

# Electrical Business

THE AUTHORITATIVE VOICE OF  
CANADA'S ELECTRICAL INDUSTRY

**MO  
RE**  
with less...  
Details on Page 5.

## Cable planners go for Olympic Gold

Left to right on Cypress Mountain (location for snowboard events) are: Joe Madigin, Mike Picariello, Brian Sanche, Brian Johnson, Laszlo Szekernyes and George Wong.



PM # 40063602

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- Electric radiant heating or "Why are plumbers getting our work?" (Page 10)
- If you tried CFLs before and didn't like them, *try them again!* (Page 15)
- Top 10 reasons to get in with the new electrical code (Page 19)

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# Be bold and rule the category

In times like these, we all look for ways to save a buck. Maybe we spend more time hunting down better deals for the things we consume regularly, or put off purchasing things from our “would-like-to-have” lists until the economy improves, or maybe find ways of making our operations leaner and meaner. Makes sense.

To save even more money, some of you may be thinking about slashing your marketing budgets. Maybe this year you won't sponsor your community's minor hockey league team, or maybe you'll pull your advertisement from the local newspaper. Maybe you'll even pull your membership from your local electrical organization, stop attending educational sessions, or allow your website to lag horribly out of date.

None of this makes sense. When you cut out these things, you jeopardize your current *and future* sales. While consumers may not be buying certain things *at the moment*, you want to be the first company they think of when the economy turns around and they start spending again.

In her research paper, “Media Advertising when your Market is in a Recession”, Dr. Valerie Kijewski reveals that aggressive businesses that make major increases in media advertising expenditures during recessionary periods *gain market share*: an average of **1.5 points!** They outflank the average business, which gains only 0.63 points of market share during recession.

Granted, the inherent problem with marketing is that it's hard to nail down its worth (which is why it's usually the first to get the axe), and while you have to do what you can to weather this economic storm, you must not allow yourself

to disappear from the market. Do not go into hibernation. Make sure everyone knows you're still around, ready and able to do business.

And in times like these, you know some clients will be tempted to save a few bucks by hiring someone whose shop is the trunk of their car. Don't let the carpetbaggers move in on your market! Analyze your marketing strategy: maybe it doesn't make sense to sponsor that minor hockey league team. Maybe those marketing dollars are best spent on a referral program, or larger, more frequent ads in the newspaper. Maybe even radio. Whatever the solution, it's out there, and you have to seize it.

American Business Media (ABM) says “advertising in an economic downturn should be regarded—not as a drain on profits—but as a contributor to profits”. In a paper about marketing in economic downturns, David Poulos adds, “Those companies that are so bold as to increase marketing activity stand a great chance of taking market share from their less aggressive competitors and can rule the category if the downturn lasts long enough”.

I know some of you have had to let go of some staff, and it hurts to have to do that, but the economy will turn around and, thankfully, everyone needs electricity. When the economy does turn around, the investments you made in selling yourself during recession will pay great dividends. You may even have to expand. So be bold, and aim to rule the category! ☺

*Anthony Capkun*

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#### Cable planners go for Olympic Gold

When it comes to the 2010 Olympic Winter Game's communications infrastructure, success comes from no one noticing it's even there. EB speaks with the team of cable planners that's responsible for planning, designing and laying the network and cabling infrastructure for the Vancouver Olympic Winter games. It is through the infrastructure they establish that sport, media, technology and support have proper connectivity and communication, and by which security teams can keep athletes and spectators safe.

## FEATURES

### 10 Electric radiant heating or “Why are plumbers getting our work?”

The acceptance of floor warming and radiant heating systems has opened up a new market for electric heating cable systems. In Canada, the radiant heating market has been virtually exclusive to the hydronic heating (plumbing) industry, but changes are afoot; the electrical contractor that's willing to explore this market can realize a huge potential for profit.



### 15 If you tried CFLs before and didn't like them, try them again!

While consumers have come to see the CFL as an effective and easy way to reduce their carbon footprint and save energy, numerous health and safety tales about them have been propagated in the market. It's up to you—the electrical expert—to educate your customers on the basics of CFL technology, so they can see the electrical industry working with the green shift, not against it.

### 19 Top 10 reasons to get in with the new electrical code

Every three years we are asked to embrace a new electrical code, and some folks wonder whether it's worth it, arguing that the Canadian Electrical Code doesn't really change all that much anyway? Well, you asked, and we delivered. Here, then—in no particular order—are the Top 10 Reasons you need to get in with the 2009 CEC.

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ELECTRICAL BUSINESS is the magazine of the Canadian electrical industry. It reports on the news and publishes articles in a manner that is informative and constructive.

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**NETcomm presents Prairies 2009 Conference, Issues Call for Papers**



Following the success of the Maritimes Conference held in Halifax last September, NETcomm is presenting its Prairies 2009 Conference in Saskatoon, Sask., April 21-22. It is being held at the historic Delta Bessborough—the official conference hotel.

The Prairies 2009 Conference is the first in a series of regional conferences NETcomm is conducting across Canada this year. The conference format combines a trade show-like forum with a series of educational seminars and technical workshops related to all aspects of communications networks and connectivity solutions.

Attendees consist of contractors, installers, integrators, designers, engineers, communications specialists, etc., who work in public administration, transportation, telecommunications, security, electrical and cabling installation, network design and installation, and purchasing and operations management.

NETcomm is excited to announce that SaskTel has come aboard as Presenting Sponsor, and has issued a Call for Papers for the Prairies 2009 Conference, seeking presentations on subjects touching upon one or more of the following:

- Voice/Data/Video
- Security
- Industrial Automation
- Environmental Systems
- Backbone and Cable/Rack Management
- Test & Measurement
- Regulations & Standards

*\* Other subjects will be considered*

To enquire about facilitating an educational seminar, please contact the Editor at (905) 713-4391 or [acapkun@clbmedia.ca](mailto:acapkun@clbmedia.ca). For more information, visit [www.netcommshow.ca](http://www.netcommshow.ca).

**Eaton reorganizes into electrical and industrial sectors**

Eaton Corp. announced its businesses are being reorganized into two sectors—Electrical and Industrial—with a vice-chair and CEO for each, effective February 1.

Eaton chair and CEO, Alexander M. Cutler, says Thomas S. Gross has been named vice-chair and CEO of the Electrical Sector. Gross succeeds Electrical Group CEO, Randy W. Carson, who is retiring at the end of April. Craig Arnold has been named vice-chair and CEO of the Industrial Sector, which includes Eaton's aerospace, automotive, hydraulics and truck businesses.

Additionally, Cutler announced that Richard H. Fearon has been named vice-chair and chief financial/planning officer for Eaton.

"As the company grows, we need to develop our organizational structure to help accelerate growth, identify synergies, drive common practices and build broad, global capability," Cutler said, adding, "Much of the growth in our electrical business, which propels our move in this direction, is due to the contributions of Randy Carson. Over the past nine years, Randy has taken our electrical business from a North American business of \$2.2 billion to a major global enterprise of \$7 billion... Eaton will also benefit from his close relationships with key customers well into the future. We all wish him the very best in his retirement."

The Electrical sector will be organized by geographic region. Handling North America is Jerry R. Whitaker, president—Electrical Americas Region.

**Scepter "Reel Deal" promotion lands prized connections**

IPEX Inc., a manufacturer of a range of electrical products (including Scepter PVC rigid conduit and fittings), says its 2008 Scepter "Reel Deal" promotion that ran from July to October exceeded all expectations. For one, over 99% entrants submitted their entries online—a significant accomplishment for an industry where prospects are typically not online the majority of their working day.

The company also stresses that the prizes were a big part of the success. IPEX gave away one pair of top-quality Kodiak Blue workboots each day (91 pairs in total), a Pentax Optio W60 digital camera each week (13 in total), and 10 Sony Playstation 3 systems complete with the game "Rapala Fishing Frenzy".

But the "reel" hook was the grand prize: one lucky winner and three friends get to jet away on a mini-vacation to Miami, Fla., for a full day of all-expenses-paid deep-sea fishing on a 50-ft luxury charter plus two nights accommodation in a fabulous condo. The grand prize was worth over \$13,000, and the lucky winner is Dave Hines, originally of Nova Scotia but now working for Chamco Industries Ltd. (Calgary, Alta.).

"I did feel lucky that day, and this is the first time I've ever won anything like this," said Hines. "It was such a unique promotion



IPEX sales rep, Blair Bechthold (left), presents the "Reel Deal" grand prize to Dave Hines of Chamco Industries Ltd.

and the prizes were all top quality. It was a good reflection of the company because Scepter is known for innovative products and very high, consistent quality."

Bill Hawke, marketing manager for IPEX, confirms there will be a 2009 edition of the "Reel Deal" promotion. "While this promotion helped us make contact with potential new customers, it also gave us the opportunity to show our appreciation to all the contractors who use and rely on our products every day. It's just as important to us as a way of saying 'Thanks' for the trust they put in Scepter."

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**Thomas & Betts**

**Stanpro launches Market Choice lighting distribution program**



Stanpro Lighting Systems—a Canadian player in commercial, industrial and architectural lighting products—has launched a new HID and emergency lighting products program for its channel partners as part of its Market Choice lighting distribution program.

“With Market Choice, we offer a quality product with a comprehensive distributor rebate and reward program that’s revolves around the lighting that contractors need and the quality they want,” said Jeff Beare, the company’s vice-president of marketing.

Market Choice boasts a selection of high-intensity discharge and emergency lighting products that are made in Canada and feature North American ballasts, and product warranties. The program also includes showroom displays, marketing support and multi-tiered promotions that reward both the distributor and the end user.

The program not only offers incentives based on volume of HID and emergency lighting, but also allows distributors to take advantage

of even greater incentives and enjoy prize-based promotions.

To kick-off the Market Choice program, Stanpro is offering a free, 3-D display to signing distributors, as well as automatic entry into two (2) prize draws. For more information, contact Greg Parsons, vice-president of sales, at (514) 739-9984 ext. 1523.

**Electrical distributor Gerrie acquires Tesco**

Gerrie Electric Wholesale Ltd. has acquired Tesco Electric (effective January 1), which will continue to operate as Tesco Electric.

“The team at Tesco have an excellent reputation for providing their customers with excellent service over the past 24 years,” reads the press release. “When William Earle, Carolyn Keller and Ken Condick came to the decision to sell, they wanted to ensure that these customer traditions would be continued and supported in the future. It is with every confidence that they contacted and selected Gerrie as being the best fit for their customers, vendors and loyal employees.”

Gerrie has 17 branches throughout South Central Ontario and over 275 employees. “The spirit of being a family owned business has played an important part in the success of our company over the past 51 years,” continues the release. “We are very pleased to have the Tesco team as part of our growing family.”

**Cooper Bussmann Productivity Through Protection training tour**



Cooper Bussmann is taking its “Productivity Through Protection” (PTP) message across North America throughout 2009 and 2010. The tour is an electrical technology and training program designed for electricians and engineers in construction, maintenance/repair and original equipment design.

The PTP experience involves a 32-ft display outfitted with Cooper Bussmann products that allows guests to engage in training via interactive displays, video and one-on-one discussions with a company rep.

The tour launches its two-year program in June with scheduled stops at Cooper Bussmann distributor locations and industry trade shows throughout Canada and the United States.

“The focus of this tour is education and providing product and service solutions,” explained Paul Taylor, vice-president marketing for Cooper Bussmann. “On-board, guests will discover new technology and information on arc flash reduction, current limitation, interrupting rating, short-circuit current rating and selective coordination. It is our intention to inform, educate and provide a meaningful experience to our visitors so they can more safely design, install and maintain electrical distribution systems.”

Visit [www.cooperbussmanntrainingservices.com/PTPTOUR](http://www.cooperbussmanntrainingservices.com/PTPTOUR) for tour dates and locations. Cooper Bussmann distributors wishing to reserve the PTP Tour can log onto the same site (click Distributor Registration & Resources).

**Beghelli Canada relocates within Markham**

Beghelli Canada Inc. has relocated within Markham, Ont., to 3900-14th Avenue, thereby doubling its HQ and production centre to about 50,000 sf.

“The extra capacity will allow Beghelli to continue to meet the demand and service levels our customers expect,” said Bruno Ardito, general manager, adding that the additional space will increase Beghelli’s production efficiency and allow it to plan for future growth.

The extra square footage allows the company to offer a greater selection of finished goods, add a customer pick-up counter and expand production capabilities to accommodate the growth in emergency lighting and new lighting products recently launched. The Canadian operation is the primary North American emergency lighting production facility.

**FCI acquires Implor Technologies**

FCI, a manufacturer and provider of connector and tooling solutions to the industrial, telecom and energy industries, has acquired Markham, Ont.-based Implor Technologies Inc., a player in the field of implosive connector products for the utility market. The acquisition, says FCI, will allow it to leverage the technology developed by Implor to complement the products it offers for transmission interconnect applications.

