

SPRING2017

Sheet Metal Journal

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Western Washington



PROJECT SPOTLIGHT
McKinstry, Seattle

HVAC in America—A Snapshot of Trends

ASHRAE President Tim Wentz: Adaptation on the Horizon

Coated Duct Liners: Top 5 Reasons they are Critical to a Well-designed HVAC System



WESTERN WASHINGTON

Official Journal of
Record for SMACNA-WW

OUR CONTRACTORS SET THE STANDARDS FOR THE INDUSTRY



SMACNA-Western Washington is a trade association and a Local Chapter of the Sheet Metal & Air Conditioning Contractors National Association (SMACNA), which is located in Chantilly, Virginia.

SMACNA Contractors are heating, ventilating, air conditioning (HVAC), and sheet metal experts. They are your assurance of quality in the fabrication and installation of ductwork and air handling systems.

SMACNA contractors are also skilled professionals in:

- Architectural sheet metal
- Industrial sheet metal
- Kitchen equipment
- Specialty stainless steel work
- Manufacturing and custom fabricating
- Repair services
- Siding and decking
- Flow testing & balancing
- Energy management & maintenance

Well known and respected within the construction industry, SMACNA contractors provide the highest quality workmanship, professionalism, and service to their customers. They care about the life cycle of the project, not just the winning bid.

You'll find SMACNA contractors working in all areas of construction whether industrial, commercial, institutional, or residential.

SMACNA contractors developed the technical manuals and standards that today are accepted worldwide in the construction community. As leaders in their industry, they continue to adopt and apply the latest technologies to HVAC and sheet metal work. Everything from duct construction and installation to air pollution control, from energy recovery to roofing, from seismic restraint to welding... they do it all!

STATEMENT OF PURPOSE

The ultimate goal of SMACNA - Western Washington, Inc. is to achieve and maintain the following principles and programs for the sheet metal industry:

1. To establish advertising, publicity, and promotional activities that advise the public of the nature, extent, and availability of services performed by the industry.
2. To promote educational programs to formulate high quality standards of sheet metal construction.
3. To aid in the formulation of uniform sheet metal specifications and improvement of state and municipal codes.
4. To expose fraudulent or misleading advertising or representations intended to deceive the public.
5. To encourage and promote trade practices that will eliminate unfair competition or exploitation of the sheet metal industry.
6. To encourage and promote the establishment of a uniform pattern of payments by customers during the progress of jobs to avoid inequitable payment delays and economic penalties.
7. To provide a forum for the discussion of the common interests and problems of labor and industry, and to encourage and promote harmonious relations between labor and industry.
8. To encourage any proper activity that will increase the efficiency of the industry and its ability to serve the public.



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NEW BEGINNINGS

When I started with Point One Media 10 years ago this May, I immediately began to regard *Sheet Metal Journal – British Columbia* as my favourite of the publications we had at the time. It wasn't just the craftsmanship and high-quality standards evident in SMACNA members' work, or my interest in metal work, but it was the people—focused, deeply involved in all aspects of the industry, and meaningful yet often silent contributors to some of the region's most stunning landmark projects. I often had (and still do) the impression the people behind this work were so deeply immersed, they didn't really know how amazing it really is.



By / Jessica Kirby, Editor

"I can already see a vast landscape of interesting projects, piles of industry news, and people making clear and meaningful commitments to keeping this industry great."

I bring this sense of fascination with and respect for the craft to the premier issue of *Sheet Metal Journal – Western Washington*. As we put the final touches on the magazine and ready it for delivery to your desks and doorsteps, I feel

a sense of accomplishment in assisting SMACNA-WW in reaching a new bar for its newsletter. Though our connection with the people behind the industry in the Seattle area has barely scratched the surface, I can already see a vast landscape of interesting projects, piles of industry news, and people making clear and meaningful commitments to keeping this industry great.

While this publication remains a direct reflection of SMACNA-WW's work and news, our company will be at the helm of production and I encourage you to reach out with story and content ideas, feedback, suggestions, and production and mailing queries.

Without further delay, I bring you the Spring issue. I hope you enjoy it. ■

Submit your news, story, or photo idea

CONTRACTORS AND SUPPLIERS



SMJ-WW is on the lookout for interesting HVAC, architectural sheet metal, testing & balancing, and industrial / specialty news and feature topics. If you have a great idea, notice an industry issue that needs addressing, or want to weigh in on a technical subject, we would love to hear from you.

We also need great pictures – current and historical – of people working in all aspects of the sheet metal industry. If you have something to share, please email it to our editor, Jessica Kirby, with a caption about what is going on in the photo.

Questions about how else to get involved in a future issue of *Sheet Metal Journal*? Reach out to jessica.kirby@pointonemedia.com or 250.816.3671 and get the scoop.

WELCOME TO SMJ-WW

SMACNA-Western Washington is pleased to announce its partnership with Point One Media Inc. to publish its quarterly magazine, *Sheet Metal Journal-Western Washington (SMJ-WW)*. This glossy, full-color publication will replace the association's current newsletter and provide a new and exciting way to showcase members' work, discuss changes and updates from SMACNA, and connect members, affiliates, and customers.

SMJ-WW will be published on a Winter, Spring, Summer, and Fall calendar including the same columns, events, and news previously available in the newsletter, as well as additional articles and feature stories on topics relevant to our industry. We are always looking for new content, so please email your ideas and suggestions to Carrie Heinrich at cheinrich@smacnaww.org and cc Jessica Kirby, editor, at jkirby@pointonemedia.com.

The Year Ahead

The industry is off to a great start in 2017, and we expect nothing short of fantastic as the year unfolds. SMACNA contractors thrived in 2016, growing their hours over 15 percent—a success we attribute to a President, Executive Committee, and Board of Directors that effectively and efficiently lead our organization.

SMACNA-WW is thankful for its active Trustees on the Joint Apprentice Training Committee (JATC), led by Co-chair Dean Fox and Administrator Don Steltz. We have exciting new programs underway, including SMART Heroes—a specialized training providing an entry into the sheet metal industry for our veterans.

Our committees and trusts meet regularly on issues concerning pension, healthcare, training, legislative affairs, education, safety, and technical issues, which help to navigate the direction SMACNA-WW is heading.

New President and Programs

It is our pleasure to introduce our new president, Brian Fluetsch, president and CEO of Sunset Air Inc. in Lacey, Washington. Brian has been active in the industry and business, and dedicated to his community for years. We welcome Brian to his new position and invite you to read more about him on page 6.

SMACNA-WW is always striving to provide new events and programs for its members, and has a number planned for this year, a few of which have come together with remarkable success.

The Crab Feed was a wonderful success, drawing 350 members and guests who feasted and then later danced the



By / Julie A. Muller-Neff
Executive Vice-President, SMACNA-WW

night away to a local band. See page 10 for photos and more information.

SMACNA-WW hosted a three-day Labor-Management Leadership Training event with Kevin Dougherty, who was very well received and garnered rave reviews. We will definitely have him back. With his in-your-face style of training and small intimate classes, Dougherty creates meaningful opportunities to bond and develop lasting partnerships between labor and management. We also held a Supervisory Seminar in March with Nic Bittle focusing on effective and efficient leadership.

