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- + Traffic cameras that only work at night?
- + Wrigley Field finally has a winner

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IPEX



from the **EDITOR**

ANTHONY CAPKUN

One of the most exciting places to be

Superstorm Sandy, DC power distribution in our homes and businesses, battery storage in Manhattan, cybersecurity... these were among the many topics covered in my exclusive interview with Keith Williams, the global CEO of Underwriters Laboratories.

He recently visited Canada with UL's global executive leadership team, and we appreciate him taking the time to sit down with us.

Williams explained UL's business traces its roots back to end of the 19th Century, when it was focused on electrical and fire safety.

"Having said that, there's a lot of new technologies coming along which will be, I think, as important to the 21st Century as electricity and fire were. On the electrical side, of course, it's the internet of things [IoT], where electrical products of all kinds are now both connected to the internet *and susceptible to the internet.*"

Which means that cybersecurity is not just an issue for someone else, but all of us.

"There's going to be a total paradigm shift in the way energy is generated, stored, distributed [and] network-managed," continued Williams, noting the sea change that's coming to our energy landscape.

Traditionally, the production of electricity has been "massively concentrated" then "massively dispersed", noted Williams, but with solar and wind costs dropping continuously, "we really see an opportunity for the massive dispersion of the generation capability". This would, potentially, have a big impact on the utilities themselves, he added. "The utility may, in fact, become more of a network manager than a power creator."

Of course, distributed generation, microgrids, etc., would come with "a lot of implications on electrical codes, on building codes [and] on the way people connect their power systems," warned Williams.

There's a lot more to our meeting with Williams in this brief video "Exclusive interview with UL Global CEO Keith Williams" located on our YouTube Channel at tinyurl.com/zgmbj5a. I encourage you to check it out and start thinking about your own future business opportunities.

"And while people could think of the electrical industry [...] as an old-line industry, I think this may be one of the most exciting potential places to be in the next 30 years," Williams concluded, and I agree 100%. **EB**

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Standard Products (www.standardpro.com) is the new national corporate sponsor for lighting with Habitat for Humanity Canada, and will provide CFLs for each of the 250 homes that Habitat will build across Canada this year. The company will be sponsoring three Build Days involving about 45 employees, who will help build three homes for low-income families in Vancouver,



Toronto and Montreal. Additionally, the company has hired two new lighting specialists: **Luc-Etienne Gagnon** (top) and **Samuel Demers**.

Britech Heating Cables and Controls (www.britech.ca), a national manufacturer and distributor of heating cables for industrial, commercial and residential applications, has

appointed **Brian Norman** as the representative for its Eastern Ontario regions: Ottawa, Gatineau and Kingston. Norman will be interacting with electrical distributors, engineers and contractors in the area, Britech says, to assist with marketing programs, engineering, training and promotion of electric radiant heating, floor warming, snow melting, roof de-icing and pipe tracing.



Kudos to **Michelle Branigan** who was recognized as Woman of the Year 2015 by **WiRE** (Women in Renewable Energy) at the 27th annual Canadian Power Conference (conference.

conference.appro.org). The award was presented by WiRE (www.womeninrenewableenergy.ca) founders and co-chairs **Joanna Osawe** and **Rebecca Black** during the event hosted by the Association of Power Producers of Ontario (**APPRO**). Branigan is the CEO of Electricity Human Resources Canada (electricityhr.ca). PHOTO A. CAPKUN

S&C Electric Co. (www.sandc.com) announced that **Angelo Gravina, P.Eng.**, is the new president of **S&C Electric Canada Ltd.** He is succeeding current president **Grant Buchanan** who, after over 34 years with S&C, has retired. Gravina joined S&C as a sales engineer in 1991. S&C also announced that **Paul McMullen, P.Eng.**, will assume Gravina's former role as VP Canada Business Unit.



During the Fall Meeting of the **Canadian Council of Directors of Apprenticeship** (CCDA), the 2015 Red Seal

Award of Excellence was presented to **Mark Douglas**, former executive director of Apprenticeship & Industry Training, Alberta. According to the CCDA (www.red-seal.ca), Douglas' career included work as a Red Seal journeyman electrician, post-secondary instructor, and 25 years with Alberta Apprenticeship and Industry Training. **EB**



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EBMag proudly returns as Official Electrical Publication of MEET 2016

One of Canada's top industry events—the MEET Show—returns to the Moncton Coliseum (N.B.) May 18-19, 2016, showcasing the latest products and services available to the electrical and mechanical industries... and EBMag proudly returns as Official Electrical Publication of the show!

"With more than 6200 buyers at the last edition, MEET had its highest attendance in over two decades, and we're expecting an even bigger crowd this time around,"

said show manager Shawn Murphy. "The centralized location in the hub of the Maritimes means visitors come from throughout the Atlantic region and beyond. MEET is where connections happen."

As Official Publication, we'll be pushing out all kinds of information leading up to the event, as well as publishing the official Show Guide, which will include Exhibitor Listings, Floor Plan, Seminar Schedule, what to do while in New Brunswick and more!

Exhibitors and sponsors... DON'T WAIT until it's too late! Contact EBMag's Sales Team to book your space in the MEET Show 2016 Official Show Guide.

To book your exhibit space, contact the MEET (www.meetshow.ca) folks directly.

Organizers say MEET (which stands for Mechanical Electrical Electronic Technology) is the second-largest industry event of its type in Canada and the largest trade event east of Montreal.



Wiring fees increase 2016: Electrical Safety Authority

Thanks to ECAO (www.ecao.org) for tipping us off to Ontario's Electrical Safety Authority's (www.esasafe.com) 2016 wiring fee increase, now in effect.

All wiring fee items will increase by an average 1%. In addition, a number of individual fee prices have been adjusted:

- All Service Reconnect fees will equalize at the 2015 rate of \$296 followed by the 2016 1% fee increase.
- All Miscellaneous fees will equalize at the 2015 rate of \$150 followed by the 2016 1% fee increase.
- Labour fee and Plan Review items increase by 1.75%.
- An adjustment to the way fees are set for large New Residential Single Family Dwellings:
 - "Very Large Houses" are defined as 7000 sf or more of indoor liveable space.
 - Fees for "Very Large Houses" with existing service size breaks of up to 200A and between 201A to 400A will increase from \$217 to \$452.
 - Fees for "Very Large Houses" with service size break 401A and over will follow Commercial pricing methods instead of Residential.
 - "Very Large Houses" permits are entitled up to three inspection visits; for members of the Authorized Contractor Program (ACP), two visits.
- An adjustment to the way fees are set for New Apartment Buildings:
 - The existing fee of \$96 for each of the first 4 units remains.
 - The fee for additional units will remain \$47 per unit when the device count per unit is 80 or less, but increase to \$96 per unit for 81+ devices.

Gescan expands to Burnaby, B.C.



Gescan (a division of Sonepar Canada) has opened their new branch in Burnaby, B.C. This facility occupies 15,000 sf and dedicates over 12,000 sf to storage and warehouse space, the company says. It includes office space, five service counters, two shipping and receiving doors and utilizes interior and exterior LED lighting. The branch, located at 3650 Charles St., provides industrial and datacom products.

Man and boy facing charges after Nova Scotia copper theft

Halifax District RCMP says a man and teenage boy are facing charges after nine thefts of copper wire from a Nova Scotia Power (NSP) storage facility between December 8 and December 27, 2015, in Lakeside.

Police were alerted to a possible Break and Enter in progress around 10:30 p.m. on December 27. With assistance from the HRP K-9 Unit, two people were tracked and arrested a short time later.

Two males from Colchester County, a 42-year-old and a 17-year-old youth, are facing nine charges of Break and Enter while the adult is facing an additional charge of Possession of a Break-in Instrument.

On December 8, 2015, RCMP received the first complaint of break, enter and theft. A second complaint came the following day, and a third complaint was made on December 10.

In each incident, according to police, it appeared that the individuals used ATVs after cutting the fence to access the compound in Lakeside Industrial Park.

Visit EBMAG.COM for the latest news, stories, products, videos, photo galleries and industry events.

IMARK Canada claims its first Quebec distributor

Effective January 1, 2016, Marcel Baril Ltd. (Rouyn-Noranda) became the newest member of IMARK Canada, and the first based in Quebec.

According to the distributor's website, Marcel Baril Ltd. (marcelbaril.com) was founded in 1955 by M. Marcel Baril (beginning operations in La Sarre, in the Abitibi-Temiscamingue region), and is now run by three of his children. The company distributes to their six locations from its two distribution centres, reports IMARK Canada: one in Rouyn-Noranda, and the other in Sudbury, Ont. IMARK Canada (imarkcanada.com) is a marketing group for independent electrical and lighting distributors.



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Contact John MacPherson | 905-713-4335 jmacpherson@annexweb.com

Philips and Cisco to collaborate on go-to-market strategy



Project manager Richard Lees of CBRE (photo centre) discusses power-over-ethernet lighting strategy in Cisco's new Toronto HQ and Innovation Centre at RBC Waterpark Place III located at 85 Harbour Square.

Philips and Cisco have formed a global strategic alliance that unites Philips' LED-based connected lighting system with Cisco's IT network to address a global office market they estimate to be worth 1 billion EUR.

