SUMMER 2017

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British Columbia

SMACNA BC 2017 AGM & Convention

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BRITISH COLUMBIA SMACNA CHAPTER

Official Journal of Record for SMACNA-BC

BRITISH COLUMBIA SMACNA CHAPTER

PROMOTING GROWTH AND STABILITY IN OUR INDUSTRY

Formed in 1969, the British Columbia Sheet Metal Association (SMACNA-BC) was the first international chapter of the Sheet Metal & Air-conditioning Contractors National Association (SMACNA). Founded in 1934, SMACNA traces its history to the National Association of Sheet Metal Contractors established in 1910, and has 2,300 members worldwide.

SMACNA-BC is a member-driven association representing unionized sheet metal contractors in the Mainland of BC, and suppliers to our industry. It promotes the growth and stability of the members and industry.

OUR MANDATE

- To improve the financial stability and business conditions of the sheet metal industry, and to develop and promote methods to improve managerial proficiency
- To improve quality, efficiency and productivity of this industry, and to implement high standards of work
- To establish and maintain high ethical standards of conduct between members of the Association, and between members and owners, architects, engineers, other contractors, and the public
- To study and help in the development and enforcement of governmental codes and regulations, and such legislation as may be necessary for the best interest of the public and the sheet metal industry
- To promote harmony in labour relations
- To exchange technical, professional, and educational information with other contractor associations in the sheet metal industry and its allied trades in Canada and other countries
- To affiliate as a Chapter with the Sheet Metal & Air-conditioning Contractors National Association, Inc.

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Next issue: Green Market • Safety Culture • Specialty Metal Work

INNOVATION OR BUST

by / Jessica Kirby, Editor

The British Columbia Construction Association (BCCA) has published a follow-up to its Innovation Report from February of last year, which indicated BC's construction sector lags behind other jurisdictions when it comes to innovation. While this shouldn't come as a surprise to most, it is important to understand how "innovation" is defined and what the criteria are for establishing one's rank, as an industry, company, or individual, in the innovation race. Once we know what that even means, what does it mean to us as business owners? Are we doomed unless we strip down and makeover Maury Povich-style, or can we make smart, meaningful, small-scale changes that help us meet the demands of an ever-dynamic industry?

Innovation defined means a new idea, device, or method, but it can also mean, in more general terms, the application of better solutions that meet new requirements, unarticulated needs, or existing market needs, according to an article in *Journal of Education for Business*. In this sense, innovation doesn't always mean a new thing; it is just as relevant applying old tricks to new scenarios to create more effective, productive, and lucrative results.

BCCA's 2016 report defines innovation as the successful introduction of new technologies or procedures into industry. In terms of construction, this means anything from products, equipment, and materials to techniques and management strategies. The report found construction innovation across Canada was "largely locally-focused, undiversified, and with relatively small export markets," compared with other industries. Some will say, "So what?" as they drive the same vehicle to the same shop and use the same tools to produce the same widget hey have for decades, knowing everything is running smoothly and if it ain't broken ...

Except sometimes it doesn't have to be broken to instigate change. If we jump into deep water wearing a child's life jacket, we will not stay afloat, even if the life jacket is in excellent shape. The truth is, things change. In construction, thos methods and products may still "work," but they may be fitting old needs. There may not be pressue from within the industry to innovate, but external factors are ever-present in our growing, changing, and in many ways, shrinking world and the static rarely survive.

As we move into the next five years we have a global market, labour shortages, advancement in technology, and social pressures urging us to the edge of our comfort zones where we will have to ask ourselves where we really *want to be* in business and how that differs from where we *have to be* to compete. The successful will leap into new forays and the others will wave goodbye from the shore.

"Although it may affect individual businesses very differently, there is general agreement that the way construction gets done 10 years from now will be very different from today," said BCCA's 2016 report. "Innovation will be essential to the industry as a whole to reduce capital construction costs, improve productivity, increase the number of projects completed on time and within budget, and reduce the number of defects and accidents. Investment in innovation can also help companies to differentiate, improve their reputation, and compete for the next generation of talent in a tight labour market."

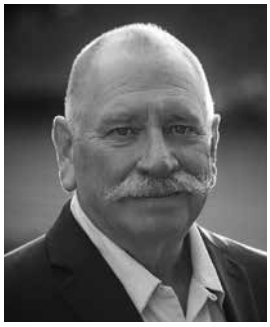
And to answer the $25 million question: innovation doesn't have to mean a full-on, made-for-reality-TV makeover or from-the-ground-up rebuild. Create and market a social media strategy (aka Faebook page) and reach new clients. Train foremen on management and leadership and boost productivity. Renovate the front office to rejuvenate administrative staff and see what it does for customer service. Demo one new tool a month and blow your mind with the efficiency of new technology. Automate just one process and save time for more important things like revamping your management strategy ... or golf.

BCCA's new report called Procuring Innovation lays out the case for the sector to recognize the procurement process as the key for driving innovative projects and sector development.

"The culture of lowest bid does not drive innovation in our industry," observes Chris Atchison, president of the BCCA. "Margins are tight and businesses have to operate profitably, yet if we don't innovate we're in danger of undermining our collective ability to compete. The sector has to introduce whole-life value to the process."

Check it out on BCCA's website and remember, the edge the construction industry has over other sectors is it's essential nature—no matter the business climate, we will always continue to build into the future in some capacity. Whether your company is part of that future depends on your ability and willingness to innovate. ▪

SMACNA-BC 48TH ANNUAL CONVENTION, MAY 11, - 13, 2017, WESTIN RESORT & SPA, WHISTLER, BC



by / Bruce Sychuk
Executive Director, SMACNA-BC

On Friday, May 12, the Mayor of the Resort Municipality of Whistler, Mayor Nancy Wilhelm-Morden, took time out of a very busy schedule to welcome SMACNA-BC to Whistler and declare the 28th Annual Convention open. Mayor Wilhelm-Morden gave a brief talk on the history of Whistler and what is on the horizon for the future.

After the Mayor's opening comments, we took the opportunity to welcome our special guests:

Representing SMACNA National, CEO, Vincent Sandusky, Chantilly VA; Executive Director of Labor Relations, Deb Wyandt; SMACNA Western Washington, Jim Reynolds, Vice President - HVAC Design and Construction at Auburn Mechanical Inc. Auburn, WA.; Inland Northwest Sheet Metal Contractors Association, Bette & Bud Price; MCABC President Dale Miller and Linda; and, SMWIA Local Union No. 280 Business Agent, Dan Burroughs and Diane.

Also recognized were the pioneers of SMACNA-BC, the Honorary Life Members, Rick Baty & Sandy Bragg, Allister Inglis & Dalana Rayner, and recently inducted Life Member Tony Paris and his wife Maria.

After the recognitions and a hearty breakfast, SMACNA-BC delegates ventured out in the less than warm temperature and brisk wind offered by spring in Whistler and travelled to their selected offsite activity.