Coming Next

Coming up April 27 is the Mechanical Contractors' Association-WW (MCAWW) and SMACNA-WW joint membership meeting. This event marks a new, exciting way to align each association and network with industry leaders. Keni Thomas will be the keynote speaker—learn more in our flyer on page 7.

The SMACNA Membership event in June at ACME Bowl will include a SMAC-YA Group joint networking / membership event—it is time to bring all the SMACNA generations together for food, fun, and friendly competition.

We welcome your input and feedback on our new publication and our events. ■

Sheet Metal Journal
www.sheetmetaljournal.com Western Washington

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BRIAN FLUETSCH OF LACEY, WASHINGTON

“He who cannot change the very fabric of his thought will never be able to change reality, and will never, therefore, make any progress.” - Anwar Sadat

By / Jessica Kirby

SMACNA-WW is pleased to announce its new president, Brian Fluetsch. Brian is the president and CEO of Sunset Air Inc. located in Lacey, Washington. Brian brings many years as an active member of the HVAC industry and as a business leader dedicated to his community.

Brian earned a Bachelor of Arts and Science from Washington State University and has been a part of the team at Sunset Air since 1981. He has held several positions at the company, beginning with service manager and moving on to his current position as President and CEO.

Sunset Air Inc. was founded in 1976 in Brian's mother's and father's garage, and has grown into a large manufacturing facility and showroom offering a wide range of services including heating, electrical, plumbing, windows and doors, and solar and energy services. Sunset Air models environmental responsibility with smart resource system management. The company demonstrated its own commitment in building Washington State's first LEED gold, privately owned and operated building, which houses Sunset Air's corporate headquarters and showroom.

Along with being President of SMACNA-WW, Brian also serves as a Management Representative on the Joint Apprenticeship Training Committee (JATC), on the Joint Labor Relations Board, and on SMACNA-WW's finance committee. He also serves on the SMACNA National Board of Directors and on the New Horizons Foundation—an HVAC and sheet metal industry initiative.

In the past, Brian has served on the Residential Steering Committee and Nominating Committee for SMACNA National. He has been a presenter at the SMACNA National Convention and at Comfortech. He has dedicated many years to serving on advisory boards for Puget Power, Honeywell,



and Carrier Corporation, and served on the Contractor Council for Emerson / Copeland.

He continues to give generously of his time and expertise in the community with his work on the Business School Advisory Board for Saint Martin's University, as Executive Board member and Past-president with the Thurston County Economic Development Council, and as a member of the Thurston County Roundtable. He has also served in several other capacities with the Community Foundation of South Puget Sound, the Olympia Children's Hands On Museum, the Olympia Youth Chorus, and the Washington Center for the Performing Arts.

Outside of his commitments to the industry and community, Brian enjoys snow skiing, working on his hot rods, and cheering on Washington's best—the Washington State Cougars and Seattle Seahawks. Brian says the best business advice he ever received was, “the longer you can stand in the gap between stimulus and response, the more appropriate your response typically is.” ■



There's more to *SMJ* than just our magazine and website. Do you use Facebook? Great! LIKE us at www.facebook.com/sheetmetaljournal and keep up to date with industry news.



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MCAWW & SMACNA - WW JOINT MEMBERSHIP DINNER EVENT

APRIL 27, 2017

Bellevue Downtown Courtyard Marriott

5 p.m. - Registration and Reception

6 p.m. - Dinner & Speaker Presentation

Join us for this Joint Membership Meeting as Keni inspires people to achieve greatness by stressing the importance of outstanding leadership at every level.

Please call the SMACNA-WW office at 425.289.5010 to RSVP.

The Event is Sponsored by:

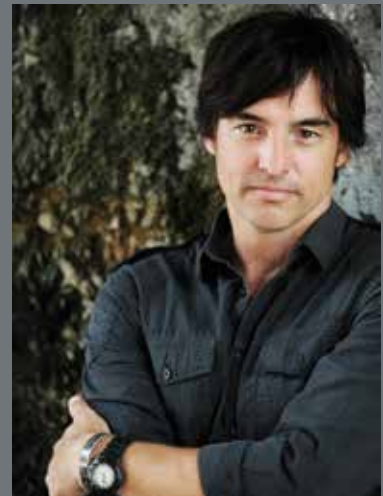


NOTICE: When you RSVP, please indicate if you require special accommodations under the Americans with Disabilities Act. MCA of Western Washington occasionally videotapes, records, or photographs events for the purpose of responsibly promoting the association and/or attendance at future events. By registering for this event, you agree to allow us to use your name and likeness for such purposes.

Featuring

KENI THOMAS

**U.S. Army Rangers Veteran of
the Black Hawk Down Mission**



In the summer of 1993 Staff Sergeant Keni Thomas was deployed to Mogadishu Somalia with the 3rd Ranger Battalion as part of an elite special operations package called Task Force Ranger. On the 3rd of October, Keni and his fellow rangers distinguished themselves in an 18-hour fire fight that would later be recounted in the highly successful book and movie *Black Hawk Down*. Keni tells the incredible story of extraordinary individuals and how they fought to bring each other home.

SMACNA'S ANNUAL GOLF TOURNAMENT: AUGUST 4, 2017 - NEW LOCATION

Mark your calendars to join your fellow SMACNA-WW members for the 2017 Annual SMACNA-WW Golf Tournament golf tournament on Friday, August 4.



Photo courtesy of Washington National Golf Club, Auburn.

SMACNA-WW's annual golf tournament is set for an exciting new venue this year: Washington National Golf Club in Auburn. Don't miss it!

Brand new this year is a location change – this year's event will be held at the Washington National Golf Club located in

Auburn. According to its website, “Washington National Golf Club is one of the Pacific Northwest’s true gems. Designed by award-winning architect John Fought, the 18-hole championship golf course features an exceptional array of contrasting aesthetics. Rugged transitional areas dotted with native fescue dissect lush, emerald fairways, and spectacular, white-sand bunkers cradle impeccably maintained greens.”

Be sure to attend this amazing and fulfilling day of drinking, eating, and golf—an annual classic favourite. Watch your mail for complete details including sponsorship opportunities.

For more information please email Carrie Heinrich at cheinrich@smacnaww.org. ■

2017 SMACNA ANNUAL CONVENTION GRAND WAILEA, MAUI, HI OCTOBER 22ND – 25TH

Registration to attend the 2017 National Convention is now open. Register now to receive your Early Bird savings discount. Complete details and registration information can be found on the SMACNA National's website www.smacna.org. ■

UPCOMING SMACNA-WW EVENTS

April 27

Joint SMACNA / MCA Membership Meeting
Leadership & Teamwork, Keni Thomas
Courtyard Marriott, Bellevue

May 2 - 4

QCA National Issues Conference
Washington, DC

June 11

SMACNA Membership Event
ACME Bowl, Tukwila

August 4

Annual Golf Tournament
NEW LOCATION: Washington National Golf Club
Auburn

September 20

SMACNA Membership Event
An Evening at the Space Needle
Seattle

October 22 - 25

SMACNA National Convention
Maui, HI

November 8

SMACNA Membership Meeting
SeaTac Marriott

December 1

SMACNA Annual Holiday Gala
Seattle Waterfront Marriott

SMACNA NATIONAL 2017 SAFETY SURVEY AVAILABLE NOW

The SMACNA annual Safety Excellence Awards Program (SSEAP) allows SMACNA to recognize members for their outstanding safety performance and collect significant safety and health data. Many SMACNA members have benefited from the program by winning an award or utilizing the data generated by the program.

