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“By the time we started, we were already behind schedule” P.10

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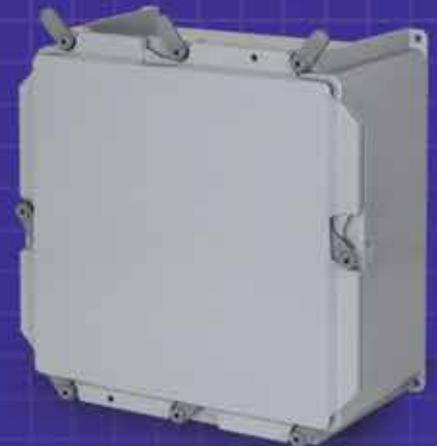
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from the **EDITOR**

ANTHONY CAPKUN

How suspicious is *too suspicious* for print?

I was surprised to read the article extolling the design virtues of the MUHC project within the latest Electrical Business magazine. Unless someone has been under a rock, it's quite public knowledge that SNC is under corruption and fraud charges for this very project.

So begins an email I received from a reader who took offense at our July 2016 cover feature, "What do you get from almost 1000 electrical plans?", which explored the massive Glen Site, the newest addition to the McGill University Health Centre (MUHC).

I cannot say exactly when the dark cloud appeared over the MUHC project, but it started at least a few years ago. In September 2014, the National Post reported

Authorities allege that ex-SNC-Lavalin executives funnelled money to former McGill hospital officials in exchange for the \$1.3-billion contract. (tinyurl.com/j64a4hf)

In April of this year, CBC reported

Montreal engineering giant SNC-Lavalin is suing [MUHC] for \$330 million over the contract to build the new McGill superhospital. (tinyurl.com/jrkgpam)

So the project is, to put it mildly, *troubled*, which begs the question: As storytellers, do we blacklist projects and refuse to speak of them because of *suspicious* activity? For that matter, how suspicious is *too suspicious*? Where do we draw the line?

According to the offended reader,

I do have to question the wisdom in publishing an article promoting the technological merits of a project acquired by circumspect methods.

I sympathized with the reader until that sentence, because I believe the bricks-and-mortar facets of the project are, in fact, worthy of discussion. (If you haven't read it already, you can find the edition in our online Archive at EBMag.com/digital)

And what about the designers, contractors and installers? Should they all hang their heads in shame and never speak of their hard work on this project because of someone else's alleged suspicious activity?

That doesn't seem quite fair.

After the legal dust clears—and regardless of whether anyone goes to prison—this project will remain built and still be used. So we will continue to share stories of what we hope are noteworthy projects and technologies, and leave legal matters to the courts. **EB**

acapkun@annexweb.com

P.S. Agree or disagree? I am always eager to hear your thoughts on this or anything else we publish.

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Chadwick Electric Supply was nearly erased after a total-loss fire back in February 2016, yet this isn't a story about loss and hopelessness, but rather one of partnership and hope.

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Osram's Ledvance business has a buyer, but what about Canada?



LEDvance launch party Summer 2016 in Toronto. PHOTO A. CAPKUN.

Over the course of the summer, you may have heard that a Chinese outfit called MLS Co. Ltd.—the parent company of Atlanta, Ga.-based Forest Lighting USA (forestlighting.com)—is part of a consortium that plans to acquire Osram's Ledvance lighting business. What does this mean for Canada?

"You can rest assured that, for Canadian distributors, it will be business as usual, and the Canadian electrical industry can continue to count on quality Sylvania traditional and LED lighting products," said Glen Gracia, a spokesperson for Ledvance (formerly Osram Sylvania).

By acquiring Ledvance, MLS and its partners—IDG Capital Partners and

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EBMag was happy for the opportunity to golf (or die trying) in the 11th annual ECAO-IBEW Golf Tournament, held earlier this summer at Royal Ontario Golf Course in Milton, Ont. *See photos from the awards dinner at tinyurl.com/hxyctw*

▶ Our latest "Tradie Tip" video with columnist and Profit for Contractors founder Andrew Houston explains how to "stop the boomerang effect". Learn how to implement specific systems—like the Service Call Success System—so YOU are not the system at tinyurl.com/zdsa4r7.

For the latest industry news, events, solutions, stories and more from the industry, go to **EBMAG.COM**

Yiwu—will create a larger sales network for each business, added Forest.

The purchase price announced by the parties is \$440 million US, according to Forest, and that MLS intends to maintain a duel brand strategy for its product lines.

"We are growing our portfolio to include new offerings to benefit Canadian distributors, including smart lighting and standardized over-the-counter luminaires that meet the needs of common applications," added Gracia. "We are focused on helping distributors drive current and future sales."

Speaking of offerings, be sure to check out our photos from an exclusive media event hosted by Sylvania (www.sylvania.com) this past summer at tinyurl.com/gt99au4.

90-year-old Ideal Supply acquired by Deschênes Group



Tim MacDonald (centre, standing) speaks with customers at Ideal Supply's Spring 2016 tradeshow in Stratford. PHOTO A. CAPKUN.

Ideal Supply Co. Ltd.—a southwestern Ontario wholesale distributor to the electrical, industrial and automotive industries—announced the sale of the company to Deschênes Group Inc., a family-owned, Canadian company based in Montreal.

"We were focused on finding a buyer whose culture was most aligned with our own," said Tim MacDonald, Ideal's president and CEO, continuing, "An organization with a caring culture that valued people and put as much effort into professionalism and good management as we did."

The name "Ideal Supply" will be retained, and its headquarters and distribution centre will remain in Listowel. The management team will also remain intact, as does the franchise affiliation with NAPA automotive parts and accessories.

Like Ideal Supply (idealsupply.com), Deschênes Group (groupeledeschenes.com) can be found among Canada's Best Managed Companies (Platinum Club), and is also a member of Affiliated Distributors (AD) Canada (Plumbing & Heating Division). The new owners will maintain Ideal Supply's affiliation in AD's Electrical Division.

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Corporate HQ in Glendale, Wisc.

PHOTO COURTESY JOHNSON CONTROLS.

“We are more than just two businesses that have come together—we are now one team uniquely positioned to create value,” said Alex Molinaroli, chair and CEO of Johnson Controls—now a newly formed company following the completion of its merger with Tyco.

