

A CLB MEDIA INC. PUBLICATION • VOLUME 46 • ISSUE 4

Electrical Business

APRIL 2010



■ Also in this issue...

- Plug-n-play not meant to replace electricians (Page 16)
- The role of overcurrent protective devices in electrical safety (Page 18)
- Interconnecting solar power systems (Page 30)

Smart grid trends for 2010



PM # 40063602

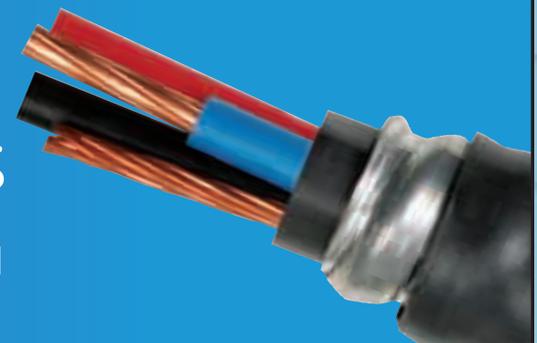
FIREX® II
TECK CABLE



Nexans

LEAD FREE and RoHS

www.nexans.ca





Canada's 50 Best Managed Companies



Product Offering



Green Initiatives



Sales Support



Outstanding service



Technology

STANDARD is Canada's leading supplier of lighting solutions for the commercial, industrial and residential markets. Our goal is to surpass market norms on quality products, innovative ideas, and customer satisfaction.

As leaders in lighting, we have our customers' goals in mind. Our efficient lighting solutions provide energy savings, better quality of light, and an overall reduction in costs. STANDARD's commitment to the environment is to allow for sustainable lighting solutions for generations to come.

For a better understanding of the opportunities to save energy, improve your lighting, positively impact the environment and your bottom line; our President and CEO invites you to contact him at info@standardpro.com.

Because we, at STANDARD, understand that businesses are driven by people, we would like to thank our customers, our vendor partners and especially our dedicated and talented employees, for making STANDARD the success we are today.

Lighting the Way for a Greener Tomorrow

Think about the future... choose energy efficient lighting today!

www.standardpro.com



Recognize that you will need to train.

Do we really have a labour squeeze?

One of the things that makes my job interesting is I never know what may cross my desk. The other day, I received a statement from the CEO of ActionCoach Canada, Greg Kopchuk, who has surveyed over 1000 business owners across the country. He asked them what was most challenging about running their businesses, and always among the top answers was: Finding good people.

Which led Kopchuk to wonder whether there was really an employment problem, or whether businesses simply couldn't find people who were willing to work hard and be trained.

"Canadian employers need to take the time to train people in their industry," concludes Kopchuk, adding they also have to take a more active role in the recruitment process.

He's definitely right about taking a bigger interest in the recruitment process, though he's not the first to bring this to light. Back in January 2008, for example, I wrote about a session on "Recruitment Interviewing" delivered by Cheryl Crumb at NETCO's (National Electrical Trade Council's) 2007 National Training Symposium.

She explained the nuances of interviewing, particularly as it relates to a potential apprentice candidate, or apprentice for your company (though these techniques can apply to anyone, anywhere). Like onions, people have many layers, and she identified the three layers with which interviewers should be concerned.

Let's cut to the chase: it's Level 3 we want.

A person's third layer (Level 3) reveals their attitudes and job beliefs; this ultimately tells you the kind of person you're bringing on board, and whether you'll be happy with them.

"We must learn to ask Level 3 questions from the outset," Crumb said, arguing we shouldn't place too much importance on resumes, which only serve to list the basic things the candidate must have. "Beyond that, [resumes] tell you nothing of the individual [and] let's face it: an electrical apprentice won't consider resume-writing an Essential Skill."

Several years later, Kopchuk is providing the same advice for finding the best employees. "Look for attitude first. If you find talented/hardworking people, hire them right away," he says, adding those people are out there—you just need to put some effort into recruiting them.

Recognize that *you will need* to train. Everyone has their own way of doing things, and schools—however well-meaning—simply cannot keep pace with business and technology. Use this to your advantage when recruiting. "Offer to give [candidates] the skills they need," says Kopchuk. "That way, you'll get the employee you want and skills that will benefit your business."

And, again, Kopchuk emphasizes attitude over skills, and I couldn't agree with him more: "Don't hire skills over attitude. One person with hustle is worth 10 people who don't care". **EB**

Anthony Caplan



Stock photo

On the cover and page 14

Smart grid outlook 2010: Business benefit, data, analytics and customer-centric technologies ahead

Several trends will continue to drive smart grid activity in 2010, based on the notion that the smart grid is really just an integrated toolset to efficiently plan, design and reliably operate the grid in a sustainable manner.