SMACNA members can access the 2017 annual survey from the SMACNA National's website. Most information needed for the surveys can be found in your company's 2016 injury records. Your input is critical to the success of the program.

The deadline to complete the online survey is May 5. SMACNA-WW is counting on your participation. Your company can gain national recognition by finishing the survey. In addition, for those SMACNA-WW members who complete the online survey by April 21 you will be entered into a draw to win a \$250 Best Buy gift card.

For further information on the safety awards program, contact Mike McCullion, SMACNA director of Market Sectors and Safety, at 703.995.4027 or mmccullion@smacna.org. ■

REGULATORY UPDATE: ACA AND FAIR PAY AND SAFE WORKPLACES ORDER

As with any new Administration, regulatory changes are to be expected when a new President comes into office. However, for the time being, any regulations issued under the Obama Administration, which were effective prior to January 20, 2017, remain in place, and can only be revised through a notice and rule-making process.

On January 20, in keeping with actions by the two previous presidents, the new White House issued an executive order addressing regulatory actions by the federal government. Essentially, the order instructs federal agencies to withhold any new regulations until they can be reviewed by the incoming Administration's secretaries and agency directors, and postpones regulations not effective prior to January 20, 2017.

Executive Order Seeks to Minimize Fiscal Burdens of Affordable Care Act

President Trump also signed an executive order addressing the Affordable Care Act (ACA). A purely symbolic order, it does not change any of the statutory authority currently existing under the ACA.

The order directs the agencies to minimize the economic and regulatory burdens of the Act and to afford states more flexibility and control to create a more open healthcare market.

It instructs the U.S. Department of Health and Human Services (HHS) and other departments or agencies with responsibilities under the Act to waive, defer, grant exemptions from, or delay the implementation of any provision that would impose a fiscal burden on any state or a cost, fee, tax, penalty, or regulatory burden on various groups, including individuals, providers, purchasers of health insurance, and insurers.

It is unlikely that provisions affecting employer-sponsored group health plans would be affected by the executive order. It is anticipated that most of the early regulatory changes to the ACA will focus on what is considered preventive care that must be covered and administrative rules regarding enrollment in the marketplace or state exchanges, and encouraging state Medicaid waivers that modify the Medicaid program toward a program that has work requirements or Health Savings Account (HSA)-like accounts.

In fact, new regulations were proposed on February 17, 2017, that amend standards relating to special enrollment periods, guaranteed availability, and the timing of the annual open enrollment period in the individual market for the 2018 plan year.

Fair Pay and Safe Workplaces Order Could be Rescinded

The Fair Pay and Safe Workplaces Order was issued by President Obama and required federal contractors to report all labor violations. The regulations implementing this controversial executive order was largely enjoined by federal courts prior to the Trump Administration taking office. Nonetheless, the U.S. House of Representatives has moved to formally rescind the regulations.

The Congressional Review Act (CRA) is a rarely used law that affords Congress the opportunity to rescind regulations during a narrow period of time after regulations have been finalized. The CRA requires action by both the House and the Senate as well as signature by the President.

The regulations for the Fair Pay and Safe Workplaces Order would be potentially subject to the CRA, which authority the House acted under in early February. On March 6th, the Senate also passed the rescission. It is believed that President Trump will likewise approve the rescission. ■

SPECIALTY CONSTRUCTION EMPLOYMENT IS GROWING

January's national employment data revealed strong employment numbers in the construction and the specialty construction industries, according to the Bureau of Labor Statistics.

Construction employment continued to grow, posting an increase of 36,000 jobs in January, while specialty trade contractor jobs rose by 11,000. The national unemployment rate remains low, at 4.8 percent.

"The Construction Employers of America is encouraged by the strong job gains among the specialty construction trades," said Jack Jacobson, spokesperson for CEA, of which SMACNA is a part. "Specialty union contractors are investing in domestic workforce training and apprenticeship programs to ensure our industry is prepared when employment growth occurs in specialty construction."

Over the last 12 months, the construction industry added 170,000 jobs, a significant increase after a prolonged slump following the 2008 recession. The more unionized, highly skilled specialty trade contractors continued to dominate construction employment, representing nearly 64 percent of the construction industry, totaling some 4.3 million jobs.

Employment among specialty trade contractors was up 3 percent over January 2016.

"The job growth in January, coupled with a major national infrastructure investment plan under consideration by

Continued on page 23

SMACNA-Western Washington

54TH ANNUAL CRAB FEED

Photos courtesy of SMACNA-WW

SMACNA-WESTERN WASHINGTON DID IT AGAIN!

More than 350 members and guests enjoyed mouthwatering crab, consuming over 750 lbs, in addition to the beer and wine at SMACNA-WW's 2017 Annual Crab Feed held at Ocean Shores Convention Center, Ocean Shores, WA. This year's event was an extra thrilling evening with the added after party extension, which included a live performance by the band **Ready or Not**.

This was also the first-ever pirate theme costume contest—the winners were Vanessa Carman with Hermanson Company and her boyfriend Dave Almerigi; and, Giovanni Benson who is the son of Derek and Beth Benson and grandson of Gary and Jane Benson with PSF Mechanical.

Mark your calendars for next year's Crab Feed at Ocean Shores, February 2, 2018. You will not want to miss it. ■





SMACNA members perform work in industrial, commercial, institutional, and residential markets. They specialize in heating, ventilation and air conditioning, architectural sheet metal, industrial sheet metal, kitchen equipment, specialty stainless steel work, manufacturing, siding and decking, testing and balancing, service, and energy management and maintenance.

CONTRACTOR MEMBERS

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Ballard Sheet Metal Works, Inc.	Miller Sheet Metal, Inc.
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H & R Mechanical Systems, Inc.	Temp Control Mechanical Services Corp.
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C.M. Hoskins Company	K-Solutions Law
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Dorse & Company, Inc.	Milwaukee Tool
ECCO Manufacturing	Norby Company
Edge Construction Supply	Performance Contracting, Inc.
Ferguson Heating & Cooling	Star Rentals Inc.
Gallina, LLP	Sunbelt Controls
General Insulation Company, Inc.	Trane
Genco, Inc.	Winroc-SPI

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Project Spotlight: McKinstry, Seattle



Words by McKinstry and GLY photo courtesy of Ben Benschneider.

SUMMARY

Project Name: Allen Institute
SMACNA Member: McKinstry
Designer: McKinstry
Location: 5005 3rd Avenue S, Seattle
Completion Date: September 2015

At the confluence of architecture and science, technology and craftsmanship, preservation of history and promise of the future, lies the Allen Institute—an elegant, 270,000-square-foot research facility designed to reflect the institute’s guiding principles: team science, big science, and open science.

A large, light-filled central atrium serves as the center, visually and spatially connecting the building’s activities. Labs and offices are organized as a series of “petals” fanning outward from the atrium, maximizing opportunities for daylight and views. The atrium encourages interaction among

the researchers through collaboration “pods,” with white glass marker boards, open work lounges, a media wall, and views into the research labs.

Its seven storeys house dry and wet labs, a data center, and an education center on the top floor, an electron microscopy area on the ground floor, and a public art display that depicts the ever-adapting research occurring throughout the building. The building design also incorporates the terra cotta façade of the two historically-designated car showrooms that formerly resided on the site.