By uniting with Tyco (a player in fire and security solutions), building efficiencies mover Johnson Controls says the new company is “positioned as a leader in products, technologies and integrated solutions for the buildings and energy sectors” (johnsoncontrols.com).

With \$30 billion in revenue and 117,000 employees (following the anticipated spin-off of the Adient automotive business in October), this merger combines product, technology and service capabilities across controls, fire, security, HVAC and energy storage to serve “the full spectrum of end markets, including large institutions, government, commercial buildings, retail, industrial, small business and residential”.

Darcy Rask Construction dealt \$23k fine after worker electrocuted

A Birch Hills, Sask. company has been fined \$23,800 after a worker was killed when equipment touched a powerline.

Darcy Rask Construction Inc. pleaded guilty on August 30, 2016, to violating Occupational Health and Safety (OHS) rules, specifically failing to ensure that no worker works and no equipment is used within a minimum safe distance from any exposed energized electrical conductor.

The incident occurred in September 2014, near Coleville, Sask., when a tractor with a crane came into contact with an overhead high-voltage line.

Philips Lighting an autonomous company; pledges 2 billion LED bulbs by 2020

As Spring was coming to a close, some big news came out of the lighting world involving the 3-billion EUR initial public offering (IPO) of global player Philips Lighting on the Euronext in Amsterdam as a separately listed company.

According to Frans van Houten, CEO of Royal Philips, “This strategic milestone will allow Royal Philips to focus on the fast-growing health technology market”.

We couldn’t ethically publish any information about the IPO at the time, because doing so:

[...] might constitute a violation of the local securities laws or regulations [...]



Bill Bien, head of strategy, speaking at the 7th Clean Energy Ministerial. PHOTO COURTESY PHILIPS LIGHTING.

billion LED light bulbs by 2020.

“It’s gratifying to produce LED light bulbs and connected lighting systems that reduce energy consumption by up to 80% compared to conventional lighting,” said Bill Bien, head of strategy for Philips Lighting. “But we must be accountable for our own footprint too [...] To do this, we’ve had to re-examine everything we do: our operations, processes and supply chain.”

The company also reaffirmed its pledge to make its global operations carbon neutral by 2020, and expects electricity for its U.S. operations to come 100% from renewable sources later this year.

Worker gets caught in a skirt; CS Wind Canada fined \$60,000

CS Wind Canada Inc.—a manufacturer of wind turbine towers—pleaded guilty and has been fined \$60,000 after a worker was injured by moving components of a tower under construction.

In November 2014, a worker at the company facility in Windsor, Ont., was bending one of the ‘skirts’ that, when connected together, form a wind turbine tower about 310-ft high.

During the bending operation, the worker stepped onto the bending machine and inside the rolled skirt to make final measurements prior to welding. The two ends of the skirt—which were butted up against each other—suddenly moved, trapping part of the worker’s body.

A Ministry of Labour (MoL) investigation found the incident took place because the skirt in the bending machine was not blocked to prevent movement. This would have been a reasonable precaution under Section 25(2)(h) of the Occupational Health and Safety Act, says MoL, which requires an employer to take every precaution reasonable in the circumstances for the protection of a worker.

Westerners win big in T&B “Garage Make-Over” promo



Thomas & Betts Canada (www.tnb.ca) has announced the winners of the Star Teck fittings “Win a garage make-over promotion” that ran from March 1, 2016 to April 29, 2016.

With every \$100 purchase of Star Teck fittings, electrical contractors had the opportunity to enter a draw to win one of four prizes including the garage make-over grand prize.

The winning names that were randomly drawn from close to 35,000 entries are:

- Grand prize garage make-over (a value of \$12,000): Bert Doppenberg of Abbotsford, B.C.
- Air compressor: Ledcor Projects Inc. in Edmonton, Alta.
- Jobsite radio: NexSource Power Inc. in Sylvan Lake, Alta.
- Toolbox: Pronghorn Controls Ltd. in Calgary, Alta. **EB**

 Watch Bert Doppenberg claim his prize at tinyurl.com/jksmccq.

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Retaining a lawyer? Have these things ready

Hiring a lawyer is not usually at the top of someone's To Do list, but there may come a time when you, as a contractor, have no other choice. It's an expensive process, and you do yourself no favours by loading your lawyer with basic project records and organization issues. Here are my suggestions to keep things running smoothly and a little less pricey:

1. Chronology of key events and key documents

What you consider to be key events and what your lawyer considers key may be two different things. Have a chronology document set out in a spreadsheet format (e.g. Excel) in which you have entered date of a key event and a short summary about what happened.

When there's a document that applies to this event, be sure to reference it, and provide that reference document to your lawyer. This is an excellent starting point for setting out the background facts.

My starting point, for just about every construction claim or issue I have tackled, is the contract(s) in question.

2. Lien claims

Typically, the registration of a claim for lien requires a quick response from your lawyer. Provide a copy of the contract giving rise to your claim plus:

- a full state of accounts (including copies of the outstanding invoices)
- a description of the work performed
- your start and end dates for the work, and
 - when in Ontario, the publication date of the certificate of substantial performance, or
 - when in other common law jurisdictions, a copy of any substantial performance certificate

You should also identify the property on which you did the work with its municipal address. When it's new work in a greenfield, you can use a location from Google Maps or similar.

3. Damages

Almost every construction claim will involve a claim for damages. Essentially, there are two parts to any lawsuit: liability and damages.

If we cannot find any damages, then there is likely no claim.

If you have not suffered any damages—whether out-of-pocket expenses or costs that were unanticipated, or actual liquidated damages for monies owing pursuant to a contract—or have no way to otherwise prove your damages, it becomes an uphill battle.

After reviewing the contract, some lawyers (like me) will focus on the damages—the amount being claimed by you and the potential amount being claimed against you. If we cannot find any damages, then there is likely no claim.

Have a statement of account available, as well as a summary of your project costing records, to show where you have actually incurred damages. Those will go a long way toward helping your lawyer calculate potential damages. **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.

