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Stamped copper shingles by Heather & Little for the Sun Tower, Vancouver, B.C.



BUILDING BOOM CONTINUES IN CANADA

As would be expected for two major trading partners, Canada and the United States share similar economic outlooks for 2019.

Even though forecasters expect growth to slow next year, the consensus view is that our neighbors to the north will stay on solid financial footing for the rest of 2019. The broad-based expansion this year should keep business investment flowing in Canada, with jobs to boot.

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How the World Shapes Our Outlook

As I travel this year, I have found almost all contractors are focused on their local markets and near-term business outlooks. But the more I travel, the more I also notice the outside world impacting contractors in our space.



World politics, steel tariffs, technological advancements, and increased competition are all outside our control, but they impact us in different ways in different markets. For some SMACNA members, these changes can alter strategic directions and long-term outlooks. Sometimes the impact is indirect, involving our customers' customers, by forcing them to ask questions like, "Do I build or retrofit that building?" or "Do I sell or acquire that data center?" And sometimes the impact is more direct, raising tough questions for members like, "Do I buy that laser cutter or keep pace with my existing equipment?" or "Do I expand my services, or keep the same line of service offerings?" Or in more extreme cases, "Do I buy out my competitor, or get out of the business now?"

The world around us is shaping our outlook, whether we realize it or not. Booked work sometimes causes us to lose track of the bigger picture and trends that will impact us down the road. The ability to understand and identify the trends — and keep an eye on the ones that can change our industry — is often left to industry analysts, but SMACNA National is making it easier to stay informed of emerging trends through their recent launch of *Executive News Brief*.

Where else can you go to get handpicked articles by the executive staff at SMACNA? Each day, SMACNA and their vendor sort through thousands of articles to select the ones that are most relevant and important for us to read, and these highlights are delivered right to members' inboxes.

What I have learned from talking to my suppliers, reading *Executive News Brief*, and visiting members is that the technology and manufacturing industries are using IIoT (Industrial Internet of Things) to create the industrial revolution 4.0. This new era combines the physical, digital, and biological worlds to create more intelligent, efficient, and effective processes with powerful software and more reliable machines.

It will be exciting to see what comes to market. I, for one, can see prefabrication combining with IIoT to create shorter production times with less materials. In reality, IIoT is already here. Today, we have several industry advancements including BIM, tracking and monitoring tools, weighing materials, and pre-maintenance sensors.

Companies are even combining the physical, digital, and biological worlds to create more effective and efficient co-bots. While we don't know what technologies or products will prevail, I do know that keeping an eye on innovation and being an early adopter/tester of technology will keep us all ahead of the competition.

Sincerely,

A handwritten signature in black ink, appearing to read "Nathan L. Dills".

Nathan L. Dills
SMACNA President



CAPITOL HILL UPDATE

SMACNA Weighs in on House Retirement Security Hearing

The partial government shutdown is over, for now at least, and although Congress was technically not affected, it did impair Congressional focus and activity. Nonetheless, many SMACNA issues and priorities continued to percolate, including multiemployer pension reform.

The chair of the House Ways and Means Committee, Richard Neal (D-1st-Mass.), introduced his bill to bail out insolvent multiemployer plans and also called a hearing in February on "Retirement Security for American Workers." The focus of the hearing was not multi-employer plans. However, the private sector trend away from defined benefit (DB) plans was repeatedly mentioned. The risk to employers who are contributing to DB plans was also noted as unacceptable.

In advance of the hearing, SMACNA, along with

seven other construction industry employer groups, submitted a letter for the record outlining the need for composite plans. The letter noted that the multiemployer pension system remains fragile. This is despite that plans have aggressively increased employer contributions and active employees have faced significantly reduced future accruals. The construction industry group emphasized that plans not currently in "critical" or "critical and declining" status are also facing many of the same risks that have driven well-known defined benefit plans to insolvency.

On the Senate side, the Finance Committee Chair Charles Grassley (R-Iowa), recently indicated that the Senate needs to find a bipartisan solution to resolve the multiemployer pension crisis. Telling reporters, "we've got to do something in that area,"





Sheet metal shop in San Luis Potosi, Mexico.

he hopes to meet soon with other concerned senators to discuss potential solutions.

SMACNA continues to urge Congress to authorize composite plans, a bipartisan hybrid option. SMACNA has made the case that multiemployer plans have demonstrated that they will take advantage of new tools to stabilize the system. SMACNA advocates that Congress should act sooner and not later.

SMACNA to Support Procurement Reforms in 116th Congress

SMACNA, as part of the Construction Industry Procurement Coalition (CIPC), will be promoting a package of federal government procurement reforms for construction. It will include one of SMACNA's long-held goals — to ensure that contractors receive timely payments for completed change orders to a project's original design or scope.

While not a complete solution, the package would take a good first step toward requiring the government agency to pay 50 percent of the billed change order work amount while a request for full payment is pending.

Reforming payment procedures for change orders is long overdue. SMACNA worked with Rep. Brian Fitzpatrick (R-8th-Pa.), and supported his bill on change orders in the 115th Congress.

INTERNATIONAL HVAC MARKET HAS SIMILARITIES, DIFFERENCES FROM U.S.

In Europe, HVAC regulations and practices vary due to the many different countries and cultures on the continent.

In Latin America, contractors are busy installing split systems and performing retrofit commercial work to boost the energy efficiency of existing structures.

And in Japan, variable refrigerant flow designs are very popular, making up the majority of commercial HVAC systems.

Those are a few of the findings as SMACNews toured the world of HVAC and sheet metal machinery by speaking with representatives who work in Asia, South America, the Middle East, and Europe.

While each market has some differences and challenges, the representatives said most customers are very interested in new technologies that can make their jobs easier, their ductwork higher quality, or the buildings they own or manage more efficient.

The View from Japan: Still Growing

Hidetaka Nakane works for Daikin Industries Ltd.'s applied solutions division in Osaka, Japan. (Daikin Applied is a SMACNA Premier Partner.) He said two upcoming major events — the Tokyo Summer Olympics next year and a world expo in 2025 in Osaka are keeping HVAC contractors busy. Developments in the cities of Fukuoka and Sapporo are also progressing.

“We believe the Japanese HVAC market will still be growing for a while,” he said.

Many of the HVAC systems installed during the high-growth days of Japan's economy of the 1980s are now in need of service as these 30-plus-year-old structures are renovated. This is putting a strain on some manufacturers, he added.