"Our alliance has two of the world's biggest and trusted lighting and connectivity brands working together to bring the Internet of Things to life in offices and commercial buildings across the world," said Philips Lighting's (www.lighting.philips.ca) Bill Bien. Philips added it will also collaborate with Cisco "on a joint go-to-market strategy".

To showcase how Philips and Cisco (www.cisco.com) unlock the benefits of the IoT in offices, Cisco installed a Philips connected lighting system in its Canadian HQ in Toronto.

"By partnering with Philips, we are

SELL your Business, BUY your Freedom

A recent survey shows 74% of contractors want to retire within 10 years, yet most have no retirement plan. As a contractor, **will you be able to afford the lifestyle you want** when you retire?

EBMag is hosting a webinar with presenter and accountant Ron Coleman, who will profile a typical trades contractor and explain how preparing yourself and your business for eventual sale will help you get the retirement you want. After all, you're not in business to work your trade—

you're in business to make money!

Coleman will offer participants practical advice and walk them through simple checklists to help them understand just how Exit Ready they really are. He will explore what you need to be doing now to make your business sell for top dollar. This includes having the best corporate structure to protect your assets and reduce your tax exposure to get you the best deal.

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delivering a reliable PoE-powered LED lighting solution using a highly secure IT network," noted Cisco's Edwin Paalvast.

The partners suggest nearly 80% in energy savings and reduced building maintenance costs can be realized by managing, integrating and controlling a Philips LED connected lighting system through a network with Cisco.

Kudos to EHRC's 2015 Awards of Excellence winners

"10 years ago, an aging workforce and an aging electricity grid were identified as being critical to being able to keep the lights on in Canada. Both industry and government were called upon to act."

So reads the program leaflet at Electricity Human Resources Canada's (electricityhr.ca) 10th Anniversary & Awards of Excellence Luncheon. EHRC began life in 2005 as the Electricity Sector Council, relying on operational



Among the EHRC's honorees were Emera Newfoundland & Labrador and Hydro One, both of which were recognized as Workplace Diversity & Inclusion Champions.

funding from Human Resources & Skills Development Canada through the federal Sector Council Program (but budget cuts meant the end of government funding to all sector councils).

Of course, the highlight of the luncheon was the awards presentation. For a full list of winners and to catch video taken at the event, visit tinyurl.com/grrz97t.

PHOTOS A. CAPKUN.

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DuPont and Dow to combine in “merger of equals”



Edward D. Breen, chair and CEO of DuPont, and Andrew N. Liveris, president, chair and CEO of Dow. PHOTO COURTESY DOWDUPONT

DuPont (www.dupont.ca) and The Dow Chemical Company (www.dow.com) announced their boards of directors unanimously approved a definitive multi-billion-dollar agreement under which the companies will combine in an all-stock “merger of equals”. The combined company will be named DowDuPont.

The parties intend to pursue a separation of DowDuPont into three independent, publicly traded companies through tax-free spin-offs, expected to occur 18-24 months following the closing of the merger, subject to regulatory and board approval. Besides agriculture, the other two business would be a Material Science company and a Specialty Products company.

The Material Science Company would consist of DuPont’s Performance Materials segment as well as Dow’s Performance Plastics, Performance Materials and Chemicals, Infrastructure Solutions, and Consumer Solutions (excluding the Dow Electronic Materials business) operating segments.

The Specialty Products Company would be focused on businesses that “share similar investment characteristics and specialty market focus,” including DuPont’s Safety & Protection and Electronics & Communications, as well as the Dow Electronic Materials business.

Upon closing of the transaction, the combined company would have a combined market capitalization of about \$130 billion at announcement. The deal is expected to deliver about \$3 billion in cost synergies, with 100% of the run-rate cost synergies achieved within the first 24 months following the closing of the transaction. Additional upside of about \$1 billion is expected from growth synergies.

Hatch delivers \$3-million gift to Oakville hospital

Global engineering and professional services firm Hatch (www.hatch.ca) announced the successful completion of a roughly \$3-million rooftop solar array, which it donated as a gift to the newly opened Oakville Trafalgar Memorial Hospital.

“The Oakville Hospital is important to Hatch in many ways,” said John Bianchini, Hatch’s CEO. “First, we wanted to make a long-term contribution by generating revenue through clean energy. Second, the solar array itself showcases the innovative design of Hatch engineers. Our team collaborated with the hospital and construction partners to complete the project to coincide with the hospital’s opening.”

Completion of the rooftop array follows more than two years of project design, installation and testing. The solar array was connected to Ontario’s power grid on November 16, 2015, and obtained commercial operation status November 30, 2015. Power generated and sold through Ontario’s Feed-in tariff program will provide the Oakville Hospital Foundation with revenue of \$6.35 million over a 20-year period.

The gift consisted of capital expenditure plus full engineering design, as well as procurement, permitting, construction, commissioning and handover to Halton Healthcare (www.haltonhealthcare.on.ca).

The electrical contractor for the job was Fitzpatrick Electrical (www.fitze.ca) out of Uxbridge, Ont.), a member of Electrical Contractors Association of Ontario (ECAO).

Pentair acquisition of Erico Global Company complete

Pentair plc (pentair.com) has completed its acquisition of Erico Global Company (www.erico.com), a manufacturer and marketer of engineered electrical and fastening products for electrical, mechanical and civil applications.

“Erico is a strategic and complementary acquisition for Pentair,” said Randall J. Hogan, Pentair chair and CEO. “As a key growth platform within Pentair’s Technical Solutions business, it expands our presence in both the commercial and infrastructure sectors with a broader and stronger offering for our customers.”

Erico has 1200 employees in 30 countries with brands that include Caddy fixing, fastening and support products, and Erico electrical grounding, bonding and connectivity products.



PHOTO COURTESY HATCH

Yukon Energy says Yes to LED streetlighting

Following a 5-year long pilot project in Dawson City and Mendenhall, Yukon Energy reports it will begin replacing all of its existing streetlights with LEDs.

The company will begin changing out the streetlights in Dawson City within the next few weeks. Later in the year it will install LED streetlights in the rest of Yukon Energy’s service areas, including Mayo, Faro, Champagne and Mendenhall. The Dawson project alone should see a reduction of around 32MWh annually, says the utility.

Yukon Energy ran its LED streetlight pilot projects in partnership with the Yukon government’s Energy Solutions Centre (for Dawson) and ATCO Electric Yukon (for Mendenhall). Their research shows that LEDs work well in the territory’s cold climate and use about half as much electricity as HPS streetlights. According to the utility, municipalities will see power bills reduced by about \$29 a year per light.

The cost of switching out the Dawson streetlights will be about \$50,000.



Photo of historic buildings in downtown Dawson City, Yukon, by Michael Edwards.

COURTESY WIKIPEDIA COMMONS (BY TIAGOX2 AND DAWSONESQUE).

ECA of Ontario in new home on Carlson

It’s time to officially update your address book, as Electrical Contractors Association of Ontario (ECAO, www.ecao.org) reports it is now moved into its new permanent office location: 10 Carlson Court, Suite 702, Toronto, ON M9W 6L2. All main telephone, fax numbers and email addressed remain unchanged. **EB**

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5010AST or 505010AST	.550 to .850 .650 to .850	.590 to .920	.610 to .780 .590 to .820	1/2" Flex	10/3 to 8/3

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SUPPORT FROM THE TOP RESULTS IN SAFETY WINS

Meet our inaugural Electrical Safety Champions / **BY ANTHONY CAPKUN**



Creating and maintaining an electrically safe environment is not just good business, it's a moral obligation... and it either starts at the top, or has full support from the top.

After selecting the winning submissions of our inaugural Electrical Safety Champion Awards—and chatting with the winners themselves—one common facet kept emerging: management support. We learned (affirmed) that when an organization's leadership takes an active interest in the health and safety of its workers, great things happen.

Their good work—along with the other amazing submissions we received—serve as an example to us all.

“Southwire Canada applauds all of the winners of the Electrical Safety Champion Awards Program,” says one of our Founding Sponsors. “Each of the winners displayed a passion and devotion to the electrical trade.”

Now, without further ado, let's get to know our winners a little better...

ELECTRICAL MAINTENANCE TEAM Sponsored by CSA Group Winner: Fabrene Inc. (North Bay, Ont.)

The electrical team at Fabrene Inc. consists of six electricians and one apprentice, and a licensed electrician as supervisor. Together they have brought in arc flash safety training, identified high-risk equipment and made strides to reduce arc flash hazard potential to plant operators and maintenance personnel.

The team has added an IR camera to its preventive maintenance program, implements safety devices regularly to provide safer operations, and provides input to operator procedures to minimize accidents or hazards related to electricity.

“We have notified, stopped work and corrected potential electrical hazards. We continuously look to help operators understand the equipment and electrical hazards; as such, they are more apt to report potential problems in a large plant where some issues may be hard to see or are not

THANK YOU

To our founding sponsors: CSA Group, Energy Manager.ca, L'industrie électrique and Southwire Canada



Left to right: Tom Price, Rob Mack, Harold Brooks, Mat Scratch, Rob Valenti (senior site director), Steve Rickertsen (EHS&S), Darren Whitwell, Dillon Malcolm and Steve Bennett. PHOTO COURTESY FABRENE.