The activities offered were plentiful. The always popular Zip Trek Zipline, sponsored by All Therm Services Inc. & Downtown Custom Metal Works. For those who dared to brave the elements, there was golf at the truly magnificent Big Sky Golf & Country Club in Pemberton. This event was co-sponsored by Ridge Sheet Metal Co. & Wm. P. Sommerville 1996.

A new event added this year that proved to be very popular was Escape Whistler. This is a Live Escape Room and is a real-life gaming experience where groups of two to six people are placed inside a themed room. The group is presented with puzzles, riddles, and clues, and they must work together to solve them within 45 minutes to Escape from the situation they are in. Escape Whistler was co-sponsored by e.h. price – Vancouver & Smith Sheet Metal Works Ltd.

For the younger SMACNA-BC delegates, there was Whistler Bounce co-sponsored by Paramount Sheet Metal Ltd. and EMCO HVAC Burnaby. The only description needed for this event is, "lots of bouncing followed by pizza." Kids (and adults) had a blast.

The final event offered was for those who would rather have things a little lower key—the only challenge was to test the sensitivity of their palates with sumptuous tasting menus and wine. This event was the Whistler Village Lunch Tour, co-sponsored by Tri-Metal Fabricators & Ames Metal Fabricators 82 Ltd.

At Friday night "Fun Night" aka "Game On," (major sponsors included Spectrum Sheet Metal Ltd., Northwest Sheet Metal Ltd., & Intercon Insurance Services Ltd.) our décor expert, Darrin Buchannan, and his crew from Noteable Entertainment transformed your standard, mundane, hotel type ballroom to a you-had-to-be-there, utterly fantastic sort of mancave complete with fun and games. There was a host of challenges for the six teams, such as thawing a frozen shirt and putting it on, eating a marshmallow every time Sting / background singers from the "Police" said "Roxanne" (26 times), and washing it down with a Pepsi every time "you don't have to put on the red light" was said. I didn't count how many times that was said, as we didn't even get close to the end as the contestants were less than, let's say willing, to complete the task. With a host of other similar tasks in the bag, the finale of the evening was all the teams being represented on stage for a "Lip Sync Battle / Air Band Challenge." Beyond description, just way too much fun.

The early Saturday morning event was the world famous Fourth Annual, Air System Supplies Fun Run. Thanks to Colleen Braun and Glenn Matthiesen for hosting and organizing this event.

After breakfast Saturday morning, we got down to the business part of the weekend—the Annual General Meeting. President Al Benning called the meeting to order, and introduced the Board of Directors and special guests, before getting into the business of approvals and reports. Bruce Sychuk conducted the elections for the nominated positions whose terms had been completed and now needed to be filled.

- Tony Paris of Apollo Sheet Metal Ltd., was re-elected for a five-year term to the Joint Conference Board.
- Mark Kuelle of Austin Metal Fabricators L.P. was elected

for a four-year term as management Trustee on the Sheet Metal Industry Training Board.

- Mark McLaren of Ridge Sheet Metal Co. was re-elected to serve a four-year term as Director on the SMACNA-BC Board of Directors.
- Dan Taillefer of Viaduct Sheet Metal Ltd. & Kevin Taylor of City Sheet Metal Ltd. were elected to three- and four-year terms, respectively, as Directors on the SMACNA-BC Board of Directors.

Dan and Kevin are replacing long-time Directors, Joe Toso, Tri-Metal Fabricators, who has served on the Board of Directors, in all capacities since 1996, and Brian Featherstone, formerly of ECCO Supply, now Viaduct Sheet Metal Ltd, who has served on the Board of Directors, also in all capacities since 2000. On behalf of the entire SMACNA-BC Membership and the Sheet Metal Industry of British Columbia, we thank you for your selfless dedication and service over your tenure. Your professionalism and experience have been instilled as a template for future Board members, maintaining and expanding the continued success of this exceptionally outstanding association.

(Note: Bernie Antchak of Northwest Sheet Metal Ltd., has since been appointed by the Board of Directors to serve as SMACNA-BC Vice-president for 2017-18)

Special guest, Deb Wyandt, Esq., Executive Director Labor Relations, SMACNA Inc., reported on recent developments relative to the SMWIA and SMACNA Inc. She also reported on a variety of new / updated SMACNA Inc. sponsored membership services and programs.

The AGM concluded with President Al Benning passing the gavel to SMACNA-BC President for 2017-18, Angelo Paris of Apollo Sheet Metal Ltd. in Coquitlam, BC.

After the AGM and the luncheon that followed, the attendees received the unique opportunity of getting up close and personal with SMACNA National CEO, Vince Sandusky. Vince shared some personal experiences and life lessons learned through the years. This was Mr. Sandusky's first time at a SMACNA-BC Convention. Now more than ever, SMACNA-BC Members are looking forward to the SMACNA National Convention this coming October in Maui, so we may reciprocate SMACNA National's support of the SMACNA-BC convention.

Saturday night was the Kids' Party and the President's Ball, where once again the gang from Noteable Entertainment transformed the ballroom, this time from a man cave games room to a futuristic venue complete with lit up glass tables. There was dining, fine wine, hosted by Chris Ceraldi and the rest of the gang from Frost Insulation, then dancing the rest of the night away to the great quality music provided by, back by popular demand, one man show band, Andrew Johns. From the ambiance of the décor, the food and drink, the kids at the Kids' Party, and some of the best entertainment we have ever had, the formula for a successful event was now complete.

Special shout out and thank you to Dean Kaylan for all the great photos. https://deankalyan.com/

See you all next year at the SMACNA-BC 49th Annual Convention, April 26-29, 2018, Penticton Lakeside Resort & Conference Centre, Penticton, BC

I would like to take this opportunity to thank all our sponsors for their continued support of the convention and SMACNA-BC:

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COLLEGE OF FELLOWS WELCOMES NEW MEMBERS

SMACNA's College of Fellows elected four new members at its recent meeting.

They are: John Comforte, Climatemp Inc., Broadview, Ill.; Joseph Lansdell, Poynter Sheet Metal, Indianapolis; Bruce Sychuk, SMACNA British Columbia, Surrey, B.C., Canada; and, Dana Thompson, SMACNA National, Chantilly, Va.

These new members will be formally inducted into the College of Fellows at SMACNA's 74th Annual Convention in Maui in October. ▪

UPCOMING SMACNA-BC EVENTS

July 16-18, 2017
SMACNA National Board of Directors Meeting
Whistler, BC

Friday, September 15, 2017
SMACNA-BC Golf Classic
Northview GC, Surrey, BC

Sunday, October 22–Wednesday, October 25, 2017
SMACNA National Convention, Maui, HI

November 24, 2017
SMACNA-BC Annual Christmas Party
Pan Pacific Hotel
Vancouver, BC

BRITISH COLUMBIA SMACNA CHAPTER

British Columbia Sheet Metal Association (SMACNA-BC)

Providing products and information related to the Sheet Metal Industry, including technical manuals and guidelines.

The unmatched technical and managerial expertise of SMACNA-BC Contractors is enhanced by the talent and skills of the workforce they employ. SMACNA-BC Contractors employ only Red Seal Certified Sheet Metal Journeymen and Registered Apprentices.