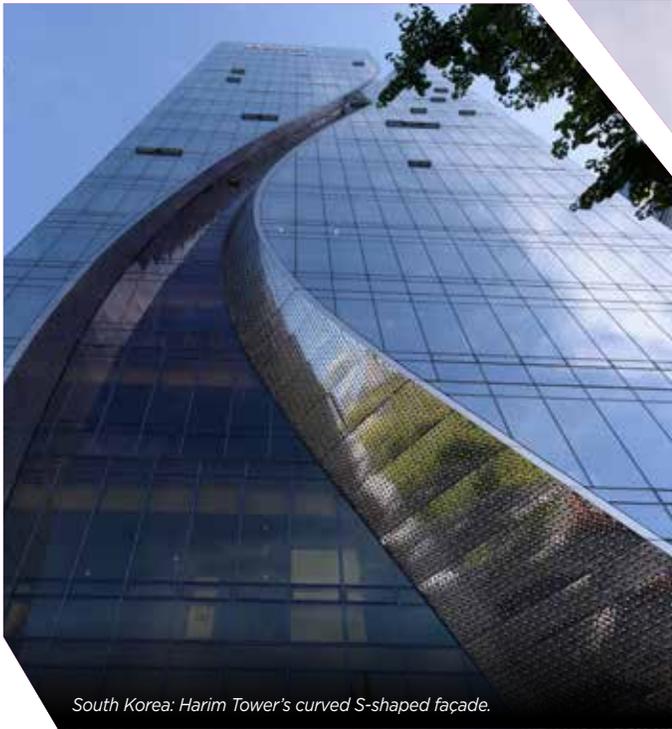
“Due to a large demand for HVAC equipment, many OEMs (original equipment manufacturers) struggle to manufacture and deliver products in a timely manner,” he said.

The relatively small size of Japan has meant that HVAC designers and contractors also have to be creative in designing and installing systems, he said.

“There are many restrictions for building space in Japan,” Nakane said. “So, it requires downsizing of equipment and making the most effective use of space possible. Also, the majority of energy sources are imported from overseas. Thus, there are strong needs for compactness and a high-energy efficiency for HVAC system.”

Government regulations dictate at which temperatures office thermostats can be set. In residential new construction, contractors have to install HVAC systems with ventilation designed to operate 24 hours a day.

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South Korea: Harim Tower's curved S-shaped façade.



Curved façade with custom perforated embossed panels.

Zahner's South Korean Tower Sparkles

A dramatic curved stainless steel façade gave the A. Zahner Co. of Kansas City, Missouri, another opportunity to further expand its geographic reach to the Harim Tower in Gangnam, Seoul, South Korea.

For the exterior, Zahner developed a custom feature to produce an "S" shaped recess in the façade that rises 17 stories high, then studded the perforated metal in the recess with sparkling lights. Zahner engineered the exterior cladding system and custom perforated the stainless steel throughout the interior and exterior.

Designed by the Beck Group, the 86,000 square-foot mid-rise office tower is the corporate headquarters of the Harim Group, a South Korean livestock and feed manufacturer. The

building includes a boardroom, high-end restaurants, a café, and office spaces.

Zahner developed their customized ZEPPS-patented system to create unique forms and curvatures in metal that were used in this project. Zahner provided a deep recess cavity for the exterior lighting system. Working with Well-Light, a Korean lighting design company, Zahner's team installed more than 10,000 energy efficient LED lights that show through the exterior's millions of perforations to sparkle like stars in the night sky.

The contractor's role was multifaceted, said Tom Zahner, PMP, Zahner's chief operations officer. "We completed a design assist with a Korean partner as our primary liaison. The process took several months and involved several design iterations," he said.

"We fabricated all the mirror-polish stainless steel cladding at the entrance and an architectural ("S"-shaped) feature that went up from the entrance all the way to the roof, over the roof, and down the other side." Zahner described the final product as "a complex array of holes and bumps."

A. Zahner manufactured the stainless steel cladding at its Kansas City facility using structural framing elements and a protective PVC coating and shipped it overseas in containers. "The challenge was in developing crating for odd-shaped cladding units that could withstand the trip overseas and be easy for the installers to handle," he said.

Although international shipping costs were about twice as much as sending a product somewhere in the U.S., the cost was "not unreasonable" considering the distances involved. "The need to crate and protect the product properly for a long trip on open oceans was the biggest difference," Zahner said.

Zahner prepared an extensive installation set of drawings and engineered the connections, then their Korean partners in Seoul did the actual installation. The installer visited A. Zahner's facility

several times to learn the process and Zahner sent a project liaison to the job site in South Korea several times as well to check on progress and identify any issues with the installation.

"We had to create extensive installation directives and virtually walk through how the material would be taken from the crate, hoisted, and installed," Zahner said. "There was a fairly rigid requirement for directions for the installation, and several penetrations by other trades had to be navigated and took the most effort. We had several teleconferences to coordinate these issues."

Fortunately, one of A. Zahner's marketing and sales directors had experience working in South Korea and that helped with navigating barriers in the language, travel, cultural, and technical aspects. Travel required quite a bit of advanced planning, he said, but the company's established personnel routines reduced any impact on the project and overall daily activities.

"South Korean builders put great value on the emotional and psychological impact of the architectural feature, which is apparent at the earliest stages of design, while American builders tend to emphasize pragmatics early on — how to get something built, shipped, installed, etcetera," Zahner said. "We had to be aware of this, and were able to come up with a respectful way to keep form and function as equally important decision criteria in all stages of the project."

"South Korea is a very progressive and architecturally advanced country," Zahner said. "The architectural marketplace is also very competitive over there."



A. ZAHNER
[www.azahner.com/
works/harim-tower](http://www.azahner.com/works/harim-tower)



Australia: Fredon Air installed more than 1 million square feet of ductwork.



The Acute Services Building.

Construction is Booming Down Under

This year is already shaping up to be a busy year for Australia's Fredon Air of Fairfield, Victoria. One of their major projects that includes HVAC system design, fabrication, and delivery is the central Acute Services Building at Westmead Hospital in Westmead, Sydney, New South Wales. The large 14-story, 1,333,000 square-foot building is scheduled to open in 2020.

The new building includes services that manage severe injury and illness, urgent medical conditions, recovery from surgery, and other critical and complex conditions. It contains two new emergency departments — one for adults and one for children — along with state-of-the-art operating theaters, in-patient beds, a helipad, and clinical support services.

Fredon Air was engaged by global construction company Multiplex under an early contractor involvement to design, engi-

neer, construct, and commission this new hospital development.

"We were introduced into the project at an earlier stage than usual," said Richard Drigo, group managing director of Fredon Air, of the contract. "This enabled us to provide a greater deal of value in engineering. We were able to optimize the design, providing significant savings as well as addressing any constructability issues, and ultimately mitigate risks for the builder and client."