▲ Kevin Holm. PHOTO COURTESY CNL

◀ Left side, top to bottom: Anthony Capkun, Syed Mir, David Arnold, Ken Walsh. Middle, top to bottom: Joanne Mercer, Elizabeth Carswell, Katrina Reinhart. Right side, top to bottom: Rob Burnett, Jacques McCarthy, Jeff Harrison, Vinay Sharma.

present upon arrival at the equipment, such as intermittent ground faults,” says Fabrene.

When any project is completed, the team offers input to help keep the installation safe via safety barriers, traffic stops and preventive maintenance.

“We often take a strong stance in the name of electrical safety in the plant. We communicate our concerns with all involved, and come up with timely solutions to hazards that may present themselves,” says the team.

Sometimes this results in longer downtime in equipment, they admit, but “our management team backs our collective vision of eliminating hazards and making hazard awareness widespread through the plant”.

“The team’s commitment to maintaining electrical prints, ensuring upgrades and projects are up-to-date and meet code requirements are paramount. Assessing safety hazards and concerns around the plant are approached as a team, with all members contributing,” says Fabrene.

INDIVIDUAL CHAMPION
Sponsored by L’industrie
électrique magazine
Winner: Kevin Holm

“Kevin has really increased the awareness onsite of electrical safety hazards for all staff,” notes Len Schryer, OSH program authority at Canadian Nuclear Laboratories, who says Kevin has “quite a background in electrical safety, [from] experience in design engineering to high-voltage, and he’s done everything in between. He’s also a master electrician.”

“In 2011, I was asked to write a company-wide electrical safety requirements document. We had one at the time, but it wasn’t meeting the needs of the organization,” explains Kevin, an electrical safety specialist in the OH&S department with CNL. So he embarked on developing and implementing a plan to improve electrical safety across the organization.

“Working under the direction of senior management, our organization was able to significantly



**“IT’S A
TEAM
EFFORT**

when it comes to electrical safety. So even though it’s my name on the award, it’s all of us.”

improve our electrical safety program with the goal of meeting industry best practice,” he says, adding that his role is to continuously develop and monitor conditions with respect to electrical safety within the organization to ensure they are in line with, or exceeding, industry best practices.

He is also on the CSA Z462 “Workplace electrical safety” technical committee, which allows him “to be current and stay ahead of the game with respect to upcoming changes that will minimize risk to worker safety and ensure we are meeting or exceeding industry expectations”.

Kevin is a member of the CANDU Owners Group Electrical Safety Technical Committee, which consists of members from other nuclear facilities across Canada. “Our members often run real-life scenarios that may be taking place within our organization to achieve the ultimate goal of reducing risk to our workers,” he explains.

But Kevin is quick to point out that, when it comes to promoting electrical safety at CNL, “It’s not just me; it’s not just Kevin. It’s a team effort when it comes to electrical safety. So even though it’s my name on the award, it’s all of us.”

And he recognizes that his job will never be done: “The mission [of electrical safety] is long, and will always be ongoing as science and better methods come forth to decrease the risk to workers...”

**MAR. 1,
2016**

Official launch of 2nd annual Electrical Safety Champion Awards program at EBMag.com/ESCA



Left to right: Larry Warnock, director HSE; Duane Froese, quality manager E&C; Rick Wickland, president Tarpon Energy Services; Jason Nolan, director of operations.

PHOTO COURTESY TARPON ENERGY SERVICES.

ELECTRICAL CONTRACTOR (Large)

Sponsored by Southwire Canada
Winner: Tarpon Energy Services (Calgary, Alta.)

“We have a strong management commitment, from the president on down,” explains Larry Warnock, Tarpon’s HSE director.

This commitment helps someone like Duane Froese, QA/QC, develop electrical test reports, checklists and procedures, plus an intranet site (“Quality Central”) that contains “everything the guys need... any forms, policies, etc., are all at their fingertips. We are diligent in getting them what they need”.

And this caught our attention, as well as that of founding sponsor Southwire Canada.

“A special mention to Duane from Tarpon Energy who has shown leadership by developing a quality program within his company to ensure the safety of equipment installed and proper testing. Through

his training and support, tradesmen are more aware of the dangers of the trade and have learned how to avoid them,” says Southwire Canada.

Through training and support, Tarpon’s tradesmen are more aware of the dangers of the trade when done incorrectly. Client feedback on quality and safe start-ups are leading indicators that the safety system has increased safe installations. “The trades have become more aware of the work they are doing, and have responded with thanks for the tools and training they have been provided,” notes the company.

“We have to stress that [electrical safety] is for them,” adds Larry, noting both he and Duane are journeymen electricians by trade. “You can’t just bark orders. Make them realize that they’re not doing it for us, but for themselves.” And when you get the guys involved, adds Duane, they take ownership.

To ensure their various safety initiatives find fertile ground, Larry credits having management that is both engaged and visible.

ELECTRIC UTILITY
Sponsored by Energy-Manager.ca
Winner: London Hydro (London, Ont.)

There are achievers, and then there are overachievers, and London Hydro definitely falls into the latter category. So how did they get there?

They believe that keeping safety at the forefront of employees’ minds through frequent and varied safety communication and training will prevent accidents from occurring.

“We had a vision,” says Ken Walsh, chief engineer and VP of operations, and it started with answering the question: “What makes people *not follow* the safety rules?”. The utility determined it was a behavioural matter, and the only way they could persuade people to follow the safety rules was “to make [the rules] *their* safety rules”.

“The only way you get a safety program to work is when the workers want to do it themselves,” says Ken. And how do you get them thinking that way? “Lead from the top... when [employees] believe management truly cares about their welfare, then they’ll start believing as well.”

From monthly safety bulletins and “SAFE and Ready for Connection” tags to a wellness app called “Zapple”, training videos and Solutions Groups, they truly raise the bar. The company encourages the reporting of near misses for the sake of exploring corrective, not punitive, actions. And it shares that information and the lessons learned across the organization.

London Hydro has also received IHSA’s President’s Award for 11 years in a row for hours worked without a lost-time injury and, by the time of our interview, had achieved one million hours without a lost-time. Throw in the employee Wellness Program, “Safety Start with Me” posters and so, so much more, and you can see why H&S director Jeff Harrison says:

“We began to see where people’s behaviours were starting to change. [They were] moving away from the concept of ‘I work safe because *I have to*’ to ‘I work safe because *I want to*.’” **EB**

SEPT. 16, 2016

Deadline for submissions for 2nd annual Electrical Safety Champion Awards program. Submit your nomination at EBMag.com/ESCA

NOMINATIONS FOR 2016 PROGRAM

The Nomination Form for the 2016 edition of the **Electrical Safety Champion Awards** goes live **March 1, 2016**. The deadline for submissions is **September 16, 2016**. Don’t wait until the last minute... submit your nomination (for yourself or someone else) today. Visit ebmag.com/esca for Rules, Sponsors, etc.



ARE YOU AN ELECTRICAL SAFETY CHAMPION?

Now in its second year, the **Electrical Safety Champion Awards** program recognizes companies and individuals who are passionate about promoting the health & safety of Canadian electrical workers.

The awards program recognizes this commitment across several categories as evaluated against criteria that reinforce:

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- Education, information and awareness
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Ed Crawford, president of AD's Electrical Supply Division.



Steve Spade of Wheatland Tube accepts award for Canadian Supplier of the Year for Performance.

eCOMMERCE AND SPIRIT OF INDEPENDENCE

Things are on the move at Affiliated Distributors / **BY ANTHONY CAPKUN**

Things are moving and shaking at Affiliated Distributors, the North American contractor and industrial products wholesale buying group behind the AD Rewards program here in Canada. AD's 570+ independently owned members now span seven industries and three countries, and electrical is among the industries it serves.

EBMag recently attended the Electrical Supply Division's North American Meeting in Grapevine (Dallas) Texas where—among the networking and business sessions—we celebrated this year's cream of the crop at the Spirit of Independence Awards dinner. Kudos to the following distributors and suppliers:

MEMBER OF THE YEAR FOR LEADERSHIP

Presented by Rick Campbell of Robertson Electric Wholesale Ltd., this year's winner is the most-deserving Bill Smith of Electrozad Supply. Congratulations!

CANADIAN MEMBER OF THE YEAR FOR PERFORMANCE (OVER \$10 MILLION)

- Second Runner-up: House of Electrical Supplies Ltd.

- First Runner-up: Province Electric Supply

- **WINNER:** Robertson Electric Wholesale Ltd.

CANADIAN MEMBER OF THE YEAR FOR PERFORMANCE (UNDER \$10 MILLION)

- Second Runner-up: Bird Stairs (J.W. Bird & Co. Ltd.)
- First Runner-up: Epitron Inc. Electrical Distributors

- **WINNER:** Harwell Electric Supply

CANADIAN SUPPLIER OF THE YEAR FOR PERFORMANCE (OVER \$5 MILLION)

- Second Runner-up: Hubbell Canada LP
- First Runner-up: Standard Products Inc.

- **WINNER:** Stelpro Design Inc.