The Allen Institute shares all of the data from its research with scientists across the world. Similarly, the project team embodied that spirit of teamwork to thoughtfully plan and execute this one-of-a-kind project. The integrated design-build team leveraged BIM and Lean principles to resolve project challenges and meet the developer’s goals for preservation and sustainability.



Notably, the Allen Institute’s continued discoveries in the field of brain science drove design changes throughout the course of the project. During both design and construction, Allen Institute scientists, for example, would begin to use new or more equipment and realize their new space would need additional exhausting or cooling. The integrated team designed and built in as much flexibility as possible so as to be prepared to accommodate significant changes or shifts in the owner’s requirements.

Labs require extensive mechanical systems that have to be carefully co-ordinated to make sure there are no clashes. The Allen Institute was particularly challenging in this regard as the ceiling space was highly limited.

McKinstry architectural metals also had a large piece of the project with multiple cladding elements. These included 3,400 square feet of Prodema soffit panel, 19,000 square feet of Morin F-12 .040 aluminum metal panel, 1,500 square feet of custom stainless panels at clean rooms/autoclaves, and over 14,000 square feet of 3/16” aluminum plate cladding panels (Over 37,000 lbs of aluminum).

Sustainability and energy efficiency

The project incorporates numerous cutting-edge features that have made this building one of the most energy-efficient research labs in Seattle. This lab building makes the most out of every kWh by using the building HVAC system (which includes radiant panels, chilled beams, and heat recovery chillers) to reclaim significant sources of heat from lab equipment and the data center, and deliver it to more lightly occupied office areas or to heat domestic water.

Additionally, the lab’s data center can serve as a humidifier for the building via direct evaporative cooling when it’s cold and dry outside. Similarly, the building uses an Aircuity system, an uncommon and innovative technology, to monitor contaminants in open lab spaces, and automatically adjust the outdoor air provided to those spaces to keep pollutant concentrations low, providing verifiable improved air quality and energy savings. ■

The result is a state-of-the-art research facility that is comfortable, efficient, versatile, and beautiful. The building is Certified Salmon Safe, and Certified LEED Gold.

Fast, flexible mechanical construction

The overall schedule was aggressive, and further compounded by an extremely busy marketplace where material manufacturers raced to meet the demands of multiple projects concurrently under construction. An extensive mechanical system and massive mechanical penthouse on level seven also meant a longer installation than typical.

The mechanical systems were fabricated offsite into multi-trade racks. By moving 90% of the mechanical work to offsite fabrication facilities, the team installed four weeks’ worth of systems in three hours. This yielded increased productivity, safer working conditions, higher quality control, and an overall cost savings of 30%.

MATERIALS / PRODUCTS

- Stainless steel (wet exhaust)
- Galvanized steel
- 3,400 sf of Prodema soffit panel
- 19,000 sf of Morin F-12 metal panel
- 1,500 sf of custom stainless panels at clean rooms/autoclaves
- 14,000 sf of 3/16” aluminum plate cladding panels (Over 37,000 lbs of aluminum)



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HVAC in America— a Snapshot of Trends

In 2016, the New Horizons Foundation published an update to the *2012 HVAC and Sheet Metal Industry Futures Study* outlining research by the Continuum Advisory Group validating the 2012 information and describing how the next 5–10 years are expected to unfold for the industry.

Sheet metal contractors, HVAC equipment manufacturers, and other industry professionals participated in interviews, SMACNA Chapter Leaders took part in an interactive workshop, and building owners, facilities managers, mechanical contractors, and HVAC contractors contributed more than 300 responses to a quantitative survey—all as part of the research that defines the 2016 update.

According to the update, several of the trends identified in 2012 have been slow to emerge, and some of those anticipate over the next decade will rely on underlying factors that are different from those identified in 2012.

As an example, energy costs are not currently driving an increase in the demand for HVAC services; however, new research suggests building codes and energy regulation

implemented by government will drive progress in the industry moving forward. Regardless of energy costs, building owners and operators will be mandated to improve overall efficiencies in their structures.

Integration at various facets of the HVAC supply chain may not have come to fruition; however, the rise of intelligent equipment and The Internet of Things will likely drive OEMs, engineering firms, and energy service companies into the service end of the supply chain.

Over the next 10 years, trends in prefabrication and modularization, which held steady in 2016 thanks to the gradual rebound of the construction industry, will play a bigger role in large industrial and commercial jobs and be fuelled by building information modelling (BIM).

BIM, predicted in 2012 to drive disruption of the mechanical trades and blur the lines between and among trades, equipment, and systems, did mature in 2016, but had a different effect. Accessibility and prevalence of BIM in all sizes of HVAC firms has negated larger firms' ability to leverage the technology as a competitive advantage. As BIM continues to mature, there is the sense that integration with other systems and additional factors could lead to convergence of trade categories, equipment suppliers, and solutions. There

Over the next 10 years, trends in prefabrication and modularization will play a bigger role in large industrial and commercial jobs and be fuelled by building information modelling.

is no doubt opportunities exist for businesses to leverage BIM as a way to capitalize on new business models to enact a competitive advantage.

The US HVAC market enjoyed a strong recovery in 2016, with improvement occurring across the country in most locales. Moving forward, growth is expected in health care, infrastructure, residential, and high tech. Demographic, migratory, and industry lifecycle trends will also drive growth in certain geographies, mainly the south and west. ■

The information in this summary was taken from "Providing Vision and Leadership for the Future of the HVAC and Sheet Metal Industry: The HVAC and Sheet Metal Industry Futures Study Update 2016". To view the full text, please visit www.smacna.org.

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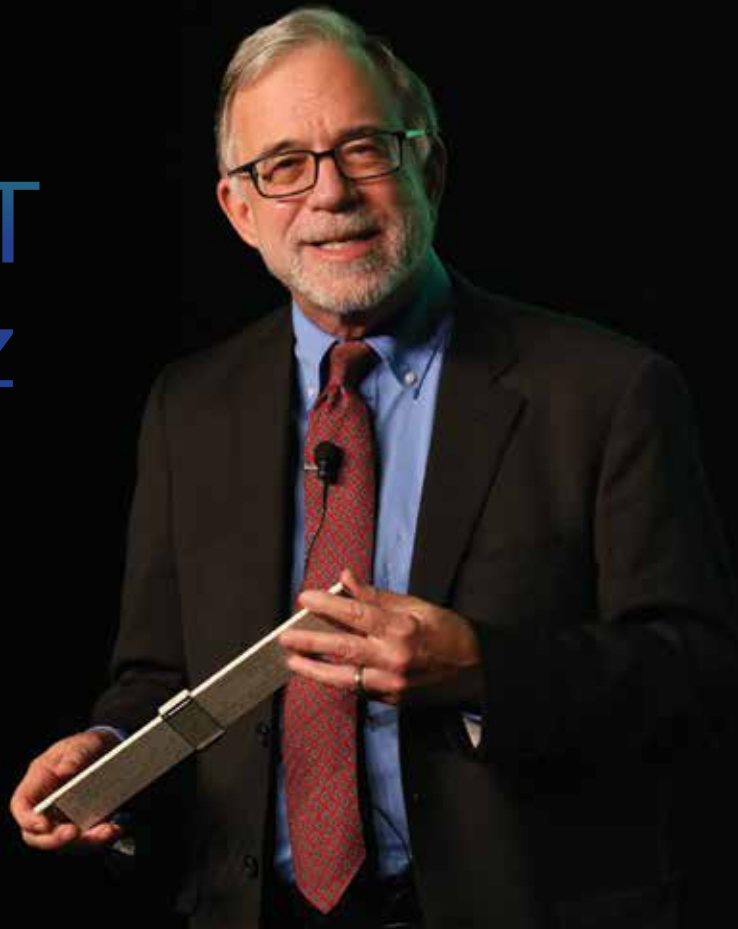
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ASHRAE PRESIDENT Tim Wentz

ADAPTATION ON THE HORIZON

By / Jessica Kirby

Photo courtesy of ASHRAE



ASHRAE President for 2016-17 Tim Wentz hinged his presidential theme on the absolutely critical need for adaptation in today's rapidly changing building design and construction landscape.