PERSONALITIES



Standard Products (www.standardpro.com) is welcoming **Bryan Rogne** into the sales team as an account manager. He will be covering the British Columbia and Alberta regions.

Stelpro (www.stelpro.com) has a new sales representative: **Mathieu Rouleau**, who boasts 20 years of experience in sales in the electrical industries, according to the company. He will cover the Mauricie, Estrie and Centre of Quebec territories.



Jodi Moskal—owner of **Moskal Electric** and former vice-president of network cabling solutions—has joined **Bison Fire Protection** (bisonfire.com) in business development for fire alarm systems. Jodi was the owner of Moskal from 1998 until 2016, and served as chair of the Winnipeg Chamber of Commerce from

2013-2014. You can learn more about her in our article "Contractors in the Community" (EBMag August 2007). With Jodi on board, the company expects to expand its fire alarm system sales throughout the Prairies. Bison Fire has three additional locations: Thompson, Man., Regina, Sask., and Kenora, Ont.

Eaton Canada (www.eatoncanada.ca) has appointed **Daryl Simard** to the role of service sales specialist for its electrical sector. The company has also named **Mohammed Sirtaj** acting electrical industrial sales team leader for the northern Alberta region. Both will be based in Edmonton.



Ellen Godson (photo) has joined **Philips Lighting Canada** (www.philips.ca) as senior manager of Lighting Education for the new Lighting Concept Centre in Markham, Ont. Godson is an

active member of the IES Toronto Section and sits on IES and CSA Group commit-

tees. **Daniela Garritano** will also be joining the centre as a program supervisor.



Magna IV Engineering (magnaiv.com) has appointed **Kelly Butz** (photo) as CEO, replacing **Ken Unruh**, who will assume a position with the board. Butz has been part of the Magna IV

team for 12 years, serving most recently as vice-president, Engineering. Based in Edmonton, Magna IV Engineering designs, tests and maintains power, automation, control and lighting systems.



Montreal-based LED lighting player **Arani** (www.arani.ca) has appointed **Dennis Daoust** to the position of vice-president, Supply Chain and Operations, where he will

manage the company's purchasing team and distribution warehouse. **EB**

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- ▶ Security lights: integrated motion sensor and photocell
- ▶ IP65 – suitable for wet locations



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“BY THE TIME WE STARTED, WE WERE ALREADY BEHIND SCHEDULE”

Houle & MMM help deliver Surrey hospital expansion on time / RENÉE FRANCOEUR

There was nothing simple or easy about the work behind Surrey Memorial Hospital’s expanded emergency department and new, eight-storey Critical Care Tower, which are highly integrated with both the existing site and new systems. To top it off, time was tight.

“By the time we started, we were already behind schedule,” says Michael Graham of MMM Group’s Vancouver office, one of the contractors who partnered for the electrical work on the project. “And you cannot be late. There are serious implications if you are late with hospital builds.”

Construction kicked off at the onset of 2011. The emergency department was operating by October 2013 and the entire new addition was officially opened June 2014—right on schedule.

“To have that one department open earlier, that meant we had to have many aspects of the entire building already complete,” adds Graham, who served as senior project manager and senior lighting designer.

3

NHL rinks fit into the new emergency department

151

acute care beds in Critical Tower

“We had to construct this building and not have any impact on the existing hospital in any way,” says Brett Pybus, another senior project manager with MMM Group. “We were tying a multitude of services back into the existing building but we could not compromise its operations. That was quite a significant challenge, with up to 30 electrical systems—fire alarm, power quality, security—running, so it was very complicated.”

From the mechanical and data system installations to working within the energy efficiency plans as part of BC Hydro’s New Construction Program, you can see how the pressure was on.

No “one fit for all” in lighting

This wasn’t just a typical hospital addition. The \$512-million expansion includes a lecture hall-like theatre for the University of British Columbia’s medical school at the basement level and the Critical Care Tower includes three parkade levels, a mechanical level and a helipad, in addition to all the acute care and neonatal unit



rooms and B.C.’s first Ronald McDonald Family Room.

This also meant a “one fit for all” approach to lighting wasn’t going to cut it.

“We used a wide, wide range of lighting manufacturers,” Graham says. “There were about 12,000 lights, if I recall... We had patient rooms with multi-dome lighting, trauma care lighting in emerg, and architectural lighting in the common area to highlight the wood design.”

LEDs were used, but not predominately, as they weren’t as cost-effective in 2011 as they are now, Graham says. “We have a lot of small, lower-wattage LEDs in patient rooms but everywhere else we put fluorescent, and metal halide on the exterior.”

“The other part of it is the availability of highly efficient luminaires that would be appropriate for this application were still being developed,” Pybus adds. “Today, if we went out on the market, we would have a lot more options.”



▲ Surrey Memorial Hospital's expansion adheres to the Wood First Initiative, which promotes the use of B.C. wood products.



▲ About 20% of patient rooms are special infection control rooms which have their own airflow to prevent the spread of infectious diseases.

▲ The newly expanded Surrey Memorial Hospital officially opened in June 2014.

Control with patients and staff

Despite a lack of LEDs, Surrey Memorial's addition was bestowed LEED Gold status, many thanks to a detailed lighting control system based on occupancy and need.

Non-patient rooms have stand-alone occupancy control and a simple relay system running in the common rooms. There are controls for the small LEDs by the patient beds—which are integrated with the Nurse Call system—as well as controls for the multi-dome lighting for the family room, separated from the patients by a curtain.

"We're trying to hand over to the patient the ability to control lighting within their particular zone," Pybus says. "We have to keep that quite simple as it's acute care so the patients in here are really sick."

The lighting controls are a custom diurnal system, developed by MMM Group with Ellis Don.

48

beds in neonatal intensive care unit

2.83

million kWh of energy savings

"We're incrementally changing light to try and mimic daylight, but without the frequency changes," Pybus notes.

Similar to circadian rhythm, the system allows staff to 'join' or 'leave' this cycle via a wall keypad. Otherwise, 3500K is the standard light temperature throughout the hospital.

Graham says the team spent a lot of time on the lighting controls in the NICU (neonatal intensive care unit), where it was particularly challenging as they considered varying studies to learn which light was least damaging to infants' eyes. Here, they had to use custom software and technologies and install an emergency shut-off just for the lights.