"The mechanical consultant was also engaged to provide an overview and watching brief responsible for vetting the design compiled by Fredon," he continued. "The consultant would also model the design to check compliance with energy targets and other general project objectives." Fredon Air has in the design phase for about 12 months and construction just started in November 2018.

Drigo considers this project a special one. "It brings together the

full design and construct expertise that the business has — with the modelling that's been undertaken in-house, with the software that's been used, with the elements of off-site fabrication, and ultimately with our shop being fully responsible for the delivery of the project."

"It's not too far different from other jobs that we've done, but it may be different than perhaps the way that other contractors do their work," he continued. "I guess that probably sets us apart to a certain degree, given the size of the project and the time — from consulting to delivery in 18 months."

Drigo believes that understanding their core strengths and doing the common things uncommonly well has helped Fredon create a successful formula for delivering highly complex buildings such as hospitals.

"Firstly, you need to understand the client needs and their operational requirements for the building. You then need to fully understand the overarching design guidelines for hospitals and then incorporate the prescriptive nature of compliance relative to authority regulations and standards. You bring all these factors together and then design a system that is reliable and cost effective, a system that is coordinated and buildable within the confines of the building structure, and a

system that can be maintained for the lifetime of the building. Do all these things successfully and you have a successful formula."

Fredon has completed many projects under similar circumstances during the past few years, including Northern Beaches Hospital, the Chris O'Brien Lifehouse, St. George Hospital, and Blacktown Hospital. The time frames may seem fast to some, but Drigo says, "It's all we know. I'm not sure whether building 1,000,000 square feet of a hospital in under two years is fast comparatively to overseas. We would love to compare notes!"

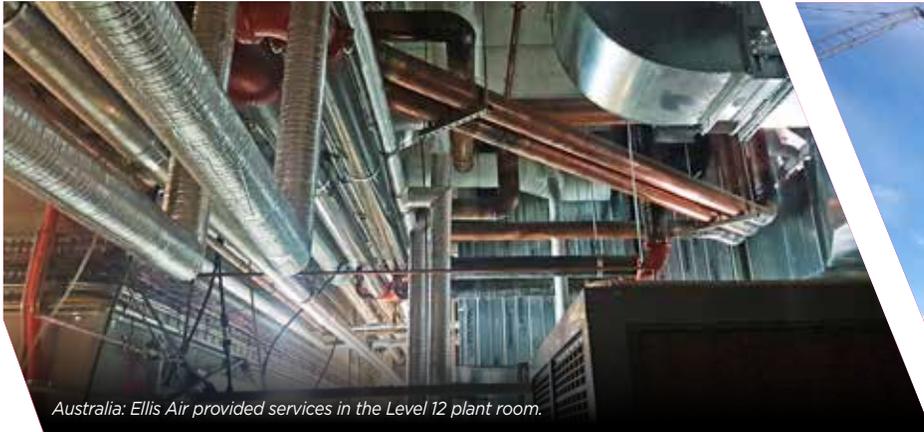
Fredon Air has full design and construct responsibility for the Acute Services Building project. They are doing IES (integrated environmental solutions) modeling and thermal simulation modeling, user group meetings and interface, and heat load/static calculations/equipment selections, along with Revit BIM design and documentation. They are also handling lead coordination supervision, delivery of the building's full mechanical air handling plant, and delivering air conditioning and ventilation to all areas of the building.

In addition, they are responsible for designing the building's

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FREDON AIR
fredon.com.au



Australia: Ellis Air provided services in the Level 12 plant room.



Australia 108 is currently 70 floors high with another 30 floors to go.

Australia's Ellis Air is Heating Up Melbourne's Tallest Building

At 321 meters (almost 1,050 feet) and 100-stories high, Melbourne's new residential super-skyscraper, Australia 108, touches the clouds. It is the tallest residential building in the Southern Hemisphere — and SMACNA member Ellis Air is not only helping to make it a reality, they are helping to make it more viable as well.

"The original proposal for the heating and cooling systems would have been very expensive. We came up with a good alternative offer and saved quite a bit of money for our client," said Ellis Air's General Manager Adam Langford of the project. The company is installing the heating and cooling systems hundreds of feet up amid the heat and wind.

Approximately 25 percent of the building's 1,100 apartments have been completed as construction continues on the top 50 floors of the tower. The construction is scheduled to be completed in two years.

To win the contract, Ellis Air considered the local climate as well as expense. "Summers in Melbourne can be hot, but

residents need heating systems in the winter, when temperatures commonly reach four degrees Celsius (39 degrees Fahrenheit)," Langford explained. "We recommended variable refrigerant flow (VRF) units for this project, because they can simultaneously heat and cool and also provided good overall cost savings. VRF is a more energy-efficient design than the original plan, and provides residents with control over their own thermal zones."

The height of the building, at 100 stories, also presents major challenges. "We're installing 300-meter long pipework risers down the side of the building," Langford said. "The design of the pipe anchors and the expansion systems are crucial on a building of this scale — the weight on the pipework at the bottom of the risers is incredible."

And it's windy up there. "The height of the building also creates issues with wind pressures," he reflected, "and a lot of internal testing was performed to ensure that wind effects would not negatively impact the ventilation design."

"We have 300-millimeter (about 12-inch) pipe going up the whole length of the building and

branching out to all 100 floors. There are kilometers of ductwork and over 1,100 indoor air conditioning units," he noted. "There are hundreds of fans, many pumps, heat exchangers for pressure breaks, cooling towers, gas boilers. The consumables, such as nuts, bolts, and clips, etcetera, would number in the tens of thousands."

Moving all these materials into place 50 floors and up in the skyscraper takes planning and cooperation. "We use the cranes on-site to lift materials up in cages — but it's a struggle to get enough time with the cranes. Materials hoists provided by Alimak help make up the difference by letting us work when the cranes are not available."

Another factor to consider in the construction is the high heat. A killer Australian heat wave is complicating the Australia 108 project. This January temperatures in Melbourne reached 42.8 degrees Celsius (107 degrees Fahrenheit). Australia's summer falls in December, January, and February.

"We have temperature clauses in our union agreements," Langford explained. "Employees have to go home if it's too hot to work safely." Since 1900, heat waves have killed more

Australians than all other natural hazards combined. "The heat has already shut us down four or five times this summer. This cuts into productivity, so we make up the difference in other ways."