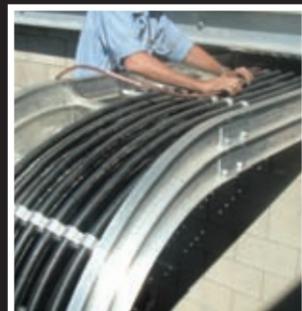
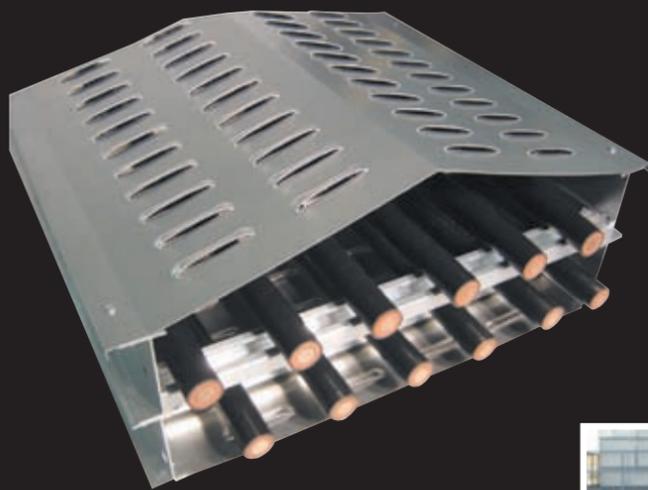
“This acquisition will make a solid long-term strategic contribution to FCI’s growing portfolio of quality connection systems with a focus on high-voltage splicing and connection technology for utility transmission systems,” said Rodd Ruland, corporate vice-president and general manager of FCI-Electrical Division (Burndy products).

Ciro Pasini, Implor founder and president, said he chose to become part of FCI because the Burndy brand is well recognized and respected, and it will “improve our ability to meet customer needs and develop new products while keeping the Implor entrepreneurial spirit and tradition of excellence in products and services”.

**EEMAC announces Battery Section**

The Electrical Equipment Manufacturers Association of Canada (EEMAC) has formed a new Battery Section that will work with battery manufacturers and

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government regarding legislative initiatives, disposal and recycling, environmental issues and regulations. The Battery Section will also work closely with similar associations, such as the National Electrical Manufacturers Association (NEMA) on the various issues facing the battery industry.

Founding members Energizer Canada Inc. and Procter & Gamble Inc. would like to implement change that will positively impact their industry. John Bailie (consultant, EEMAC Battery Section) and Wayne Edwards (vice-president, EEMAC) will work to establish and promote the various recycling and environmental programs for all types of batteries.

For more information on this new section or membership, contact John Bailie at john.bailie@sympatico.ca or wedwards@electrofed.com for Wayne Edwards.

### EECN spring Training Workshop schedule

The Energy Efficiency Contractors Network (EECN) has announced its spring Training Workshop schedule, available at EBMag.com (Calendar).

The EECN Training Workshop was developed by a training development subcontractor under the direction of EECN contractor association members (which include the Electrical Contractors Association of Ontario [ECAO] and Ontario Electrical League [OEL]), and includes the following:

- Techniques used by energy management firms (EMFs) to identify potential energy efficiency (EE) opportunities, quantify the annual energy cost savings, and evaluate the capital investment.
- How to prepare and price a proposal for an energy efficiency retrofit package.
- Methods for quickly finding concise, comprehensive information on incentive programs offered by energy utilities and governments, applicable to specific building types and contractor trades, through an exclusive EECN online information portal.
- Background data on energy efficiency characteristics of specific building types and technologies that fit within a contractor's trade expertise.
- Meet local energy utility contacts.

For more information, visit [www.eecn.ca](http://www.eecn.ca).

### Energy law in the States impacts probe-start metal halide fixtures

According to a recent article from the Lighting Controls Association's Craig DiLouie, the Energy Independence and Security Act of 2007 (EISA) contains "significant provisions affecting the sale of metal halide [MH] lighting fixtures". Starting this year, 150-500W MH fixtures must contain ballasts operating at a certain level of efficiency, virtually eliminating probe-start lamps and ballasts from new fixtures.

As of January 1, new MH lighting fixtures cannot be manufactured or imported unless their ballasts operate the lamp at a minimum efficiency level. Compliant fixtures will contain a capital E printed in a circle on their packaging and ballast labels (similar to legislated fluorescent ballasts). Exceptions include fixtures with regulated lag ballasts, fixtures with electronic ballasts for operation at 480V, and 150W wet-location fixtures containing a ballast rated to operate at ambient temperatures above 50°C.

This law covers manufacture, not sale, so distributors are able to sell their inventories of non-compliant fixtures until depleted (unless prohibited by state law). The law covers fixtures, not ballasts, so distributors are also able to continue selling non-compliant ballasts to customers for spot-replacement needs in existing installations.

Probe-start magnetic ballasts for MH lamps up to 400W will be virtually eliminated from new fixtures. Because probe-start lamps require probe-start ballasts, this will also eliminate 175-400W probe-start MH lamps from new fixtures.

Demand will shift to pulse-start, but while many pulse-start magnetic ballasts comply with EISA 2007, a significant number do not, so look for the compliance symbol on the ballast label and fixture packaging. Meantime, most—if not all—pulse-start electronic ballasts comply, so it is expected that electronic ballasts (including dimming versions) will get a boost.

"So the law is essentially accelerating the phase-out of an obsolete technology in favour of readily available, better-performing, more efficient technologies," writes DiLouie.

### NAED explains how to profit from green market opportunities

The National Association of Electrical Distributors' (NAED's) "Green Goes Mainstream: How to Profit from Green Market Opportunities" details current trends in the energy efficiency market, and the related green building and renewable energy markets. As such, when customers ask their electrical distributor, "What can you do to make my building green?", this study should provide cogent and convincing answers.

"Green Goes Mainstream" emphasizes that distributors must figure out how to become "order makers" rather than "order takers" to seize green market opportunities. Customers want solutions delivered by experts. As political, financial and economic forces line up to expand the green market, distributors and the entire electrical distribution industry must be able to fill this role.

"The emerging green market offers electrical distributors unprecedented opportunities for profit and growth," said Tom Naber, president and CEO of NAED. "Energy is an issue of increasing importance and will dictate significant changes in market behaviour..."

Yudelson Associates conducted the research for the study, surveying 165 distributor and 63 manufacturer members. "Our research shows that energy efficiency, green building and renewable energy will provide a major growth market for sales of electrical products and systems over the next half-decade, as the energy issue comes front and centre in the consciousness of building owners and managers," said Jerry Yudelson, principal. "Distributors who make the effort to learn about this emerging market are likely to see growth in sales and profits as a result."

The study's recommendations are presented in a convenient "A-B-C" outline, representing distributors' varying levels of commitment to green markets:

- Feet Wet: Distributors who want to understand the market but are not ready to fully commit should become more knowledgeable about local utility and state incentive programs and focus on lighting upgrades and motor efficiency upgrades with variable-speed drives.



- Up to the Waist: These distributors can begin training their existing sales force about green markets and technologies, and can either develop or hire qualified sales staff dedicated to the lighting retrofit market.
- Fully Immersed: Distributors with the resources and desire to fully commit to these markets can hire specialized sales staff and provide financing (directly or indirectly via a partnership) to lock in sales with key corporate and institutional customers.

For distributors who want to become more knowledgeable about energy markets, the appendix of the study offers an extensive list of resources and a glossary of some common terms used in the energy efficiency, green building and renewable energy markets.

NAED members are encouraged to use this study as a resource manual to help them take advantage of new opportunities arising from the convergence of energy supply shortfalls, increasing oil and energy prices, and an insistence on a measured response to climate change concerns. These forces represent not only a challenge to business but a tremendous opportunity to electrical distributors.

NAED member companies can access an electronic version of the study for free from the NAED Learning Center. Printed versions of the study are also available for purchase by NAED members for \$20 US or non-members for \$999 US. Visit [www.naed.org](http://www.naed.org) for more information. **EB**

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Tom Macerollo

**Jim Taggart**, president of **Legrand Canada Inc.**, recently announced several organizational changes. **Tom Macerollo** has been appointed vice-president, marketing, where he will lead the development and implementation of integrated Canadian marketing plans and initiatives for all Legrand North America brands, including Pass & Seymour, Wiremold, On-Q, Ortronics, The Watt Stopper and Cablofil. Macerollo has been with Legrand Canada for over 14 years, most recently serving as director of operations. **Bob Gregory** has been appointed Ontario regional sales manager, having overall responsibility for the Ontario sales team (excluding the Ottawa Region) and supporting the Pass & Seymour, Wiremold and On-Q brands. Gregory has been with Legrand Canada for over 20 years, most recently serving as Atlantic and Northern Ontario regional manager. **Mike Emerson**, meantime, has been appointed Atlantic regional sales manager where, in addition to his current responsibilities within the Ontario distribution team, he has overall sales responsibility for Atlantic Canada for the Pass & Seymour, Wiremold and On-Q brands. Emerson



Bob Gregory



Mike Emerson



Lorraine Caira

returned to Legrand Canada in 2007, bringing his total length of service to over 16 years. **Lorraine Caira** has been appointed national sales manager for The Watt Stopper brand, where she will direct all aspects of The Watt Stopper business in Canada. She has been with Legrand Canada for 20 years, most recently serving as Ontario regional sales manager for The Watt Stopper.



Ryan W. DeArment

**Ryan W. DeArment** has been named director of marketing for **Channellock Inc.**, a 122-year-old hand tool manufacturer. He most recently served as special projects manager and director of national accounts. DeArment has worldwide responsibility for marketing Channellock products and continued development of the brand. He will also continue to oversee some national accounts, such as The Home Depot, Lowe's and Ideal Industries.



Thomas Supinski

**Leviton Canada** recently announced several nominations and organizational changes to its Western Canada sales team. **Julie Marineau** is now regional sales manager for Alberta and The Prairies. She's been with Leviton since 1996, and has served as a sales rep and, most recently, a territory manager. **Bishop Smith** is the regional sales manager for British Columbia, having most recently served as a business development specialist. Both Marineau and Smith report to **Ben Pon**, sales director for Western



Doug Frase

Canada. **Thomas Supinski** now fills the position of territory manager for Southern Alberta. Additionally, as part of Leviton's effort toward developing its Network Solutions business, **Pete Newman**—international director of sales for Leviton US—is on assignment and responsible for the Network Solutions business activities in Canada. Meantime, **Doug Frase**, business development specialist—specification engineering, will focus on the long-term growth of Leviton's data market in Western Canada, working closely with engineering firms, large contractors and **JFC Solutions**.



Jeffrey Pooranalingam

As part of its expansion strategy to serve customers in Southern Alberta, **Magna IV Engineering** (HQ Edmonton, Alta.) is opening a new engineering and field service facility in Calgary, Alta., at the start of this year. The company has appointed **Jeffrey Pooranalingam** regional manager to lead the Calgary operation. He is a certified professional engineer with over a decade of experience in engineering, marketing, consulting and technical services. He holds a master's degree in electrical engineering and an MBA from Schulich School of Business. He recently served at General Electric's Multilin division as product manager in the feeder/transformer product segment.



**Robert M. Griffin**, president and CEO of **CSA Group**, has advised the board of his intention to retire in about a year's time—February 20, 2010—on the occasion of his 60th birthday. The board has organized a search committee for his replacement, and has engaged the services of recruitment firm Korn/Ferry International to bring forward external candidates, as well as help evaluate any potential internal candidates. The objective is to have the new president and CEO start in September, thereby ensuring a period of training/orientation and orderly transfer of responsibility prior to Griffin's departure. For more information, visit EB Careers Online at EBMag.com.

**Bill Graham** ("Mr. Fiber")—electrical contractor, certified fiber optic specialist and a director of the Fiber Optic Association (FOA)—is selling **Mississauga Training Consultants (MTC)**. MTC is a player in

industrial skills training that includes certification for fiber optic installers, instrumentation, network cabling systems inspection and many other industry-specific courses for the electrical and communications industry. More information can be found at EB Careers Online at EBMag.com.

**The Rectorseal Corp.** has appointed **E.S. Gallagher Sales** as its master distributor for all RectorSeal product lines, including the new line Wire Snaggers. E.S. Gallagher represents manufacturers across Canada through electrical, plumbing, HVAC, refrigeration and industrial supply wholesalers.

**Robert W. Colgan Jr.**, executive director of marketing for the National Electrical Contractors Association (NECA), has been elected to a full term as chair of the **National Lighting Bureau (NLB)**—a lighting education organization—at the bureau's recent annual meeting. (Colgan had been serving as interim chair during the final quarter of 2008 when then-chair **Doug Baillie** retired from Acuity Brands Lighting.) At the same meeting, **Susan Bloom**, Philips Lighting Electronics North America rep, was re-elected to vice-chair; **Howard P. Lewis**, rep from the Illuminating Engineering Society of North America (IES), was elected secretary/treasurer. Others elected/re-elected to serve on NLB's executive committee include: **Steve Braun** (Vandal Shields); **Mike Colotti** (Osram Sylvania); **John Coventry** (International Association of Lighting Designers [IALD]); **Mary Beth Gotti** (GE Lighting); **Terry McGowan** (International Dark-Sky Association); **Cary S. Mendelsohn** (International Association of Lighting Management Companies); **Steven Myers** (Philips Lighting); **Tom Naber** (National Association of Electrical Distributors [NAED]); **Ron Runkles** (National Electrical Manufacturers Association [NEMA]); **Kristine Winner** (National Council on Qualifications for the Lighting Professions); and **James M. Yorgey** (Lutron Electronics).



Marya Lipiec

**A•light**, a division of **Amerillum Corp.**, has promoted **Marya Lipiec** to marketing manager, where her primary responsibility is to help create, manage and report results of all company product introductions, enhancements and marketing/communications outreach programs for both Amerillum and A•light. She possesses over 10 years of work experience in lighting. 

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### Manitoba Electrical League AGM and charity dinner

The Manitoba Electrical League (MEL) annual general meeting and charity dinner underwent a major face-lift this year, says executive director Dave Foreman, "and the results were nothing short of spectacular". Attendance was up 16% over last year, and 15 companies who had not purchased tickets previously bought them this year.

The event was held at Club Regent Casino in Jaguars Dance Club and featured popular local tribute band, "Free Ride", as well as Anders Magic, a silent auction and a draw for a \$4000 travel voucher. The silent auction raised \$7700 for the Firefighter's Burn Fund, and the winner of the travel voucher was Ken Johnson of Electro-Tech.