CANADIAN SUPPLIER OF THE YEAR FOR PERFORMANCE (UNDER \$5 MILLION)

- Second Runner-up: Fusetek
- First Runner-up: Watt Stopper Legrand

- **WINNER:** Wheatland Tube

AD's new eCommerce initiative



While at the North American Meeting, AD announced its eCommerce initiative to help independent wholesale distributors compete in a digital world through the AD eContent Service program.

"Independent wholesale distributors' battle for a level playing field must be fought anywhere that nationals are able to use their size and leverage to create a competitive advantage for themselves to the potential detriment of independents," said Bill Weisberg, AD's chair and CEO (above). "And one place that this battle must clearly be engaged and fought is on the internet."

"There are a lot of people out there addressing this need for good eContent on their own... working to build a database that reflects their needs. But what they are finding is



AD's 570+

independently owned members now span seven industries and three countries.



Bruce Campbell of Robertson Electric Wholesale Ltd. accepts award for Canadian Member of the Year for Performance.



Harwell Electric Supply accepts award for Canadian Member of the Year for Performance.



Bill Smith of Electrozad Supply is honoured with Member of the Year for Leadership award.



Connie Chabot of Stelpro Design Inc. accepts award for Canadian Supplier of the Year for Performance.

this is an incredible undertaking. Just getting the data in the format needed and keeping it current requires dedicated resources. However, working together we can build a cost-effective solution for our members,” said Ed Crawford, AD’s president, Electrical Division. “This is a game changer for our members.”

The AD eContent Service program includes a content management solution that incorporates a shared master eCatalogue and web portal, along with member-specific sub-catalogue and store front options.

“We have full-time staff members working inside AD specifically to support eCommerce for our members; we have active engagements with business partners and consultants, and we are making direct investments alongside our AD members for the express purpose of helping the AD independents compete and win on the internet,” added Weisberg.

This includes eContent production, continued Weisberg, paid search demand generation and the purchase of licenses and technology. “Our model is member-defined because we believe that distributors understand better than anyone how products should be organized [taxonomy] and what pieces of data are the most important

about the products [attributes].”

AD explains its Industrial Division has undertaken and funded the build-out of two million product SKUs and marketing content and maintenance to support them on an ongoing basis. The AD Electrical and Pipe, Valve & Fittings divisions are revising the eCommerce initiatives they started several years ago to follow this model so that all seven AD divisions can leverage the group’s economies of scale and share ongoing production costs and content.

“Ultimately, we will have millions of SKUs for our members’ use,” said Jack Templin, AD president, Industrial Division. “When we work on something collaboratively, we’re able to do something bigger together.”

To implement the program, AD has partnered with Unilog—a technology company specializing in eCommerce and enriched product catalogues for the B2B marketplace—to provide its CIMM2 platform to AD members.

“We believe this is a watershed moment in wholesale distribution,” added Suchit Bachalli, president of Unilog North America. “When you look at the collective power that AD brings, this program is going to have a meaningful impact on the entire industry.” **EB**

OBIT: AD FOUNDER DAVID WEISBERG

On a sad note, David Weisberg, the founder of Affiliated Distributors passed away at his home in Philadelphia, Pa., surrounded by family, on November 22. He was 89.

“David was an icon in the electrical industry and worked tirelessly to support the partnership between manufacturers and independent distribution,” writes Ed Crawford, president of AD’s Electrical Supply Division. “He described his guiding principle in the formation of Affiliated Distributors as being to ‘promote a more productive partnership between distributors and manufacturers; a partnership that would offer substance and value where both parties would benefit.’”

Crawford explains that Weisberg started his career in the electrical industry as a sales rep for Graybar Electric. Later, he joined Progress Lighting, where he rose to president.

“In 1981, at age 55, he left Progress to follow a passion to help independent, family-owned electrical distributors run their business more profitably and professionally,” continues Crawford, adding that Weisberg started AD with 48 founding electrical distributors and served as its chair & CEO until his retirement in 1991.



THE AD

Electrical and Pipe, Valve & Fittings divisions are revising the eCommerce initiatives they started several years ago

YES, WE HAVE PHOTOS!

Visit us online at **EBMag.com** to check out our photos from Affiliated Distributors’ Electrical NA Meeting 2015. The direct link is tinyurl.com/nj5yewb.

SOME IMPORTANT 2016 DATES!

- The AD Electrical Supply Division’s 2016 Spring Network Meeting is scheduled for May 16-18, 2016, at the Hilton Toronto. No passport required for us!
- Meantime, the AD Electrical Supply Division’s next North American Meeting is slated for October 19-21, 2016, at the Gaylord National Resort in National Harbor, Md. (Washington, D.C. area).

WILL NEW WIRELESS LIGHTING MANAGEMENT SYSTEM HELP THE CUBS WIN?

Wrigley Field, home of the Chicago Cubs, is undergoing major expansion and restoration “to ensure the viability of the ballpark for future generations of Cubs fans”. Known as the 1060 Project, the 4-year upgrade plan includes structural upgrades, improved player facilities, new fan amenities, outfield signage, expanded concessions, new and improved restroom facilities, and more. And, as you can imagine, there’s going to be a lot of lighting—some new, some legacy—and all of it requiring control.

So how do you control all that lighting?

Project stakeholders settled on a wireless lighting control backbone from Ideal Industries called Audacy that promises to connect virtually any new or legacy lighting fixture to a secure cloud-based operating platform.

“We’ll be able to easily set lighting parameters for optimal impact and energy conservation in almost every venue across Wrigley Field,” said Carl Rice, VP of the 1060 Project. “What’s more, we can easily make adjust-

ments based on event type, game delays and energy usage patterns from a tablet or mobile phone.”

The Cubs will also have the ability to automatically monitor and report on energy usage to city, state and federal agencies, Rice added.

Audacy will be installed first in the new 30,000-sf clubhouse and fitness facility for the Cubs (being constructed behind the 3rd Base grandstand), scheduled to open in April 2016 for the team’s home opener.

According to Ideal, the Audacy wireless system can reduce energy use from lighting by up to 50% for almost any space type—e.g. office, retail, multi-use and institutional buildings—and is simple to install in large-scale retrofit and new construction projects. The same technology, adds the company, has been integrated in large-scale HVAC applications at Universal Studios in Orlando, Fla., and the Stanford University technology hub.

The system provides wireless control via an iOS or Android phone or tablet app over multi-building lighting systems while automatically sensing

and adjusting to ambient light, movement and room occupancy to maintain desired settings—all while being virtually maintenance free, says Ideal.

“Our push-in wire termination expertise combined with our 915 MHz wireless technology makes it incredibly easy for facilities managers and building owners to deploy advanced lighting control solutions that had previously been difficult to implement and unreliable to manage,” said Nolan Bello, business unit manager, AdvancedWireless Solutions with Ideal. “Audacy was designed to make wireless control extremely simple to install, configure and operate while delivering effective, reliable results.”

Jim James, Ideal’s chair and CEO, explained Audacy exploits the company’s “push-in wire termination expertise and a proprietary, patented wireless technology that can extend the life of battery-powered devices, such as sensors and switches, to 25 years with a more secure transmission and significantly extended range”.

Over the next several years, the 1060 Project team will install Audacy sensors, control units, gateways and reporting components into team facilities, retail spaces, entertainment clubs and suites throughout the ballpark.

“The Audacy system will be integrated throughout the ballpark and will be evaluated for potential inclusion in the office building and entertainment plaza adjacent to Wrigley Field,” said James, adding, “There is tremendous global demand for superior energy management systems that enable facilities executives and design engineers to drive down both installation and operating costs across large-scale projects.” **EB**



This system provides wireless control via an iOS or Android phone or tablet app over multi-building lighting systems.

The Work Truck Show

Mar. 2-4, Indianapolis, Ind.
Visit worktruckshow.com

98th CCA Conference

Canadian Construction Assoc.
Mar. 6-10, New Orleans, La.
Visit www.cca-acc.com

IEEE IAS Electrical Safety Workshop

Mar. 7-11, Jacksonville, Fla.
Visit www.ieee.org

EB IEEE IAS Electrical Safety, Technical & Mega Projects (ESTMP) Workshop

Mar. 13-16, Edmonton, Alta.
Visit www.ieee.org

NETA PowerTest

InterNational Electrical Testing Assoc.
Mar. 14-18, Fort Worth, Texas
Visit www.powertest.org

EB AEL Electrical Learning Expo

Alberta Electrical League
Mar. 23, Red Deer, Alta.
Visit albertaelectricalleague.com

EB LEDucation 10

Mar. 29-30, New York, N.Y.
Visit leducation.org

Canadian Commtech East Show

Apr. 12-13, Mississauga, Ont.
Visit www.commtechshow.com

Upper Midwest Electrical Expo

Apr. 13-14, Minneapolis, Minn.
Visit www.ncel.org

Electric Power

Apr. 18-21, New Orleans, La.
Visit www.electricpowerexpo.com

EB Lightfair

Apr. 26-28, San Diego, Calif.
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WHAT GOOD ARE TRAFFIC CAMERAS...

that only work at night?

/ PATRICK J. LYNCH, P.ENG.

“Who stole our new highway traffic cameras?” barked the director to his staff. “We have lots of bright sunny daylight, and plenty of action with rush-hour morning bumper-to-bumper traffic jams, but no cameras. We are missing some of our [expletives removed] cameras!”