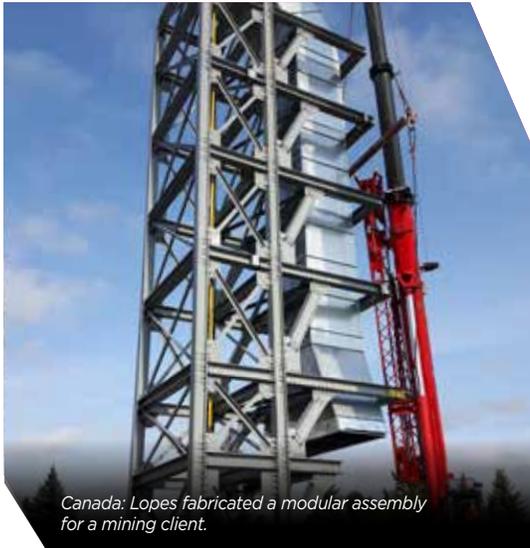
Looking ahead, Langford sees a strong and profitable future for Ellis Air. "Our outlook is good. We have about 15 projects going right now, with locations in Melbourne and Brisbane. With a strong market, getting enough quality people for the job can be a challenge, so we keep an eye out for new opportunities, and look at our staff and areas of expertise to ensure that we have the right people in place for the next project."



ELLIS AIR CONDITIONING
ellisair.com.au



AUSTRALIA 108
www.australia108.com.au



Canada: Lopes fabricated a modular assembly for a mining client.



Lopes' employees fabricated this 103-ton heat exchanger in the shop.

“What made this project particularly fun was the ability to pre-assemble it in our yard and move it in one big piece,” Seguin continued. “The customer thought there wasn’t a lot of progress on the project along the way until one day, and ‘bam’ it arrived, was tied in, and the project was essentially complete.”

“We assembled most of the project off-site and shipped in a modular assembly with structural supports, ductwork insulation, and piping pre-installed in one piece,” Seguin explained. “This eliminated a large scaffold and additional lifts and cranes on-site and many hours of site labor by doing the pre-assembly at our shop. It was also a lot safer and more productive to work 10 feet off the ground, instead of 40 feet.”

Lopes is known for taking a modular approach to fabrication whenever possible. Increasing prefabrication capacity was one reason for a recent investment in a new 12,000 square-foot structural steel fabrication facility, which helps the company be innovative and creative in the projects it does.

“We have invested in technology, tools, and equipment in the shops and in the field, to stay on the cutting edge of the industry. This enables us to stay agile and nimble, which is an important part of dealing with today’s customers,” Seguin said. He emphasized that Lopes core group of 185 employees are really the company’s most valuable resource. They will be key as Lopes looks toward the future with plans to strengthen positions in the mining and transportation sectors.

“We’re focusing on industrial sheet metal and steelwork projects at the new gold mines coming online across northern Ontario,” he said. “We also expect to have more railroad bridge repair and infrastructure work.”

Railroad bridge repair, now that’s diversification.

Diversification is Key in Northern Ontario

Diversification has ultimately been a great business strategy for Lopes Limited. The Northern Ontario, Canadian SMACNA company started out in 1976 as a small sheet metal shop operating out of a garage. Now Lopes is a national, full-service contractor with a solid reputation for creative, cost-saving projects for large-scale industrial fabrication and industrial construction.

Early on, Lopes focused primarily on clients in the pulp and paper industry. When that industry began to struggle in the early 1990s, Lopes expanded into other sectors. Today, the list of the company’s industrial markets is long: oil, chemical, nuclear, agriculture, transportation, pulp and paper, institutional, commercial energy, and mining.

Lopes has also diversified the services they offer. Over the years, the family-owned company added numerous trades to their sheet metal and HVAC portfolio. Now they can do just about everything

from electrical and piping to structural steel and custom fabrication.

“We are a full-service contractor, but our company roots are founded on sheet metal,” said Greg Seguin, general manager. Seguin said the company was founded by Felix Lopes Sr., who emigrated from Portugal in the early 1970s with just a bag of tools. He is retired now, but his golden snips still hang on a wall in the company’s board room. “We’re carrying on with his legacy, and doing justice to his trade, albeit with more technologies,” Seguin said.

“Much of what fueled our growth can be summarized as a quest for ‘nimbleness.’ To be able to offer many services in-house and be able to turn on a dime for our customers,” Seguin added.

Lopes’ facilities are close to Sudbury, Ontario, the nickel mining capital of the world. So, their portfolio includes a lot of opportunistic mining-related projects, many of which feature industrial sheet metal, ventilation, HVAC, and dust collection components. A

full design-build turn-key 200,000 pound sulphuric acid interpass tower and a 400,000 pound acid converter tower are just two recent examples. Dust collection and ventilation projects are quite common for Lopes.

“We’ve installed hundreds of tons of dust-collection duct over the years,” Seguin said. “We use SMACNA’s Industrial Duct Construction Standards when we fabricate ductwork for abating dust in fugitive emissions for our industrial customers.”

One recent project for a long-time mining client, completed in November 2018, involved replacing two existing ventilation air handlers with a single unit connected to a large duct. The project featured 304 stainless steel 20-gage ductwork. The duct weighed approximately 4,500 pounds, mostly 4 feet by 5 feet in size and transitioned to 12 feet by 2 feet with several offsets.

“We assembled most of the project off-site and shipped in a modular assembly with structural supports, ductwork insulation, and



BUILDING BOOM CONTINUES IN CANADA

“THIS INDUSTRY IS IN A RUSH TO GET THESE SPACES BUILT SO THAT THEY CAN PRODUCE THEIR PRODUCT ASAP.”

— DANNY DILLON, DILFO PRESIDENT & CEO.



Summit's Commerce Tower.



Rooftop unit installed by the Lancaster Group.

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The economy's prolonged strength has left Canadian sheet metal and air conditioning contractors working on major projects across the country in 2019.

New Cannabis Business Cropping up

Based in eastern Ontario, Dilfo Mechanical Ltd. is capitalizing on Canada's burgeoning cannabis industry after last year's nationwide vote to legalize recreational marijuana use.

Dilfo specializes in major design-build and design-assist projects, commercial construction, tenant fit-ups, and HVAC maintenance. The contractor currently has multiple projects on its plate with cannabis companies.

“This industry is in a rush to get these spaces built so that they can produce their product ASAP,” says Danny Dillon, Dilfo's president and CEO.

Cannabis companies require custom-built HVAC systems for so-called growing and flowering rooms to cultivate their marijuana plants, as well as for production and manufacturing spaces. Dillon notes that the spaces have to be built to specific standards of air cleanliness. Furthermore, they must meet special filtration requirements set forth by Health Canada, the country's department of public health.

Other major projects for Dilfo include working on the first of three phases in Ottawa's new light rail transit system. According to Dillon, Dilfo is also engaged in multiple high-rise residential projects, consistent with a shift to building rental apartments over condominiums.