Kicking off his presidential theme speech wielding a slide rule – once an essential part of his life and later the catalyst for change – Wentz moves through ASHRAE's main directives for his term, and the initiatives that will back them, coming back time and again to the need for adaptation.

“The greatest risk we face is resistance to change,” he says. “Our ability to shape tomorrow is borne out of our willingness to adapt today.”

Sheet Metal Journal caught up with Wentz with interest in how the need for adaptation translates into success for contractors, and to discuss challenges and opportunities the globally changing future will bring to the industry.

Wentz is an associate professor in construction management at the University of Nebraska - Lincoln. He earned a Bachelor of Science in Mechanical Engineering and a Master's in Business Administration from the University of Nebraska. When he joined his family's mechanical contracting firm, he developed expertise in mechanical design, estimating, and construction management over 19 years in the industry.

He knows what he is talking about when he says the construction industry has historically been slow to change—a real dilemma for integrating the concept of adaptation, since it hinges on the willingness to evolve.

“In my mind this is such a paradox because contractors are risk takers,” said Wentz. “They know how to take a risk; that is what they do with their lives.”

As a fourth generation contractor, Wentz knows the drill, and understands the reticence to adopt new technology. “We are a very traditional industry,” he said. “Tradition weighs heavily with us—more so than it should.”

The other driver for resistance to change is the industry being populated by smaller firms, which tend to look at the costs associated with change. How, then, to express the absolutely critical need for adaptation?

“My grandfather was fond of saying, ‘In business, there are two states of being: growth and decay. That is it,’” said Wentz. “I think he was 100 per cent right. We have to convince our fellow contractors that the rate of change is expanding and unless they expand with the change, they will be left behind.”

The same is true of ASHRAE, of course, and of all professional associations—a message Wentz consistently tries to get out to audiences.

“I often ask them to think of Uber and how it completely changed the landscape,” he said. “The question becomes: who is your Uber? They are out there. We all know it. How will that change the way you do business and can you adapt?”

He reiterates from his theme speech, “The greatest risk we face is resistance to change. We just need to convince our fellow contractors they are really good at handling risks and they can handle this risk, too.”

A second key directive of Wentz's presidential theme is the need to “be in the room”—that is, participate in industry associations, meetings, networking events, and other gatherings where specifiers, suppliers, the competition, and other industry associates will be.

Wentz said three main trends in the industry are making it essential that contractors “be in the room”.

First, there is a change in technology coming down the pipe that will transform the way buildings are designed and constructed. Once the technology change occurs, for the first time the industry will actually be able to do integrated design—something that isn't currently done particularly well or often enough.

“We don't really have the technology yet to optimize that process,” he said. “When the technology comes, integrated design will be the way we do things in the future.”

“The heart of integrated design is having everyone at the table during the design and construction process, including sheet metal, plumbing, and heating contractors, operations and maintenance people, owners, architects, and engineers,” he said. “The whole lifecycle of the building needs to be represented if we are to produce an integrated design.”

Once the technology and integrated

The question becomes: who is your Uber?

They are out there. We all know it.

How will that change the way you do business?

design are in place, designers will design and build buildings based on performance, which is completely different from the current method.

“Previously, we have done things in a prescriptive manner, referring to building codes and standards to achieve specific efficiencies,” said Wentz. “That will all go away. It is going to be a much more systems approach based on how the building performs to meet clients' expectations.”

This process will lead to what Wentz refers to as The Golden Age of the construction industry, something he believes is well on its way.

“That is why contractors have to be in the room,” he said. “And, it's not just to develop networks and to be on these teams, but also to make their expertise available so the project can be successful.”

Although there is no denying the advantage of greener building systems, in some cases sustainability measures change the landscape in ways that demand adaptation. Smaller systems, ductless systems, and pipe and duct reconfiguration can actually shrink the traditional sheet metal scope, opening up room to fail or opportunities to evolve and grow.

“To write the word *crisis*,” said Wentz, “the Chinese take the pictogram for danger and write it with the pictogram for opportunity. I think that is a perfect description of crisis.

“Successful contractors and engineers focus on the opportunities, and not the danger.”

The changing landscape will indeed

bring change—particularly in the form of global initiatives meant to lower our buildings' impact on the environment.

“That will create stress and a great opportunity,” he said, citing the opportunity to hone the high-performance operations model needed to complete the building efficiency cycle.

“We spend a great deal of time figuring out how to do high-performance design and quite a bit on how to do high-performance construction,” said Wentz. “The missing piece is high-performance operations and maintenance. [Without these] it will never be a high-performance building.”

Another area is changing weather patterns and the opportunity to study how buildings respond to and recover from unusual weather events.

“It is never discussed, so it is an area of great opportunity,” he said. “There are other emerging areas like integrated design, building information modelling (BIM), and The Internet of Things—all of these things will create opportunities for our contractors.