Many of MEL's member companies came forward with sponsorships and prize donations, and the league thanks them all for their support: AAA Electric 1988 Ltd.; ABB; Abco Supply; Advance Pro; Allco Electrical Ltd.; B&B Electrical; Carlyle



MEL AGM chair Randy Knutson presents Martin Johnson of the Burn Fund with a cheque for \$7700 as one of Winnipeg's firefighting crews looks on.

Printers; Comstock; FLIR; Hi-Tech; IBEW; IPEX; Leviton; Manitoba Hydro; MCW/AGE; McCaine Electric; National Ind. Comm.; Nedco; Nor-Tec Electric; Philips; Schneider Electric; Siemens Canada; Texcan; Tri-Star; Vipond Inc.; and Wesco. MEL also extends a thanks to Randy Knutson and his AGM committee (comprising Dale Hendry, Garry Pestaluky and Louis Boisjoli) for their effort.

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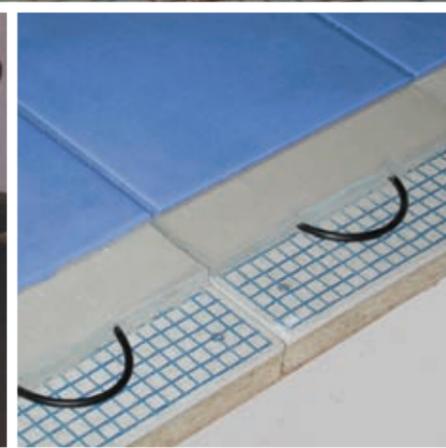
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# Electric radiant heating OR “Why are plumbers getting our work?”

By Gerry Lemieux

Until a few years ago, electric radiant heating (ERH) was a business that was solely in the hands of the electrical contractor. Ceiling heat was all the rage: it was simple to install, energy efficient, silent and virtually trouble-free. It was a great money maker for the electrical industry for many years, too, and many of the original systems are still working perfectly.

Then along came some products that caused problems, like carbon-printed elements. Manufactured in rolls, they were lightweight and easier to install than cables in the ceiling—you simply stapled them to the underside of the joist, connected them to a thermostat and *voilà!* you had a radiant ceiling heating system. Unfortunately, there were drawbacks and, in the days prior to GFCIs, some installations were done in a dangerous and haphazard manner. Because of this, carbon element products were removed from CSA's list of approved products, and the section that covered them was eliminated—never to be used again.

With the elimination of these carbon elements it seemed that ERH systems were a thing of the past, but that isn't the case. The systems are alive and well, and prospering in many parts of the country. They are being installed in a 100% safe manner in a way that makes more sense than before, as they are now installed in the floor! Be it carpet, hardwood, concrete, tile, laminate or virtually any other floor type, there's a safe and proved method for installing these products that will earn you above-average profits, great referrals and a new product line

that's growing in leaps and bounds across the country.

Floor warming system installations—electric and hydronic—have seen a huge increase in sales over the past 10 years. This market is highly profitable and trouble-free when installed properly and with the right equipment. Floor warming is also being used in commercial applications where the building owner—in consideration of liability issues—wants his floors dry to reduce the chance of slips and falls.

The acceptance of floor warming and radiant heating systems has opened up a new market for electric heating cable systems. ERH systems have been installed in Europe for over 50 years. In Canada, the radiant heating market has been virtually exclusive to the hydronic heating (plumbing) industry. In fact, a recent industry report shows that sales of hydronics is up 18% year-to-date, and up 24% November 2008 versus November 2007.

The electrical contractor that's willing to explore this market can realize a huge potential for profit.

## Understanding radiant heating

In the Canadian market, radiant heating systems are considered the ultimate in comfort. They warm your feet and the objects in a room; they're energy efficient and do not cause drafts; and they're very quiet. ERH systems have these same advantages over standard forced-air systems, and are also superior to hydronics in many ways.

Radiant heating systems come in two standard forms. The first, a hydronic system, consists of a boiler that sends heated water throughout tubes located in or under the floor. The second, electric radiant heating, consists of a series of resistant heating cables installed in the floor of each room, controlled by a thermostat.

Heating cables in the floor are usually supplied as loose cable or mats (where the cable is attached to a cloth, plastic or fiber glass mesh and arrayed in a serpentine fashion). Cables come in various lengths—factory- or custom-made—that are sized for the required area. Mats are known for their thin cables, fast installation, multiple connections in larger areas and high cost. Cables come as either thin cables that employ tracks with predetermined spacings or more rugged, heavier cables that can be stapled onto wooden subfloors, or tied onto concrete reinforcing mesh and installed in poured concrete.

The latter “construction-site tough” cables are normally used for ERH/floor warming systems because they are more resistant to potential damage caused by other trades, like tile setters.

ERH systems are 100% energy efficient; there are no combustion efficiencies to worry about, no piping to leak, no pumps to maintain, and no large room needed to house a boiler. And with no tanks, fittings, manifolds and tubing connections, there's virtually nothing to maintain on the ERH system. Any qualified electrician can analyze the application and troubleshoot it, if need be. ERH systems offer room-by-room comfort whereas hydronic systems usually zone a home by floor or area—often creating hot and cold spots.

These systems can be even more efficient when you program temperature setbacks on a room-by-room basis—turning off/down the heat in unoccupied areas, or only heating areas such as kitchens and bathrooms in intermittent-use buildings, such as cottages. Further advantages, such as thermal storage applications, can be applied for use now or in the future without any cost.

ERH systems are 100% safe, as every cable has a GFCI installed. They reduce or eliminate additional floor height requirements, and are less expensive than a fully zoned hydronic system.

## Getting the most out of the system

Electric *thermal storage systems* are somewhat new to the Canadian market. They're very similar to electric radiant heating systems with the added advantage of the home or building owner being able to store heat in the floors. This is especially useful in Nova Scotia and Ontario, where time-of-use (TOU) electric metering is in place or being installed.

Nova Scotia Power and Ontario's Hydro One have systems



## Together we stand... for electric heat!

**AS AN INDUSTRY**, we've let electric heating decline and allowed hydronics and forced-air systems to grow and dominate. It's time for us to band together, as has the Radiant Panel Association in the States or the Canadian Institute of Plumbing and Heating (CIPH), and combat our present situation.

Electric radiant heating, floor warming, electric thermal storage—even electric solar-powered systems—are all viable systems that can contribute to a greener Canada. An association of like-minded individuals and companies could band together to advertise, lobby governments and produce real data on the benefits with these technologies.

After all, everyone understands the harmful effects of thousands of oil-, propane- and natural gas-powered heating systems and their contribution to greenhouse gases. We could help police the market and eliminate dangerous products being sold in Canada, raise our profile, employ Canadians and contribute to cleaner air.

I invite manufacturers, distributors, agents and contractors across the country to start a dialogue and lay the foundation for a truly Canadian method of 100% energy-efficient comfort and peace of mind.

in place whereby the occupant is charge a reduced rate on weekends, holidays and off-peak times. By employing an electric thermal storage system, the occupant can store heat in the floors during low-peak periods, and then allow it to radiate during high-demand (and more expensive) energy periods.

Nova Scotia Power has been promoting electric thermal storage for years, as it has been found to be a cost-effective method of reducing demand during peak times. Thus, the utility is able to provide power to homes and industries at peak times without having to buy power or build more generating capacity.

The installation of electric radiant/thermal storage heating cables is relatively simple. In the basement or ground-level slab, the cables are tied onto the rebar or mesh with standard plastic cable ties. The rebar is centred in the slab, and the concrete poured and finished as usual.

On upper floors with wooden subfloors, the heating cables are laid out according to the areas to be heated. Because the electrical code specifies that individual areas must have their own temperature control, it is necessary to provide separate cables for each distinct area. For instance, a bathroom cannot be considered to be part of the adjacent hall, but a dining room/kitchen combination—where there is no threshold—could be considered one area.

Some heating cables can be stapled to the wooden sub-floor—resulting in a very fast, secure installation—then covered with a 2-in. layer of “thermal” (gypsum) concrete. Each distinct area will require its own temperature control device or thermostat. Standard, commercially available thermostats designed for radiant heating may also be suitable for floor warming. These thermostats should be equipped with a seven-day programmable timer that has two On/Off cycles per day, with separate functions for weekends, and an integral GFCI.

The thermostat should also have a floor sensor and an ambient air sensor. The ambient air sensor controls the space heating in conjunction with the floor sensor, which acts as a high-limit thermostat. Commercially available programmable thermostats for this application can control the room and floor temperatures to take maximum advantage of the TOU cycle and provide maximum energy efficiency.

The thermostat allows the heating system to control the temperature of the room and the floor on a schedule that meets the TOU cycles prescribed by the local utility, providing heat when economically feasible. However, should the heat drop for some reason—maybe someone opened a window—the heat will be maintained in the space.

The ground-level slab or basement will be a 4-in. slab, insulated underneath with 2 in. of SM or equivalent insulation. The cables are normally tied onto the mesh with tie wraps on 4-in. to 6-in. centres. This is the optimum spacing for energy efficiency, allowing for fast warm up, ensuring the slab is up to temperature and holding its maximum heat storage potential during off-peak periods.

### Get educated, and get good product

The only drawback to electric radiant heating/storage systems is the lack of knowledge regarding application, installation and troubleshooting—both the parts and the system as a whole. Some progressive manufacturers offer seminars and courses on these things, usually in conjunction with a local electrical distributor.

The electrical contractor must also be aware of the products being sold in the Canadian market that do not meet the demands of a heating system and are meant only to be used on an intermittent basis for floor warming. There are also many products being imported into Canada that are not approved for use by CSA (or equivalent testing lab).

Substandard cables and carbon elements in rolls or panels are being distributed across Canada. Many of these are UL approved, but not necessarily approved by Underwriters' Laboratories of Canada (ULC). For example, UL says carbon elements are acceptable for floor warming and heating, though many of these do not meet Canadian standards. Installers and building owners only realize the mistake after the installation is complete and inspection agencies have informed them of the problem. There have also been instances where these products have slipped by the local electrical inspectors due to mislabelling by the manufacturer or distributor. Many of these products are installed by unlicensed contractors chasing a fast buck.

Many of the products being distributed carry a UL label that is restricted to an appliance wiring standard that does not meet the drop tests, cold bend or flammability standards for radiant heating or floor warming. Some of the offshore testing labs are approving these cables without thoroughly investigating Canadian standards. The installer or specifier must be diligent in his selection. Do your homework, talk to people, and deal only with trusted channel partners. Then you'll be able to realize the potential revenue stream that comes with electric radiant/storage heating systems. <sup>EB</sup>

Gerry Lemieux a recognized author and applications specialist in the heating industry. He is the president of Britech, a provider of heating and warming equipment, and the exclusive Canadian distributor of Nexans Floor-Warming Systems, and ASE Snow and Ice Control Systems.

## T&B new product alert



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For complete product details, consult the "What's New" section of our web site.

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**Thomas & Betts**

## T&B new product alert



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**Thomas & Betts**

# Cable planners go for Olympic Gold

By Scott Hamilton



**When it comes to the  
2010 Olympic Winter Game's  
communications infrastructure,  
success comes from no one  
noticing it's even there**

In 2010, the eyes of the world will be glued to Vancouver, B.C., scene of the Winter Olympic Games. Here, a collection of the best athletes on the planet will compete against one another, hoping to secure Olympic Gold and international recognition.

Some at the Olympics, however, are looking to avoid the spotlight.

"If we do our job right," says Joe Madigin, "no one will notice [us]."

Madigin leads a team of cable planners that have been given the daunting task of planning, designing and laying the network and cabling infrastructure for the Vancouver 2010 Olympic and Paralympic Winter games. It is through the infrastructure they establish that sport, media, technology and support have proper connectivity and communication, and by which security teams—such as CSIS and the RCMP—can keep athletes and spectators safe.

They are building the backbone of the Olympic's connectivity—an Olympic task in itself. A mistake means the cable planners are noticed: a flawless job means they're not.

#### **A cable planning team's Olympic journey**

The cable planners' Olympic journey began when Madigin joined Brian Johnson in 2006 to form the cable planning team. (Madigin had already been working at VANOC [Vancouver Olympic Committee] as part of

the Bell team based from the VANOC offices.) At that point, the primary groundwork cabling for the Games had been established by Bell and VANOC.

With the immense task ahead, the VANOC Technology Group and Bell added fellow cable planners Laszlo Szekernyes, George Wong, Brian Sanche and Mike Picariello. The team's work is spread out among the 21 Olympic venues they have to plan, including:

- 9 competition venues,
- 2 large press and broadcast centres,
- 2 athlete villages,
- 2 large data centres,
- technical operations centre,
- training facilities, and
- multiple support facilities strewn over 160 km of territory between the Vancouver Lower Mainland and Whistler.

Each venue is unique, and must be assessed and fitted with an integrated network and cabling structure that meets its needs. Data, telecom, voice-over-IP (VoIP), wireless, timing, video, audio, security and controls must all be installed in time for the Games. A missed deadline would be disastrous; their work is what allows the world to watch the Olympics.

According to Johnson—who has been in the cable industry since 1987 and holds an RCDD designation (Registered Communications Distribution Designer)—the first basic step in designing and implementing such a massive project is to "take the needs assessment from the

Cooper  
7x10



Venue Technology Managers for each specific site (competition or non-competition venues), then determine the cabling, pathways, amount and location of the equipment and telecom rooms". This information is then used to create a documented plan and CAD layout, followed by a Request for Quotation (RFQ) or Scope of Work (SoW) document for the installation crews. The installation of the cabling is then project managed by each cable planner until completion.