Dillon points out that while the cannabis industry and residential building activity have kept sheet metal and HVAC contractors like Dilfo busy, a pipeline of proj-



DILFO MECHANICAL www.dilfo.com
SUMMIT SHEET METAL www.summitsheetmetal.ca
LANCASTER GROUP www.lancastergroup.ca
HEATHER & LITTLE www.heatherandlittle.com

ects for the federal government should sustain the market in eastern Ontario going forward. The government currently plans to do \$3.4 billion in renovation and rehabilitation work around the Parliament Hill area of Ottawa that is the seat of government in the Canadian capital. A new \$2 billion hospital is also in the works, he says.

“In the immediate future, I foresee the market getting busier,” says Dillon, who speculates that sheet metal and HVAC contractors could soon face a labor shortage.

Residential Work Booming in Vancouver

Out west in British Columbia, the residential building market is thriving, according to Jim Kapitza, president of Summit Sheet Metal Ltd. Summit, which is based outside of Vancouver, generates approximately three quarters of its business from the residential sector and the remaining 25 percent from commercial building.

“The immediate future of multiple residential in the Lower Mainland seems to be quite positive — for the next couple of years



Heather & Little fabricated the sheet metal for Washington, D.C.'s Library of Congress.

HEATHER & LITTLE: A CANADIAN COPPERWORK POWERHOUSE

Although based in Ontario, Heather & Little Ltd. has done some of its most notable work in the United States. American landmarks such as the historic Thomas Jefferson Building at the Library of Congress in Washington, D.C. and Milwaukee City Hall feature the company's sheet metal fabrication handiwork.

Heather & Little began doing sheet metal work for building restorations in 1925. Since then, the company has developed a reputation across North America for the quality of its craftsmanship. Mike Papania, Heather & Little's executive vice president for operations, estimates that the company has received a North American Copper in Architecture Award in recognition of its use of architectural copper on a project for 10 years.

The nature of Heather & Little's work requires ingenuity to replace pre-existing ornamentation and structures, according to Papania. The company's employees typically work alongside masons to remove ornate metalwork and replicate it with new copperwork.

“What's really interesting about our trade is that every single job is different, so we have to figure out a different way of doing things for every single job,” Papania says. “We have a lot of experience in fabricating with metal. Honestly, we can make anything.”

Heather & Little is currently putting that spirit of ingenuity to work on restoring Vancouver's Sun Tower, a notable landmark



Large interior ductwork installed by the Lancaster Group.

throughout the city. A dome covered in terracotta shingles sits atop the 270-foot structure. The company is tasked with replacing the terracotta shingles with new ones made of copper. The shingles are being reinstalled using seismic pads for protection in the event of earthquakes.

Heather & Little cultivates those problem-solving skills and appreciation for craftsmanship through a labor force that is heavy on homegrown talent. Apprentices go through five years of ductwork training before learning how to work with copper. The company typically employs between 50 and 60 people at a given time, and many apprentices end up spending their entire career there. Heather & Little employees remain in demand in the industry, though, according to Papania.

“Any employees who have served their time at Heather & Little can go and get a job at any sheet metal company in North America,” he says. “If they served their apprenticeship with us, companies can be assured that they know what they're doing.”



The flame atop the Library of Congress' Thomas Jefferson Building.

anyway,” says Kapitza, who adds that a slew of “significant” projects in the region have yet to be released for tendering. In fact, as is the case in Ontario, the availability of workers in Summit’s target market could turn into an issue for the company.

“There is so much work out there now that the big problem going forward will be whether we all can secure enough skilled labor to satisfactorily complete these projects,” Kapitza says. “This will be a challenge for all involved in the construction industry.”

Among Summit’s current high-profile projects is Burrard Place, a 442-unit residential building with 54 floors, nine levels of underground parking and four levels of amenity space. Another is Woodlands in the Brentwood area of Vancouver. Woodlands boasts 892 residential units in two towers of 45 and 50 floors and five levels of underground parking.

Looking ahead, affordable housing is one issue percolating in Vancouver and the surrounding area. “Investors have made housing in the city of Vancouver almost unaffordable for the average person,” Kapitza says. This could lead to some form of government intervention that would impact the ability of developers and investors to operate in the market, according to Kapitza.

All About Infrastructure

Hamilton, Ontario-based Lancaster Group Inc. offers construction, sheet metal fabrication, and heating and cooling services all across Canada. President Blair Hubber cites ongoing government spending on infrastructure as a major influence on the market for contractors. Projects in the power industry and water treatment are major sources of work, for example.

Hubber says projects in the mining sector have helped sustain the company recently, including potash mines in Saskatchewan. The flow of mining projects is starting to cool off, however. “I think a lot of mining companies are a bit tentative right now to spend and to start new capital projects,” he says.

In terms of major stories that bear watching in the Canadian market, Hubber notes that U.S. President Donald Trump’s tariff policies have infused trade relations between the two countries with a new degree of uncertainty. Meanwhile, Canada is holding federal elections in November that could signal new directions in public policy. Another key point on the calendar for contractors, according to Hubber: April 30, when the building trades union’s contract comes due in Ontario.

HVAC

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isolation/infectious diseases room, heating and chilled water plant, building management system, energy management system, steam plant serving the Central Sterile Service Department (CSSD), fume exhaust system, specialist exhaust systems, and cool rooms.

Fulfilling all those responsibilities requires quite a lot of material, including 30,000 lineal feet of chilled, hot and condenser water pipework, and more than 4,200 lineal feet of steam pipework. More than 180 air handling units and fan coil units will be installed and more than 1,000,000 square feet of total ductwork will be supplied and installed as well.

The project will create more than 1,500 new construction jobs annually and more than 50 apprenticeships. The Fredon Air workforce, including subcontractors, is expected to peak at 200 personnel on-site, with approximately 200,000 total labor hours.

A unique aspect of the project is a commitment of five percent of the total contract amount being devoted to the Aboriginal Participation in Construction (APIC) policy. The policy was developed to support greater participation by Aboriginal people in government construction projects across New South Wales. According to Drigo, the percentage is “quite significant for a metro area, so it’s going to be challenging in meeting those targets.”

Drigo is enthusiastic about business opportunities in the area over the next couple of years. “We’re very optimistic. We’re going through market conditions that probably haven’t been seen since the Olympics were held in Sydney.”

“We’ve got a government that’s flush with funds, and they’re on a big infrastructure spend, so there’s a lot of money being spent on roads and tunnels and upgrading,” he noted. “We’ve also got a lot of spend in the health center, hospitals, and in universities. There are many new buildings going up within the university campuses across New South Wales as well. It’s going to continue for the next year or two. It’s pretty positive.”



Canada: The Lancaster Group's decorative exhaust stack at Ashbridges Bay Waste Water Treatment Plant, Toronto.