The frustrated director continued his rant: “We are totally blind without these traffic cameras, and will have to go *old school* and send up the helicopters and planes again. Maybe if the pilots have time, they can perform a visual fly-by check for all these missing traffic cameras!”

He was the director of operations at a major metropolitan highway traffic command centre in the northern U.S. and, understandably, had a big problem on his hands.

As you can guess, the traffic cameras to which he was referring are mounted on top of very high, large concrete poles strategically located in the central median along all the major highways in his jurisdiction. Most large cities across North America have successfully adopted this type of traffic monitoring system and, because of their location, traffic camera theft is extremely rare.

Back to the director... reports started coming in from pilots confirming that all the traffic cameras were

still there. All the camera systems/communication links associated with these cameras, therefore, must be compromised, right?

But this complete traffic camera system was purchased from a highly reputable Florida-based manufacturer that had successfully supplied these systems to many other cities. So why was it not working here?

Further investigation uncovered the fact that these same traffic camera systems—all supplied by the same Florida company—were also malfunctioning in other northern U.S. cities. In fact, a total of 187 camera systems in three different northern states had been reported as “Not working”. This little problem was actually a huge problem!

Is the electrical power grid *just bad* in all northern U.S. states? Is it a site grounding/installation problem? Or, in the case of our frustrated director, maybe the problem is electrical RF interference generated by a nearby airport’s landing radar systems.

The lawyers are circling... they smell blood. This could become a huge class-action lawsuit, that stretches from sea to sea.

Looking into the camera

Our group was commissioned to perform a detailed forensic electrical engineering camera failure investigation at these sites. The first part would involve operational lab bench tests of

187

Number of camera systems in three different northern states that had been reported as “Not working”. This was actually a huge problem!



the camera system. The second (and more difficult) part would involve conducting actual field tests at various highway locations.

All our lab functional camera systems testing checked out OK. Lab functional documented tests conducted by the Florida manufacturer prior to product shipment also correlated within 5% of our electrical test results.

The next phase was to conduct the actual field tests. To gain access to test the highway camera video feeds mounted on the poles would require a specialized highway traffic blocking crew to shut down one lane of traffic. We would also require additional concrete/water-laden blocker trucks, as well as a high-reach bucket truck set up in front of the blocker truck. In all, 22 separate highway locations were selected for testing.

Our roving band of trucks and test vehicles moved along the various high-



ways, shutting down lanes of traffic as required while we carried out electrical testing and, unfortunately, creating huge traffic jams in the process. At several locations, the now very frustrated drivers would crawl past and hurl pop bottles and cans at us... not to mention a few well-chosen curses.

This was definitely not covered in the job description!

Just add heat

Our testing revealed the camera system and video link outputs were fully functional at night, but would stop working at various times in the morning. Later, again at night, the camera feeds would start working again.

The malfunctioning camera systems were located on remote stretches of highway that were not directly connected to copper or a fiber link trunk communication system. To establish the required communication link back

22

Number of separate highway locations that were selected for testing

to the central traffic monitoring station, each camera system was designed to transmit all the required encoded video information through the air via an RF link to a nearby RF receiver. This receiver was located near a hard-wired telecom line that would then relay the video information back to the central traffic monitoring station.

Our RF testing revealed this camera video RF transmit link was a key piece of the puzzle that would help explain the daytime malfunction.

Further electrical testing found the RF/video circuitry components were overheating during the day when the components were exposed to the direct heat of the sun. Camera video link information was lost, and all you could see on the screen monitors was electrical noise, or snow.

But we had already established that these same camera systems were apparently working just fine in the

warmer and sunnier states of Florida, California and Georgia, so what gives? Why were components overheating and these systems not working in colder, northern U.S. states?

The camera company's president then unexpectedly showed up and wanted to join us in our investigation. Was this coincidence, or was he advised by his lawyers to get involved? But no matter... he brought all of the company's electrical/electronic schematic camera designs.

An in-depth engineering review of these electrical schematics revealed electric heaters had been installed in cameras destined for installation in northern states. This confirmed our suspicions: knowing how cold the northern U.S. states could get, one of the camera system's electrical designers had, apparently, arbitrarily installed electric heaters inside each of the camera/RF electronic boxes.

With the combination of the sun beating down during the day on the camera electronics and these additional enclosure heaters, electronic component thermal runaway had occurred. This caused the video/RF electronics to shut down every time until they were able to cool down again later at night. This vicious cycle would repeat every bright and sunny morning.

Problem solved

A complete outdoor simulated test of these camera systems prior to full system-wide implementation would have quickly uncovered this electrical system design deficiency.

The camera company then supplied, on its own dime, all-new redesigned camera systems for all of the affected customers in the northern U.S. states. They were also responsible for the onsite removal of the defective camera systems and installation of these new ones.

Maybe it is poetic justice, as they are now the ones having to suffer insults and pop bottles from frustrated drivers while they're out there installing the new systems. **EB**

Patrick J. Lynch, P.Eng., has been the president of Power Line Systems Engineering Inc. since 1986. He graduated Electrical Engineering from the University of Waterloo in 1975, and has successfully directed Power Line's completion of over 1100 complex electrical engineering site disturbance investigations around the globe. Visit www.powerlinesystems.ca.

INDUSTRIAL BAKERY WAFFLES OVER FREEZER LIGHTING

Retrofit welcomed for non-energy operational savings / ANATOLI NAOUMOV, M.SC.

Lighting retrofits in industrial environments are known to be short-payback energy management solutions due to significant energy savings and incentives. In the case described below, however, the cost of a massive energy waste prior to retrofit was *actually immaterial* when non-energy benefits were considered.

In fact, the avoided cost of wasted energy was dwarfed by non-energy operational savings resulting in a 2.6-day payback. That's eight (8) shifts.

The case involved an industrial bakery. When we discussed the benefits of energy management with the bakery manager, he showed little interest.

"Our main problem is not the cost of energy; it's an imbalance between our baking capacity and our freezing capacity," he explained. "Our freezer is a bottleneck. If only we could get CAPEX to increase freezing capacity."

Although energy management is rarely about installing more powerful equipment, we went to see the production process.

Production floor surprise: MH lighting in the freezer

Inside the walk-in freezer we saw 12 metal-halide fixtures that were never turned off. Just how expensive is this? Each fixture emits heat, effectively creating a 6.6kW heater (12•0.55kW) inside the freezer. To offset this heat, the freezer consumes about 8.6kW (6.6kW•1.3, where 1.3 reflects freezer efficiency).

This particular freezer uses two 15hp compressors that, conservatively, consume 22.5kW (2•15•0.75). Effectively, the 8.6kW of the 22.5kW freezer offsets a built-in lighting heater (24/7/365).

From the 29.1kW capacity of the freezer with lighting, 15.2kW (6.6kW+8.6kW) or 51% is wasted.



Lighting retrofit payback based on energy savings

These numbers are actually irrelevant for the business case at hand. Now we're getting to the fun stuff.

The 15.2kW combined power of freezing and lighting for a whole year costs about \$15,000 between energy and demand. The cost of installing LED lighting is about \$3000, or \$1500 when you take the time to apply for an incentive (where available). Unlike MH lighting, LEDs do not take time to restart, so LED lighting can be turned Off/On as needed, making energy consumption immaterial and bringing payback to about 36 days. Not bad. Now, the fun part.

Payback based on non-energy operational savings

The cost of avoided energy waste barely scratched the surface. Prior to the retrofit, this bakery shipped part of their products to a third-party holding freezer. After the retrofit, freezer capacity became sufficient to cover production needs.

Exercising the option of a third-party warehouse conservatively comes to \$24,000 annually: the space rental is 18,000; the food audit of the holding freezer is a minimum \$5000; and third-

party personnel training is \$1000. This cost only covers the option of shipping product to another freezer.

The cost to ship and hold a truck of product is \$250 plus \$35 for logistics management. Each shipment causes at least 1% product waste; \$80 in this case, followed by the cost of waste utilization—another \$35 in administrative cost. Altogether this comes to \$400 per shift.

The real problem, then, is the bakery runs 936 shifts per year, which brings the annual cost of having metal-halide lighting within the freezer to a mind-boggling \$413,400:

**8.6
kW**

Consumed by freezer just to offset heat buildup

- \$15,000 for energy
- \$24,000 for requiring third-party storage
- \$400•936 = \$374,400 for shipment

\$413,400

Annual cost of having metal-halide lighting within the freezer

With these costs, the payback of a \$3000 LED lighting retrofit comes to under three (3) days!

And consider that, in the discussion above, I did not factor in the risk of product contamination, which is always present at a multi-user warehouse. Should it materialize, losses through litigation and reputational damage could be measured in the millions.

So when your client or upper management hesitates at the thought of spending money for something like a lighting retrofit, bring their attention to the total cost of energy mismanagement, and the savings that could be realized through non-energy operational savings. **EB**

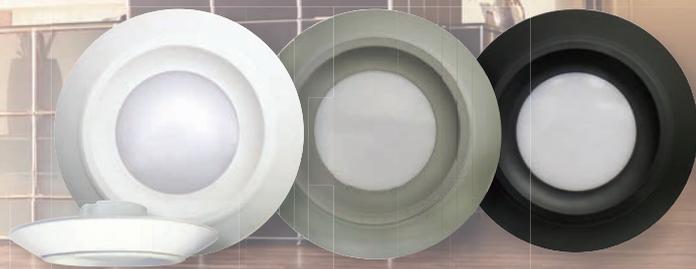
A managing partner at GreenQ Partners, Anatoli Naoumov, MBA, MSc, CMVP, has been involved in various areas of business analysis and development for over 15 years for companies in Canada, The Netherlands and Russia. He has been certified as measurement and verification professional (CMVP) by The Association of Energy Engineers (AEE) and The Efficiency Valuation Organization (EVO). He can be reached at anaoumov@greenq.ca.