Contents

FEATURES

18 The role of overcurrent protective devices in electrical safety

Properly spec'd and installed overcurrent protective devices can go a long way in helping minimize the catastrophic effects of an accidental arc flash/blast.

22 Continuing education & training key to information technology success

Forward-thinking electrical contractors are adding datacom to their list of one-stop services; but to keep pace with technological change, they face the same educational challenges as students just entering careers in communications infrastructure.

24 They say "class-leading" and "segment-best", but you decide

EBMag was pleased to have the opportunity to sit in on a media-only, sneak peek of Chevrolet's new 2011 Silverado HD before it was officially shown off at the Chicago Auto Show... and Chevy execs are pretty pleased with what they've assembled.



DEPARTMENTS

- 4 Industry News
- 7 Calendar
- 10 Mind Your Safety
Hard hats and jerking knees... again
- 12 From the Legal Desk
Duty of fairness restored in tender situations
- 16 Letters to the Editor
- 26 Products
- 30 Code File
Interconnecting solar power systems
- 30 The Code Conundrum

page 26



GE Lighting Franklin Empire's Supplier of the Year

GE Consumer & Industrial (www.ge.com) is pleased to announce that GE Lighting has been named Franklin Empire's (www.feinc.com) Supplier of the Year for 2009.

"This award is a reflection of the excellent support and service provided to us by GE Lighting, as well as their agents, throughout 2009. Congratulations to the entire GE Lighting team," said Cara Backman, marketing manager with Franklin Empire.

Franklin Empire Inc. is a family-owned, independent Canadian electrical distributor that supplies electrical components to the commercial, contractor and industrial markets across Quebec and Ontario. A GE Edison Elite Distributor, Franklin Empire has been supplying GE Lighting products for over 70 years.

Every year, all Franklin Empire branches are asked to evaluate their top suppliers based on a list of performance criteria, including product quality, customer service and support, price, project and sales support, and deliveries. For 2009, GE Lighting received the highest evaluation of all Franklin Empire suppliers.



Josée Berthiaume, national account manager, GE, and Bernie Backman, vice-president, Franklin Empire.

Canada's electrical channel WANTS YOUR INPUT

These days (especially these days), most everyone you talk to complains of the business pressures they face; sadly these grievances usually fall on deaf ears. Until now.

Electrical contractors will be contacted during the month of April by a market research company working on behalf of Canada's electrical products industry. The purpose of this study is to help manufacturers, distributors and rep



ELECTRO-FEDERATION
C • A • N • A • D • A

agencies better understand your business pressures and needs.

The aim is to improve the supply chain, products and services available to Canada's electrical contractors.

Here's how it works: electrical contractors across Canada will be contacted by telephone through a member agency of the Canadian Market Research and Intelligence Association. They will be asked to participate in an interview over the phone that should only take about 10 minutes.

All responses are completely confidential. Only aggregated statistical data and comments to open-ended questions will be included in the final report.

This research is funded by the Supply and Distribution Council of Electro-Federation Canada, whose 150-plus member companies include the leading manufacturers and distributors of electrical products in the Canadian market.

This is a great opportunity... electrical contractors participating in the survey will have the opportunity to send a message to the supply chain that will help shape strategies and marketing communications for their business partners.

Let's face it. We're all in this together. Why not take advantage of an opportunity to influence the people who provide the products and services you need to get your work done?

For more information, particularly if you want to participate in the study, email Roger Partington at roger@coherentb2b.com.

Electrical Business

April 2010 • Volume 46 • Issue 4

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.

Editor

Anthony Capkun - acapkun@clbmedia.ca

Publisher

John MacPherson - jmacpherson@clbmedia.ca

Account Manager

Scott Hoy - shoy@clbmedia.ca

Art Director

Svetlana Avrutin - savrutin@clbmedia.ca

Production Manager

Adam Ball - aball@clbmedia.ca

Creative Director

Einar Rice - erice@clbmedia.ca

Circulation Manager

Judy Antoniadis - jantoniadis@clbmedia.ca

Subscriber Customer Service Representative

Kristen Schulz-Lacey - kschulz-lacey@clbmedia.ca

CLB MEDIA INC.