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Viaduct Sheet Metal Ltd.
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2017 Convention & AGM Whistler BC

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MASTER DIGITAL AND SOCIAL MEDIA MARKETING

How do you keep up with the digital world when it is always changing?

Award-winning website designer Mitch Seifert will share his most effective ways to market your business in this fluid environment in "Marketing with Digital and Social Media," during SMACNA's Annual Convention, Oct. 22-25, in Maui.

He'll show you how to critique and improve your website, ways to effectively use website content, the importance of understanding website analytics, and everything you need to know about improving your corporate visibility online.

You will learn how to use web copy more effectively, including images and video. Attendees will take away the very best practices for search engine and mobile optimization in the sheet metal industry. In addition, Mitch will present ideas and concepts on how to attract potential customers online using social media and effective campaigns.

Mitch Seifert, director of web services with Nehlsen Communications, has more than 10 years of experience in web design and development. He specializes in creating front-end website structure, navigation, layout, and design. He has worked with such companies as John Deere, SMACNA Greater Chicago, and IMAX.

Register today on SMACNA's Annual Convention webpage. ▪

SMACNA RECOGNIZES CANADIAN FIRMS FOR SAFETY EXCELLENCE

Once again SMACNA is proud to recognize our Canadian member companies for their outstanding safety and health performance.

Each year, SMACNA recognizes U.S. members for advancing occupational safety and health through SMACNA's Safety Excellence Award Program (SSEAP). SMACNA began the SMACNA Safety Excellence Award Program–Canada (SSEAP–C) last year.

Congratulations to Dilfo Mechanical Ltd., the overall winner of the 2017 SSEAP-C award for their exceptional efforts in safety and health. Canadian firms Vets Sheet Metal and Giffin Sheet Metals Ltd., will receive honorable mention awards in the "greater than 100,000 man-hour" category and the "less than 100,000 man-hour" category.

Like the U.S. Safety Excellence Award Program, the Canadian SSEAP-C program will track and trend annual data to identify proven practices in safety and health in Canada once enough information is available.

Canadian firms may also be interested in the U.S. data trends as well. These trends are available in the ""SMACNA Safety Profile"" on SMACNA's safety webpage.

In addition, Canadian firms who submitted surveys showing zero medical cases (those requiring no medical practitioner care) will receive a "SMACNA zero injury award." The winners of the honorable mention and zero injury awards will receive their trophies in the mail.

The criteria for recognizing Canadian companies for safety awards differs from the U.S. program because Canadian safety regulatory efforts are completed separately by provinces. In the U.S., federal OSHA defines the regulatory reporting categories for the entire country.

SMACNA would like to thank all the Canadian companies who submitted surveys and congratulates them for their successful safety and health programs.

Watch for SMACNA's U.S. safety award program winners in the July issue of SMACNews.

For more information on SMACNA's safety award programs, contact Mike McCullion, SMACNA's director of market sectors and safety (mmccullion@smacna.org / (703) 995-4027). ▪

ICC PARTNERSHIP WITH ASHRAE, AIA, USGBC, AND IES MEANS HIGHER PERFORMING BUILDINGS WILL BE EASIER TO ACHIEVE

A unified green building code that could become the foundation for LEED certification was created in 2011, thanks to a partnership among ASHRAE, the International Code Council (ICC), the American Institute of Architects (AIA), the Illuminating Engineering Society (IES), and the U.S. Green Building Council (USGBC).

That effort got a boost in August 2014, when ICC and ASHRAE agreed to align the technical requirements of ASHRAE's Standard 189.1 for High Performance Green Buildings (189.1) with ICC's International Green Construction Code (IgCC) into one single model code.

With that agreement, and with the subsequent definition of each organization's roles, the ASHRAE Standard 189.1 committee continued revising the standard so it could provide technical content for the IgCC, with the ICC responsible for the administrative sections and publication.

This integrated document, coined the "IgCC powered by 189.1," will become the 2018 version of the IgCC (2018-IgCC), due to be published in summer 2018.

By collaborating on developing the 2018-IgCC, these organizations envision a new era of building design and construction that includes environmental health and safety as code minimums. The goal of the 2018-IgCC is to provide fundamental criteria for energy efficiency, resource conservation, water safety, land use, site development, indoor environmental quality, and building performance that can be adopted broadly.

With that foundation, local jurisdictions can build upon regulatory requirements by leveraging complementary leadership strategies that support and encourage the evolution of the building community. Initial steps in achieving these outcomes include publishing the 2018-IgCC, streamlining compliance for aligned strategies in LEED certification, and promoting the use and implementation of these tools.

For more information visit ASHRAE at www.ashrae.org or The International Code Council at https://www.iccsafe.org/. ▪

BCCSA'S NETWORK OF REGIONAL SAFETY ADVISORS IS UP AND RUNNING

Our regional safety advisors are available to assist contractors who have safety questions or concerns, are looking to develop safety programs and materials, or want to prepare for COR (Certificate of Recognition). These services are available to all construction (sector 72) employers, and select aggregate and ready-mixed employers.

Now serving contractors in the Lower Mainland, Northern BC, Southern Interior, and Vancouver Island, each Regional Safety Advisor offers extensive knowledge of and experience in construction industry health and safety, and will focus on providing straightforward and practical assistance to all types and sizes of construction companies for whom meeting safety goals can sometimes be challenging.

We also offer in-house safety advice and consultation via telephone or email. Experienced staff are available to answer a wide range of questions about OH&S, including WorkSafeBC regulations.

To schedule an appointment with a co-ordinator in your area, please feel free to contact them directly through BCCSA's website at https://www.bccsa.ca/index.php?id=138 ▪

Continued on page 27

Scheduling for Success:
If Time is Always of the Essence,
Where Does that Leave Schedules?

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by John Owens, C.E.T., P.M.P.
Revay and Associates Limited, Ottawa

It was not until the First World War that simple bar charts were employed by the British army for planning military exercises. The construction of the Empire State building (which began in 1930 well before the invention of PCs or modern scheduling techniques) was a marvel of scheduling excellence. The site in downtown Manhattan was so congested there were virtually no lay down areas. Expediters at the materials' source had to arrange for delivery to coincide precisely with installation. The building's 58,000 tons of structural steel were erected in six months at the remarkable rate of 4.5 floors per week, all without the aid of a critical path method (CPM) schedule or a computer.

With the development of cheap, powerful computers, scheduling entered a new era. Today's project schedules can usually be handled by one person and result in sophisticated graphical output. A word of caution, however: a schedule that is produced by one person in a vacuum, without input from those who will actually build according to the schedule, will be absolutely useless.

The Need for Construction Schedules

Owners and contractors agree that completing a project as quickly as possible is a common goal, although for different reasons. While owners and contractors have similar goals, they have differing needs and expectations from the schedule. Contractors will (or at least should) use the schedule primarily as a planning and management tool that determines the overall approach to the job, organizes and plans labour and equipment resources, and helps organize materials purchasing and deliveries, sub-contract awards, and key shop drawing submittals.