With a little BC Hydro help...

"Adding more space—plus even more state-of-the-art equipment and systems—was going to increase how much energy the hospital consumed, no matter what," says Robert Bradley,

energy conservation manager for Fraser Health. "Investing in energy efficiency was a high priority to avoid added energy costs."

With the help of the New Construction Project program from BC Hydro, designers compared various models of heating and cooling to see which was most energy efficient. The program also helped builders pay for a portion of the costs associated with installing the measures identified in the study.

This included daylight harvesting, increased roof and wall insulation, high-performance air-to-water heat pumps and heat recovery systems that will save more than 2 million kWh of electricity a year, according to BC Hydro. Additionally, all motors larger than 7.5 hp were required to have a variable frequency drive.

Cooling towers are not being used, Graham adds, for affection control reasons.



▲ According to BC Hydro, Surrey Memorial is the busiest emergency department in B.C.



▲ This is one of only two hospitals in the province to boast a separate paediatric emergency department.

“When we looked at energy costs, this building was about 55% cheaper than in comparison to a reference building,” Pybus says.

30 systems and integration

“It’s the integration of so many different systems—30 systems into three or four networks—that makes this project unique and technologically advanced,” Graham says. “Today, there would be even more.”

Houle Electric (Burnaby, B.C.) worked with MMM Group and lead contractor Ellis Don on the integration components, installing all low-voltage systems including access control, panic/duress, intrusion, CCTV, intercom, audio-visual systems, RTLS (real-time location system) and the distributed antenna system (DAS).

20

people from electrical team onsite at any given time

One of only

2

hospitals in B.C. to have a separate paediatric emergency department

Integrating the intrusion, panic and CCTV systems with software pop-ups allows onsite security to monitor and respond to emergencies, Houle explains, and combining cellphones, pagers and eComm radios on the DAS keeps everyone in constant contact during regular work or in times of emergency. The RTLS system not only allows staff to keep track of wandering patients, but also serves for asset tagging.

“These systems were where we had one the most revisions compared to other buildings,” Pybus says. “All of the communications and IT technologies and audio-visual each have the capability to provide information to each other and optimize the effort of the staff relative to the patient’s needs and the environment they’re working in.”

The wireless system was the most challenging, he adds, and devices had to be moved a number of times to get proper coverage and mapping, all while staying out of the way of staff and patients.

“Everything is tied into a computer somehow,” Houle notes, meaning all the medical equipment used by the doctors and nurses needs computers—even the phones are IP-based. Installing the data system began with establishing a fiber and copper connection between the existing campus and the new tower. Next, Houle built a fiber backbone network and horizontal Cat6 cable network throughout the new tower.

“The data system will be a huge benefit for the hospital as the medical staff will be able to transfer information from patients faster than before,” Houle writes in a report. “In a hospital setting, seconds can be critical.”

Conquering challenges

A high amount of detail was needed in devising the installation schedule, according to Houle, because of the level of integration.

Where possible, Houle “prewired, programmed and installed the head-end controllers before field devices, which helped reduce installation and commissioning time on all systems”.

“By the time we started, we were already behind schedule. And you cannot be late. There are serious implications if you are late with hospital builds.”

The company says it also worked with MMM Group to identify any prefab items required, and had them built in its own work area. “All systems were pre-integrated in our office before deployment in the field to remove any programming issues that may have arisen while commissioning,” Houle says.

Getting to know all the systems in the existing hospital was also a necessity, says Houle, as it al-

lowed for “seamless interfacing with the existing systems in the running hospital without taking down any of their information networks”.

Another challenge was space, adds Houle, which was tasked with placing all conduit in the ceiling while still allowing access for the mechanical installations. “The hallways in a hospital are also quite full, so having everything in its proper place while avoiding conflicts with other trades took coordination.”

If it wasn’t for the teamwork, Surrey Memorial wouldn’t have made its deadline, Graham notes.

“One of our best lessons learned from the Surrey Memorial Hospital project was to never overlook the true value of great collaborative teamwork... and not just your company’s team, but the entire project team,” says Brian Aasman, general superintendent with Houle, Burnaby. “If one part of the team fails in any way, then the entire team fails and the project is compromised, so you have to work not just to support your immediate team members, but anyone involved in the project who may encounter problems.”

“So kudos to the contractors and builders and health authority for really working together to make this happen so successfully and on time,” Graham adds. **EB**