Sounds simple enough, right? Wrong.

"Overall, this project is a massive undertaking," says Johnson. Each venue is different and has to be tackled under a venue-by-venue team structure. "Some are new venues with excellent pathways," adds Madigin, "and some will require vast amounts of temporary outdoor cabling secured to fencing in the snow, and to service trailers that will not be in place until a very short time before the event."

"Some [venues] cover very broad areas," says Sanche, "and, in areas such as villages, some [venues] are more common, like data centres, and some are huge structures, like BC Place." He adds that most venues must host computers, VoIP phones, cameras, TVs, speakers, etc., and, when it comes to competition and non-competition venues, "all need fiber optic backbones and some copper to support all these services, and even wireless".

To ensure full operation before the Games, most of the legacy cabling required for 2010 has been planned and installed over the past few years. Where the legacy cabling could not be established, temporary (overlay) cabling will play an important role in the venues' infrastructure. Each venue has its own deadlines for the overlay to be installed, and will be affected by conditions and timing variables, such as weather, terrain, facility occupancy dates, trailer placement delivery and previous infrastructure (if any).

Some venues are outdoors, some in; some are old, and some new. Some venues, cables and networks can only be laid, established and accessed by skiing down half of a mountain's slope! "There are big differences between mountain venues and city venues," says Szekernyes, pointing out the immense technical difficulty in completing complex work on the hillside of a snowy mountain. "Distances are greater on a mountain, with more outdoor challenges like weather and snow as compared to an arena where everything's concentrated," he says.

The real pressure comes from making sure each of the venues' needs are met; security, broadcasting, telecom and other cabling infrastructure has to be put securely in place, with a backbone designed for a flurry of new cabling that will arrive with each network and security team. "Each communication room is different, and the existing infrastructure we re-use is different," adds Wong, who stresses the importance of ensuring all venues' unique telecom needs are met. "It's not often that we get the opportunity to plan a timing and scoring cable design that requires redundancy and diversity for several kilometres without facing many challenges," adds Johnson.

Timing is critical for the team: "We will need a lot more cabling for this event than the day-to-day operations of a ski-hill," says Madigin, noting that many on the cable planning team had to work directly with venue owners and current clients to determine the cabling's temporary pathways.

Sanche says their biggest challenge is the snowfall. In venues like the Callaghan Valley and Whistler, "Planning is key in laying most of our temporary backbone before the snow piles up 10 feet high, otherwise the snow-cats [grooming machines] will get it!" he says, adding, "Planning pathways and implementing them in the summer of 2009 or earlier is key to our success".

Brand new facilities allow the team to influence equipment room locations and sizes, and to plan pathways and building entrance rooms. Infrastructure and legacy cabling that's already in place presents a challenge, as it becomes the team's responsibility to figure out whether it makes the cut. "In existing facilities, we have undertaken thorough cable audits to determine what we can use, and what we need to expand upon or overhaul to meet the demands of the Olympics," says Johnson.

Every piece of equipment and cable component—such as a patch cord connected to a legacy switch that gets unplugged—must be thoroughly documented so that everything is returned to its initial, pre-Olympic condition.

The team's goal remains to use as much existing infrastructure as possible by somehow tying it into the temporary networks they're bringing into the venues. "It can be more difficult," says Madigin, "but we have to be aware of the costs of complete overlay and construction of temporary pathways."

It's important to the team to be able to return the venues and the mountains to the same condition in which they were found, before the Olympics.

#### Practise—and coordination—makes perfect

The difficulty level on a project of this magnitude is high, and the team knows it. Many VANOC departments must be consulted, and the specs of technology sponsors must be considered, coordinated and met. "The coordination of the various stakeholders is the most challenging aspect," says Madigin, adding the team must work with overlay staff for pathways and scheduling, as well as sponsors such as Panasonic, Omega, or Nortel. The most challenging work, however, involves broadcasters and the press; demands are high and immediate, as their stories and broadcasts represent the eyes of the world.

With thousands of people working together, tracking ordered materials and changing timelines, problems inevitably arise. "There are the occasional last minute changes... when you already have your fiber optics or backbone laid, implemented, then the structure has to be moved to a new location," says Sanche, who tries to prevent this difficulty in the preliminary design stages by overbuilding the cabling backbone with extra strands of fiber and copper.

"Each event has its own challenges, and a big part is understanding the task before starting," says Wong. "Of course, some venues have extremely tight timelines... things inevitably go sideways, no matter how well you plan."

Things like connectivity for the multiple-sport broadcasts can be a challenge. "It's quite a production," says Madigin. "Who hands off to whom? We will have to get the on-venue broadcast feed, feed this into VANOC's sport production, then take this feed to the on-venue video boards for the spectators to watch." Timing and scoring, proprietary specifications and language barriers aside, it's all still very rewarding for the team, and overcoming the inevitable difficulties that arise is a normal part of their work.

To prepare for the Olympics, the cable planning team has had opportunities to work on other major, local sporting events; 17 upcoming events will allow them to test and gauge some of the systems already in place, and see what needs more work before the Olympic Torch arrives. Ranging from World Cup events to Canadian National Championships, says Johnson, they will help "prepare us on a smaller scale for the 2010 Olympics, and give us an opportunity to put our systems to the task".

The largest 2008 World Cup events for the team were the Whistler Alpine and the Short Track Speed Skating events. After spending months planning the legacy timing and scoring cable—and installing the infrastructure for Whistler Creekside (the site of the 2010 Olympic alpine events)—the team received international praise. "It was quite a thrill to receive accolades from many alpine experts, and timing and scoring professionals from Canada and Europe, with comments that no other racing venue in the world has ever seen such an innovative and solid cabling design," Johnson says happily.

Though invisible to the eye, the entire world will have witnessed the work of Madigin, Johnson, Szekernyes, Wong, Sanche and Picariello after the Games. "We want to remain invisible," says Johnson. "After all, it's not the cable planner's Olympics!" **EB**

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By Dave Smith

# For safety's sake, fight conformity!

Many workplace accidents could have been prevented had someone opposed the work practices that led to them. When I taught an arc flash course in Red Deer last spring, I met a man in his mid-20s who held up his hand to show the stubbed remains of his middle, ring and little fingers—the result of working with a new crew. Despite thinking their methods were not particularly safe, he went along with them because he “didn’t want the rest of the guys picking on me”.

This young man was the size of a football player, and easily had the strength to hang a licking on anyone foolish enough to “pick on” him. Instead, he chose to conform to the ways of the group and end up with a mangled hand. As the root cause of so many accidents, *conformance* demands a closer look.

## Why do we conform?

Solomon Asch conducted research on the conformity response of individuals to group thinking ([www.tinyurl.com/acyky](http://www.tinyurl.com/acyky)), proving that 37% of the population will completely ignore what they see with their own eyes and go along with a group’s *visibly incorrect* judgments, with 65% of the population doing it at least once. See “Asch’s Conformity Experiment” at YouTube ([tinyurl.com/3tp78d](http://tinyurl.com/3tp78d)).

Recently, researchers at Emory University used an MRI to determine brain function response to decision-making under varying conditions ([www.tinyurl.com/c3qyec](http://www.tinyurl.com/c3qyec)). When a subject was asked to make a judgment under normal conditions, his brain scan would show intense activity in the frontal cerebral cortex, and he would provide the correct answer.

*When you hear someone say, “We’ve been doing it this way for years”, recognize that they may have been doing it wrong for years.*

When the same subject was asked to make a judgment on a similar task, but was now faced with a group of people providing an incorrect answer, his brain function shifted from the ‘thinking’ regions of the brain toward the ‘emotional’ regions. These experiments prove that social pressure can alter our perceptions to the degree where we believe the group must be right.

From the moment we are born, we are subjected to social conditioning from parents, siblings, grandparents, elders, friends, school, society, etc. We are trained to sit still, be quiet, colour within the lines, don’t tattle-tale, and so forth. This conditioning stays with us as adults.

*These experiments prove that social pressure can alter our perceptions to the degree where we believe the group must be right.*

## Fighting conformity—for safety’s sake

So how do you combat our innate human willingness to conform to the group rather than be singled out as a “troublemaker”? First, recognize that your coworker—or even 20 coworkers—may be wrong and that you, in fact, may be the only one who’s right. When you hear someone say, “We’ve been doing it this way for years”, recognize that they may have been *doing it wrong* for years. Second, be aware of your reaction to a new crew, partner or supervisor—you may be going with a flow that is, ultimately, destructive.

Third, listen to your gut and heed its warnings: scientists feel they have, in fact, proved we have an early warning device called “gut feel” ([www.tinyurl.com/dfgr2r](http://www.tinyurl.com/dfgr2r)). Fourth, adopt field-level risk assessments and follow procedures religiously. We work with machines that are oblivious to the pain they cause as they destroy your body, so plan your work, work your plan and make decisions devoid of emotion.

Finally, if you’re a supervisor and manager, don’t dismiss your group’s “renegades”, as they may simply be members of that minority with the emotional independence to tell you the truth.

Until next time, be ready, be careful and be safe.

Dave Smith is president of Canada Training Group and has been providing consulting services to industry since 1980. At [www.canada-training-group.ca](http://www.canada-training-group.ca), you’ll find stories like this one; feel free to use this information to support your own safety program.

# FLOATER

## 7 x 10



Photo courtesy GE



Photo courtesy Cooper Lighting



Photo courtesy GE



Photo courtesy GE



Photo courtesy GE



Photo courtesy Standard Products

# If you tried CFLs before and didn't like them, *try them again!*

By Scott Hamilton

The compact fluorescent lamp (CFL) is touted by environmentalists and politicians alike as a green 'gift' to a world desperate for energy efficiency and pollution reduction. With a prominent green shift occurring in virtually every industry, consumers have come to see the CFL as an effective and easy way to reduce their carbon footprint. Energy savings and long life spans have cemented CFLs as a tangible, more sensible option than their traditional, electricity-wasting, incandescent cousins.

However, numerous health and safety tales about CFLs have been propagated in the market, preventing many would-be consumers from buying in. It's up to you—the electrical expert—to educate your customers on the basics of CFL technology, and clear up any misconceptions that might prevent them from saving cash—as well as the environment—by using CFLs. After all, you want customers to see the electrical industry working *with* the green shift, not *against* it.

## The light of the future, today

Compared to their predecessors, today's CFLs are safer and longer-lasting, providing a higher quality of light and colour temperature, and are easier to dispose of at the end of their average-10,000-hour lifespan.

"CFL technology has evolved tremendously over time, and CFLs now approach the look, colour quality and ambiance of incandescent lighting more than ever before," says Susan Bloom, director of corporate communications at Philips Lighting. After living in the shadow of incandescent lights, technological developments have allowed CFLs to be made smaller, enabling them to fit into applications and shapes resembling current incandescent designs, she adds. There are now CFLs for virtually every home and business application.

The CFL's claim to fame is its long life and energy efficiency. For example, a 15W CFL does the work of a 60W incandescent for achieving a minimum light output of 800 lumens. Not only do CFLs use much less energy, but some manufacturers—like Turolight—claim their bulbs can last up to 12,000 hours. When compared to current incandescent lighting, each CFL bulb can save its owner between \$30-\$60 in energy costs over its life.

Although their initial purchase price is higher than that of incandescents, the savings accumulate over time. According to NRCAN (Natural Resources Canada), one household fitted with over 30 CFLs is set to save well over \$200 per year.

It is because of their energy efficiency that CFLs are considered environmentally friendly, as less electricity needs to be generated in the first place. Incandescents waste energy, as most of it is converted into heat rather than light, making them even worse on the environment in the summer months when air-conditioners are forced to work harder to keep our homes and businesses cool.

CFLs produce the same amount of light as incandescents; as electrical current flows through them, the gases within are ignited, producing ultraviolet light that, in turn, ignites a phosphor coating that projects visible light outward. Light output is measured in lumens per watt (l/W), and it's up to the owner to decide which output and colour temperature (measured in Kelvin [K]) is best for them. Low K numbers translate into a warmer, softer light while higher Kelvin numbers mean the light is cooler.

"There's a CFL for virtually every application in which an incandescent is used," says Laura Fuller of Osram Sylvania. "Pot lights, globe-shaped lights, fan lights, etc... There's never been a wider variety of CFLs than there is now."

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Arc Flash & High Voltage Safety		
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Arc Flash & Low Voltage Safety		
Mar 16, 2009	Prince George, BC	OR09110E
Mar 17, 2009	Quesnel, BC	OR09111E
Mar 26, 2009	Winnipeg, MB	OR09103E
Mar 24, 2009	Saskatoon, SK	OR09119E
Arc Flash & Low Voltage Safety: Train the Trainer with Dave Smith		
Mar 17-18, 2009	Toronto, ON	OR09137E
How To Analytically Troubleshoot Complex Electrical Systems		
Mar 16-20, 2009	Winnipeg, MB	OR09101E
PLC Programming, Maintenance & Troubleshooting		
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## Whatever happened to the High-Efficiency Incandescent?

Back in April 2007, Electrical Business reported on GE's high-efficiency incandescent (HEI) light bulb that was targeted for market by 2010. "Re-inventing Edison," read the press release, "New light bulb will provide high-quality light and deliver efficiency comparable to compact fluorescent lamps."