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NEW BUSINESS ON THE LOAD SIDE OF THE JUNCTION BOX

Electric heat can add value to clients... and your bottom line / JACK BOESCH

Here is a potentially worthwhile suggestion to bring to your client when discussing a residential renovation, addition or entirely new construction: installation of an electric radiant heating system in the floor that provides supplemental heating in a room. Indeed, this is an amenity that is quickly becoming popular among homeowners. It can add welcome value both to your clients and your bottom line.

Here are some attributes and benefits of an underfloor electric radiant heat system:

- Warms the floor with an extra bit of coziness and comfort underfoot.
- Draft free, unlike a hot air heating system.
- No noisy fans and no filters to change.
- Hypoallergenic.
- No moving parts, no maintenance.
- Because the heat is evenly distributed, there is the same amount

of comfort throughout the room wherever the mats are laid; no hot and cold spots that might be found with a hot air system or baseboard heating.

- Silent, without the whooshes of water or steam rushing through baseboard pipes or radiators, and no clicks or clanks of expanding pipes.
- Because the installation is hidden under the flooring, there is no negative aesthetic impact. In a new space, the underfloor heating will not interfere with the placement of doorways and windows, or with decorative window treatments.
- Can provide welcome supplemental warmth in rooms with cathedral ceilings or in lofts.
- Great option for spot heating near the kitchen sink or in the laundry area.

The main components of an electric radiant heat system are the heating panels with the heating elements incorporated into a thin flexible film or a

mesh or mat combined with a temperature sensor installed in the floor, and a GFCI thermostat on the wall for local activation and control. Line voltage and low-voltage systems are available. Both require connection to power in the house by a licensed electrician. Because of this requirement, the installation of the entire system can be a natural fit for electrical contractors who are already in their clients' homes performing other electrical work.

For an electrical contractor, installation can be easy and straightforward. Look for a system that comes factory-configured as a roll-out mat with wires embedded in the mat or as a heated film with leads already attached. The installation requires only rolling out the mats, running the leads to a junction box, and making the final connection.

Also, consider film systems that employ heated conductive ink strips in parallel as opposed to wire systems; the latter are wired in series, so when one wire is damaged, the entire system stops functioning. Film systems continue to operate in the same manner that parallel-wired Christmas tree lights survive a burnt out bulb here and there.

Supplemental radiant heat is especially welcome on a room-by-room basis in remodelling projects, additions and new construction. It is an attractive option in small spaces such as kitchens, bathrooms, entryways and kids' bedrooms. It is also a smart install in larger spaces such home theatres, family rooms where toddlers often play on or close to the floor, and rooms at the far end of heating zones where a traditional heating system might be less effective

LOOK FOR

systems that are UL listed for radiant heating in Canada, which can be installed over acoustic/insulating underlayment as part of the overall floor assembly.

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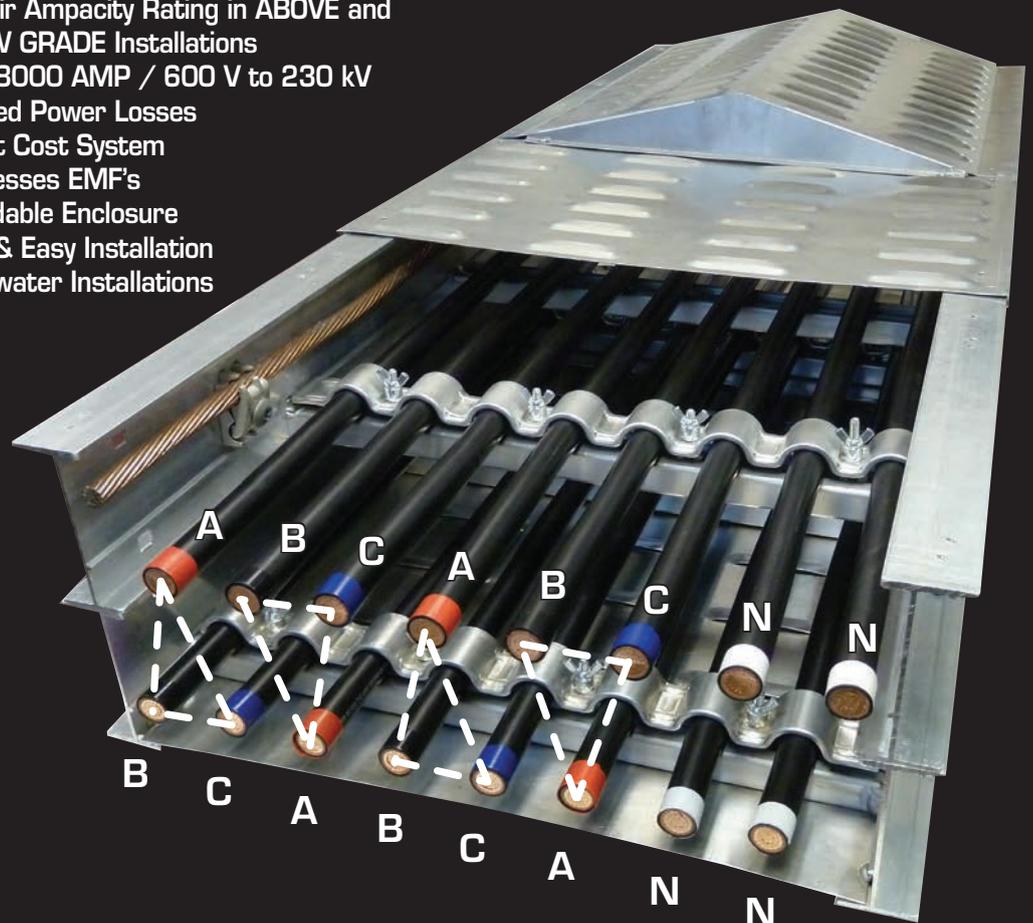
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No empty-Nesters here Electric floor heating continues its evolution

Earlier this year, Pentair announced its brand of electric floor heating systems—Nuheat—now works with the Nest Learning Thermostat.

“The integration with Nest further advances the role of floor heating in whole-home comfort,” said Wally Lo, product manager.

Through the integration, Nest’s combination of sensors, algorithms and machine learning can prompt the Nuheat Signature program to react to home occupancy. Staying home? The floor heat will remain On to keep you comfortable. Leaving earlier or arriving later than expected? The floor heat will turn Off to save energy.



Homeowners will also now have the added option to control their floor heat with the Nest app or via home.nest.com. Nuheat Signature is 802.11 b/g/n compatible and secure via WEP,

WPA and WPA2, and provides hourly, weekly and monthly energy usage.

The Works With Nest features work with any installed Nuheat Signature and does not require added hardware or software updates. Nuheat Signature will continue to retail for about \$265 US. Visit www.nuheat.com/nest.

PHOTO: COURTESY NEST

The new OESC is coming! Will you be ready?

The 2015 Ontario Electrical Safety Code (OESC) comes into effect on May 5, 2016

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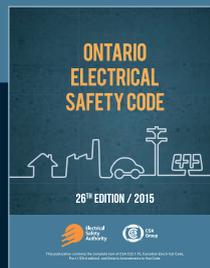
- New Arc Fault Circuit Interrupter requirements
- Changes to renewable energy installations
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because of the distance from the heat source.

When specifying a system for your project, select one that is designed specifically to go under the type of floor that will cover it. This will help ensure easy installation, improve the performance of the overall floor assembly, and help preserve the warranty for the floor covering.

Film-based systems using conductive heat strips are a great source of secondary floor heat, but even the gentle heat is a great source of primary heat. A heat loss calculation must be performed to determine how much heat is needed when using the system as the sole/primary heat source (just as would be done with any other primary heat source). When the system is used for floor heat only, then heat loss calculations are not required.

Some electric radiant heat systems are engineered for installation under specific types of hard surface flooring, such as floating floors made of laminate,

engineered wood, hardwood, and some floating tile systems.

Look for systems that are UL listed for radiant heating in Canada, which can be installed over acoustic/insulating underlayment as part of the overall floor assembly. Aim for systems that have a low profile (i.e. minimal height) that will not noticeably raise the level of the floor. Manufacturers typically offer the mats in multiple rollout panel sizes that will accommodate economical layout for most applications.

Another way to grow your business with electric radiant heat installations is to make contact with local flooring contractors and flooring centres and let them know you are skilled in the installation of electric radiant heat systems. Suggest that they add that perk to any home installation, and that you are available to perform the final electrical hookup to house power and run the final test. A piece of the pie is, after all, better than none. **EB**

Jack Boesch is the director of marketing at MP Global Products LLC, a manufacturer of a flexible electric radiant heat system designed specifically for dry installation under floating wood and laminate floors, and floating tile systems. Visit www.mpglobalproducts.com.