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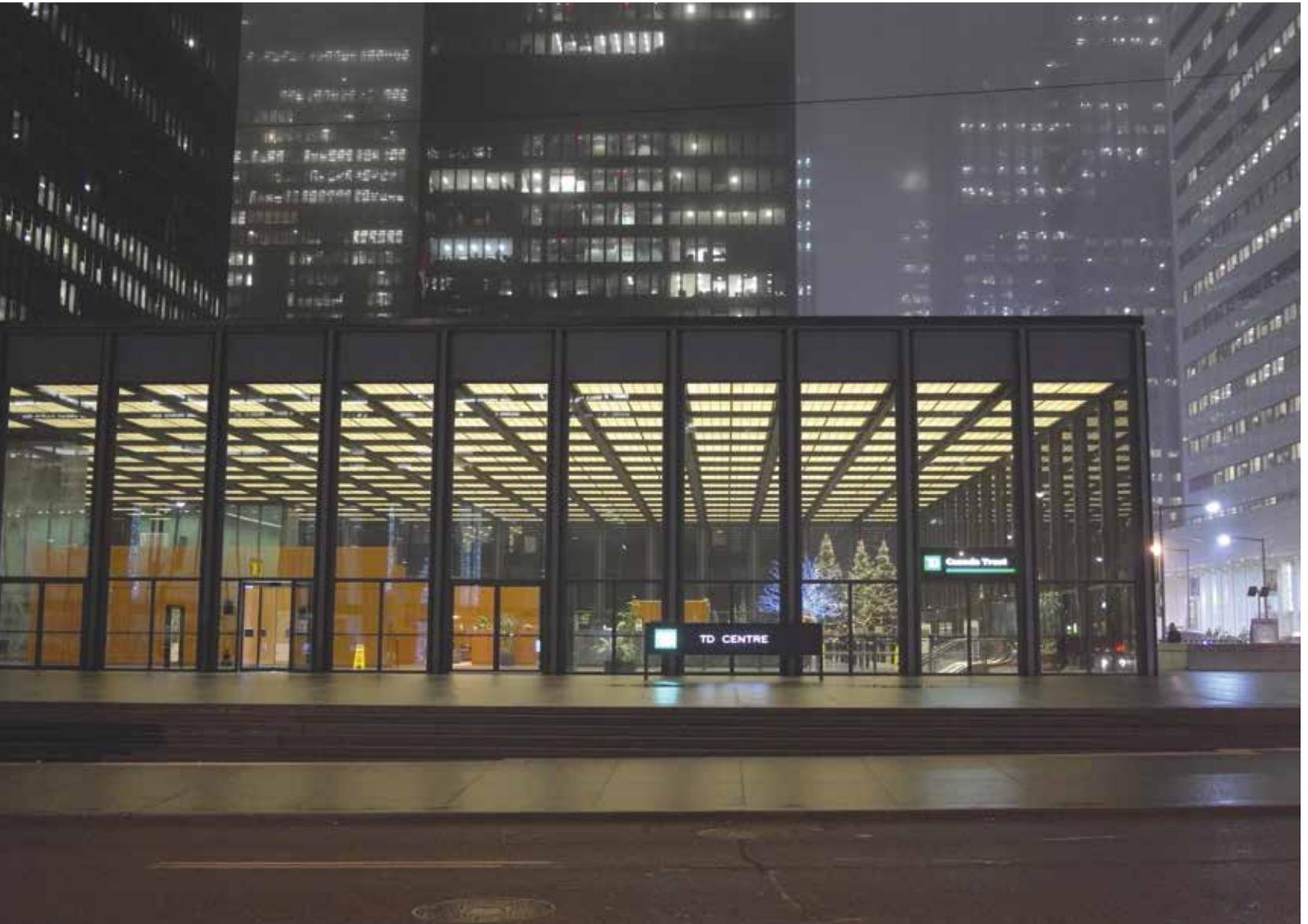
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So reads the history at tdcentre.com.

At 4.3 million sf, the TD Centre—managed by the Cadillac Fairview Corp. Ltd. (which is owned by the Ontario Teachers’ Pension Plan)—is one of the largest LEED Platinum-certified properties in North America, in addition to being one of North America’s largest business communities.

Now the Toronto-Dominion Centre—the original skyscrapers of

6

Number of buildings comprising the TD Centre

Toronto’s Financial District and the largest commercial complex in Canada—is modernizing and changing again with the times.

It worked with GDI, Gerrie Electric Wholesale Ltd. and Ledvance (form. Osram Sylvania) to achieve greater sustainability by replacing T8 lighting with about 55,000 LED tubes, saving roughly 2.5 million kWh annually and \$250,000 per year.



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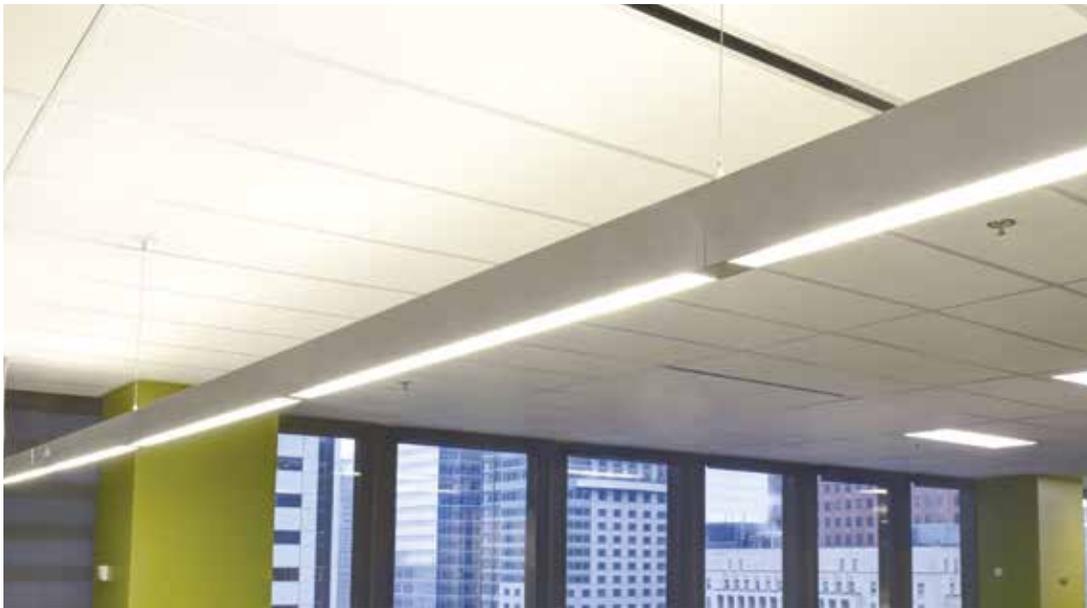
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Lambert's Folly and Toronto's first skyscrapers

The TD centre consists of six buildings: Toronto Dominion Bank Tower, 77 King Street West, 100 Wellington Street West, TD Waterhouse Tower, Ernst & Young Tower and 95 Wellington Street West.

Decades ago, according to TD Centre's website, TD Bank chair Allen Lambert "understood the needs of an emerging Canadian business class and the role that real estate would play in its success". He partnered with Fairview Corp. (now Cadillac Fairview) to realize his initial vision for a single tower at the corner of King and Bay but, when an opportunity arose to accumulate more land, they seized the opportunity. A corner site at King and Bay became 5 acres, and the vision for something much bigger took root.

The site now required an architect, but nothing of this size had ever been built in Canada, so an international search began, culminating with the retention of Ludwig Mies van der Rohe.

"At the time, the development, financing and construction of Toronto-Dominion Centre took enormous courage," reads tdcentre.com. With TD Bank taking only seven floors of the first Tower, it meant that over one million square feet of space would need to be leased to other tenants in the initial phase.

It was a gamble that other business leaders of the day jokingly referred to as "Lambert's Folly".