But what news since then? Tyler Hamilton, a senior energy reporter and columnist for the Toronto Star, asked GE about the status of the HEI, and received this response from a company spokesman:

*GE Consumer & Industrial and GE Global Research have suspended the development of the high-efficiency incandescent lamp (HEI) to place greater focus and investment on what we believe will be the ultimate in energy-efficient lighting—light-emitting diodes (LEDs) and organic light-emitting diodes (OLEDs). Research and development of these technologies is moving at an impressive pace and will be ready for general lighting in the near future. LEDs and OLEDs used in general lighting are now poised to surpass the projected efficiency levels of HEI, along with other energy-efficient technologies like fluorescent, and have the additional benefits of long life and durability.*

It's time we all started getting used to the idea of a world without the Edison bulb.

— Editor

Making the switch from incandescents to CFLs is virtually fool-proof; there is no minimum wattage needed for a CFL to work (only a maximum), and they can also match current incandescent tri-light bulbs (50-100-150W).

CFLs also boast improved amalgam technology (including the use of multiple amalgams in a single lamp, creating more consistent light output), reduced run-up times so that they turn on instantly (instead of waiting for the light to slowly flicker on) and improved functionality. Dimming features have also been improved and incorporated into newer models. Osram Sylvania is developing a CFL, notes Fuller, that "has an integrated LED that, with the flick a button, turns into an LED nightlight".

### Fears, myths and facts

When CFLs were first introduced on a mass-scale in the 1980s and 1990s, they were plagued with size, shape and colour issues related to non-standardization, and were relatively inefficient. Despite technological advancements, improvements, and economic and environmental benefits, stereotypes and myths about CFLs persist, making potential owners hesitate.

"CFLs have been vilified," says Sarah Wilson of Turolight, who believes the worries about newer CFLs are far exaggerated. "There are countless consumer safety concerns out there about any technology," she adds, reminding us that something as basic as cooking dinner in a microwave is accompanied by many warnings about radiation

and cancers. "The safety standards we comply with have removed any need to be fearful of CFL technology," Wilson says.

One prominent CFL myth is that their light causes migraines. While this could have been true 20 years ago with old CFL technology, the risk is now gone. By switching out magnetic ballasts that operated at about 60 cycles/second to new electronic ones that operate at a minimum 40,000 cycles/second, any possible chance of getting headaches has been eliminated. Also gone is any humming and flickering.

Another persistent myth is that CFLs interfere with electronics.

"[Interference] with electronics may have occurred in the past," says Bloom, pointing out that an AM radio could previously have been affected by an integrated CFL operating in proximity. "However, this is much less of a concern today, and not at all a concern with CFLs that are Energy Star rated."

One fact remains true of CFLs: they do contain mercury... about 3-5 mg per bulb, in fact. (Some manufacturers, however, claim to have just 1 mg of mercury in their CFLs.) Now compare that with the thermostat on your wall, which contains about 3000 mg of mercury (750 times more) or the battery in your wristwatch, which contains 25 mg (five times more) and, clearly, a CFL's mercury content is really much ado about nothing.

And because CFLs are more energy efficient, you end up saving on mercury pollution that would have been produced as a by-product of coal-fired electric power stations. Over its lifetime, a CFL with 2.4 mg of mercury will avoid releasing about 10 mg of mercury pollution from coal-burning plants.

"Not to downplay the fact that mercury is hazardous," cautions Wilson, "but it's blown out of proportion when it comes to safety concerns. There have been a lot of advancements with safety, and the manufacturer's disposal methods should be followed."

Proper CFL recycling disposal involves keeping them out of landfill, thereby preventing their mercury from leaching into the soil. CFL recycling is becoming easier as consumer awareness increases and more programs open up. Cities like Toronto and retailers like The Home Depot and Rona are operating closed-loop recycling programs that take CFLs and crush them to separate them into glass, metal, phosphor and mercury powder. The metal and glass is recycled and sold, mercury is distilled and reused in the mercury market, and phosphor is recovered and reused in things like paints.

Manufacturers are getting into the act, too. Bloom says Philips Lighting, for example, has partnered with a dedicated recycler to help make disposal easier.

### Where do we go from here?

Despite advancements in technology, CFLs still have issues. Very cold temperatures are known to give them problems, and power surges are known to stress them, which is why NRCAN advises against using them in areas such as workshops.

CFLs still boast a higher price tag than incandescents, even though they eventually pay for themselves. "Consumers may have overlooked CFLs in the past based on an unfavourable experience, first-cost concerns or just unfamiliarity with the technology," says Bloom. "However, today's generation of CFL represents a dramatic improvement over the market's initial offering, and is driven by an aggressive and effective Department of Energy-sponsored Energy Star program."

The Energy Star endorsement is the gold standard for quality CFLs. "Manufacturers have to meet strict Energy Star criteria before they can put that label on their products," says Fuller.

Unfortunately, all it takes is a few bad seeds to spoil everyone's reputation, Fuller reminds us: "One bad CFL spoils the bunch. When companies bring lower-quality products into the market—and are driven by undercutting competition—then poor-quality CFLs are the result... it stains people's perceptions about the capabilities of CFL technology".

With LED technologies still out of the hands of the basic consumer, and exotic OLEDs (organic light emitting diodes) still somewhere off in the future, CFLs stand poised to dominate the market when incandescents are altogether banned from the globe. So, if in the past you tried CFLs and didn't like them, *try them again!* 

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● **2009 Dodge Ram 3500 Chassis Cab aims to dominate Class 3**

“Featuring a new HEMI engine, improved fuel economy, bigger brakes and class-leading GVWR (gross vehicle weight rating), the 2009 Dodge Ram 3500 Chassis Cab delivers superior commercial capability, durability and performance to the Class 3 commercial vehicle market,” boasted Scott Kunselman, vice-president, Dodge Trucks.

With a “powerful lineup of renowned engines and an upfit-friendly, commercial-grade chassis”, the 2009 Dodge Ram 3500 Chassis Cab aims to be the ultimate work truck. It boasts a high standard single-rear-wheel GVWR of 10,200 lb, 50,000-psi steel in the frame, large standard fuel tank (52 gal) and a segment-exclusive standard exhaust brake (with the Cummins turbo-diesel).

Among the new features for 2009 is the 5.7L Hemi V8 with variable valve timing, which delivers increased horsepower and torque ratings with improved fuel economy. Also improving fuel economy are optional 3.42 (with manual transmission) and 3.73 (with automatic transmission) axle ratios, as well as the new brake system, which extends service intervals. The standard gross combined weight rating (GCWR) has been increased to 24,000 lb, and the PTO (power take-off) pump rating increased 55%.

Cab-axle lengths of 60 in. and 84 in. are available, and all chassis components



Photos © Chrysler LLC



are below the top of the frame surface, providing versatility for upfit applications. Available in three trim lines—ST, SLT and Laramie—the 2009 Dodge Ram 3500 Chassis Cab’s lineup consists of 4x2, 4x4, single-rear-wheel, dual-rear-wheel, regular and Quad Cab models.

Some of the standards features on the ST trim include:

40/20/40 vinyl seats; 7 x 10-in. manual exterior mirrors; four-wheel ABS; Hemi V8 with VVT (variable valve timing); six-speed manual transmission; trailer tow wiring (seven wires); and vinyl floor covering. Optional features include everything from 22.5-gal mid-ship fuel tank and 220A alternator to PTO capability. The Laramie trim builds on the standard features of the SLT with: chrome grille with chrome inserts; glove box, ashtray, underhood lamp; leather power/heated seats; leather-wrapped steering wheel; and more. **EB**



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● **Product launches, green vehicles and more at The Work Truck Show 2009**

The Work Truck Show is happening in just a couple of weeks, March 4-6, at the McCormick Place West Building in Chicago, Ill., bringing together new vocational trucks, equipment and related products from more than 440 companies across 500,000 sf of exhibit space.

The educational component provides more than 40 industry-specific training courses, including several in-depth special sessions like “Green Truck Summit” and “Fleet Management Symposium”.

More than 60 companies—including Dodge, Ford Commercial Truck, International

Truck, Miller Electric Mfg. Co., Nissan North America and Supreme Corp.—have announced they will be introducing new products at the show.

Among the show’s highlights is the Green Truck Summit, sponsored by International Truck, which provides up-to-date information on hybrid and alternative fuel options for work trucks. The summit promises to be the “industry’s foremost education forum for real-world application of the green revolution as it impacts commercial trucks”.

During show hours on March 4 and 5, show attendees can test drive new hybrid and alternative fuel commercial vehicles as part of the Green Truck Ride-and-Drive. Participation is free and sign-up is available onsite for up to 12 vehicles, including the:

- Unicef Quicksider electric walk-in
- Ford E-350 CNG (compressed natural gas) van
- International 4300 PHEV (plug-in hybrid electric vehicle) utility (in photo)
- FCCC MT-55 hydraulic hybrid walk-in
- Freightliner H2E electric hybrid
- Chevrolet Silverado dual-mode electric hybrid pickup

Among the symposia and seminars, there’s the aforementioned “Fleet Management Symposium” designed exclusively for fleet and shop managers. The full-day program focuses on financial and operational practices that can reduce costs while increasing shop labour productivity.

The Work Truck Show draws thousands of fleet managers, truck dealers, equipment distributors, upfitters and manufacturers from throughout North America and beyond to check out the work truck industry’s latest product and technology developments, get expert advice and learn how to improve their operations for Classes 1-8 vocational trucks and equipment.

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# Following the rules of arbitration

By Stephen Tatrallyay, LLB

The Ontario Court of Appeal recently reviewed a case involving a number of mistakes made by the plaintiff in attempting to obtain an arbitration. The court held that the mistakes were so severe that the plaintiff had disentitled itself to an arbitration under the CCDC-2 Arbitration Clause (GC 8.2).<sup>1</sup> Let's review the facts and the court's analysis.

Constance Lake First Nation and Constance Lake Educational Authority (collectively "Constance") are Native organizations in the Constance Lake Reserve on the north shore of Lake Huron. They obtained government funding for the construction of a school to replace the existing building, and entered into a contract with Penn-Co Construction (2003) Ltd. or one of its sister organizations ("Penn-Co") to do so.

The contract was a standard CCDC-2 form commonly used in

the construction industry, and included a clause (GC 8.1) providing that "any dispute between the parties as to the interpretation, application or administration of this agreement" shall be dealt with in accordance with this clause. The clause then provides for a consultant's ruling, followed by a mediation conducted by the "Project Mediator".

If the complaining party is still not satisfied, it has the right to deliver a notice to that effect and (assuming the notices are given in a timely way) to obtain an arbitration of the dispute—either by someone agreed upon by the parties or someone appointed by the court. If these notices are not given, the complainant has 10 days from determination of the contract (substantial completion, default, abandonment or termination) to reopen the issue by giving the same series of notices resulting in arbitration. If it does not do so, the

arbitration clause ceases to be binding and the parties may deal with the dispute however they see fit; for example, by commencing a lawsuit.

Penn-Co and the consultant (project architect) developed some disputes that seemed incapable of resolution, notice of the majority of which was given in the Spring and Summer of 2005. The consultant responded, denying Penn-Co's entitlement to any of the relief claimed. At this point, Penn-Co should have referred the matter to the project mediator to adhere to the requirements of GC 8.2. Penn-Co never tried to do so, although they insisted on appeal that one existed (based on a disputed interpretation of the evidence).

Constance took the position that the project mediator had never been appointed; the logical corollary of which should have been the giving of the series of notices requesting arbitration and summarizing their submissions, followed by an application to the court to have an arbitrator appointed to hear the dispute—provided there was no response from Constance. Penn-Co did not do any of this, but instead began negotiations for a "Peer Review" process neither required nor defined by the contract. Although Constance initially responded favourably, the architect—by its insurer—declared it would not get involved, and Constance withdrew from those negotiations. Penn-Co might have obtained an arbitration at that point by giving the requisite notices and, failing response, requesting a judge appoint an arbitrator, but they did not.

Constance terminated the contract in September 2006 and, again, it was open to Penn-Co to start the proceedings within 10 days thereafter. Again, it did not do so. Instead, it registered a lien and commenced an action in January 2007. Part of the relief it claimed was the arbitration the contract entitled it to have. Notably, it also added various tort claims against Constance, the Federal Crown, architect, project manager and his company—mostly in negligence. They were clearly not "parties to the contract" as defined in GC 8.1, nor did the claims arise from "the interpretation, application or administration" of the agreement itself, as opposed to corollary matters.

Penn-Co then moved to get the court to compel an arbitration by issuing a stay of the action pending arbitration (i.e. a stay of its own action). By the time this motion was heard, a number of other lawsuits had been started, such as by the plumbing and electrical trades, against Penn-Co, Constance and others for relief due to non-payment.

Justice Pierce, who heard the motion, held that she did not have jurisdiction to grant a stay to the plaintiff (pursuant to the Arbitration Act 1991); only a defendant could bring such a motion, so the plaintiff had no standing. Argued more vigorously on appeal than at the original hearing, Penn-Co also requested relief under subsections 101 and 106 of the Courts of Justice Act, which allow a judge to grant a stay "where considered just to do so".

The Court of Appeal looked at some common issues of justice associated with issuing a stay, such as inconsistent results, duplication of effort cost, inconvenience and the like. In the final analysis, the court held that the plaintiff had made its bed and must now be content to lie in it.

If you're a potential party to an arbitration, remember it is crucial to follow the rules set out in the arbitration agreement closely, or you may lose your rights to arbitration altogether. <sup>EB</sup>

## Notes

1. The current case citation is Penn-Co Construction Canada (2003) Ltd. v Constance Lake First Nation et al (2008) ONCA 768. Justice Pierce's original decision is cited at [2007]OJ No. 3940.

Stephen Tatrallyay is a prominent Toronto Construction Lawyer and one of the members of Team Resolution, which provides neutral, third-party expertise and input aimed at resolving disputes outside of the courtroom ([www.teamresolution.ca](http://www.teamresolution.ca)). A member of EB's Editorial Advisory Board, he can be reached at (416) 482-5164 or via e-mail at [statrallyay@rogers.com](mailto:statrallyay@rogers.com).