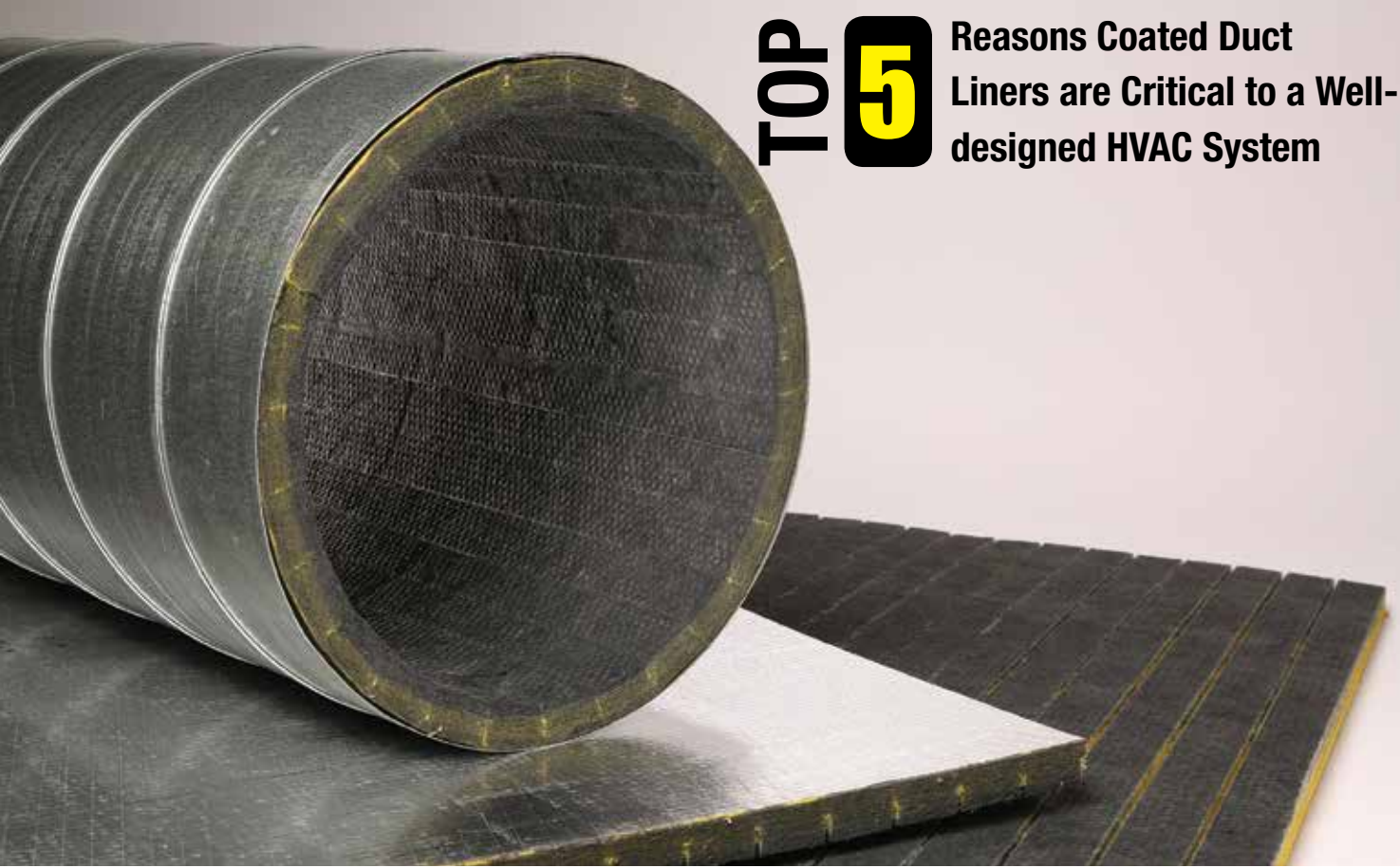
“I'm excited about it. I understand risk is there, but the opportunity is really great.”

Into the future, regulatory and code issues will challenge contractors and demand the need for adaptation.

ASHRAE is currently researching flammable refrigerants, which have raised some concerns, but have proven lower in global warming and ozone depletion potential, while being more efficient than the refrigerants currently in use.

Continued on page 23

Coated Duct Liners



TOP 5 Reasons Coated Duct Liners are Critical to a Well-designed HVAC System

By / Garry Caudill, Product Management, Johns Manville

Coated fiber glass duct liners aren't a new concept in the HVAC industry; however, we have seen a recent trend toward replacing specified coated duct liners with uncoated fiber glass mat-faced duct liners. This trend operates on the assumption that a mat-faced duct liner and a coated duct liner are equivalent and interchangeable.

Fiber glass duct liners with a durable, factory-applied coating on a glass-mat-faced airstream surface, and duct liners with an uncoated glass-mat surface airstream will be compared side-by-side.

Coated and uncoated duct liners each have features that make them uniquely appropriate for differing applications. While uncoated duct liners are a more economical solution that is appropriate for many applications, they do not offer the same, robust benefits that a coated duct liner does.

For example, our coated duct liners are all coated with a proprietary, acrylic coating with an EPA-registered anti-microbial agent that helps protect the coating from damage due to mold or fungi.

Despite the differences between the two products, many mistakenly believe that they can be used interchangeably. This is a risky misunderstanding that can leave an insulation system vulnerable to a number of hazards. Coated duct liners offer a host of features that can preemptively address these hazards, making them better suited to more demanding applications.

Durability: Most duct liners (coated and uncoated) have a glass-mat airstream surface to help provide a tougher, more resilient product. While the durable mat-facing on the airstream surface does offer some level of protection against damage, the addition of a tough, acrylic coating over the mat-facing provides superior protection during duct fabrication,

The coating helps keep the moisture on the surface of the insulation so that it can evaporate before it infiltrates into the core of the fiber glass.

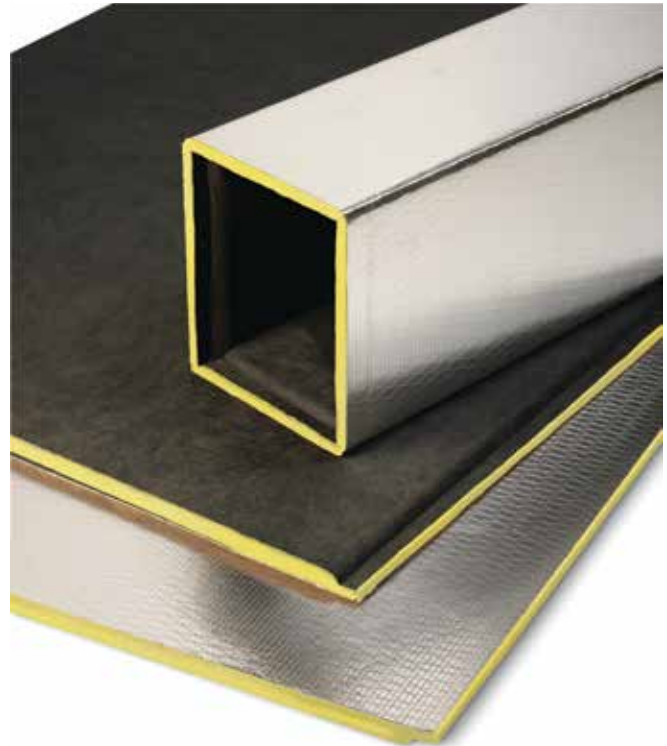
storage, transportation to the job site, installation, and throughout the operating lifetime of the HVAC duct system. Additionally, because the coating makes the duct liner more resilient, it can be cleaned more easily and effectively using industry-recognized cleaning methods (See North American Insulation Manufacturers Association's (NAIMA) "Cleaning Fibrous Glass Insulated Air Duct Systems" for industry standard cleaning methods).

Moisture Resistance: Acrylic coating creates a water-resistant airstream surface that is an important element to an insulated duct system. While a properly installed and filtered system will reduce the risk of moisture ingress, there is still a likelihood that it could occur. When water enters the system, it can cause significant damage to a duct system, ranging from mold-growth to insulation damage. The coating helps keep the moisture on the surface of the insulation so that it can evaporate before it infiltrates into the core of the fiber glass.

Antimicrobial Product Protection: While fiber glass itself is inorganic and as such will not support mold-growth, when dust or dirt enters the system it can introduce foreign microbes into the ducts. If these foreign contaminants are coupled with moisture, mold or fungi growth may occur on any surface, even inorganic surfaces like fiber glass or bare sheet metal.

The first step in reducing the risk of microbial growth is to ensure that the system has been properly designed and installed, with effective filtration, maintenance, and operation; however, coupling this with a smooth surface and protective coating helps reduce the likelihood that dirt, pollen, and other foreign microbes and particles will become trapped on the airstream surface of the duct. The EPA registered anti-microbial agent in the acrylic coating also helps prevent mold spores and dirt from penetrating into the fiber glass mat and core, helping to ensure that the fiber glass isn't compromised in places that are difficult and sometimes impossible to clean.