Owners will use the contractor's schedule to monitor progress and see when the job will be completed. The schedule will help to plan and monitor cash flow requirements and determine when owner-supplied materials and equipment must be delivered to the site.

Construction projects continue to increase in size and complexity. So does the demand to build more quickly and economically. In 1982 (reprinted in 1992), The Business Roundtable issued a report entitled "Modern Management Systems, A Construction Industry Cost Effectiveness Project Report" in which the authors state:

"The construction industry has been criticized, to a large extent justifiably, for its slow acceptance and use of modern management methods to plan and execute projects. Many people both inside and outside the industry view this as the primary cause of serious delays in schedules and large cost over-runs that have plagued the construction industry in recent years. Yet there is no lack of modern, cost effective management systems that provide project managers with all the controls they need. Owners are the ultimate beneficiaries of improvements in cost, schedule, and quality of their construction projects. But many owners do not seem to be aware of the economic payoff from the appropriate use of

modern management systems, and therefore are unwilling to incur the costs of operating the system."

While there are obvious benefits to proper scheduling – and potentially saving money is a pretty compelling reason – why do many contractors not want to provide owners with a schedule? Why do owners not seem willing to pay for the scheduling from which they will ultimately benefit? Over the years, we have heard many reasons for contractors not wanting to put the effort into a decent schedule and supply it to owners. Here are but a few examples:

- "Schedules are too expensive, if I include the cost of preparing a schedule in my bid I won't get the job."
- "It doesn't help me get the job done."
- "It takes too much effort to do it."
- "The schedule is not accurate, the job never seems to go the way it has been scheduled."
- "How can I possibly schedule a job when there are so many changes, right now I have no idea when the job will be done because all we seem to be doing is dealing with changes."
- "The owner is only going to use it against me."

and an all-time favourite:

- "We've only been on the job for six months and the owner says we're seven months behind schedule, how can that be?"

This final example illustrates a fundamental lack of knowledge about how to read and understand the important information contained in a schedule, and demonstrates a frequently encountered problem. There is generally a lack of proper training in the preparation, understanding, and use of schedules in the construction industry. This is apparent not only in contractors but also owners, architects, and engineers. The other issues listed above are more challenging to resolve, but there are solutions.

Training

Today, many universities and technical colleges offer scheduling courses, and many excellent books have been written on the subject. There are also companies that provide customized in-house training in scheduling.

Construction companies require sufficient sales volume to justify employing a full time scheduler. Unfortunately, this is often an entry-level position for a recent graduate who may know how to manipulate software but knows little about construction. In most small and medium sized firms, the project manager is often the scheduler. Having a project manager who has been properly trained to create schedules makes good fiscal sense; the benefits will ultimately far outweigh the cost of training.

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The "Partnered" Approach to Scheduling

A partnered project is one where all the project stakeholders – owner, contractor, architect, engineer and consultants – get together and agree to work together to successfully achieve the common goals of the project. A dispute resolution process or 'ladder' is established clearly, setting out the method, roles, and responsibilities of each party. The basic principles of partnering can be applied to assist project teams in working together to plan and schedule complex projects.

Many readers will have been involved in a project where the project schedule is duly updated monthly by the contractor, in accordance with the contract, and submitted to the owner. Several weeks pass and a response comes back from the owner that essentially states, "the schedule has slipped, the contractor must do whatever is necessary to make up the lost time, and clearly all the change orders issued have not delayed the project by so much as a minute. And please note liquidated damages will be applied if you are late."

The contractor immediately fires off a letter, justifying delays stating something like, "for the record the project has indeed been delayed, it's not our fault, it's your fault, and by the way we're going to file a delay claim and if we have to we'll sue." Usually the next letter will start with "Without prejudice" in bold type, followed by dire warnings and sometimes threats about what will happen if the work is not done on time, and usually concludes with: "Govern yourself accordingly". This is sometimes referred to as the 'end of good will letter' on a project and things are now on the slippery slope that may ultimately end up heading for court or arbitration.

Contrast the foregoing scenario with one where the parties actually work together to sort out the scheduling issues. A case in point was a complex bridge rehabilitation project running behind schedule due to weather and an extreme shortage of skilled labour. The owner was also anxious to make up the lost time and accelerate the work to achieve an early completion. Rather than argue about who was responsible for the delays and their associated costs, the contractor and owner held joint or 'partnered' schedule update meetings. During these meetings, detailed discussions were conducted regarding the previous month's progress and the issues to be dealt with by the stakeholders. Having the computerized schedule projected on the wall during the process allowed the participants to examine the issues and study the matter, with good constructive dialog as the result. Both parties had time to present their concerns and to ask questions of the other. Delays were noted and agreement was usually reached on responsibility for the individual delays. This approach requires goodwill and an honest attempt by all parties to progress the job, save cost, and avoid litigation. It may not be easy to achieve, but it can and has been done very successfully.

Resource and Cost Loaded Schedules

The critical path of a schedule is usually defined as the sequence of activities that will take the longest time to complete, and is calculated by summing the duration of each activity falling on the critical path. To be useful, the duration of scheduled activities must be based on factual data and not guesswork or the use of horoscopes and crystal balls.

For example, if we know one crew can install 10 widgets in a day, there are 100 widgets to be installed, and only one widget installation crew is available, it will take 10 days – no less – to install all the widgets. The critical path is often driven by the resources available to complete activities that lie on the critical path. In other words, the critical path flows through the resources.

A simple illustration would be a high-rise apartment building with one tower crane. The project schedule may call for pre-cast concrete panels to be installed externally on the tower, at the same time that formwork is to be relocated on the adjacent underground parking structure, and the elevator rails are to be lifted into the elevator shaft. Clearly one tower crane cannot perform these three tasks simultaneously and a work around solution must be found. If at the outset of the project the schedule had the tower crane defined as a resource and scheduled accordingly, the conflicting resource usage would have been detected and the work rescheduled.

This is known as resource loading the schedule. The properly resource loaded schedule allocates all resources, including labour and equipment, for each activity on the schedule, allowing the project manager to plan the most efficient and effective use of the resources available and to monitor productivity. It also records the planned sequence of events and the logical relationships between them.

Computerized Schedules vs. Squared Paper

Built in the1930s, the Empire State Building was obviously planned and scheduled without the aid of powerful computers and modern scheduling software; it was most likely scheduled using squared paper and a pencil. The success of the project is testament to the power of such a 'primitive' scheduling system.