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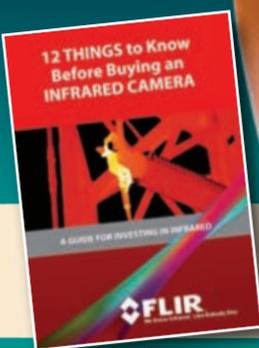
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# TOP 10

## reasons to get in with the new electrical code

Every three years we are asked to embrace a new electrical code, and some folks wonder whether it's worth it, arguing that the Canadian Electrical Code doesn't really change all that much anyway. Well, you asked, and we delivered. Here, then—in no particular order—are the Top 10 Reasons you need to get in with the 2009 CEC.

### 1 Tamper-resistant receptacles in dwellings



**OLD CODE:** No requirement.  
**2009 CEC:** New!

This new requirement aims to reduce electrical injuries to children who may try to insert objects into wall receptacles. According to U.S. Consumer Product Safety Commission (CPSC) data, about 2400 children receive emergency room treatment every year for injuries caused by inserting objects into electrical receptacles. Injuries range from electric shock to first-, second- and even third-degree burns. And, though rare, some cases prove fatal.

This change will apply to most receptacles in new or renovated dwelling units (defined as "one or more rooms for the use of one or more persons as a housekeeping unit with cooking, eating, living and sleeping facilities"), except those that are generally inaccessible to children (i.e. located in an attic). Tamper-resistant receptacles are identified by the mark "TR" or "Tamper-Resistant".

### 2 New section on passenger ropeways and similar equipment

**OLD CODE:** Electrical requirements covered in CSA Z98, which contained some requirements that conflicted with the code.

**2009 CEC:** Section 58 added!



This new section complements CAN/CSA Z98, Passenger Ropeways, containing electrical safety requirements unique to ski-lift, tow-rope and similar installations. Similar to elevators and escalators, passenger ropeways

require specific electrical safety features in terms of working clearances around equipment, equipment disconnection means and maintenance. In addition to ski hill operations, passenger ropeway technology is widely employed in "people-mover" shuttles at airports and other large complexes, and in material handling systems.

### 3 New requirements for additional seals where electrical equipment is mechanically connected to piping containing flammable liquids or gases

**OLD CODE:** Only recognized one method of sealing.  
**2009 CEC:** Requirement clarified to recognize alternate means of compliance.

This new requirement clarifies the rules intended to prevent flammable liquids or gases that are under pressure from entering electrical raceways and enclosures. The 2009 CEC clarifies that installations must be assessed using good engineering judgement. Characteristics of the installation, history of similar operations and the probability of leakage may all be considered in determining whether the secondary seal is required.

### 4 New bonding requirements for swimming pools

**OLD CODE:** Requirement existed as a local provincial bulletin.  
**2009 CEC:** New requirement added!

Many swimming pools are installed or retrofitted with saline chlorination systems. The 2009 CEC rules aim to limit galvanic corrosion and reduce costs for pool owners who may elect to add electrical components or saline systems to their pools in the future. The old code did not mandate bonding where electrical equipment was not installed in proximity to the pool. Where



the owner later decided to add lighting or other electrical equipment, bonding would have had to be retrofitted at considerable expense.

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## 5 Requirements for electrically connected carbon monoxide alarms

**OLD CODE:** No requirements for CO alarms.

**2009 CEC:** Requirements added for CO alarms!

Photo courtesy UTC Fire & Security



120V wired-in carbon monoxide alarms are becoming increasingly popular in new buildings as alternatives to battery-powered or portable plug-in units. New rules in Section 32 of the 2009 CEC help ensure

that the operation of 120V CO detectors is not compromised due to incorrect electrical connections.

For example, the CO alarm must be installed on an unswitched portion of branch circuit. Furthermore, the branch circuit must also supply lighting or a mixture of lighting and receptacles to provide occupants early warning of a power failure in the circuit supplying the CO alarm.

## 6 Updates to motor overload protection requirements to recognize electronic overload technology and motors installed in hazardous locations

**OLD CODE:** No specific requirements for increased safety Type "e" motors. Only fused-metal and electro-mechanical -type overloads recognized.

**2009 CEC:** Specific overload requirements for Type "e" motors added. All types of overload devices recognized!

In hazardous locations, excessive heat can cause explosions. Electric motors that are "Type e, increased safety" must be installed to meet specific thermal protection requirements in IEC 60079-14. These requirements are outlined in the 2009 CEC.

The old code definition of "overload device" recognized electro-mechanical and fused-metal -type overload devices. The 2009 CEC additionally recognizes that motor overload protection can also be realized through electronic overload sensing technology.

## 7 Consolidation of equipment requirements for Class I Zone 2 hazardous locations

**OLD CODE:** Requirements found in different Rules in the Section.

**2009 CEC:** Requirements consolidated!

The 2009 CEC introduces a new rule that consolidates requirements previously spread across various Rules. The majority of Class I hazardous locations are classified Zone 2, and the new rule provides a concise, easy-to-read list of equipment for use in such areas. A similar revision was made to Appendix J, which contains requirements for hazardous locations classified under the Class and Division system.

## 8 Recognition of new cable types, such as Communication Under Carpet and Cross-Connect Wires and Cables

**OLD CODE:** No requirements.

**2009 CEC:** Requirements added!

Type CMUC cable is specifically designed and tested for use under carpets. One possible application for this cable is in existing carpeted areas where the communication infrastructure is being upgraded or expanded. These new cable types are a good example of how manufacturers constantly bring new or improved products to the market. The code is a dynamic document, after all, that is constantly under revision to keep pace with new technologies.

## 9 Recognition of plug-in combination kitchen microwave/range hoods

**OLD CODE:** No requirements.

**2009 CEC:** Specific requirements added!

This rule was added to the 2009 CEC to recognize safe connection of the low-profile combination equipment that's available in today's market. The new rule specifies acceptable locations for receptacles installed to serve combination microwave oven/range hoods.

## 10 Rewrite of Section 46 to recognize and specify requirements for connecting non-mandatory equipment to emergency power supplies

**OLD CODE:** Requirements existed.

**2009 CEC:** No technical changes. Section clarified and defined terms updated!

The National Building Code of Canada mandates emergency power for certain life safety systems. Revisions to Section 46 recognize that non-life safety equipment may also be connected to the emergency power system, and specifies requirements that will allow such equipment to be connected without compromising life safety system performance.

This rewrite clears up some of the ambiguity that existed in the old code and will be of great assistance to designers, installers and regulators. Many facilities that have an emergency power supply mandated by the National Building Code also elect to connect other equipment to it, such as information and security systems, and climate control. The 2009 CEC provides clear rules around the connection of such equipment. <sup>EB</sup>

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**Campaign promotes skilled trades to The Rock's young women**

Newfoundland & Labrador has launched a promotional campaign called "Jump Start Your Life" encouraging female junior high students to register for skilled trades courses at the high school level. According to Joan Burke, the province's minister of education, young women are listening: currently, females represent 25% of course registrations in the six new courses that have been developed.

"We are investing \$11 million in a new high school skilled trades program," said Burke. "The courses are practical and engage students in a variety of activities associated with technology and skilled trades..."

As of September 2008, six courses have been developed under the Futures in Skilled Trades and Technology program: Skilled Trades, Design and Fabrication (Levels I and II); Residential Construction; Energy and Power; and Robotics. More than 70 schools throughout the province are now offering new skilled trades courses, supported by about \$20,000-worth of equipment



at each school that allows students to, for example, learn about smart wiring and how to make homes greener, or investigate alternate energy.

For more information on the Jump Start Your Life campaign, visit [www.jumpstartnl.ca](http://www.jumpstartnl.ca).

**Saskatchewan offers new renewable power financing programs**

The provincial government has developed a suite of programs designed to encourage the use of environmentally responsible energy sources, including a new loan program for people installing a Canadian Geothermal Coalition (CGC) -certified geothermal heating system and/or generate their own power from renewable sources, such as wind or solar.

Those eligible can receive a loan for up to \$25,000 for installing a geothermal system and/or a loan of up to \$25,000 for installing a renewable system in a new or existing home. Available now, the program is being delivered through SaskPower Eneraction—the utility's portfolio of energy efficiency, conservation and load management programs.

"Interest in geothermal systems and self-generation is increasing as the cost for these technologies comes down," said SaskPower president and CEO, Pat Youzwa. "Providing financial support will make it even more feasible for our customers to pursue these environmentally responsible choices."

Enhancements have been made to the existing Energy Efficiency Rebate for New Homes Program delivered through SaskEnergy. Saskatchewan residents who build a new Energy Star-qualified, R2000-certified or EnerGuide 80 home may be eligible to receive a rebate of up to \$3500 for the installation of a geothermal system (retroactive to January 1, 2008).

The province is also topping up support to the Net Metering Program. Residents who wish to self-generate electricity using environmentally friendly sources can now receive a rebate of up to \$35,000 (retroactive to April 1, 2007).

A geothermal rebate program is also being designed for commercial customers, and is expected to be introduced this spring. Information about these loan and rebate programs is available at [www.saskpower.com](http://www.saskpower.com).

**Changes to WorkSafeNB announced**

Proposed legislative changes to the Workplace Health, Safety and Compensation Commission introduced by Donald Arseneault (New Brunswick's post-secondary education, training and labour minister) are designed to improve the structure of the commission's successor agency, WorkSafeNB.

The changes stem from an independent panel report containing 64 recommendations directed to WorkSafeNB and the government. "The amendments will respond to four of the panel's recommendations," said Arseneault, adding the changes are "key to the functioning of the board of directors and will help to facilitate WorkSafeNB's operations, which will, in turn, enable the agency to proceed with additional changes in the coming months".

The changes include:

- Establishing a new board position of vice-chair to provide more consistent support to the board and provide more human resource support to the chair.
- Extending the term of appointments for worker and employer reps to four years from three, helping ensure the proper knowledge base is maintained despite member turnover.
- Increasing the number of board members representing workers and employers to a minimum of four each from three, providing greater diversity on the board and supporting its growing mandate.
- Increasing flexibility for appointments so that, when a person is appointed to fill a partial term, he will still be eligible to serve two full terms.

WorkSafeNB is responsible for the administration of the Workplace Health, Safety and Compensation Commission Act, the Workers' Compensation Act, the Occupational Health and Safety Act and corresponding regulations. For more information, visit [www.whscc.nb.ca](http://www.whscc.nb.ca). 

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**Venture Lighting 39W MR16 lamp**

Venture's MR16 lamp is the smallest metal halide light package in the 39W lamp category, says the company. It combines tipless quartz arc tube technology with precise reflector optics to deliver a spot of white light that's high in colour rendering capabilities (90+ CRI) and has a correlated colour temperature as natural daylight. The lamp operates on any low-watt electronic ballasts and can be used in any orientation. The lamp aims to replace halogen lamps in accent and retail lighting applications, particularly in track lighting. The lamp is suitable for display, wall washing and accent lighting applications. **VENTURE LIGHTING**  
[www.venturelighting.com](http://www.venturelighting.com)

**Standard T12 retrofit solutions**



Standard offers retrofit solutions for converting T12 lamps (4-ft and 8-ft strip fixtures) to one or two energy-efficient T8s. The strip conversion and reflector kits make this upgrade easy, says the company. The strip conversion kit is simple to transport, fits all one-, two- and four-lamp strip fixtures, and doesn't require any special tooling for maintenance. It also allows for the removal of the ballast cover, relocation of lamps and light output optimization. **STANDARD PRODUCTS**  
[www.standardpro.com](http://www.standardpro.com)

**Universal ULTim8 program-start ballasts**



Universal Lighting introduced program-start models to its ULTim8 family of ballasts, making them compatible with occupancy sensors and other switching applications. The ballasts are specifically designed to increase fluorescent lamp life by properly heating the lamp filaments during the starting process. Designed to meet NEMA and CEE High-Efficiency T8 Ballast specs, these models are available with universal voltage operation (120V to 277V) and .71 (EL) and .88 (HE) ballast factor options. They operate up to two F32T8, F32T8ES, F32TEES (25W), F28T8, F17T8 and F25T8 lamps, and feature series lamp operation, anti-striation circuitry and a low profile for simple installation. **UNIVERSAL LIGHTING TECHNOLOGIES**  
[www.unvlt.com](http://www.unvlt.com)

**Kim Lighting 'cool' Lightvault CFL**



Kim is offering a new low-heat lens solution for the Lightvault family of in-grade uplights. Employing compact fluorescent technology, the temperature of the Lightvault lens can be reduced to as low as 50°C, making it suitable for walk-over locations and high-traffic pedestrian areas. The Lightvault CFL system is available in 26W, 32W or 42W versions in a bronze or composite housing. It is designed to withstand moisture, fertilizers, flooding, debris, vandalism and UV rays. The lens gasket—made from one-piece moulded silicone with U-channel—wraps completely around lens flange, and there's an anti-siphon barrier on wiring to/from the splice compartment. **KIM LIGHTING**  
[www.kimlighting.com](http://www.kimlighting.com)

**Cooper Lighting Neo-Ray series 741W**

Cooper Lighting's Neo-Ray 741W wall-mounted fixture features a low-profile aluminum extrusion that serves as a wall cove. The single-lamp T5/T5HO optical system provides uniform, indirect

illumination. The 741W series is available in 3-ft, 4-ft, 6-ft and 8-ft lengths, measures just 6 1/2 in. x 1 3/4 in., and can be specified with an electronic or dimmable ballast. Optional corners are available. **COOPER LIGHTING**  
[www.cooperlighting.com](http://www.cooperlighting.com)



