance for heating buildings. Refrigerant based systems, including heat recovery chillers, heat pump boilers, and variable refrigerant flow (VRF) systems will be the 'go-to' systems for future code compliance in the state. ▼





LEADERSHIP

Mike Clancy

Create a Culture of Trust to Empower Your Employees

Employees are your greatest assets, particularly now as we emerge from the COVID-19 pandemic, and there's even more turmoil and turnover across industries. According to data from ADP, the national turnover rate was 6.8% in the third quarter of 2021 with construction coming in slightly lower at 4.4%.

Getting ahead of labor issues will be critical for companies to continue to deliver on projects. It's important for leaders to stop trying to micromanage and instead empower their employees to create better engagement. Here at FMI, we talk about developing peak leaders; those who clearly articulate direction, leverage and align resources to maximize opportunity, and inspire and motivate greatness in others.

It takes time and effort to empower your workers, improve team dynamics and then turn that into better business decisions. Yet, the rewards to your business are worth the investment.

THE PERILS OF MICROMANAGING

Many managers or executives erroneously feel like they need to micromanage employees and their decisions, particularly when it comes to newer workers or when the company is trying to create a culture change. Trying to control or monitor every move, meeting or choice can quickly erode people's sense of ownership and create dissatisfaction.

One of the more costly consequences of micromanaging is employee disengagement. U.S. companies lose as much as \$550 billion each year due to disengaged employees, according to a study by The Conference Board. For every \$10,000 in salary, an unmotivated person can cost a company about \$3,400 in lost productivity.

With only about 36% of employees saying they feel engaged, it's probably time to look at your leadership style and make adjustments. You're likely to see more innovation, better work products, higher profit, and happier customers.

EMPOWERING EMPLOYEES

Understanding that micromanaging isn't productive is one

thing; doing something about it can be a challenge. That's why FMI developed the peak leader model to help executives understand the behaviors required to perform at their highest, or peak, level. Some foundational behaviors of peak leaders include:

- Setting clear direction, which focuses on helping employees understand the why and the purpose behind business decisions. Setting direction encourages employee autonomy to decide how best to respond to the big picture as opposed to giving direction, which outlines a set of tasks. An easy way to start practicing this is to tell employees why a project is important to the business when asking them to do something.
- Aligning resources, such as leveraging employee strengths to match their work or removing obstacles for your employees so they can operate more efficiently, is another characteristic of peak leaders. Creating an environment that aligns resources to help employees achieve their goals increases productivity, and often, motivation. Practice asking your employees: What can I do to support you? What resources can I provide to help accelerate your progress?
- Motivating and inspiring others to perform at their highest levels and rewarding desired outcomes and behaviors is another characteristic. Practice offering more frequent, specific positive feedback to reward your employees and encourage the desired behavior to continue.

Peak leaders also work to identify and develop talent, taking an active role in making sure they have the knowledge and skills needed to continue to grow in their careers. Developing these future leaders will help ensure that your company continues to grow and creates clear career paths. Leaders who take a development approach, leveraging some of the skills mentioned above, will naturally need to step back from micromanaging so employees can learn and grow. ▼

Mike Clancy is a partner and strategy practice leader at FMI. Steena Chandler, a principal in leadership and organizational development at FMI, also contributed to this story.



FINANCIAL STEWARDSHIP

Ronald J. Eagar

Learning from the Past to Prepare For The Future

As contractors head into 2022, it may seem like not much has changed from last year. COVID-19 outbreaks and workforce restrictions remain, the skilled labor shortage is increasing, materials remain scarce and more expensive, and cash flow is still constrained.

Unlike last year, however, contractors have the advantage of the many lessons learned over 2020 and 2021.

To better understand this new dynamic, Grassi surveyed contractors and subcontractors to gauge the industry's current condition and outlook. Here are the five key takeaways.

IMPACT ON REVENUES AND PROFITS

For many contractors, the financial impact of the pandemic may only be fully realized in 2022. While 53% of respondents said revenues declined in 2020, Paycheck Protection Program (PPP) loans, Employee Retention Credits, other government relief and existing backlogs kept many of them afloat.