Mies van der Rohe's initial design

55,000

Number of fluorescent T8s switched over to LED tubes

for the site was a two-tower design plus Banking Pavilion. Only one major design change was requested by the partnership: the complex needed an underground retail pedestrian mall. Eventually, the original black tower design was expanded to five towers (with the addition of 95 Wellington in 1995).

On a mission of environmental performance

Several years ago, TD Centre started publishing annual Sustainability Reports to show how it was performing in the areas of sustainability and environmental performance.

"Doing our part to minimize our environmental footprint is vitally important to the TD Centre and the 21,000 people who come to work here every day," says David Hoffman, general manager. "We are deeply committed to sustainability and extremely proud to be recognized among the leading green buildings in the world."

Last year, all six of the TD Centre's towers earned LEED Platinum certification, making the 4.5 million-sf complex one of the largest properties in North America to be granted the highest possible ranking for existing buildings. To qualify, TD Centre met strict criteria for energy and water efficiency, waste management and indoor environmental quality.

Over the past four years, TD Centre's investments in these areas have resulted in a 16.8% reduction in energy use, a 16.7% decrease in water

consumption, and diverted 19 million kilograms of waste from landfill.

According to its latest Sustainability Report, TD Centre achieved the following year-over-year results in 2015 alone:

- 3.8% reduction in energy use, with tenant cost savings of nearly \$800,000
- 3.9% lower water consumption, conserving almost 14 million litres
- 81% waste diversion rate, saving five million kilograms of waste from landfill and \$300,000 in associated waste removal fees

"Everything we've been able to achieve has been the result of meaningful collaboration with our tenants, who continue to encourage us to build on our environmental efforts," explains Hoffman. "We will continue to aim for even healthier and greener buildings, and to invest in new technologies and innovative tenant initiatives to raise the bar for sustainability even higher."

TD Centre has dedicated \$200 million to greening and revitalization investments and introduced its Occupant Engagement Program, which encourages tenants to help meet progressive consumption targets.

For example, as part of the program in 2015, tenants were offered free "midnight" energy audits. Conducted by an external consultant, the audits were performed outside of business hours to identify potential energy savings that could be achieved. Ultimately, the audits uncovered nearly 500,000 kWh of potential electricity savings—worth about \$70,000 at current electricity prices.

Going forward, TD Centre is targeting a sustained annual 2.5% decrease in energy consumption, a 2% decrease in water consumption and a 90% waste diversion rate.

Lighting retrofit part of the plan

Cadillac Fairview is always searching for opportunities to reduce energy usage and minimize our environmental footprint, Hoffman adds. "This [lighting] upgrade to the most energy-efficient LED lighting delivers superior quality and significant cost savings for our tenants."

"We engaged a lighting consultant from Ottawa [Gabriel Mackinnon

307,000

Number of active and retired teachers in Ontario whose retirement income is invested by the Ontario Teachers' Pension Plan, owner of the TD Centre

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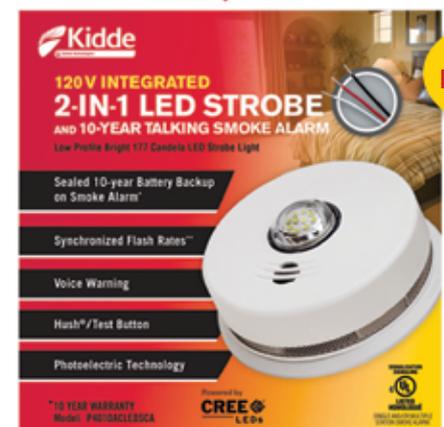
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Lighting Design] to complete a study for us and determine if LED lamps would be suitable for our property,” explains Adrienne Cressman, embedded energy manager with TD Centre. “The consultant provided two acceptable LED retrofit lamps, which we included in our tender.”

The solution selected for the retrofit involved Sylvania SubstiTube IPS LED T8s, which promise a reduction in energy consumption by up to 40%. They are suitable for dry and damp locations in both indoor and outdoor settings. The lamps are engineered to operate on existing instant start and select programmed rapid start electronic T8 ballasts, and are rated to 50,000 (L70) hours.

“We tendered the material to two vendors,” says Cressman of seeking a distribution partner; of the two, Gerrie Electric provided a competitive bid. Furthermore, Gerrie is the lamp provider for Cadillac Fairview, Toronto.

A “significant capital expenditure,” the retrofit was tendered to five contractors, notes Cressman. GDI submitted the winning bid, and “they are also very familiar with the TD Centre, which was a win-win”.

GDI describes itself as a provider of ‘soft’ facility services, including janitorial, disinfection and sterilization, carpet cleaning, floor stripping and light building maintenance. Back in February 2016, however, GDI joined with Ainsworth Inc. to be able to provide ‘hard’ services, including service, installation and maintenance of HVAC, refrigeration, mechanical, and electrical systems and equipment.

All work was completed after-hours, says Cressman. The crews first started with a few unoccupied floors to work through the process and work out any kinks. GDI then provided a schedule for each tower.

The distributor started shipping product around the end of 2015, explains Elaine Gerrie, co-president & CEO, with the final shipment occurring in Summer 2016. The company had two dedicated staff looking after the job, and working with the supplier for releasing shipments, and tracking those shipments to ensure they came in on time.

“So it was a real coordination of logistics,” says Gerrie, adding they could only use certain-sized trucks

“We engaged a lighting consultant from Ottawa [...] to complete a study for us and determine if LED lamps would be suitable for our property.”

to get in and out of the loading bay with ease.

Tony Valentini, lighting specialist with Gerrie, says that while they experienced a few minor challenges (which were all resolved quickly), one particular snag stands out.

“A shipment was being made during one of the worst storms of the winter season, and the delivery truck chose that day to have engine issues while en route,” says Valentini. “But, through coordination with [Ledvance’s] Logistics people, their carrier and our team at Gerrie Lighting Solutions, we were able to coordinate an alternate vehicle to go to the location, offload/transfer the shipment from one truck to the other, and still meeting the delivery time frame.”