**Vista through-wall night light**

Vista Lighting's single-unit through-wall night light with integral light-directing louvers provides illumination for two adjoining patient or other rooms. Units fit 3-in. and 4-in. thick walls in adjoining rooms of any healthcare, other institutional or commercial building. Illuminating choices include LED, PL or T5 fluorescent, and the fixture itself is treated with Agion FDA-recognized, EPA-registered slow-release antimicrobial to inhibit bacterial colonization on painted interior and exterior surfaces. The night light is constructed of die-cast aluminum alloy or brushed stainless-steel faceplates and tiltable louvers, with 20-ga cold-rolled steel back boxes that recess into walls. **VISTA LIGHTING**  
[www.vistalighting.com](http://www.vistalighting.com)



**Quality Lighting CW 11-13-18 wall mount**

The CW 11-13-18 is a new family of direct, glare-free, full cut-off outdoor lighting fixtures, available in three distinct sizes. Rounded edges and cast-in reveals help prevent contaminant deposit or insect infiltration, while the optics produce forward-throw, downward illumination. The family is characterized by a trapezoid-shaped housing design that mounts flush to interior/exterior wall surfaces in any climate or weather condition. Meeting Dark-Sky requirements when used as a downlight, the CW's illumination choices include metal halide, high-pressure sodium or compact fluorescent lamps in varying wattages. Fixtures can be specified in 13-in. and 17-in. widths, and they're wet location listed in downlight installations. **QUALITY LIGHTING**  
[www.qualitylighting.com](http://www.qualitylighting.com)



**TCP ecoVations linear fluorescents**

EcoVations introduced a line of linear fluorescent lighting fixtures—each containing a lamp, ballast and fixture combination system—as energy-efficient replacements for traditional metal halide high-bay systems. Comprising the Aisle Lighter, ElitePlus fluorescent high-bay, enclosed and gasketed fluorescent high-bay, Green Hi-Bay and Performance Bay, the fixtures are all designed for use with either T5s or T8s. The Aisle Lighter is designed for open and stack aisles, warehouses and storage and retail facilities. The Performance Bay features a hinged door on the back of the fixture, while the ElitePlus offers a swinging lens and reflector, both providing easy access to the ballast. The ecoVations Green Hi-Bay is available in a four-, six-, or eight-lamp configuration. The enclosed and gasketed fluorescent is designed for sub-zero settings. All fixtures promise 95% lumen maintenance, improved colour rendering, extended lamp life, multi-level switching, Instant On, dimming and improved uniformity, and all are recommended for mounting heights between 15 ft and 40 ft. **TCP**  
[www.tcp.com](http://www.tcp.com)



**Arlington two-gang indoor In Box**

Arlington's new, recessed two-gang In Box is intended for indoor use and allows LCD and plasma TVs to be placed flush against the wall, as the plugs stay inside the box. You can install two duplex receptacles, two low-voltage devices or one low-voltage device and one duplex receptacle with the supplied separator. The box is non-metallic and paintable. **ARLINGTON INDUSTRIES**  
[www.aifittings.com](http://www.aifittings.com)



**3M Scotch power cable jacket repair tape 2234**



Scotch Tape 2234 from 3M boasts an abrasion-resistant backing for jacket repair on industrial power cables—those typically involved in 'dragline' applications such as temporary installs, generators, cutters, cranes, conveyors and lifting magnets. In addition to protecting against abrasion and moisture, Tape 2234 is UV, chemical and oil resistant. No heat is required because the tape is self-fusing, and it will not corrode copper or aluminum conductors. **3M**  
[www.3m.ca/electrical](http://www.3m.ca/electrical)

**Ideal Pail-o-Tails grounding tails**

In an effort to reduce the amount of packaging destined for landfill, Ideal introduced its Pail-o-Tails. This re-closable 1-gal pail contains 500 6.5-in. (12AWG) solid-wire grounding tails, travelling easily from truck to jobsite and back. Once emptied, the pail can be used to hold any number of other items. For a limited time, contractors purchasing a Pail-o-Tails will receive a free Ideal Twist-a-Nut 7-in-1 screwdriver (inside each pail), which also boasts a universal connector wrench formed into the bottom of the handle that accepts twist-on connectors such as Twister, Wire-Nut, Wing-Nut and B-Cap. **IDEAL INDUSTRIES**  
[www.idealindustries.com](http://www.idealindustries.com)



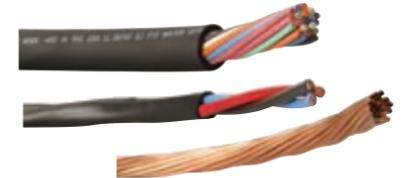
**Cooper expands tamper-/weather-resistant receptacle line-up**



Cooper Wiring Devices has added to its lines of tamper-/weather-resistant and combo receptacles. A new line of weather-resistant receptacles is designed with enhanced engineered plastic and corrosion-resistant metal components for extra durability, promising good performance against the elements (when properly installed in an approved weather-protective cover). Tamper-resistant receptacles aim to keep children safe from electrical injury; the shutter system prevents foreign objects from being inserted, allowing only two-/

three-prong plugs to pass through. Finally, a new combo receptacle offers the safety features of both. **COOPER WIRING DEVICES**  
[www.cooperwiringdevices.com](http://www.cooperwiringdevices.com)

**Coleman Royal tray and SOOW control cables, and Triangle wire**



Coleman has expanded its industrial product line to include Royal tray cable THHN/PVC, Royal SOOW control cables and Royal/Triangle bare copper wire. The Royal brand of Type TC power and control cable is a 600V cable constructed with THHN/THWN (14 AWG and larger) or TFFN (16 AWG) conductors, cabled together with fillers as required, and covered with suitable binder tape (as needed). An outer PVC jacket protects the cable, which is approved for cable tray, raceway, direct burial and aerial installations (when supported by a messenger). SOOW multi-conductor cables boast a chlorinated polyethylene (CPE) jacketing compound that provides extended service life in harsh environments. Construction provides Class K stranding for all conductor sizes, while the ethylene propylene rubber insulation meets UL and CSA requirements. Finally, the Triangle brand of solid and stranded bare copper conductors are available in stock or customer-specified packaging, and are suitable for overhead transmission and distribution, and grounding grid systems. **COLEMAN CABLE**  
[www.colemancable.com](http://www.colemancable.com)

**Hilti VC20-U and VC40-U vacuums**

The new Hilti VC20-U and VC40-U vacuums are designed specifically for building and construction, mechanical, electrical and interior finishing. Equipped with 1200W of power and automatic power-filter cleaning technology, the vacs promise "best-in-class volume-to-capacity ratio", maintaining constant high suction performance for virtually dust-free working. The valve opens automatically every 15 seconds, reversing the air flow three times per millisecond, thus shaking the filter clean. Easy filter access and changeable dust bags save time, and the vacs stop automatically when full, so you never have to worry about drowning the filter. A PES Nano wet filter is reinforced with a steel plate for sturdiness, and a HEPA filter and fleece dust bag are available (if required). The plastic dust bag is designed for easy dust disposal, while the antistatic hose promises no electrostatic discharge when connected to a tool. **HILTI CANADA**  
[www.ca.hilti.com](http://www.ca.hilti.com)



**Ridgid WD7000, WD4522 and WD4070 vacuums**

Ridgid added several new products to its wet/dry vacuum line-up. The Smartcart's (WD7000) accessory nozzles and hose are neatly organized in storage drawers within the unit, with additional storage on the back for the 20-ft power cord and more. The vac's collection drum is located at the bottom and, along with the three-layer fine dust filter, slides easily out of the frame. Additional features include a 6.5-hp motor (peak), patented Scroll Noise Reduction



technology, locking rear wheels, flat flip-top work surface, retractable handle and a Tug-A-Long locking hose. The Pro Pack (WD4522), meantime, has a profile much like a toolbox, making it easy to tote in the truck. Finally, the portable wet/dry WD4070 boasts a small size

and large carry handle.  
**RIDGID**  
[www.ridgid.com](http://www.ridgid.com)

**Honeywell Genesis jacketless multimedia cable**

Honeywell Genesis Series jacketless cables provide simple, cost-efficient cabling solutions for residential and commercial voice, data and video (VDV) applications, says the company. The multimedia cables do not

feature an outer jacket; instead, the bundled cables are held together by a tight, continuous twist that doesn't require binding tapes or adhesive materials. This design—which results in a lighter cable with a good bend radius and smaller overall diameter—allows you to easily separate data and coax cable components. Honeywell offers jacketless cable bundles in a variety of combinations. The standard offering consists of two Cat 5e UTP cables for voice and data, plus two RG 6/U quad shielded coax cables. Honeywell also offers a bundle with two optical fibers. Additional constructions are available.

**HONEYWELL CABLE**  
[www.honeywellcable.com](http://www.honeywellcable.com)

**Klein LED flashlights**



Klein recently introduced a family of flashlights with LEDs that, it says, provide superior light. The 50-hour (battery life) X3 penlight's Xenoy body resists chemicals, water and corrosion, and fits neatly in a shirt pocket. The X5 mini-pocket flashlight boasts a polycarbonate body with an O-ring-sealed Xenoy shroud, as well as a break-away lanyard and pocket clip for easy adjustment, and interchangeable clear, red and green coloured lens discs. The X7 xenon pocket flashlight is submersible, while the X9 boasts a knurled grip to prevent slippage in hazardous environments. The X11 clip-on's body is made of Xylex, promising to be "virtually indestructible". The X19 Recoil Grip-It focuses 100% of the light forward; it's submersible to 500 ft, and includes a wrist lanyard. The X21 Recoil Grip-It has a 90° right-angle head, stainless steel clip and ring that enables hands-free operation. Also new are the X35 Recoil heavy-duty and X44 xenon NiMH rechargeable spotlight.

**KLEIN TOOLS**  
[www.kleintools.com](http://www.kleintools.com)

**Milwaukee M12 flashlight**

Milwaukee introduced a flashlight to its M12 family of cordless products. Featuring a 90° rotating head, the flashlight employs a 12V Li-ion battery to provide longer run times, and a xenon incandescent bulb. An integrated magnet provides hands-free use, while the lightweight, compact design promises durability and easy portability. The flashlight is backed by Milwaukee's five-year tool warranty.



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**Mid-Canada Electrical Showcase**  
*Manitoba Electrical League*  
**June 17-18**  
Winnipeg, Man.  
Visit [www.meleague.net](http://www.meleague.net)



**Electrical Industry Conference**  
*Ontario Electrical League (OEL)*  
**April 15-18**  
Kingston, Ont.  
Visit [www.oel.org](http://www.oel.org)



**Annual Conference**  
*Supply & Distribution Council (S&D), Electro-Federation Canada (EFC)*  
**May 27-30**  
St. John's, Nfld.  
Visit [www.electrofed.com](http://www.electrofed.com)



**Annual Conference**  
*Electrical Contractors Association of Ontario (ECAO)*  
**June 24-27**  
Halifax, N.S.  
Visit [www.ecao.org](http://www.ecao.org)

**Health & Safety Canada**  
*Industrial Accident and Prevention Association (IAPA)*  
**April 20-22**  
Toronto, Ont.  
Visit [www.iapa.ca](http://www.iapa.ca)



**Annual General Meeting**  
*Independent Electrical Distributors (IED)*  
**June 8-10**  
Quebec City, Que.  
Visit [www.ied.ca](http://www.ied.ca)



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**"Anti-Counterfeit Products Initiative" website**



A new anti-counterfeiting awareness website, "Anti-Counterfeit Products Initiative", advocates against the sale and installation of counterfeit electrical products, and educates visitors on the dangers and liabilities associated with them. It is endorsed by the American groups National

Association of Electrical Distributors (NAED), National Electrical Contractors Association (NECA), National Electrical Manufacturers Association (NEMA), and Underwriters Laboratories (UL). Further, it is supported by industry players like Square D, Siemens, Alcan, Graybar, Eaton, Fluke, GE, NSI Tork and Southwire.

Visit [www.counterfeitcankill.com](http://www.counterfeitcankill.com) to learn more about this important industry issue.

**"TeachMeFluke" online technology training resource**



Fluke has unveiled a technology training section on its website offering everything from training in electrical measurement safety, power quality and thermal imaging to free classroom materials for qualified instructors and company trainers. Online seminars, updated schedules of hands-on (classroom-based) training seminars, application

notes, videos, virtual demonstrations, online tools and links to extensive additional resources are all available through the site.

To see the full list of topics and training opportunities, visit [www.flukecanada.ca/events](http://www.flukecanada.ca/events).

**Caterpillar power generation online community**



Caterpillar's new Power Generation Online Community is an interactive forum where consulting specifying engineers and other power generation professionals can exchange ideas and best practices. Past experience purchasing or working with Cat Power

Generation equipment is not required to participate, and there are no registration fees. To-date, users from 119 countries have generated more than 110,000 page views, and the section spurring the most activity is power generation sustainability. Other topics such as site design, standards and regulations, and system components are also fuelling conversation.

The online community can be accessed at [www.catelectricpowerinfo.com/connect](http://www.catelectricpowerinfo.com/connect).

**Energy Savings Toolbox from the feds**

The Government of Canada launched a new resource it believes will help industry reduce energy use and improve productivity. Published on CD and available for free from NRCan, the Energy Savings Toolbox offers a detailed reference for understanding and managing energy use in every phase of an operation: from designing and conducting an energy audit to carrying out cost-benefit analyses. It includes an extensive technical supplement with spreadsheet tools for costing, analysis and other related calculations.