Improved Airflow: When a glass-mat surface is coated, it creates a smooth airstream surface that optimizes air-flow and reduces friction. This, in turn, ensures that the system is operating as efficiently as possible, and it reduces noise caused by friction between the surface of the liner and the air passing through the duct. Additionally, the coating provides extra protection to keep any loose fibers from entering the airstream.



Specification Compliance: When the specification contains language that expressly indicates the application should use a coated duct liner, an uncoated duct liner should not be considered as an equal to or alternative option. The engineer who designed the system may have specified coated duct liners in order to meet code standards or to ensure safety or system optimization.

Fiber glass duct liners remain the most economical way to control noise and temperature in a duct system; however, the surface coating is an important feature in a lined duct system. Coatings can help prevent costly repair or replacement that could be required if the duct system becomes damaged by microbial growth. While cost, quality, and performance are critical to selecting and specifying HVAC duct liner insulation, it is crucial to consider whether the savings from using an uncoated duct liner outweigh the benefits that a coated duct liner provides.

This article was originally published in Johns Mansville's blog: news.jm.com. JM produces Linacoustic® RC, Linacoustic RC-HP, and Spiracoustic Plus® coated duct liners, which are coated with JM's proprietary Permacote® acrylic coating. For more information, please visit www.jm.com.

LOUVER DESIGN CONSIDERATIONS AND DETAILS

With the wide selection available today, choosing the proper louver for your application may appear to be a difficult task. By considering the requirements of the application and understanding what models are available, louver selection can be relatively straightforward. In this article we will examine the factors that affect louver selection and some of the more common louver styles available.

Selection generally starts with a desired airflow. Practically any louver style will handle any amount of airflow if it is large enough. However, system designers usually have to deal with size constraints. The task then becomes finding a louver that will handle the desired volume while providing adequate rain resistance and airflow characteristics. Here are some considerations:

Rain Resistance: Rain penetration through louvers is undesirable. When louvers are close to water-sensitive surfaces, rain can be extremely harmful. If rain penetration can be managed or it is not harmful, a standard louver may be suitable. If the application cannot accept rain penetration, wind-driven rain resistant louvers should be selected.



Pressure Drop: How much pressure drop is acceptable? This may be the deciding factor in louver selection. Most standard louvers are designed to give good air performance within their intended airflow ranges. It is good to remember that published Air Movement and Control Association (AMCA)-certified pressure drop performance figures do not include the effects of a bird or insect screen. This can add from 10 to 15 percent additional pressure drop depending on the screen type.

Airflow Shutoff: For applications that require airflow only at certain times, operable or combination louvers that completely close the opening are available. These are good choices for emergency-generator or warehouse applications.

Appearance: Is a particular louver design or appearance desired? Does the louver need to blend in with or match other building elements? For architectural louver applications,



By / Norm Grusnick, P. Eng.
commercial products manager, ECCO Supply
photos courtesy of Ruskin

appearance sometimes is the most important feature. The appearance of louvers can be changed to suite almost any application. Other considerations in selection are security, sound, and structural integrity.

Now that we outlined some of the considerations for louver selection, let us review some common louver styles.



Standard louvers are the standard horizontal blade models that have been available for many years. Typically they are 4 to 6 inches deep and are tested to AMCA Still Air standard. These basic louvers provide good free area; however, in our climate they are less effective at rain protection. The blades do not collect water; therefore, rainwater cascades from blade to blade. In our climate louver blades of drainable-blade louvers feature small gutter in their profiles that collect water and drain them to downspouts in the jamb frames. They have better rain resistance than non-drainable but are not effective in storm conditions.

Sight-proof louvers most often utilize a chevron or inverted “Y” shaped blade to prevent see through. This prevents passage of objects through the louver wall. Free area is smaller and pressure drop is usually worse requiring larger louver area for the same airflow.

Thinline louvers are 1 to 2.5 inches deep. They generally air used for curtain wall applications and are a very good choice for small openings.

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DEPARTMENT OF LABOR AND INDUSTRIES WISHA REGIONAL DIRECTIVE ON GENERAL CONTRACTOR LIABILITY HAS CHANGED

In Washington State, general contractor (GC) liability for safety citations has been an ongoing issue. Typically, the Department of Labor & Industries Division of Occupational Safety and Health (DOSH) compliance officers show up to inspect a job site, find violations of the Washington Industrial Safety and Health Act (WISHA), and cite the subcontractor who appears to have broken the rules. The problem arises when the DOSH inspector does not stop with citing the subcontractor, but also cites the GC or upper-tier contractor. These sorts of violations have proven to be a tough pill to swallow—a GC who has a great safety program gets punished for the failures of their subcontractor.

Historically, when citing GCs for the unsafe acts of their subcontractors, DOSH has relied on a prior WISHA Regional Directive (WRD) 27.00 that interpreted GC liability from the seminal case, *Stute v. P.B.M.C., Inc.*¹ DOSH officials were to evaluate the GC's duty of care to its subcontractors and considered a defense much like unpreventable employee misconduct: a) Was the GC aware of or should have been aware of the violation? b) Did the GC establish *safety policies*? c) Did the GC adequately *communicate* its safety policies to the subcontractors? d) Did the GC establish a *process to discover and control recognized hazards*? e) Did the GC *enforce* safety policies in a manner that was effective in practice? The language in the prior WRD found the GC duty of care to be lower than the duty of care of the subcontractor.

Subsequent to the *Stute* decision, the Washington Supreme Court has stated that a GC, upper-tier contractor, or landowner under WISHA liability is "*per se liable*."² As a result, the Department recently updated WRD 27.00 on November 30, 2016. It now notes that when a subcontractor is cited for a serious or greater violation, then a parallel citation against the GC, upper-tier contractor, or landowner will usually be appropriate under the concept of *per se liability*. The GC is now on notice that it is responsible for every employee on its job site, not just its own employees. The GC is found to be in the best position, financially and structurally, to ensure WISHA compliance. However, the most recent guidance on *per se liability* suggests that if the subcontractor will be able to successfully assert the defense of unpreventable employee misconduct, then no violation should be issued to either the GC or subcontractor.

What proactive steps should a GC take to protect against liability under the new WRD?³ First, make sure to a) update safety policies to be tailored to the hazards at a particular job site and include the policies as an addendum to the contract



By / Karen Forner

with the subcontractor; b) actively communicate the safety policies to the subcontractor and record this in written form; c) supervise and inspect the subcontractor's work, memorializing the inspection with dated pictures and dated written reports; and d) document corrections and enforcement actions for employee misconduct. Second, it is highly recommended that all agreements between GCs and subcontractors contain a provision requiring the subcontractor to notify the GC of any DOSH inspection and allow the GC to participate in and coordinate a response. The GC should require the subcontractor to allow the GC the option to challenge any subcontractor violations and require subcontractor co-operation with same. In this way, even if a subcontractor chooses not to directly defend itself against a WISHA citation, the GC could elect to fight the subcontractor citation and/or allege employee misconduct to protect against a parallel citation.