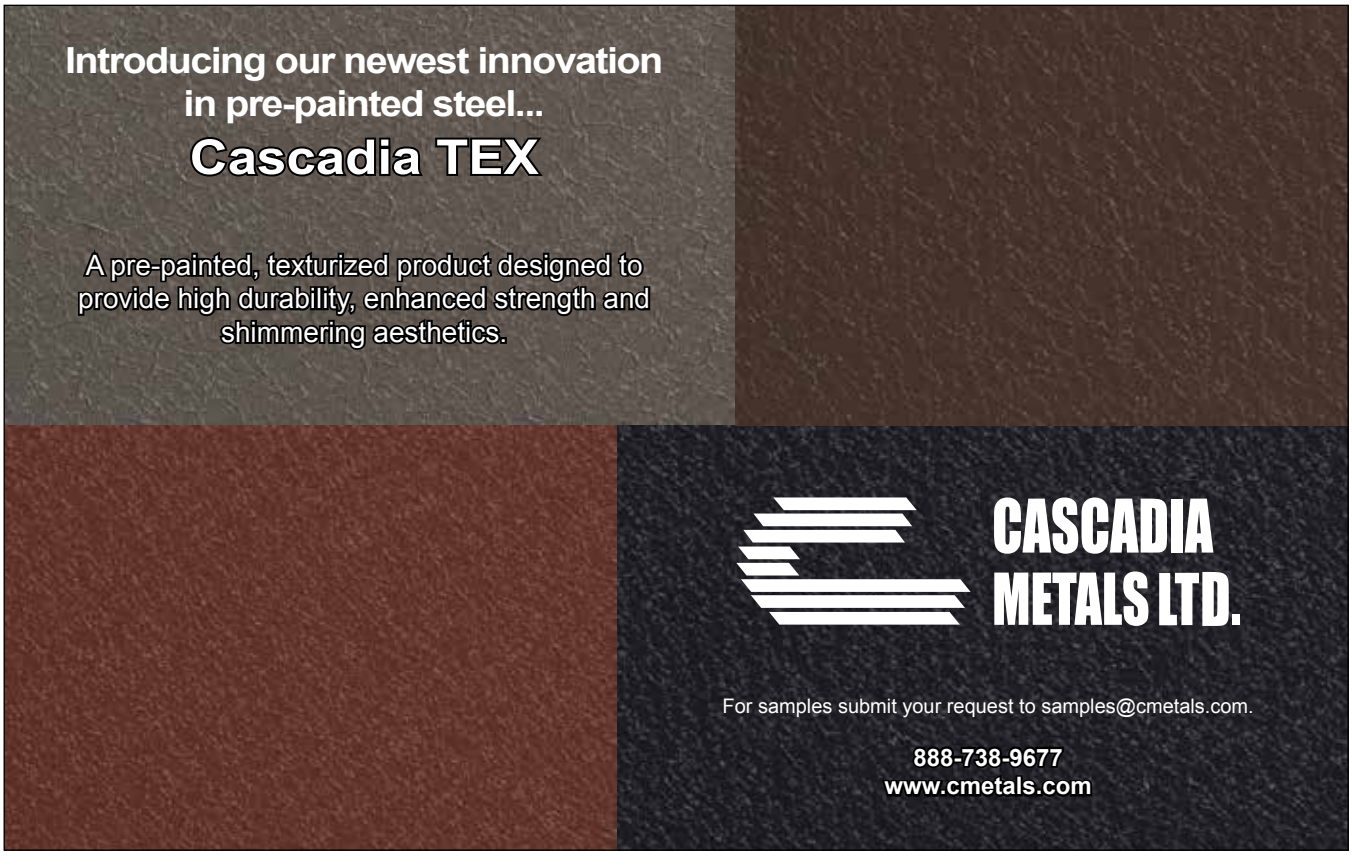
There are many situations today where a piece of paper and pencil are better and faster than using a computer. For example, a project manager may produce a so-called "fragnet" on site to plan a specific sequence of tasks to be performed in a short period of time. A 'squared paper' schedule may also be used to schedule the use of a material hoist or tower crane. The big advantage of a hand produced schedule in such cases is that a computer and printer are not required and the schedule can be put to use immediately and is easily adjusted. The usefulness of a hand-drawn schedule should not be under-estimated, providing, of course, that the information contained in the schedule is accurate.

There can be no question, however, that computerized schedules have made the once daunting task of producing and updating large complex schedules much faster and easier. In addition, most scheduling software allows a project manager to examine alternate sequences of events by performing a 'what-if' analysis.

Conclusion

The time and effort spent preparing a proper initial project schedule, and performing subsequent regular monitoring is well spent and pays dividends on the final result of the project. As stated by the Business Roundtable, "Owners are the ultimate beneficiaries of improvements in cost, schedule, and quality of their construction projects". Perhaps, as the ultimate beneficiaries, owners should give serious consideration to recognizing the importance of schedules and adding an independent bid item for scheduling. Since contractors will also benefit from properly prepared and updated schedules, consideration should be given to investing in schedule training and continuing education for key contractor employees.

Rest assured that, in construction at any rate, it is not a good idea to plan your project on the basis that "the sooner we get behind schedule the more time it gives us to get caught up." ▪



Sheet Metal Workers' Training Centre

Ample Skilled Labour for 2017

by / Jessica Kirby
Photo Courtesy of Sheet Metal Workers Training Centre

The Sheet Metal Workers' Training Centre (SMWTC) is running overtime this year—a sign of good times to come and ample labour supply for 2017.

The SMWTC is more or less a self-correcting mechanism, which has an upside and presents challenges. When interest in the trade is high, classes open up to accommodate, and when the need wanes, the school adjusts. At the moment, there is definitely no shortage of interest.

"We have had triple classes going for some time," said Jud Martell, training co-ordinator at SMWTC. "There were some quirks that came out of the last contract negotiations and a bubble of apprentices, but even though a slow down in the industry will take some off books for the short term, people are returning to Vancouver from the wind down of projects out of town."

SMACNA deserves recognition for a job well done at not abandoning its commercial projects, said Martell. "Other trades sometimes price to the industrial market, but SMACNA did not, which means good workers are able to come back to Vancouver and get decent work and pay, working for companies that care about you."

The school dynamic more or less works out because it's hard to publicize what it does—it benefits a small amount of people, says Martell. By extra classes, people will get through apprenticeship in timely way and won't be held back in pay raise or being journeys. The industry is better off in a shorter time frame because they aren't taking people out of work.

He says the school is prepared to go like gangbusters: "The school takes care of itself and follows the industry," he says. "There are either apprentices or not—the industry creates our business," but since the mad rush in January for which the class numbers increased, there seems to be some slowing down over spring and summer.

One anomaly this spring was less of a rush of apprentices coming straight from high school. Other trades higher in demand, like electrical and refrigeration mechanics, may have received more attention, or they may have reached out to a greater extent.

"The difficulty is that it works well enough to keep us satisfied so we don't feel the pain of having to find people," he said. "We don't necessarily have to invest in the cycle—just manage the people we have and keep them upskilled."

Martell says despite the cycles and fluctuations, he believes there is no better school around than SMWTC.

"We aren't marble and high tech glass in a five-storey building," he said. "We are a tin shack in the middle of no where. But if you go square footage per days training, cost per working hour, or dollar per seat from the government, we journey more per capita, more than other jurisdictions, and when our students are in school, we do 30 per cent more than the accepted standard—and we do it at a fraction of the cost. No one can beat us in all those categories."

Key challenges moving forward in 2017 and beyond are keeping everyone reasonably employed as new graduates pile on. At the moment, there is about a ten per cent unemployment rate, which is accountable mainly to worker lifestyle changes and preferences, and some employer challenges.