Visit [www.tinyurl.com/ajbeqk](http://www.tinyurl.com/ajbeqk) to order the CD or download a PDF.

**McCormick enables on-screen takeoffs**

McCormick Systems says you can now do all takeoffs on-screen—no matter how a set of electronic drawings ended up on your computer—and move the results (automatically) to your McCormick estimating system. McCormick credits this ability to its interface with On Center Software's product, On-Screen Takeoff (of which it is a reseller); estimates can be done on-screen then quantities moved to the McCormick estimating system (via a special link and database). The arrangement applies to drawings in virtually any electronic format.

To learn more, visit [www.mccormicksys.com](http://www.mccormicksys.com).

**Stahlin 3D CAD drawings online request form**



Stahlin Non-Metallic Enclosures has implemented an online request form for 3D CAD model drawings of its products. After submitting the easy-to-use form, a dedicated applications engineer will fulfil the request within 24 hours, replying directly to a user's e-mail address.

Visit [www.tinyurl.com/akn98u](http://www.tinyurl.com/akn98u) to go straight to the online request form, or visit [www.stahlin.com](http://www.stahlin.com).

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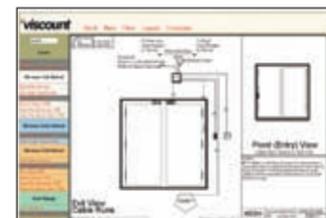
**Hammond Power website exhibits expanded product offering**



Hammond Power Solutions' (HPS) new website exhibits its expanded product offering for the numerous markets it serves, such as oil and gas, wind and solar power generation, utilities, mining, steel, waste and water treatment, and power conditioning and motor control. The site provides catalogues, product literature, datasheets, installation manuals, training guides, access to the HPS E-Quotes system and more. HPS can ship standard stocked products to 90% of its customers for delivery within 48 hours of receiving a purchase order.

Visit [www.hammondpowersolutions.com](http://www.hammondpowersolutions.com) to learn more.

**Viscount As-Built Compiler software package**



Viscount Systems' ABC (As-Built Compiler) software package is a Web-based tool for designing and managing As-Built security drawings. Using pre-designed macros, you can choose from a range of door types to automatically configure conduit, wiring and device layouts. As you check each device box,

the drawings automatically reconfigure to reflect the additional requirement. Supported devices include door strikes, magnetic locks, exit devices, card readers, cameras and more.

For more information, visit Viscount Systems Inc. at [www.viscount.com](http://www.viscount.com).

**Ideal LOTO safety training program with video**



To ensure the correct application of lockout/tagout practices, Ideal is offering a training program complete with a 10-minute video, an OSHA Standard compliance manual, reference cards, instructor's guide and employee quiz (U.S. based). The video, "Real, Real Life Lockout/Tagout Training", conveys the importance of LOTO in the workplace, demonstrating the steps to properly apply and remove LOTO devices, and how to maintain safety during shift changes.

For more information, visit [www.idealindustries.com](http://www.idealindustries.com).

**Rittal power engineering software for MCCs**



Rittal has developed a new software tool to help those specifying and designing motor control centres (MCCs), allowing drawings and parts lists to be achieved within minutes. The engineering software can produce drawings of any Form 4-type panel; not only incorporating the front view general arrangement, but also the internal view (including details such

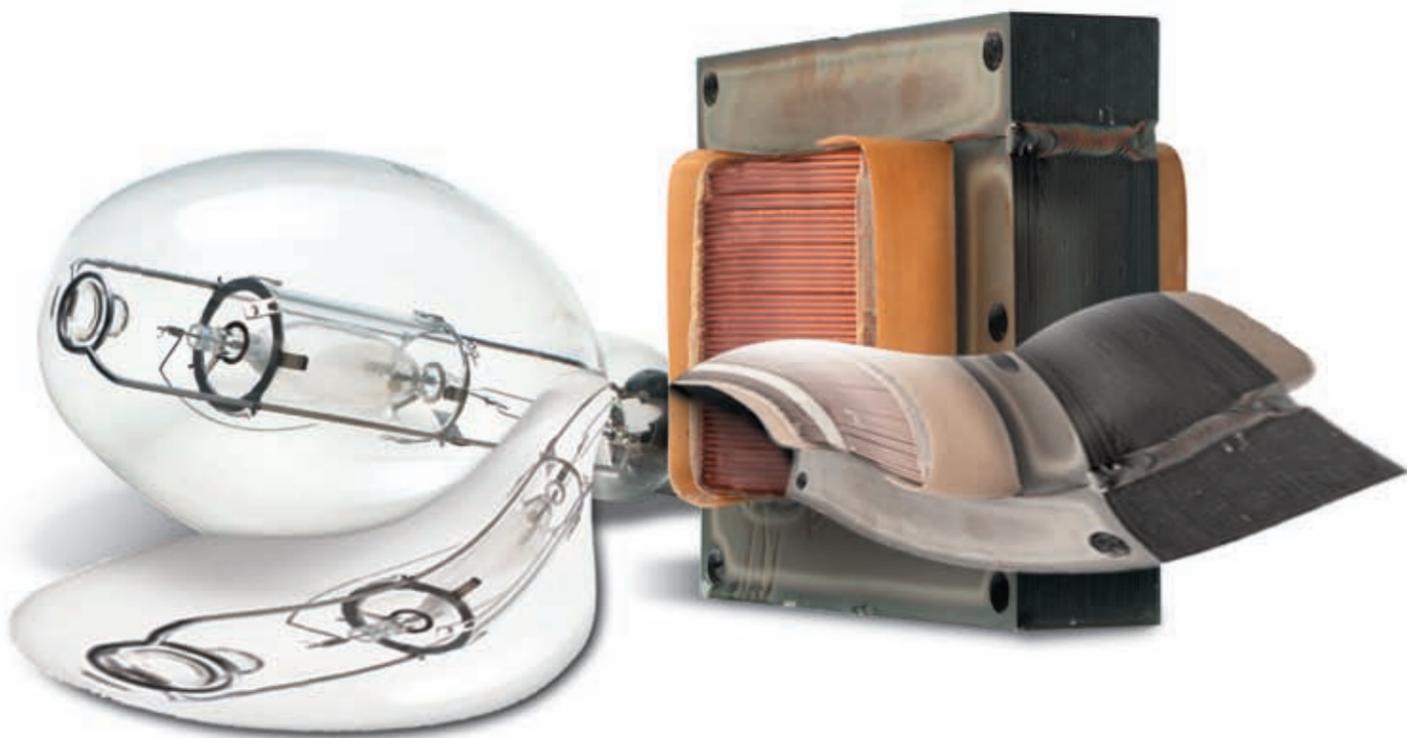
as mounting plate detail and busbars). The software will also specify the individual component parts required to simplify ordering, and pricing is easily incorporated. Any modifications or additions required later are easily exported as a DWG file, and completed drawings and parts lists can be exported into an Excel spreadsheet.

Visit [www.rittal.ca](http://www.rittal.ca) for more information.



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# Automobile heater receptacles

Canadians have seen some pretty cold days this winter. Adding to this extreme discomfort is the concern over whether the car will start on a cold morning. Some drivers rely on block heaters to ensure the car will start; others believe in battery blankets; still others install warmers inside their cars to keep the interior warm and help keep the windows from icing up. A number of different products are available with integral 120V cords.



CE Code Rule 8-400 provides guidance on sizing branch circuits and feeders supplying car heater receptacles in parking lots. These demand calculations do not apply to single residential dwellings where its already included under the basic demand for the dwelling as per Rule 8-200. In the North, car heater receptacles are located at each outdoor parking lot stall to allow block heater connections. Correctly calculating the feeder size is critical for ensuring a reliable—as well as economical—system.

The demand set by such receptacles varies according to use. The benefits of a controlled system can be significant, as it involves a smaller feeder supply circuit and results in ongoing energy cost savings. Engine block heaters warm the engine coolant up to a suitable starting temperature. Provided that the outside temperature is below a preset value, cycling power to the receptacle for 30 minutes every hour is one way of controlling electrical demand.

When applying Rule 8-400, you need to understand the following:

Rule 8-400(2) requires at least one branch circuit—protected by an overcurrent device rated or set at not more than 15A—for each duplex receptacle or for two, single receptacles. Note that GFCI protection is neither required nor desirable for commercial, industrial or multi-residential installations due to potential nuisance tripping caused by heater leakage current.

- *Restricted* means the receptacle is restricted to engine block heater use only. The use of an in-car heater is not permitted.
- *Controlled* means power to the receptacle is cycled by something other than manual operation, such as a temperature control device.

These receptacles must be installed with mechanical protection to prevent damage by vehicles. Such protection can be provided

by the approved manufactured pedestals, or by considering elevation and location on adjacent structures. Conductors for wiring these receptacles shall have insulation or a covering suitable for installation and use at temperatures down to -40°C (except for conductors approved for, and installed, underground). A separate bonding conductor is required in accordance with Rule 10-804(c) when metal conduit is used.

lot) may be assigned a greater demand load per each stall. For uncontrolled lots, it may be wise to use 1200W for each stall instead of the 1000W or the 800W specified in Rule 8-400(3). In this case, our calculated demand increases to 120,000W and a minimum feeder rating of about 334A.

For large commercial, industrial or multi-residential customers paying the electrical demand charges, the increased demand on the supply feeder will have a definite economic impact over the long term. A more efficient design, however, will help pay the bill. **EB**

## Parking lot math

What is the minimum rating of a 120/208V, 3-phase feeder supplying a distribution panelboard that supplies receptacles for 100 parking spaces that are *controlled* or *restricted* as defined in the Rule 8-400?

Let's do the calculation using the demand loadings as per Rule 8-400(4). The calculated demand load for the first 30 stalls is 650W per stall. Then we allow 550W for the next 30 stalls, and 450W for the remaining stalls over 60. The total calculated demand load is 54,000 watts, which requires a minimum feeder rating of 151 amps.

This contrasts with a total calculated demand of 102,000 watts and a minimum feeder rating of 284 amps for an *uncontrolled/unrestricted* system for the same lot. This can become even a bigger concern when we consider the requirement of Rule 8-400(5), which states that parking lots that may be 100% occupied under normal use (such as an industrial plant's employee parking

Kris Paszkowiak is principal of CodeSafety Associates, a consulting firm serving the needs of the electrical industry. He holds a Master Electrician licence and has served numerous organizations over the years, including the Canadian Advisory Council on Electrical Safety, Committee on CE Code Part I and UL Electrical Council. E-mail CodeSafety Associates at kris.paszkwia@codesafety.ca.



Questions and answers compiled by the Electrical Safety Authority Visit [www.esasafe.com](http://www.esasafe.com)

## Tackle The Code Conundrum... if you dare

So, you think you know the electrical code, eh? Well, we'll soon find out if you're an electrical code junkie or downright code-clueless. Take a look at the following questions and check your answers in March's Electrical Business.

### How did you do?

**3 of 3** — Not only are you smart, you love to show off.  
**2 of 3** — You're pretty smart, but you still missed one.  
**1 of 3** — Your understanding of these questions is not up to code.  
**0 of 3** — Did you come up with your answers by playing Eenie, Meenie, Minie, Moe?

## Question 1

The bonding conductor for the metal parts of pools shall be permitted to be of aluminum.

a) True  
b) False

---

## Question 2

Where conductors No. 8 AWG or larger issue from a raceway, they shall be protected from abrasion by an equipment hub with a smoothly rounded throat, an insulated type bushing, or insulating material that separates the conductors from the raceway fitting and affords adequate protection from mechanical injury.

a) True  
b) False

---

## Question 3

Armoured cable shall be permitted to be fished into wall cavities containing concealed knob-and-tube wiring or non-metallic sheathed cable.

a) True  
b) False

## Answers to Code Conundrum

Electrical Business January 2009

**Q-1:** Tungsten halogen luminaires with double-ended lamp holders—having an input voltage of not more than 240V—shall be permitted to be connected to a branch circuit protected by overcurrent devices rated or set at not more than \_\_\_ amps in dwelling units.

**a) 15 amps.** Rule 30-104(a) states that luminaires, lampholders and lighting track shall not be connected to a branch circuit protected by overcurrent devices rated or set at more than 15A in dwelling units.

**Q-2:** The bending radius for a tape-shielded high-voltage cable that has a diameter of 1.5 in. shall be not less than:

**c) 18 in.** Rule 36-102 and Table 15 give us a multiplier of 12 for the cable's diameter.

**Q-3:** Type SJ cord shall be permitted to be used on portable lamps and equipment in motion picture studios.

**b) False.** Rule 48-010 requires the use of Type S, SO or ST. Table 11 tells us that these types are for extra-hard usage. Type SJ does not meet these criteria.

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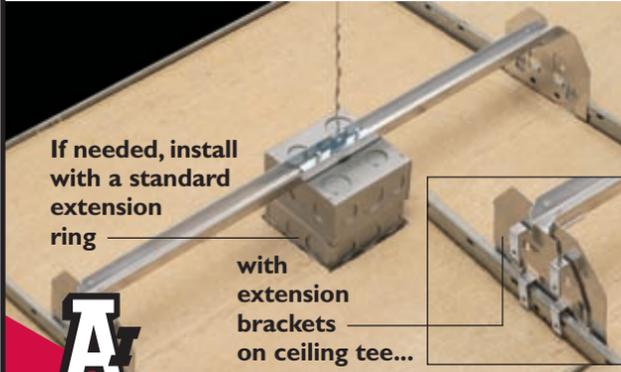
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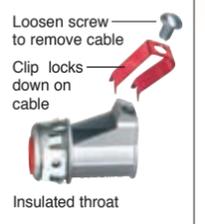


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