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Will prompt payment find a home in lien act review

A year ago, the Ontario Government commissioned an “expert review” of the Construction Lien Act, appointing Toronto lawyer Bruce Reynolds as Counsel to conduct the review (see “Victory for Prompt Payment Ontario?” at tinyurl.com/o8zavj8).

I had been engaged by a variety of construction groups and associations to help them make submissions for changes to the Act, which also gave rise to the opportunity to advance the cause for prompt payment.

And so, engaged by a client to make submissions to Reynolds, we refreshed the arguments for prompt payment, which go back to the introduction of Bill 69, Prompt Payment Act, 2014, in Ontario (see “Unionized contractors and labour support Prompt Payment Act” at tinyurl.com/o9uk5e8). At the same time, the National Trade Contractors Coalition of Canada (NTCCC, ntccc.ca) has made efforts to have prompt payment legislation apply to federal government projects.

(And while this latest exercise is Ontario-based, the opportunity to push prompt payment legislation is available in each province.)

In July 2015, Reynolds released his “Expert Review of Ontario’s Construction Lien Act: Information Package,” which details the current dynamics of the Act along with 15 issues Reynolds suggests addressing. Briefly:

1. **Lienability.** Do we need to review and revise the applicability of the Act? Are we OK with the current definitions of “improvement” and “owner”?
2. **Holdback & substantial performance.** Do we change it from 10%? Do we consider releasing holdback

in phases? Do we change the minimum requirements for substantial performance?

3. **Preservation, perfection & expiry of liens.** Registration, lawsuit and 2-year period for lien expiration. Do we need to change the 45-day period? Do we need to change the way liens are bonded off?
4. **Prompt payment.** This issue is being considered for inclusion as an amendment to the Act.
5. **Proof of financing.** Although CCDC 2 has had such a provision since 1998, it is often struck out. Do we want proof of financing as part of the Act? Do we consider having a mandatory project trust account?
7. **Interrelationship with insolvency legislation.** Do we need revisions in the Act to address conflicts with the Bankruptcy and Insolvency Act or the Company Creditors Arrangement Act?
8. **Priorities.** Do we need to revise the Act to clarify the rights intended to be conferred upon lien claimants and/or mortgagees?
9. **PPPs.** 3Ps were an unknown in 1983 when the Act was last retrofitted but, now that they’re common, how do we align the Act with them?
10. **Non waiver.** Sections 4 and 5 of the current Act do not allow a party to waive or contract out of their lien rights. Do we keep that principle?
11. **Bidder exclusions.** Although this is beyond the application of the Act, how do we deal with Owners, such as municipalities, who exclude bidders with whom they are in litigation?
12. **Alternative dispute resolution (ADR).** Again, this issue is outside the current

70 days
Average progress payment delay today

scope of the Act, but do we want to include specific ADR steps?

13. **Summary procedure.** Are there ways we can have the Act expedite dispute resolution?
14. **Bonding.** This, too, is outside the scope of the current Act, but do we want the Act to address bonding issues?
15. **Miscellaneous.** A variety of issues, ranging from curing technical glitches in liens to how the Act is to apply to subdivision lots.

Here I want to focus on #4 Prompt payment. With discussions going on across the country, you might understandably wonder why prompt payment hasn’t yet happened. What are the arguments against, and are they valid?

Some argue that having the flow of funds on a project tied to 30-day payment terms would create an administrative nightmare. I’ll admit the number of approvals required for each draw can be somewhat distracting but, as I understand it, there was a time when contractors *could achieve* 30-day payment terms in our industry.

Ultimately, standard-form CCDC and CCA contracts effectively mandate 30-day payment terms. So when our

standard-form contracts for construction mandate 30-day payment terms, then someone must have thought it achievable!

If I can purchase a house and have it close within 30 days, then why can’t a progress draw be reviewed and approved in the same amount of time?

In an age where project meeting minutes can be prepared shortly thereafter and transmitted to all relevant parties within seconds, why have there been consistent and further delays in progress payments on construction projects, from an average of 57 days in 2002 to upward of 70 days today?

Why is it the consultant cannot review a progress draw within 10 days as suggested by CCDC 2? Why is it that the Owner cannot effect payment within 20 days after that approval?

Perhaps because it is not in their interests to do so. I can think of no other reason.

We also regularly hear prompt payment will not work in a P3 environment (which, by the way, account for less than 5% of all construction activity in Ontario).

How does a P3 fundamentally change the payment model for subcontractors? Effectively, the subcontractor contracts with, say, Project Company for a fixed price and with a defined scope of work (perhaps even subject to certain additional risks through design contingencies and so on). But what would make a P3 unworthy of a payment model that would have the subcontractor get paid on 30-day terms? There’s no reason why this cannot happen.

For an industry that depends so heavily on cash flow, it is in everyone’s interest to have all participants as cash-neutral as possible. Prompt payment brings about better cash neutrality for the industry. From a logical perspective, the arguments against are, well, simply illogical. **EB**

Dan Leduc is a partner in the law firm Norton Rose Fulbright Canada LLP and practices almost exclusively in construction law. He is frequently called upon to advise and represent owners, engineers, subcontractors, suppliers and builders in such front-end services as contract review, tender issues and general construction matters, as well as in litigation and arbitration. Dan can be reached at 613-867-7171 or dan.leduc@nortonrosefulbright.com.



Rubbing ELBOWS with the police

After numerous travels through many different business units in the electrical sector, two noteworthy things continuously come up as “opportunities for improvement”: accountability and procedural compliance. I want to set accountability aside for now and focus instead on some aspects of procedural compliance.

One of the things we say all the time in the electrical sector, particularly when there has been a significant incident, is this: If it wasn't documented, it *never* happened.

Our electrical world typically experiences few incidents but, when they occur, they often involve serious consequences to workers. For their employers, the repercussions typically include major involvement with OH&S investigations, potential litigation, time in court, etc.

This is why comprehensive job planning is mandatory.

Unfortunately, a job plan that is only verbally discussed can leave out important details about executing tasks safely. Again, if it wasn't documented, it *never* happened.

Some of you do, in fact, have electrical job planning documentation.

That's a good start, but you're not done:

the next major opportunity for improvement is ensuring your supervisors and workers actually comply with your plan. Not following your job planning documentation (a.k.a. SOP, standard operating procedure) is one of the single-biggest accountability issues in the electrical trades.



Be it federal or provincial/territorial, most OH&S legislation insists that hazards are identified before work begins. For electrical, this could be broken down into direct contact touch, step and induced potential hazards. When you consider the results of an arc flash/blast (e.g. heat, dB levels, shrapnel, noxious copper vapour, infra-

Unfortunately, a job plan that is only verbally discussed can leave out important details about executing tasks safely. If it wasn't documented, it never happened.

red/ultraviolet to the eyes, molten copper and blast pressures), you cannot help but change the way you assess risk and implement a hierarchy of risk control methods.

Having a risk assessment procedure is a best practice, and is documented in CSA Z462-15 “Workplace electrical safety”, which is pulled from CAN/CSA-Z1002-12

“Occupational health and safety - Hazard identification and elimination and risk assessment and control”. (See also my column from June 2015, “Pushing the risk assessment procedure in CSA Z462”.)

Some of the other important considerations could include:

- Lockout/tagout (LOTO), Utility Work Protection code
- Energized electrical work permits
- Safe work practice methods
- Quality tailboards or pre-jobs
- Observation and coaching
- Supervisor's safety logbook
- Corrective action plans

There are different ways of describing some of the points above, but the concepts are all similar.

Supervisor's logbook

A best practice (and mandatory, in my opinion) is for supervisors to keep a well-documented safety logbook. It's not onerous to maintain and, should an electrical incident lead to litigation, the logbook can help the supervisor show he was executing due diligence (or some measure thereof) with regard to worker safety.

But there are some nuances to maintaining a well-documented safety logbook that will stand up in court (should it ever come to that). For example, I know one particular T&D supervisor who

had documented 19 years-worth of on-the-job safety observations. This was amazing!

When we initially chatted about the logbook, the first question I asked was whether the pages in the logbook were numbered. He said, “No. Why? Is that important?” As a matter of fact, yes.

Had the supervisor ever ended up in litigation, his 19 years-worth of daily notes would have been of very little value. Lawyers would have argued that his incomplete logbook (e.g. without page numbers) could have been altered surreptitiously after an incident, so the book would not have held up well in court.

Police officers, who are in court regularly, have learned their notes need to be bullet-proof (pardon the pun). A supervisor's safety logbook can be easily maintained following the same principles the police use. The mnemonic ELBOWS will help you:

- E** - no Erasures
- L** - no Leaves torn out
- B** - no Blank spaces
- O** - no Overwriting
- W** - no Writing between lines
- S** - Statements in direct speech

So not only is it important to document how you plan your electrical work and your daily safety observations, it is also critical to record this information in a manner that can withstand rigorous investigation.

It takes very little additional time to do this correctly, and is an important instrument for protecting your supervisor, your workers and your business. **EB**

A subject-matter expert on electrical safety, Mike Doherty is the director of learning & continual improvement at Shermco Industries Canada Inc. He is a licensed electrician and an IEEE senior member, and has served as the Technical Committee chair for CSA Z462 since its inception. His specialties include electrical safety and health & safety management, maintenance, consulting, training, auditing and electrical incident investigations. Mike can be reached at mldoherty@shermco.com.