Also on the horizon is SMWTC management learning more about the Construction Industry Rehab Plan and its applicability given WorksafeBC and other industry partners' recent focus on mental health and addictions in the workplace.

For more information about SMWTC and its programs, please visit the school online at http://www.smwtcs.ca/. ▪

SMWIA Local Union No. 280 / SMACNA-BC Partnership

Left: Jud Martell Local Union No 280 President.
Right: Angelo Paris, Apollo Sheet Metal Ltd., SMACNA-BC President.

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PROJECT SPOTLIGHT:

Coquitlam Centre, Coquitlam, BC

Edited by / Jessica Kirby
Photos courtesy of Morguard.

Coquitlam Centre houses approximately 200 shops, food court, and administration offices. The mall's large AHUs provide hot water heating, which is generated by two 6.0 Mbtuh natural gas boilers to the food court and corridors, while the shops have dedicated cooling only fan coil units. Due to lighting and occupant load in shops, there is a need for cooling year round while simultaneously demanding heating for ventilation systems. The building's baseline energy consumption, emissions, and cost prior to this project are presented below:

Annual Energy USE (GJ)		BEPI (kWh_e/m^2)	Cost ($)	GHG (tonnes)
Gas	10000	20	$100,000	500
Electricity	90000	180	$2,000,000	550
Total	100000	200	$2,100,000	1050

Morguard, the property management team at the one-million-square-foot, two-level super-regional centre, in partnership with Trane and SES Consulting, implemented a strategy to provide substantial energy savings by using heat recovery. This project's objective was making sustainability accessible and affordable while generating a strong environmental impact. SES Consulting proposed a cascade heat recovery chiller (HRC) that would reject waste energy into existing heating water systems instead of facility cooling towers.

The HRC would provide 60 degrees C hot water to air handling unit coils, increase the efficiency of the existing chillers, and reduce water consumption. The scope also included replacement of leaking AHU coil valves as well as the addition of speed drives on major heating pumps. The project was commissioned in February 2016. Actual project costs and measured savings results (from monthly utility billing) are on the following page:

Implementation Costs			Annual Savings				Simple Payback	Merge Life (yrs)
$	$/m^2	$/t CO_{2e}	$	Gas (GJ)	Electricity (kWh)	GHG (t CO_{2e})		
$500,000.00	$3.52	$71.00	$110,000.00	6500	1100000	350	4.5	20

Trane Engineering and SES Consulting worked together to verify design details and the feasibility of the heat recovery system. The team developed a sequence of operations to maximize the use of the recovered heat and compiled energy savings projections. The energy study data was provided to Fortis BC to enable funding support. Morguard's operations group included the heat recovery project details and budget in its capital plan and presented it to the company's management group for review and approval.

Team capitalized on the configuration of Coquitlam Centre's mechanical room, with chillers and boilers in the same space, which created an opportunity to reclaim and reuse the heat system's waste. They implemented an avant-garde heat reclaim solution, changing the HRC configuration to operate at a higher capacity and higher efficiency, reducing operating costs and the Centre's footprint.

As a result, Coquitlam Centre's heat recovery project resulted in a 70% reduction in annual gas consumption, 4% reduction in electricity, and 35% reduction in annual greenhouse gas (GHGs); over a million kilowatt-hours per year savings, with a record payback of two-and-a-half years; and, similar switching of heating fuel from gas to electricity has an estimated payback of seven years.

The Centre is also saving water due to decreased cooling tower use.

The Centre's HRC may become the best tool for cutting GHGs in the building sector in the Tri-Cities area (Anmore, Belcarra, Coquitlam, Port Coquitlam and Port Moody).

Coquitlam Centre was recognized with a Sustainability Innovator - Technology Award from the Healthcare of Ontario Pension Plan (HOOPP), having demonstrated a meaningful impact on a relatively small capital investment by implementing heat recovery to reclaim and reuse the current system's waste heat.

2017 is the third consecutive year that Coquitlam Centre has received recognition for Sustainability Innovation. Prior to this year's Technology Award, Coquitlam Centre won the Sustainability Innovator Award in 2015, the Stakeholder Engagement Award in 2016.

According to SES Consulting, this project can be replicated at many

facilities, where ever year-round cooling is required while simultaneously using hydronic water heating. Many commercial office, retail, and grocery facilities fit in this category. ▪

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DEPENDABLE CUSTOMER SERVICE A CORNERSTONE OF FastEST INC.'S SUCCESS

By Mike Postiglione
FastEST, Inc. Director of Marketing

With our estimating software business now in its third decade, our owners have grown our company based on two basic, but not always prescribed to, tenets: designing software that is easy to learn and use, and bolstering that software with reliable customer support. Because of this mantra, as of this writing, FastEST, Inc. has over 4,000 systems deployed across North America. This includes a combination of our FastPIPE®, FastDUCT®, and FastWRAP™ programs.

It seems like a simple concept, but invariably, we hear stories from our customers about lackluster technical support from their other software vendors. Many times, this is one of the main reasons they switch to a FastEST estimating system from a competing program. A fairly new customer of ours recently converted to FastPIPE® and FastDUCT® from another mechanical estimating system after, unbelievably, that software vendor told them to stop contacting them so much.

Customer referrals and former users (that is, an estimator who has moved on from one company to another) are two of our largest sources of new customer companies. And time and

time again, our unmatched customer service is consistently mentioned as one of the core reasons they recommend our software. "FastEST's customer service is absolutely unbeatable," says Mark Nelson, of Calvert Mechanical Solutions.

Another concrete illustration of our program's dependability relates to our customer support staff. We currently have six employees that assist with customer support and online training. One of our direct competitors has a support staff with approximately three times the number of associates. And even then, we've heard from customers that have utilized both ours and that competitors' programs, FastEST always either picks up the phone immediately, or is much quicker to call back than the other vendor.

With FastEST's easy-to-learn program design and interface, our programmer likes to describe it as "the best customer support you will seldom need." That said, included with purchase (for the first year) or with the lease of our programs is unlimited customer support and online training for any and all users at a customer company. It's one of the ways we stand behind our software products, and it's one of the main reasons we feel we've developed a large, loyal customer base since our inception in the mid-1990s.

Kyle Holmes, of The Brandt Companies, says, "FastEST has the best support I've ever received on a software program." Let us prove that to you, as well as help you improve your estimating process with our easy and accurate mechanical estimating software. Contact us today to find out more, and to schedule a free online demonstration. ▪

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LOUVER MAINTENANCE

by / Norm Grusnick, P. Eng.
Commercial products manager, ECCO Supply

high wind conditions in severe storms. In applications with After louvers are installed, start up of the air system may reveal louver issues that require attention. Stationary-blade louvers have no moving parts. Therefore, they generally present few problems during operation. Operable louvers have a few more potential problem areas. Following are common louver-operation obstacles and methods for overcoming them.

Not enough airflow through louvers. Assuming the louver is sized correctly, with the proper amount of free area, this is caused mainly by obstructions in the louver and/or bird screens. Remove any debris that has accumulated on blades and screen. Also, if applicable, check to see if blank-off panels are in the proper locations.