AUSTRALIAN CONTRACTOR INVOLVED IN LANDMARK PROJECTS

Australian sheet metal contractor A.G. Coombs, known for its commitment to innovation and sustainability, has been involved in some of the largest and most high-profile HVAC projects in the land down under.

From hospitals constructed as part of public-private partnerships to the redevelopment of a convention and entertainment district, it's a good chance many of the country's residents or visitors have passed by, or through, a project in which A.G. Coombs was involved.

The building services company works on projects throughout the country with a focus on the major cities of Melbourne, Sydney, Canberra, Brisbane, and elsewhere along Australia's eastern seaboard. The company is based in Moorabbin, Victoria, in the southeastern part of Australia.

Byron Price, A.G. Coombs' strategic development director, describes the company as a building services firm that provides "whole-of-life technical services" for all building systems.

They're a lot more than just an HVAC service company.

"We provide advice, design, fabrication, installation, commissioning, maintenance, or ongoing operation and management services in the areas of air conditioning and mechanical services, fire protection, hydraulics, electrical services, lighting, and building control technologies," Price said.

Construction Across the Continent

A.G. Coombs' client list is long and varied. "We work nationally with building owners, constructors, project managers, property managers, facility managers, occupants, and tenants alike across a wide range of market sectors including commercial property, health care, telecommunications and data centers, government, defense, education, financial, arts and recreation, retail, transport infrastructure, and industrial," Price added.

For a country of approximately 25 million people, Australia has a large HVAC industry, with a contracting market estimated to be worth around AU\$7.9 billion (\$5.6 billion U.S.) and an HVAC equipment market estimated to be worth AU\$1.7 billion. Both figures come from a 2018 market study published by market research firm IBISWorld.

It's probably reasonable to say A.G. Coombs' gets its share of it. The company has won awards from the Australian Institute of Refrigeration, Air Conditioning and Heating (AIRAH), and the Property Council of Australia, among others.

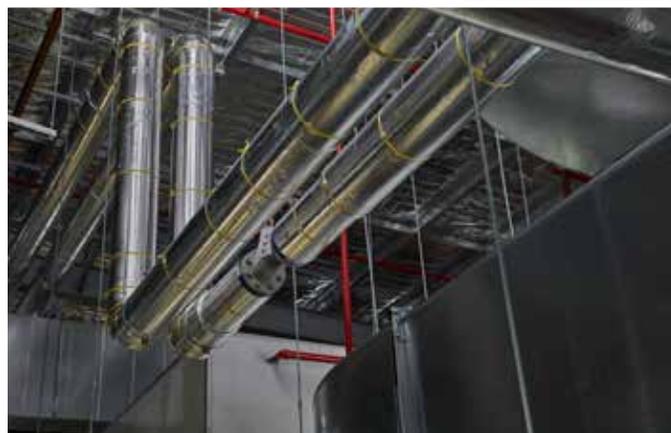
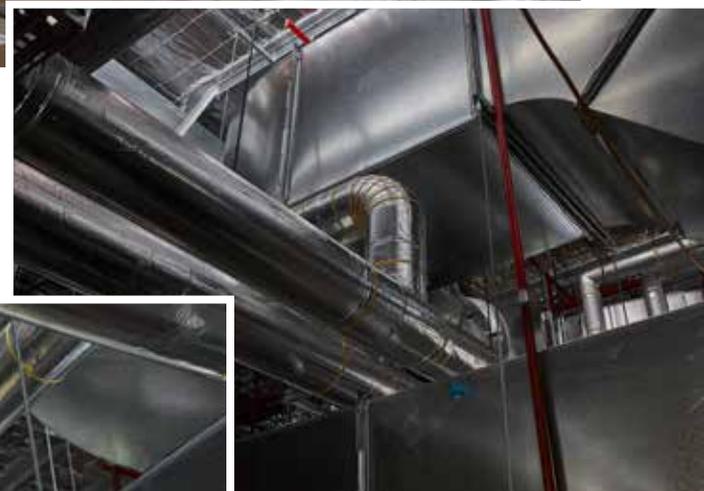
A recent project that Price said was especially noteworthy was the erection of the largest commercial office building made of engineered timber in the world. The 45-meter (148-foot-tall) structure makes extensive use of cross-laminated and glue-laminated timber. It's part of a redevelopment effort in Brisbane's Bowen Hills neighborhood.

The 14,000-square-meter (151,000-square-foot) building uses a highly energy efficient variable-air-volume (VAV) HVAC system with air-handling units (AHUs) on its roof. A small basement parking garage, designed for 56 cars, is mechanically ventilated.

The project made extensive use of building information modeling (BIM), ensuring penetrations were properly placed in the building's cross-laminated timber, and to improve project coordination.

A.G. Coombs is a big believer in BIM, Price noted.

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Australia: A.G. Coombs is a building services firm that provides "whole-of-life technical services" for all building systems.



INTERNATIONAL HVAC MARKET HAS SIMILARITIES, DIFFERENCES FROM U.S.

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Like in the U.S., the HVAC industry has problems attracting new workers, he said, calling it a “serious issue” that is causing some family-owned contracting businesses to close.

A Busy European Market

About 11,000 miles away from Japan, Formtek sales engineer Matthias Schmidt regularly travels to Russia and throughout Europe from his home in Sales, Switzerland. He has been involved in the HVAC industry since 1990. (Mestek is the parent company of Formtek and Mestek Machinery is a SMACNA Premier Partner.)

By having such a large territory Schmidt notes the economies of the countries he visits can vary widely. But overall, he considers Formtek’s sales in the region to be stable across all territories.

“In Europe, our HVAC ductwork customers are pretty busy and the economy has been very active lately,” he said. “We have been able to respond to the new trends in our sector, like the high efficiency air-leakage rating in ductwork and the straightness of rectangular ductwork by adapting our machinery technologies to meet these critical specifications which help

reduce the loss of energy at every possible level.”

In general, the European HVAC market is highly regulated at all levels of government, he said, adding that in-home air conditioning is not that common. Most public buildings do have air conditioning, however.

“The European market is very different in each country, even though they all generally apply the European common standards, each still has its own local regulations,” Schmidt said. “The individual regulations can cover air leakage ratings, fire resistance,

mechanical resistance, and the ductwork quality aspects including squareness and straightness. This means that we do have to adapt our machinery to meet these different requirements. This is only possible thanks to our very experienced and skilled engineering departments that we have at each of our machinery plants.”

In contrast, Schmidt said there are relatively few duct construction regulations in the former Soviet Union. “The Russian HVAC ductwork sector does not really have a global standard,” he said. “For example, a large customer in Russia, to whom we recently provided two complete sets of rectangular duct equipment in Novosibirsk and Yekaterinburg, indicated that he would welcome a standard in order to unify the ductwork specification and ultimately its quality.”