“To change the lights, we needed to use ladders over desks. Although GDI covered all surfaces and used care, there were still some issues with damage,” Cressman notes, “[but] we worked through the issues with the installers and added further protection as required. The project went very smoothly while working closely with tenant relations.”

The entire job was completed in just over four months. Cressman adds TD Centre did apply for an IESO incentive (Independent Electricity System Operator), and expects the payback to be under five years.

“And it really went smoothly. The team really worked well with [Ledvance],” and also with the installer and the owner, says Gerrie. The project came in on time and on budget, she says. “It was a really good partnership.”

Valentini, too, is very pleased with the end result... “knowing that we have been instrumental in dramatically reducing energy costs and lowering the carbon footprint of one of North America’s largest commercial/office facilities with little inconvenience to the thousands of people who work at TD Centre. And, we have dramatically improved the quality of light”. **EB**

2.5
million kWh

Approximate energy savings after switching from T8s to LED tubes

21,000

office employees call TD Centre their home away from home

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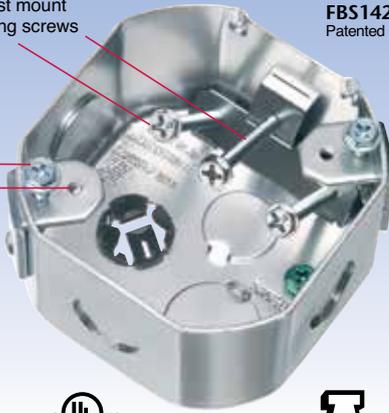
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		Min	Max	Min	Max	
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8413	1-1/4"	1.000	1.460	.870	1.370	2-3, 2-4, 1-3, 1-4, 1/0-3, 1/0-4, 2/0-3, 2/0-4, 3/0-3
8414	1-1/2"	1.360	1.770	1.250	1.590	2/0-4, 3/0-3, 3/0-4, 4/0-3, 4/0-4, 250-3, 250-4
8415	2"	1.700	2.200	1.550	2.050	250-4, 300-4, 350-3, 350-4, 500-3
8416	2-1/2"	2.100	2.700	1.950	2.400	500-3, 500-4, 600-3, 600-4, 750-3
8417	3"	2.500	3.300	2.350	3.000	600-4, 750-3, 750-4

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Tyler and Craig Chadwick

LIKE A “MAC’S MILK WITHOUT THE MILK”

Chadwick Electric Supply’s rebirth from a total-loss fire / **ANTHONY CAPKUN**

“I know more about insurance than I care to,” said Craig Chadwick as we chatted about the total-loss fire of February 12, 2016, that nearly erased 25 year-old Chadwick Electric Supply from the Hamilton, Ont., landscape.

The fire happened in the late afternoon as Craig, the owner of the distributorship, was on his way to the cottage. He got a call from his security company, and figured it was just another annoying false alarm call. He was wrong.

After the firefighters had done their work, Craig’s son Tyler was the first to

enter the building at 65 Nebo Road, where he started taking some pictures and assessing the damage. When Craig finally entered, he didn’t initially grasp the severity of the blaze. “I didn’t think it was that bad. But then I noticed the stink, and everything was covered in soot.”

His distributorship was burnt; about 6000 sf to 7000 sf (including the mezzanine) were a mess, and Craig lost about \$600,000 in inventory. (You can read the Hamilton Spectator story at tinyurl.com/gqgteyd) To this day, the cause of the blaze remains a mystery.

The fire is an opportunity to start over... to push the Reset button.

A story of rebuilding

But this isn’t a story about loss and hopelessness. In fact, what got me interested in Chadwick’s story was the following from an email exchange I had with Craig a short while ago:

I write this from a jobsite office trailer after suffering a total-loss fire on February 12th. We anticipate being entirely back up and running in 4-6 months. It is an experience I would not wish upon my worst enemy [...] If nothing else, [my story] will show the necessity of good insurance and the fantastic co-operation we have had from some of the biggest manufacturers in the world.

As we chatted, Craig explained the importance of being “right-insured”; after the fire, he discovered Chadwick Electric had, in fact, good insurance.

“Insurance is confusing,” Craig admitted, but he “quickly learned how to read the policy”. There was going to be a loss, “but we were going to be OK”.

“The best thing is to have open, honest discussions with your insurance. No fighting. Do what’s fair in the process,” said Craig, acknowledging that, “when they’re cutting cheques, they have to be careful.”

“Make sure you review your policy, especially for business interruption,” Craig advises. “It would be very hard to restart without it. It’s better to have it and not need it, than not have it and need it.”

Getting by with help from your friends

To save costs after the fire, Craig, his son Tyler, and Tyler’s rugby friends helped empty the contents of the fire-damaged building. Even then, the clean-up cost Craig about \$5000.

But what about business continuity? “For the first two weeks after the fire, no one was answering the phones,” Craig confessed, so the team kicked into high gear to reach out to all of their accounts. “We’ve maintained 75% of our business,” said Craig, who has two full-time reps on the road.

“The staff here [myself, Tyler, Kim, Joe and Gary] have been fabulous,” said Craig proudly, who wanted to instil and maintain a business-as-usual workplace. Part of that includes ensuring everyone still takes their vacation.

PHOTOS A. CAPKUN



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Tyler Chadwick and Craig Chadwick, owner of Chadwick Electric Supply, have called a trailer in the back lot home for the past several months. “We’re like a Mac’s Milk [convenience store] without the milk!” If all goes according to plan, the distributorship will reopen in its 65 Nebo Road location this fall.



“I can’t think of any manufacturer who didn’t help us out to get back on our feet. Each one chose to do it their own way, but they all stepped up to the plate,” said Craig Chadwick.

“And our customers have been great,” said Craig, noting they’ve been paying on time rather than taking 60 to 90 days.

But their current location—the jobsite trailer in the back parking lot of 65 Nebo Road—doesn’t offer a lot of room for inventory.

“We’re like a Mac’s Milk [convenience store] without the milk!” noted Craig, which is why manufacturer support has been so helpful and appreciated.

“Our manufacturer partners worked with us on freight charges. It is in everyone’s best interest to give us help to stay in business,” said Craig, adding, “In fact, I can’t think of any manufacturer who didn’t help us out to get back on our feet. Each one chose to do it their own way, but they all stepped up to the plate.”