As contractors burn through their backlogs, not enough new work is surfacing, due in large part to a highly competitive bidding field. Almost half of respondents reported competing against 5-9 bidders, and almost one-fourth reported 10-15 bidders, only to be topped off by significantly decreasing margins.

Cash flow projections providing a 6- to 8-month outlook are always recommended, but even more so during uncertain times. This process can help contractors predict cash shortfalls and remediate issues before it is too late.

Contractors should revisit their pre-qualification process to ensure their bids are differentiating the company from the competition. Highlight relevant experience, past performance, safety records, payment history, compliance with contracts and more.

LABOR CHALLENGES

Entering the pandemic with an already-strained labor pool, contractors face workforce challenges in 2022. According to the survey, the three most significant workforce

issues became: COVID-19 outbreaks among workforce, difficulty factoring COVID-19 costs into projects, and reduced labor productivity.

Finding talent remained difficult, with respondents saying project managers, skilled laborers and foremen roles were the most challenging to fill.

Contractors that take a proactive approach to employee retention will have a distinct advantage. Ask questions such as: What tone is my management setting at the top? Should I consider an employee stock ownership plan (ESOP) to keep employees invested in our long-term success? Do I have a succession plan that lays out the future roles of my key employees?

JOBSITE TECHNOLOGY

In an industry that is known for lagging in technology adoption, many contractors regretted this lack of investment when workforces went remote and safety requirements were increased.

According to the survey, contractors rose to the occasion and implemented technologies that might have otherwise been years in their future. The most common technologies adopted by respondents were virtual toolbox talks and video conferencing for project walk-throughs.

Investing in the right technology can keep a construction company competitive, lean and prepared. Automation, robotics and data analytics can reduce redundancies and human error, create safer jobsites, improve efficiencies and help contractors make informed data-driven decisions.

ONGOING COVID-19 IMPACT

The majority of survey respondents reported that the pandemic had an impact on their ability to confidently price projects. Contractors also have the additional costs of the pandemic to consider, such as daily health screenings, remote work and on-site COVID-19 testing.

It is important for contractors to understand the true cost of the pandemic and factor these findings into their business plans, cash flow projections and bidding. These expenses include not-so-obvious ones, such as mandatory

continued on page 25



TECHNOLOGY

Lee Mullin

3 Ways the Right Technology Makes VDC and BIM Managers' Lives Easier

Over the last few years, BIM-related careers have evolved to be much more than simply managing model coordination and clash detection. Intended to be a strategic technology-leader role, the sheer amount of repetitive work and additional demands has increased workloads for our BIM managers across the board — making them responsible for far more than they were even just five years ago.

BIM and VDC managers tackle a long list of tasks like collecting and maintaining project files, team members (typically across organizations), managing information and making critical BIM data useful to all a project partners, all while collaborating with multiple teams. However, as the workload of BIM managers increases, it's critical for teams to implement new processes and technology to increase collaboration and productivity, break down siloes to increase transparency and democratize the workload to enable teams to be more self-sufficient.

So how can we return the BIM Manager role to something more strategic again, enabling teams to be more equipped to independently solve problems and be empowered to make real-time decisions? Here are three ways technology is taking that next step to make this a reality, and generally making the lives of our VDC and BIM managers a bit easier.

1. Cloud-based technology builds collaboration into the DNA of your team. The construction industry is experiencing a massive shift to cloud-based technology. In fact, 85% of construction contractors use or plan to use cloud-based solutions, and for good reason. Moving to the cloud allows teams to break down silos and continuously collaborate with one another. Adopting cloud collaboration technology has shown amazing results: 98% of engineering and construction companies agree that digital solutions are critical to the future viability of their company.

Moving to cloud-based technology helps break down silos and promotes a single source of truth — ensuring that everyone is working from the most up-to-date documents. Providing team members with the same set of up-to-date information empowers team members to in-

dependently fix smaller issues, which in turn frees up time for BIM managers to focus on prepping for coordination meetings and solve more complex and potentially more costly and risky problems.