Like in Mexico, Schmidt said most ductwork in Europe is made locally — usually no more than 150 miles away from the jobsite — and trucked in, with transportation typically handled by the fabricating contractor.

Exceptionally big projects are an exception to the rule. “For larger projects, I have seen ductwork being shipped over a distance of 1,000 kilometers (621 miles) from Eastern Europe to Western



Market Bouncing Back in Brazil

In Brazil, the country is recovering from the country’s 2014 to 2016 economic crisis, which saw the country’s gross domestic product drop by 3.9 percent in 2015 and 3.6 percent in 2016.

According to Luciano Marcato, Daikin Applied’s national sales manager in the country, the crisis hit the HVAC construction industry very hard, but the sector should see solid growth for the next few years — at least in demand for air conditioning.

As a largely tropical country, there is little interest in the “H” (heating) of HVAC, Marcato said.

“(The) HVAC market is divided in two main divisions: the residential portion that is mainly covered by ductless systems such as window units and split systems, with rare VRF (equipment) for high-end applications.”

“This portion is responsible for more than 85 percent of market size,” Marcato said. “The remaining portion is the one that includes all commercial and industrial applications with central air conditioning systems. Roughly, it’s divided by three main types of equipment — unitary DX systems (which contains all components in a single unit) on the low end, VRF systems, and chilled water systems.”



Left: The HVAC market in Brazil started to recover last year. Photo Daikin Applied.



Above: A sheet metal shop in Costa Rica. Photo Mestek Machinery.



Right: Contractors in Kuwait are investing in large duct forming equipment. Photo Mestek Machinery.

Europe,” he added. “It does also happen that some machines are moved onto large job sites and ductwork is produced at the site, such as tunnel ductwork in the Alps.

In Russia, the duct is typically picked up by the installing contractor. “It is interesting to see that the expected function of ductwork for air movement is identical all over the world, but due to local regulations, climate conditions, labor and production costs, and usage, there are many different ways of making a very similar looking piece of duct,” Schmidt said.

Mexico Impacted by Currency Fluctuations

Alex Trevino is vice president of international sales with the Formtek Group. He regularly travels from his home near Formtek’s Cleveland headquarters to sheet metal machinery customers in Latin America, Central America, Mexico, South America, and the Caribbean. Trevino said the value of international currency, local economies, and even the geopolitical world environment can affect sales of HVAC equipment in his territories.

For example, Mexico’s construction market slowed somewhat in the runup to the election of new President Andres Manuel Lopez Obrador, he said. But since the election last fall, the market has started to return to normal.

Monetary exchange rates can have a more lasting impact, Trevino pointed out. Mexico is a major market for Formtek machinery with several brands imported directly from the U.S. A stronger U.S. dollar can make purchases more expensive for contractors that get paid in local currency, as most do, he said. “They are very price-sensitive,” Trevino said.

One trend that Trevino said has not crossed the border is the use of fabrication-only contractors. “The people that make the duct in Mexico, they also install the duct,” he said. The smaller size of Mexico’s market makes fab-only unsustainable.

HVAC sales are handled differently in Mexico as well. Most contractors in Mexico, as well as

Latin America, sell and install the complete HVAC system and represent multiple HVAC brands, such as York and Carrier.

“Over there, it’s the whole package,” Trevino said. “They will sell you the ducting, they will sell you the chillers, they will sell you the air-movement units. They will sell you everything.”

Like in the U.S., there are many small, independent sheet metal shops as well as a handful of large ones. The smaller shops are more likely to perform duct fabrication manually instead of using high-efficiency equipment. And they’re less likely to follow duct construction standards like those published by SMACNA.

But for the large shops that do use coil lines, plasma tables, corner-insertion machines and other modern equipment, SMACNA’s publications are close by, Trevino said. “That’s their bible,” he said. “They will not produce any duct that does not comply with SMACNA.”

Mideast a Hot Spot for HVAC Construction

SMACNA’s duct construction guidelines are also well-regarded in much of the Middle East, according to Jeffrey Carson, a Toronto-based Formtek sales vice president who regularly travels to Kuwait, Australia, Vietnam, and much of the rest of Asia.

“SMACNA standards are becoming more and more of a requirement for international markets,” Carson said. “It’s a sign that the sheet metal markets in these regions are maturing,” he said. “As markets get larger, local developers tend to want the ductwork manufactured in accordance with industry standards for their projects.”

Major contractors in places such as Kuwait and Saudi Arabia are investing in large coil lines that can make duct sections in as little as 40 seconds and that also place insulation liner on the interior of the duct — a major change for a region that has historically put insulation on the outside of ductwork.

“That’s kind of groundbreaking for them,” Carson said.

Characteristics of Great Leaders



This issue of SMACNews has a focus on international trends in 2019 and beyond. In 2018, I worked with leaders from Latin America, Europe, Canada, Australia, and Southeast Asia. As I interacted with these leaders, I was humbled by what I am still learning about cultural differences in leadership. I often ask myself: how can I support this leader best given his or her cultural context? And on the flip side, I am also drawn to answering the question: what are some of the **global attributes** of leadership that resonate with leaders regardless of culture?

One set of attributes that we have found as critical for leaders internationally is **developing talent**. Executives I work with often ask me what I look for to determine if a leader would be a viable senior leadership succession candidate. To me, one key hallmark of readiness is the bench that leader has built. Do they have talent ready to do what they’ve done? Could their team members be future leaders? Unfortunately, I’ve run into countless senior project managers who are being vetted for future executive roles who have experienced notable success in doing but have floundered when it comes to developing those around them.

I fundamentally believe that great developers of talent do a few key things. First, they **identify their high potential talent** and invest in them. This means observing talent and looking for indicators of drive, an appetite to learn, and general effectiveness. Great leaders spend focused time and energy making sure that their high potential team members are continuously pushed and take on new challenges to grow.

Second, great talent developers around the globe provide frequent and timely **feedback**. We know that there are many nuances to how feedback is delivered around the world. However, internationally, leaders must give feedback to grow and develop those around them. Great leaders know how to balance feedback in a way that challenges others and acknowledges their strengths.

Third, great global leaders must delegate challenging opportunities to others, not take them all on themselves. In our industry, we often see leaders promoted for our ability to execute on work effectively and efficiently. As we grow in our careers the list of to-dos to execute on becomes insurmountable. Great leaders make sure that those around them have opportunities to share the load and actively learn from these experiences.