Looking forward to reopening

Craig is thankful for all the customers, employees, manufacturers—and, yes, even the insurance folks—who have stood by the distributorship during its time of crisis.

“We are fortunate in that we minded our manners in the past,” Craig said.

“I think we’re over the worst of it,” said Craig, hopefully. By the time you read this, they should have settled all their permits and started rebuilding. “The building should be finished by Fall 2016, and we move back in.”

He says they’ve done all the purchasing for things like computers and

furniture, only “there’s nowhere to put it yet”.

They aim to “grow” their inventory rather than replace everything all at once, Craig notes, “and our manufacturers are just waiting on word from us to come in with their displays.”

We are fortunate in that we minded our manners in the past.

Tyler, meantime, continues to learn the electrical distributor ropes, so to speak, building friendships and learning the products they sell. He cites one specific piece of advice that helps him whenever he feels

overwhelmed by the sheer breadth of electrical product:

“Learning a business is like drinking a two-four of beer... you drink ‘em one at a time”.

“There’s still doubt in the industry as to whether we’re going to come back,” Craig admits, so what makes him think an independent like Chadwick Electric Supply can survive? “We can service our accounts! We have to service our accounts—that’s the reason we’re still in business.”

While he admits there have been times—especially at the beginning—when he thought about just throwing in the towel, Craig—along with Tyler and his team—are throwing everything they have into reopening Chadwick Electric Supply (chadwickelectric.ca).

“The fire is an opportunity to start over... to push the Reset button,” Craig said, with Tyler adding, “I think our customers will also be excited.” **EB**



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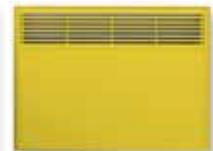
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CODE *conundrum*

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

Compiled by Ontario's Electrical Safety Authority
www.esasafe.com

QUESTION 1

Class H fuses can be used for overcurrent protection in places where circuit overload protection is provided by other means.

- a) True b) False

QUESTION 2

The maximum voltage for a Class 2 circuit is:

- a) 30V c) 115V
b) 48V d) 150V

QUESTION 3

The space within 6m (horizontally in any direction) from dip tanks and their drain boards, and extending to a height of 1m above the tank, is considered:

- a) Class I, zone 1
b) Class I, zone 2
c) Class II, Division 1
d) Class II, Division 2

ANSWERS Electrical Business, September 2016

Question 1

The metal assembly of a raised floor in a computer room must be bonded with a _____ copper conductor to form an effective equipotential plan.

- d) #6AWG. Rule 10-406(7).

Question 2

The CE Code allows two supply services of the same voltage (from the same system of any supply authority) to enter a building, if one will only be used for supplying a fire pump.

- a) True. Rule 6-102(1).

Question 3

If a service switch is marked for continuous operation at 100%—and is supplied by single conductor cable in free air—what is the maximum continuous load?

- c) 85%. Rule 8-104(5).

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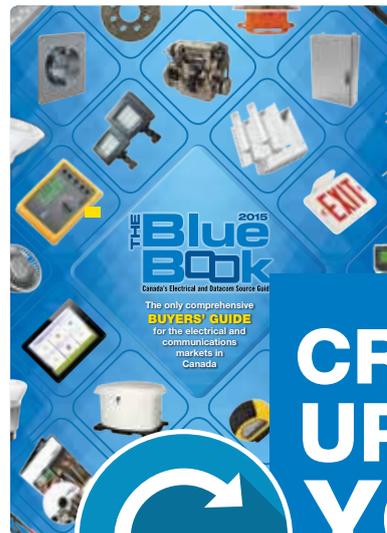
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Equipotential grounding... the missing link in bonding & grounding?

CE Code Section 10 “Grounding and bonding” talks of bonding metallic systems together to the grounding conductor. This reduces the danger of electric shock and property damage by providing a low impedance path for fault current back to the source, and establishes an equipotential plane, such that the possibility of a potential difference between metal parts is minimized.

The objective of grounding the electrical system and non-current-carrying metal parts is to connect the earth to the equipotential plane, minimizing any potential difference to earth.

And that appears to be the end of any talk about equipotential grounding—other than the requirement for raised metallic floors with wiring beneath them, and the appendix note regarding interconnecting and bonding the metallic components around a pool.

While I understand Section 10 is undergoing a major rewrite as we speak, it is still important to discuss it. With the 2015 CE Code change to Rule 10-208, the committee made a substantial step forward but some questions remain.

For example, the Rule states the non-current-carrying metal

parts of the electrical equipment in or on a building shall be bonded to ground by a conductor run with the feeder or branch circuit conductors. This is a requirement for buildings housing livestock.

So let’s picture an average farm: a house, garage, shop, machine shed, chicken coop and barn (building housing livestock). The electrical contractor is required as per 10-208(2) to interconnect all the metallic systems in the barn—including stanchions and panels—and run a bond conductor with the feeders to this building back to the system ground.

But where is that system ground? How far back is it? 60 m? 200 m? What about a lightning event? How is this system going to mitigate that energy? What reference does this system ground have with the earth 30 m away?

A goal of this method is to prevent parallel neutrals, eliminate stray currents in the earth—especially around buildings housing livestock—and ensure

It is my opinion that once a feeder is used for a second or third building, those buildings should be required by the CE Code to be fed by a feeder that includes a bond conductor sized to Table 16.

a fault current path back to the source. Relying on soil resistivity (below 750V would be too high to allow a breaker to operate) has been impractical, as most of the time the soil appears as a highly resistive load.

But what about lightning or the stray currents around the machine shed? The workshop? The garage and the house? Why are we re-grounding our neutrals all over farmyards and other commercial sites? Why are we not mandating the

requirement for equipotential grounding to the metallic sys-

tems and isolating the neutral at all buildings after the system is grounded at the first point?

I believe once a feeder is used for a second or third building, those buildings should be required by code to be fed by a feeder that includes a bond conductor sized to Table 16. Then, one plate, two rods or a field-installed electrode sized to Table 43 should be installed at each building to establish its own equipotential grounding point. **EB**

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.

Always consult your AHJ for more specific interpretations.

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