Cloud-based technology also allows teams to build a document management process directly into their day-to-day coordination — baking in approval processes and design reviews all in the same place, in real time. This enables proper version control, with visual representations available of all models in a given project. Shifting to the cloud can help reduce the number of issues that you face, improve the quality of design, reduce the number of RFIs and ultimately get you to site faster.

2. New technology can automate your manual processes. Automation is another powerful tool that can improve how you collect, manage and analyze data. It reduces the most tedious and manual tasks teams face throughout a project — like uploading and downloading files from servers, manually entering and reviewing data by hand or having to personally notify someone when an action is needed. On top of being cumbersome, manual processes are often fraught with human error and duplication of tasks, which is time- and labor-intensive. Automating these steps and related processes can increase the accuracy of your data, reduce significant administrative burdens and streamline communications and tasks.

Machine learning (ML) and artificial intelligence (AI) are also playing an increasing role in the construction industry to help teams automate standardization, improve analysis and identify patterns in data ultimately helping to reduce risk. In fact, the market for AI in construction could reach \$4.51 billion by 2026. As our industry progresses, we will surely see this type of technology playing a larger role in helping take more manual, tedious analysis tasks off our plate, allowing teams to focus on more important tasks and analysis that require a higher level of human input.

3. Technology empowers teams to take ownership. Part of a BIM/VDC manager's role is to empower teams and allow them to take ownership, and a big part of that is enabling teams to check their own work. By using the right technology, teams can upload their files to a common

data environment and review changes as they happen, which opens the door for immediate feedback. For instance, rather than checking work and identifying issues during a coordination meeting, teams can identify hot spots with a high number of clashes and detect issues before you even get to your end of the week coordination meeting. This frees up time during the meeting to discuss how to resolve issues efficiently rather than who is responsible.

Empowering your team to take ownership of their own work helps them improve their design quality, mitigate risk, and lets the BIM manager focus on other information management responsibilities and work on higher risk issues that have been escalated.

It's time for VDC managers to abandon the mindset of being responsible for the entire weight of their projects. By adopting the right technology, building collaboration into your team, automating your processes and empowering your team to take ownership, you'll see big changes not only in your day-to-day workflows, but in the overall quality of your work as well. ▼

Lee Mullin is technical program manager for Autodesk.

FINANCIAL STEWARDSHIP

continued from page 23

paid sick leave, productivity declines and rising insurance costs. Insurance costs continue to remain one of the largest challenges industry wide.

2022 AND BEYOND

When asked to anticipate when the construction industry will make a full recovery, 46% of respondents predicted 2022, and 23% anticipated 2023 or later.

Uncertainty is still high, but there is optimism that conditions will improve soon. This could be fueled by the potential of the infrastructure bill and the many new ways contractors are finding to recover. Positive trends reported in the survey include: increased emphasis on escalation clauses in contracts, an increase in public/private partnerships (P3) and joint ventures, and supply chain diversification.

While COVID-19 will continue to be a “known unknown” in 2022, learning from what we do know can help secure a more confident future for your construction business. ▼

Ronald J. Eagar, CPA, CCIFP is a construction partner and COO at Grassi Advisors & Accountants. He can be reached at reagar@grassicpas.com.

SMACNA 2022 Associate Members

PREMIER PARTNERS



GOLD



SILVER



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SMACNA CALENDAR

MARCH

March 1-2

Partners in Progress Conference
Las Vegas, NV

March 13-17

Business Management University
Tempe, AZ

March 15-16

Collective Bargaining Orientation
Irving, TX

March 24-25

Association Leadership Meeting
Las Colinas, TX

APRIL

April 3-6

Project Managers Institute
Raleigh, NC

April 11-13

Supervisor Training Academy
St. Louis, MO

MAY

May 1-3

Planning Your Exit and Business
Valuation
San Diego, CA

May 15-18

Financial Boot Camp
Tempe, AZ

JUNE

June 5-7

June 2022 Council of Chapter
Representatives
Charleston, SC

SEPTEMBER

September 11-14

2022 SMACNA Annual Convention
Colorado Springs, CO

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