The law on GC liability has been in flux, and the Department's new WRD 27.00 puts GCs on notice that they are being held to a higher standard. All cases are fact specific. Employers are encouraged to consult with legal counsel as soon as possible when an inspection occurs to get strategic advice on how to handle inspections and citations. ■

¹ 114 Wn.2d 454, 788 P.2d 546 (1990)

² See *Kamla v. Space Needle Corp.*, 147 Wn.2d 114, 122, 52 P.3d 472 (2002).

³ These recommendations do not constitute legal advice, but merely opinions expressed by the writer intended to assist businesses with understanding the law in order to meet or exceed compliance.

Karen Galipeau Forner is the founder and managing member of K-Solutions Law in Bellevue, Washington. Karen represents employers in the areas of workplace safety, workers' compensation, administrative appeals, and employment law. She is a frequent presenter at continuing legal education seminars and to employer groups. Karen has over 25 years' experience defending and resolving a wide range of workers' compensation, WISHA, and employment law matters. Prior to starting K-Solutions Law, Karen worked as senior attorney at a law firm in Seattle and for the Washington State Attorney General's Office. She was the Program Advisor for the Industrial Insurance and Washington Industrial Safety and Health Act (WISHA) Discrimination Programs for more than 10 years and the Program Advisor for the Workers' Compensation Sren also litigated complex WISHA, Industrial Insurance, Third Party, and Crime Victims Compensation Act cases. She recently served on the Washington State Bar Association Character and Fitness Board.

LEGISLATURE FACING TOUGH END GAME NEGOTIATIONS

The official end to the legislative session is April 23. However, most believe the Legislature will need extra sessions to get the two-year budget done and to provide additional funding for education.

The McCleary Mandate

The mandate to provide more money for K to 12 education stems from a court case called McCleary. The state's constitution requires adequate state funding for basic education. The state Supreme Court ruled in the McCleary case that the state is not spending enough on basic education. The problem is two-fold. State funding has not kept up with demand and local school property tax levies have crept in to pay for some of the basic education portion. The Legislature has increased funding over the last four years, but will need more to satisfy the Court.

The Republicans and Democrats disagree on how much more is needed and how to pay for it. The Senate Republicans proposed a new plan that changes the way the state reimburses for education, switching to a per pupil formula, and adjusting the way property tax levies for schools are handled that puts more burden on the state. The Democrats have offered a bill that outlines how the money would be spent, but does not specify where the additional money to pay for it would come from.

Governor Inslee proposed three new taxes to fund McCleary and several other state programs—a capital gains tax on higher income people, an increase in the business and occupation tax for the services sector, and a tax on carbon emissions. So far the Legislature has not rushed to hear the bills. Discussions on which tax – if any and how much – will happen at the end of session or in extra special sessions that will most likely be necessary.

Other Issues and Opportunities

Last year there were competing proposals on minimum wage, but the issue was not dealt with in the Legislature and ended up on the ballot in November. This year a similar dynamic is happening on paid family and medical leave. Faced with the prospect of an initiative this fall, there are discussions on a compromise bill. The paid family and medical leave



By / Kathleen Collins,
SMACNA Legislative Consultant

program would operate like a socialized insurance program, paying workers a set amount when they have a family or medical issue that requires time away from work. Most agree the program should use the unemployment compensation system to collect the money and Employment Security should administer the leave program. But the question of who pays – only employees or employees and employers – has not been agreed. The length of leave is also being debated.

The state capital budget will almost certainly increase funding for new schools and classrooms, creating opportunity for SMACNA contractors interested in this type of work. But the increase in school construction funding will result in a reduction of funding for other types of state construction. There may be opportunity for SMACNA contractors in the affordable housing area. This year there are several proposals that would provide local government new revenue options to construct affordable housing. These projects would likely be in the urban areas and on a commercial scale. For the rural areas, the Legislature is looking at expanding a loan program for homeowners who need weatherization work but need other structural work before the weatherization work can be done.

In Conclusion

The work of the Legislature on most bills will be nearing completion at the time of publication, but the bills have not been resolved at the time this article was written. SMACNA will provide an update on bills related to contracting and other areas of interest that have passed the Legislature at the end of April. If you have questions, please contact the SMACNA offices. ■

Kathleen has worked for SMACNA Western Washington as its Legislative Consultant for over 20 years. She has a government affairs consulting business, Capitol Strategies Consulting, and represents other business and transportation clients.



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NEWS & EVENTS

Continued from page 9

Congress, make us optimistic that additional growth will occur in the specialty trade construction industry over the coming years,” continued Mr. Jacobson. “We urge Congress and the Administration to seize the bipartisan opportunity across the country to invest in infrastructure and rebuild America.”

The CEA is made up of seven specialty construction organizations including SMACNA, and represents more than 15,000 employers and 1.4 million employees nationwide. Find more information at Construction Employers of America's website <http://www.constructionemployersofamerica.com/>. ■

SMACNA INTRODUCES NEW PRINCIPLES OF JOB COSTING BOOK

An effective job costing system helps construction managers and business owners be more successful and profitable. It is also a critical tool for identifying and controlling risk. SMACNA’s updated book *Principles of Job Costing* will provide insight into improving your company’s job costing system.

Properly set up and managed, a job-cost management system will help make a company more profitable with less risk and the ability to grow and manage larger projects.

The updated book includes chapters on system set-up considerations, the estimating system, converting the estimate into an operating budget, progress reporting, change control, work in progress, and cash-flow forecasting. Appendixes include useful samples of general ledger structure, cost code structure, an estimating turnover checklist, sample accounts receivables escalation process, and a 12-week look-ahead projection on cash.

Learn more about SMACNA’s *Principles of Job Costing*, available at no charge to members in the Business and Management section of the SMACNA website. ■

ASHRAE PRESIDENT: TIM WENTZ

Continued from page 17

“We have to figure out how to use them and how to maintain them to building owners’ satisfaction so we can provide a safe

environment and one that impacts our environment less and creates more efficiency,” said Wentz.

“These are just a few challenges on the board—these and others will create opportunities where contractors and engineers have to adapt and adapt quickly. They can’t be the last person to the table because there may not be a chair there.”

ASHRAE sees these same trends and its members are working hard to make “the room” bigger.

“Engineers, contractors, and architects have not done a great job in collaborating and we are trying very hard to make the room bigger so all three of us are better able to adapt as changes manifest,” said Wentz. ■

Read the full text of Wentz's theme speech or watch the video at www.ashrae.org. ■

ENGINEER'S DESK

Continued from page 20

Wind-driven rain resistant louvers have been developed over the past decade and utilize new technology to minimize rain penetration. The louver depths range from 4 to 8 inches. The blades may be horizontal or vertical and generally feature complex profiles. Blade spacing is closer and unlike standard louvers these are tested in AMCA’s Wind-Driven Rain Penetration test, which simulates severe storm conditions. Many models can provide water penetration efficiency of 99 percent. These louvers can be as much as two or three times the cost of standard louvers, but in many cases can be half the size.

Acoustical Louvers: The louver blades are filled with sound-deadening material, typically mineral wool or fibreglass. They are usually fairly deep, as much as 12 inches. The free area is usually less than standard louvers; these models can provide as much as 10-12db noise reduction in free field conditions.

The louver styles described in this article make up the majority of louvers available, but there are other specialized louver products available. Even though there are many louver products to choose from, selection can be easier with a clear understanding of the design needs. Your local louver representative can be of great assistance. ■

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