Excessive water penetration. Be sure sealant has been properly applied around the louver perimeter and other required locations. For drainable louvers make sure the drain holes in the frames are not obstructed. Also, check that proper flashings and end sills are in place.

Operable louver blades do not move. Check that all actuators are connected and energized and getting the proper voltage. Be sure all linkages are connected and secure. Examine the louvers to make sure that the installation fasteners are not preventing linkage movement. Check the squareness of the louver. Measure diagonally from corner to corner; the dimensions should be within 1/16th of an inch. If the difference is more than that, the added torque created by the out-of-square configuration may be more than the actuator can overcome. This problem is difficult to overcome and it is best to loosen all fasteners and re-adjust to get it oriented squarely. During installation, the jamb frames potentially could have been pulled inwards when secured to the wall. This creates added operating torque similar to out-of-square. To fix the problem, loosen the installation fasteners, pull the jambs outward toward the wall until they are straight, and re-secure all installation fasteners. While fairly uncommon, actuators can be defective; if so, contact the actuator supplier.

Not enough movement of operable blades. Check for obstruction in linkages or blades. Remove objects that are lodged in blades. The problem may be in the linkage assembly. Unlike control dampers, most operable louver blades do not move a full 90 degrees. Therefore, linkage adjustment is critical. They may require some fine tuning in the field. After louvers are installed and in operation, little maintenance is required during their lifespan. Following are some periodic maintenance tasks to ensure maximum performance from your louvers:

- Check bird screens and remove accumulated trash and obstructions.
- Grime buildup on anodized and painted louvers accelerates deterioration of the finishes. Clean thoroughly after construction and occasionally during lifespan.
- Cycle operable louvers periodically to verify that louver blades open and close.

Proper documentation should be kept on file to verify project specifications are met. Catalogue submittal sheets are usually a good reference document. The performance of your louvers should be supported by AMCA testing and certification. AMCA has developed test standards and certified ratings programs for many air devices. AMCA Standard 500-L-99 and Publication 511 define the requirements for louver

Continued on page 27

"ROUND INDUSTRIAL DUCT CONSTRUCTION STANDARDS," 3RD EDITION, NOW AVAILABLE

The revised "Round Industrial Duct Construction Standards," 3rd edition, 2013, an American National Standard, ANSI/SMACNA 005-2013, is now available.

The standard expands the scope of the second edition, updating the duct materials to include aluminized steel, temperature correction factors for round industrial, and minimum decimal thickness for aluminum duct selection tables. Several chapters offer a standardized, engineering basis for design and construction of industrial duct of Class 1 to Class 5 air.

A spiral duct chapter for Class 1 and Class 2 air covers design pressures ranging from 30 in. wg negative to 50 in. wg positive, plus carbon and galvanized steel tables. The 660 page-book includes expanded tables for stainless steel and aluminum, expanded tables for duct sizes up to 96 inches in diameter, plus Class 5 systems handling corrosives and spiral lock-seam pipe.

The "Round Industrial Duct Construction Standards," 3rd edition, 2013, is available in both book and PDF formats. Subscriptions are also available. Order online at: www.smacna.org/store. The discounted price is available only to architectural and engineering firms and their employees provided they are not in the contracting business as well. (Government agencies, schools, and universities also qualify for the discount.) ▪

UPDATED "THERMOSET FRP DUCT CONSTRUCTION MANUAL" AVAILABLE

The second edition of SMACNA's "Thermoset FRP Duct Construction Manual" is now available. The 228-page book is an authoritative resource that design engineers, industrial engineering departments, pollution control authorities, FRP manufacturers, and installation contractors can rely upon for the proper selection, manufacture, and installation of FRP duct systems.

This American National Standard (ANSI/SMACNA 011-2017) contains language, tables, and details for the construction of hand lay-up, spray-up, and filament wound FRP ductwork from 30 inch wg negative pressure to 30 inch wg positive pressure. Round ductwork sizes are expanded to include up to 96 inches diameter. For rectangular ductwork, new duct stiffener tables are added for easier selection.

Recognizing the increased popularity of FRP ductwork, this expanded edition includes commercial/HVAC applications. Supporting this, an underground installation section is added as well as added language on testing and balancing, duct sealing, and duct leakage. Duct hangers and support information has been expanded and organized into a separate chapter, which now includes upper attachments, hanger selection tables, channel (strut) used as trapeze, riser support details, and more.

Appendices cover extended hanger spacing, general information on safe handling of thermoset fiberglass reinforced plastic duct, and allowable FRP defects.

The "Thermoset FRP Duct Construction Manual," 2nd edition, 2016, is available in both book and PDF formats. Subscriptions are also available. Order online at www.smacna.org/store. ▪

INTRODUCING SMACNA'S DOWNSPOUT AND GUTTER SIZING CALCULATOR

One of the most frequently asked architectural questions SMACNA receives is on sizing gutters and downspouts. In response, SMACNA's Technical Resources Department has created a free Downspout and Gutter Sizing Calculator.

The Downspout and Gutter Sizing Calculator is located on the Tools, CAD, and Apps page of the SMACNA website. Now architects, engineers, designers, and contractors can easily and accurately size downspouts and gutters according to the specifications in SMACNA's "Architectural Sheet Metal Manual," 7th edition, 2012.

Includes Rain Intensity Wizard

The calculator includes a Rain Intensity Wizard enabling one to select the nearest city and the information taken from the tables in the "Architectural Sheet Metal Manual." The rain intensity according to Table 1-2 (Rainfall Data and Drainage Factors) uses a 5-minute duration for a 10-year or 100-year storm, thereby providing a worst-case scenario for the downspout and gutter design.

Since the rain intensity data is constantly being updated by the National Oceanic and Atmospheric Administration (NOAA), this calculator also allows the user to manually enter the rainfall intensity. This feature allows one to use calculations according to the local authority with jurisdiction in that area. For the most up-to-date Rain Intensity Data, visit NOAA's website and use "Precipitation Intensity" as the data type.

Design Area Wizard

SMACNA's new Downspout and Gutter Sizing Calculator enables the user to manually enter the Design Area of the roof or use the Design Area Wizard for the calculation. This Wizard makes it easy to calculate the roof Design Area

Continued on page 27

DISCIPLINED LEADERSHIP: PAINFUL DELEGATION

by / Mark Breslin
Breslin Strategies, Inc.
www.breslin.biz

For many leaders, the one thing in shortest supply is time. As a result, they are faced with an ever-challenging set of choices on prioritization. Who or what gets attention first? Sometimes the choices are planned and strategic, but most often they end up practising a form of reactive firefighting, dealing with whatever is placed in front of them. The situation is the same from the CEO level right down to the foreman in the field.

Most leaders want more time, more freedom, and greater focus to deal with tasks in a less reactive and more thoughtful, consistent way. So to help out, I would like to propose a simple but disciplined change in your leadership style that should give you at least an hour a week back for you to use as necessary. But this process begins with two questions and your very honest responses.

1. How much time do you spend (on a daily, weekly, monthly, or annual basis) responding to requests from your people for decisions, resources, or responses that they should be handling for themselves?