WAC Lighting's Fin



Adding to its new Endurance collection, WAC Lighting's Fin, an exterior LED, is offered in three wattages and two colour temperatures, all in one size that is much smaller than its industry counterparts, according to WAC. Energy Star and DLC rated, Fin also has an IP66 wet location listing and a factory-sealed housing that encloses the light engine.

WAC LIGHTING
www.waclighting.com

Eye Lighting 215W HBL luminaire



The 215W Eye HBL LED high-bay replaces 400W metal halide lamps. It features a wide beam and a 4000K CCT rating, CRI of

80+, and operation in -30°C to 50°C ambient conditions. The HBL also has a removable cap and comes in five cord lengths.

EYE LIGHTING
www.eyelighting.com

Eaton's Streetworks Verdeon LED



The Streetworks Verdeon LED is a new streetlight product from Eaton that uses AccuLED Optics technology. It features a rugged, die-cast aluminum housing that is 3G vibration rated and an electrical compartment that is isolated from the LED modules. The LEDs are enclosed in IP66 rated

optics and the fixture is UL wet location listed with an IP66 housing option available.

EATON
www.eatoncanada.ca

Leviton ceiling occupancy sensor

Leviton has a new LED ceiling occupancy sensor (9864-LED), made with thermoplastic. It doesn't require a wall switch,



LEVITON
www.leviton.com

Leviton says, and is easy to install with pigtail leads and mounting holes for multiple box configurations.

Griplock Systems' Wisp



Griplock Systems has introduced what it calls "the thinnest cable suspension system on the market today": Wisp. The system is small and "ultra-thin", with a range of gripper and cable combinations. It is perfect for lightweight LEDs, Griplock says, and any other artwork, signs or display systems.

GRIPLOCK SYSTEMS
www.griplocksystems.com

USAI Lighting's BabyLED

BabyLED is the "shallowest



recessed LED downlight housing in the world," says USAI Lighting. Measuring less than 3 in. tall, BabyLED delivers over 1150 lumens in a variety of white colour temperatures, all from a 3-in. aperture.

USAI LIGHTING
www.usalighting.com

Step inside Northern Cables

For a real treat, check out Northern Cables' new video which—by way of some cool aerial drone videography—takes you over and around and through the Brockville, Ont., facility of the "armoured cable specialists".

NORTHERN CABLES
www.northerncables.com

Noark Electric UL 489 BINQT breakers



Noark Electric has announced the latest edition to the BIN miniature circuit breaker family: the UL 489 BINQT. This recyclable, quick-connect breaker is available in three curves (B, C and D), ranges from 0.5A to 63A and has an optional detachable shield. Noark says the current-limiting BINQT is thermal-magnetic and protects against short circuit and overload conditions.

NOARK ELECTRIC
na.noark-electric.com

Hammond Mfg Waterfall enclosures



Hammond Manufacturing says its Waterfall wall-mounted enclosures are specifically designed for installation in applications where washdown capability is key. The stainless steel enclosures are available in 18 sizes, ranging from 16 x 12 x 8 in. to 60 x 36 x 16 in., in both 304 and 316 stainless materials.

HAMMOND MANUFACTURING
www.hammfg.com

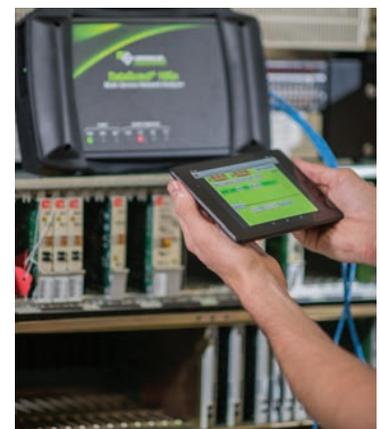
Arlington Snap2It connectors



Arlington Industries says its Snap2It connectors are a "perfect fit for MC-PCS cable". The listed fittings are the easiest snap-on connectors to insert, boasts Arlington, and they handle a range of MC cables (14/2 to 3/3), including MC-PCS cable with lighting and low-voltage circuits in the same cable, as well as AC, MC, HCF, MC continuous corrugated aluminum cable, MCI-A cables (steel and aluminum), AC90, ACG90 and Flex.

ARLINGTON
www.aifittings.com

Greenlee DataScout 10Gx analyzer



The DataScout 10Gx multi-service network analyzer can be remotely controlled up to 100 ft away, says Greenlee, using an Android tablet or mobile device equipped with Bluetooth. The 10Gx has a 20-sec boot time, multiple test interface options (including dual port 1G & 10G ethernet), T3/E3, T1/E1, DS0, PRI-ISDN, 2W/4W signalling-TIMS, and DDS.

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Answers to this month's questions in March's Electrical Business.

How did you do?

- 3 Master Electrician
- 2 Journeyman
- 1 Apprentice
- 0 Plumber!?!?

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QUESTION 1

All space within 6 metres horizontally (in any direction) from dip tanks and their drain boards, with the space extending to a height of 1 metre above the dip tank and drain board, is considered Class I, Zone 2.

- a) True
- b) False

QUESTION 2

It is permitted to supply power to an industrial establishment with two or more supply services of the same voltage.

- a) True
- b) False

QUESTION 3

The minimum system grounding conductor for DC systems shall be No. 8 AWG copper or No. 6 AWG aluminum.

- a) True
- b) False

ANSWERS

Electrical Business, January 2016

Question 1

When a 2-conductor NMS cable is used for a switch loop, does the CE Code require you to tape the white wire with black tape at the switch when the connections are made so that the actual black wire is the return conductor from the switch to the outlet?

b) No. Rule 4-036(2).

Question 2

Wiring of an essential electrical system in a patient care area shall be permitted to occupy the same raceway as non-essential wiring.

b) False. Rule 24-302(3).

Question 3

Both Class 2 power supply as well as Class 2 circuit wiring are limited to 100VA and 42.4V Peak or DC.

b) False. Rule 16-200.

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Rule 14-100: Nothing new to see here

(Part 2)

Let's continue our discussion of CE Code Rule 14-100 "Overcurrent protection of conductors" (see Part 1 in December 2015 ed.) and go through some more subrules.

Subrule c: where the smaller conductor

[another tap rule]:

(i) has an ampacity not less than one-third that of the largest conductor from which it is supplied; and

(ii) is suitably protected from mechanical damage, is not more than 7.5m long, and terminates in a single overcurrent device rated or set at a value not exceeding the ampacity of the conductor, but beyond the single overcurrent device the conductor shall be permitted to supply any number of overcurrent devices

For these sub-subrules, we'll use a 400A service-rated fusible disconnect feeding a 600A-rated gutter but, this time, we want

to feed a 100A panel with a main breaker (in which case the computed loads have already been used to determine panel size). The size of the conductors feeding this panel shall be not less than 1/3 the size of the larger conductor, and the conductors have to be protected from mechanical damage, not more than 7.5m in length, and terminate in an overcurrent device rated or set at not more than the ampacity of the conductor.

If we feed this gutter with parallel 250MCM aluminum cables, then $410A/3 = 136.666A$. Therefore, a 1/0AWG copper or 3/0AWG aluminum conductor minimum would be required to feed the 100A panel out of this splitter run in conduit, and under 7.5m in length.

However, were we to feed this splitter with parallel 300MCM aluminum cables, then $460A/3 = 153.333A$. We would then feed the 100A panel with 2/0AWG copper or 4/0AWG aluminum.

Note that the sizing is not

Despite posing some inherent risks, tap conductors can be safely protected.

based on the ampacity of the overcurrent protection in front of them, but on the conductors' ampacity and the combined ampacity when in parallel.

Subrule d: where the conductor

(i) is the only circuit fed from a high-voltage distribution transformer protected with a primary fuse or breaker upstream;

(ii) terminates in a single overcurrent device not exceeding the ampacity of the conductors; and

(iii) is protected from mechanical damage

When a 750V+ transformer with primary protection that also covers the secondary conductors is installed, and the secondary conductors are mechanically protected and terminate in a single overcurrent device, then protection is not required where the conductors receive their supply...

so long as protection is installed where they end for distribution or use. (This excludes transformers protected in accordance with 26-252[4] and Table 50.)

An example is a 4160/600 75kVA transformer with primary fusing set at 15A. With secondary conductors of #3AWG copper or #1AWG aluminum run in conduit or armoured cable and feeding a 100A breaker, there is no requirement for their protection where they receive their supply, and the 100A breaker can be located remotely.

Rule 14-100 covers a number of exceptions to the general requirements for protecting conductors that interconnect electrical equipment. While tap conductors pose some inherent risks by not being protected at their source, protection can be safely provided by ensuring mechanical protection, restricting distance and location or, sometimes, by using primary protection on a transformer. **EB**

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David Pilon has been an electrical inspector with SaskPower since 2000, and is currently the vice-chair of the Canadian Certified Electrical Inspector (CCEI) committee of the International Association of Electrical Inspectors (IAEI), Canadian Section. David can be reached at dpilon@saskpower.com.



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