As I look to 2019, I am lucky to say my work will take me to many corners of the world and I will meet unique, remarkable, and diverse leaders. I will continue in my quest to learn about how leaders across the globe think and act differently depending on their cultural contexts. And with that, I will also take with me my core belief that great leaders, regardless of cultural backgrounds, build up other leaders around them. In this way, I’m reminded of this sentiment from the late writer, Maya Angelou, “We are more alike, my friends, than we are unlike.”

Ron Magnus, managing director of FMI’s Center for Strategic Leadership with Ed Rowell, CSL consultant



The SMACNA booth attracted a steady flow of visitors during the 2019 AHR Expo.

INDUSTRY NEWS

AHR Expo Participants Learn What SMACNA Brings to the Industry

SMACNA was on full display for three days at the AHR Expo 2019 in Atlanta, Georgia, from January 14 to 16.

The expo marked the arrival of the brand new SMACNA display booth and was accompanied by a high-profile video that showcased the benefits that association members bring to the industry. This is the industry’s biggest expo on heating, ventilation, air conditioning, and refrigeration, and brings tens of thousands of attendees and exhibitors together from destinations across the globe.

The SMACNA booth was directly at the entrance to the main expo hall, and it attracted a steady flow of visitors throughout the show. SMACNA staff members interacted with attendees who came from across the globe including Japan, China, Korea, Australia, Ireland, Germany, Poland, Italy, Spain, Argentina, Brazil, and the United Kingdom. These engineers, architects, contractors, and SMACNA members were able to directly

experience the powerful search engine of the SMACNA eLibrary, ask questions about current and future technical manuals, and learn about all SMACNA membership options.

SMACNA’s newest Premier Partner, Johns Manville, demonstrated its robust relationship with the association by posting a large sign announcing, “SMACNA, We Have Your Back!” in the center of their booth. The Johns Manville staff shared their excitement with their visitors of how proud they were to be part of the SMACNA Premier Partner lineup.

Additionally, SMACNA’s technical staff, Mark Terzigni, Pat Brooks, and Shawn O’Hara led two technical educational sessions for the AHR attendees. These sessions were highly attended by both domestic and international attendees and covered HVAC Duct Construction-Duct Design and Design for High Performance Air Distribution Systems.

LABOR

SMACNA Providing Input to Federal Compliance Office

The U.S. Department of Labor’s Office of Federal Contract Compliance Programs (OFCCP) is asking for input from contractors or their representatives in areas where further guidance on affirmative action and equal employment opportunity (EEO) obligations through anonymous opinion letters would benefit federal contractors. SMACNA’s Labor Relations Department is drafting input to submit to the OFCCP on members’ behalf.

The OFCCP uses these opinion letters to provide additional compliance assistance and guidance on the Office’s laws and regulations concerning affirmative action and discrimination. Opinion letters often provide significant insight into the OFCCP’s views on how a rule operates in real-life scenarios, because opinion letters include the application of rules and regulations to a particular set of facts.

The OFCCP is responsible for oversight of federal contractors’ compliance on affirmative action obligations and prevention of discrimination on the basis of race, color, sex,

sexual orientation, gender identity, religion, national origin, disability, or status as a protected veteran.

The request for more input is part of the OFFCP’s Directive (DIR) 2019-03, which outlines the steps it intends to take to enhance the agency’s existing help desk. One step is to incorporate opinion letters for fact-specific guidance about the Office’s jurisdictional coverage, regulations, and policies.

SMACNA’s Labor Relations Department is currently drafting input to submit to the OFFCP that requests additional guidance on the issues of mandatory paid sick leave, EEO requirements where an employer exclusively uses a hiring hall, and additional affirmative action requirements.

Members who would like to provide input on EEO affirmative action or prevention of discrimination are urged to contact SMACNA’s Labor Relations Department at jblanscett@smacna.org.

Members may read the [OFCCP Directive \(DIR\) 2019-03](#) at [smac.news/ofccp-570ad](#).

Landmark Projects

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“We realize the benefits of BIM through all stages of a project — from design, enabling large-scale prefabrication and virtual build simulation, to construction and installation,” he said. “The application of BIM has very significantly reduced coordination issues and waste, and supported improved site safety. It has also enhanced site set out and installation methodologies — for example, the use of laser-pointing systems and cast-in ferrules. Commissioning, operational, and maintenance practices have also benefited, ultimately resulting in improved systems performance.”

A.G. COOMBS agcoombs.com.au

MEMBERS

Welcome New SMACNA Members

Accurate Test and Balance LLC	Belmar, New Jersey
J. Boone Mechanical Inc.	Clovis, California
Daymat Fabrication Factory	Riyadh, Saudi Arabia
Heather and Little Ltd.	Markham, Ontario
Lar-Mex Inc.	Ottawa, Ontario
Precision Sheet Metal LLC	Louisville, Kentucky
U.S. Engineering Construction LLC	Kansas City, Missouri
U.S. Engineering Metalworks LLC	Kansas City, Missouri
U.S. Engineering Service LLC	Kansas City, Missouri



Have you completed the 2019 SMACNA Safety Excellence Awards Program Survey?

Submit your entry before
May 10, 2019

www.smacna.org/safety/survey



Welcome 2019 Associate Members

PLATINUM



GOLD



SILVER

SMACNA welcomes new Silver Associate Members PlanGrid Inc. of San Francisco, California, and Thermaflex of Abbeville, South Carolina.



SMACNA's Associate Member program provides an opportunity for industry suppliers to build long-lasting relationships with SMACNA members, the industry's premier contractors. To learn more about becoming an Associate Member, visit smacna.org or contact Scott Groves at smacna@naylor.com.



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SMACNA CALENDAR

MARCH 2019

March 3-7

Business Management University
Tempe, Arizona

March 12

Collective Bargaining Orientation
Dallas, Texas

March 14-15

Association Leadership Meeting
Dallas, Texas

APRIL 2019

April 1-4

Executive Leadership
Development Program
Chapel Hill, North Carolina

April 7-10

Project Managers Institute
Raleigh, North Carolina

April 28-May 1

Supervisor Training Academy
Milwaukee, Wisconsin

MAY 2019

May 5-8

Advanced Project
Managers Institute
Raleigh, North Carolina

May 7-9

2019 CEA National Issues
Conference
*Hyatt Regency
Washington, D.C.*

May 10

Safety Surveys Due

May 19-22

Financial Boot Camp
Tempe, Arizona

JUNE 2019

June 2-4

Council of Chapter Representatives
Lake Tahoe, Nevada

June 10-11

NJAB
Cleveland, Ohio

SEPTEMBER 2019

September 9-10

NJAB
Salt Lake City, Utah

FUTURE SMACNA CONVENTIONS

Oct. 20-23, 2019

76th Annual Convention
JW Marriott, Austin, Texas

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