2. Are you willing to change your leadership style to change this time impact?

The brutal truth is that a lot of leaders *like it* when everyone comes to them. What are the payoffs from having all of their employees come to them for every little thing?

- Satisfies control or micromanagement needs/issues
- Feeds need to feel important
- Inability to delegate or empower
- Bolsters ego and need for attention
- Protects their power in the organization

Sometimes leaders were taught to manage this way and simply failed to evolve. But now that they've trained their people to be dependent on them, they're stuck with the frustrating result: lack of time.

The cure for this is a disciplined approach. It must be consistently applied in all situations, even when time, stress, and circumstances are screaming for you to simply give them the answer, resource, or decision. For the rest of eternity, every time someone comes to you with something they need, you will refuse to help them until they answer one of these questions:

1. What do you think we should do in this situation?

2. What would you do if I wasn't here to give you an answer?

This is a lot harder than it sounds. Most leaders give people what they ask for because it is easier and faster—just one more thing off their plate, one more fire put out. The problem is that it breeds dependency, kills initiative, and slows down the development of others. The hard part is being patient enough and consistent enough to reverse the interaction, and to put the responsibility back on the person asking and break the chain of dependency.

There was a time where I fell victim to this dependent model. I thought dealing with people at an individual level was helpful and it made me feel necessary. Giving people what they wanted appealed to that part of me that wanted to feel needed and important. But in the process, I unconsciously got in the way of their development and minimized their ability to stretch. Interestingly, the greatest impact of my engaging in

Continued on page 27

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WITH GREAT EXPECTATIONS COMES GREATER RESPONSIBILITY

by / Andrew Delmonico and John Wiebe

In a recent Small Claims case of *Lund v. Appleford Building Company Ltd.*, a general Contractor (the "Defendant") learned the importance of due diligence and paying heed to its clients' concerns and high expectations.

In or around early 2014, a couple residing in Victoria (the "Homeowners") decided to renovate their nearly 90-year-old home (the "Home"). To oversee and manage this renovation, the Homeowners hired the Defendant, who in turn hired a painting subcontractor (the "Subcontractor") to paint the exterior and interior of the Home. The Defendant had no prior experience with the Subcontractor.

Unfortunately, the Defendant failed to diligently check the references of the Subcontractor, or clarify who would be performing the work. As it turned out, the Subcontractor had limited involvement in supervising or overseeing his crew while they painted the Home. Several issues subsequently arose during the course of the painting, including the wrong colour of paint being ordered twice, overspray on the basement floor necessitating a change to the floor covering, as well as overspray on other portions of the Home (the "Alleged Deficiencies"). Naturally, the Homeowners expressed concern about the quality of workmanship and completion of the work.

After a dispute arose between the parties regarding the Alleged Deficiencies and the payment of holdback funds, the Subcontractor allegedly walked off the job and the Defendant was forced to contract other painters to rectify the Subcontractor's work. Despite these efforts, the Homeowners remained unsatisfied with the quality of the work and brought a claim against the Defendant for a job "poorly managed and left incomplete".

The Decision

In allowing parts of the Homeowners' claim, the judge found that the Defendant was contractually responsible for hiring sufficiently skilled and qualified painters. Furthermore, the Homeowner had put the Defendant on notice of its high expectations and concerns about the quality of painting, and the court reasoned that the Defendant should have taken appropriate steps to meet those high expectations and properly address their concerns. The failure to do so, in addition to making unauthorized payments to the Subcontractor, amounted to a breach of contract by the Defendant.

In limiting the damages granted to the Homeowner, however, the judge refused to award the full estimated cost to repair the Alleged Deficiencies. In preparing cost of repair estimates, the Homeowners obtained quotes from premier painting companies in the local area. Using the analogy of a car purchase, the judge found that it would be unfair to award someone a Cadillac when they had contracted and paid for a Kia. The Homeowners had originally agreed to the low pricing of the Subcontractor, and the court held they should not be overcompensated with much higher priced painting services. As such, the damages awarded to the Homeowner were significantly lower than the amount claimed. .

Lessons Learned

1. Pay attention to your client's concerns, and consider whether there is a mismatch between their high expectations and the quality of work being provided.

2. When working with new or unfamiliar subcontractors, follow through with their references and clarify in writing how the work ought to be carried out.

3. In assessing the costs to repair, a homeowner is not necessarily entitled to damages equivalent to the highest quality of repair. Rather, a court will likely assess damages on a "cost of reinstatement basis" without overcompensating the homeowner. ▪

This article was written by Andrew D. Delmonico and John A. Wiebe, lawyers who practice in construction law with the law firm of Kuhn LLP. This article is only intended as a guide and cannot cover every situation. It is important to get legal advice for specific situations. If you have any questions or comments about this case or other construction law matters, please contact us at 604-864-8877 (Abbotsford) or 604-684-8668 (Vancouver).

SUBMIT YOUR NEWS OR PROJECT IDEA

SMJ is on the lookout for interesting HVAC, architectural sheet metal, testing & balancing, or industrial / specialty projects to feature in its 2017-2018 issues. If you have a cool project and 15 minutes of time to spare, you are a sure fire fit for the most meaningful, free-of-charge business investment you'll make all year.

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

ENGINEER'S DESK

Continued from page 23

performance certification. Products may display the AMCA performance seals only after they have been independently tested. The AMCA Seal ensures that the louvers in question meet all established standards.

Specifying AMCA certified louvers and having them installed by qualified SMACNA contractors is the most effective way to ensure louvers perform as specified. ▪

CONTRACTOR ADVICE

Continued from page 25

"painful delegation" was on the growth and bottom line of the business. We doubled in size within three years of my chang my leadership style. I had to get out of the way.

This is not just a challenge at the top tiers of leadership in the construction industry. It is endemic to field leadership, too. Having trained thousands of foremen, I can attest to the fact that they lead and manage with very little delegation, empowerment or inquiry. They have been trained to direct people at a task level. This takes away from their ability to develop others and free themselves from a firefighting mindset. They are very concerned that any effort to breed independent thinking could be a threat to their status, power or employment. These are key themes to discuss with them to help them claw back some of their time and focus daily.

If you have the discipline to do this, and can let go of some of the needs that stand in the way, you will create more empowered and independent employees, greater team productivity, and an hour a week for you personally. If you can send this message down the chain of command in your organization, you will create a culture of responsibility and accountability. No doubt, over time, it will show up on the bottom line in and in the growth of the organization. And that's just a start.▪

TECHNICAL UPDATES

Continued from page 24

by providing various shape calculations and the calculation for Vertical Walls area per International Plumbing Code (IPC).

The gutter and downspout size requirement depends upon the number of sections and length of the gutter sections as well as the number of downspouts. Adding additional sections of gutter reduces the length of each section and will reduce the gutter size. Also, the gutter width in relation to height may also be adjusted. Plus, adding more downspouts will change the downspout volume, resulting in smaller gutters/downspouts. Visit www.smacna.org for more information. ▪

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- Stuart H. Britt

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