240 Edward Street, Aurora, ON L4G 3S9
Tel: 905-727-0077 Fax: 905-727-0017

President: Stuart Morrison

Senior Vice President: Kent Milford

Vice President, Media, Publishing: Niel Hiscox

Vice President, IT and Operations: David Overall

Director, Professional Group: Karen Lorimer

Director, Manufacturing Group: Nigel Bishop

Director, Audience Engagement: Jackie Roth

Director, Production: Lisa Drummond

Director, Facility Management and Logistics: Steve Dale

Director, Human Resources: Denise Desrosiers

Director, Product & Business Development: Todd Phillips

Director, IT: Phillip Damianidis

SUBSCRIPTION RATES:

Canada: Single issue \$7.00 • Ten issues: \$35.00

(including tax)

USA: \$59.00 (US) and International: \$75.00 (US) per year

United States Second Class Postage Paid at Lewiston, NY

(USPS-741-470) US POSTMASTER: send address changes to

ELECTRICAL BUSINESS, P.O. Box 8145, Lewiston, NY 14092

The contents of Electrical Business are copyright ©2010 by CLB Media Inc. and may not be reproduced in whole or part without written consent. CLB Media Inc. disclaims any warranty as to the accuracy, completeness or currency of the contents of this publication and disclaims all liability in respect of the results of any action taken or not taken in reliance upon information in this publication.

REPRINTS: Contact The Reprint Outsource at (877) 394-7350.

Send address changes to:
ELECTRICAL BUSINESS

240 Edward Street, Aurora, ON L4G 3S9

Return Postage Guaranteed

Canada Post - Canadian Publications Mail Sales Products

Agreement 40063602 ISSN 0013-4244

Printed in Canada

Now from Hammond Manufacturing

ENCLOSURE COST SAVINGS

Virtually every standard industrial enclosure needs to be modified by your staff for final use - holes, cutouts, painting, and more. Hammond Manufacturing can affordably provide ready to use enclosures to your specifications, saving you the additional labour time and cost.

Modification services:

- Durable Powdercoat Paint Colours - Hammond standards, RAL and custom colour matching
- Laser/CNC Holes & Cutouts - conduit openings, pushbutton holes, equipment cutouts, etc.
- Mounting options - various studs, strut, tapped holes, etc.
- Dimensional changes
- Accessory assembly - windows, handles, lighting, climate control, etc.

Contact your Hammond Distributor or visit us online at www.hammondmtg.com for all your enclosure needs.

HAMMOND MANUFACTURING

Hammond Manufacturing Co. Ltd
334 Edouard Road North
Guelph, Ontario N1H 1E5

Tel: (519) 822-9960 or (905) 456-3770
Fax: (519) 822-0715
sales@hammond.com
www.hammondmtg.com

Quality Canadian Products





Full steam ahead for NETcomm Prairies 2010

Following the success of its Saskatoon event in 2009, the NETcomm Prairies 2010 Conference & Exhibition is coming to Regina, Sask., April 6-7 at the Delta Regina.

NETcomm is also very excited to announce that SaskTel has returned as Presenting Sponsor of the two-day event.

NETcomm Prairies combines a trade show-like forum with educational seminars related to all aspects of communications networks and connectivity solutions. Delegates consist of contractors, installers, integrators, designers, engineers, etc., whose job it is to make sure that the communications upon which we rely actually works!

And, for the first time at a NETcomm event, we will be conducting a Skills Challenge, complete with prizes and boasting rights for the winners!

NETcomm Prairies 2010 is **the event** for communications pros, and those who serve them, in Canada's Breadbasket. Visit www.netcommshow.ca for more information, including exhibition and sponsorship opportunities.

Health Canada says glass shards are CFL's only danger - EEMAC agrees

The Lighting Section of Electrical Equipment Manufacturers Association of Canada (EEMAC, www.electrofed.com) says it supports (understandably) Health Canada's assertion that the only health risk associated with a broken CFL is being cut by glass shards.

This stems from a Health Canada report "Survey of Ultraviolet Radiation and Electric and Magnetic Fields from Compact Fluorescent Lamps", whose findings put to rest any speculation, says EEMAC, that CFLs cause harm to the general public. (Apparently, there has been some concern over exposure to UV radiation and electromagnetic fields (EMFs) that CFLs produce. This Health Canada report dismisses these concerns.)

"The report and findings from Natural Resources Canada and Health Canada should reinforce CFLs value to consumers and stem any negativity associated with

ultraviolet (UV) radiation and electromagnetic fields (EMFs)," says EEMAC.

Power Survey continues growth with new facility

With operations in North and South America, Africa and the Middle East, Power Survey International (www.powersurvey.com) says it has been in a growing mode for the last few years. To support that growth, two additional factories needed to be established in Montreal. To that end, the company has moved its HQ to a 30,000-sf plant

in Montreal.

Power Survey manufactures low- and medium-voltage capacitor banks, harmonic filters, customized switchgears and cable simulators. With three factories under one roof, the company says it will be able to better serve its customers, allow for continuous future growth, and increase manufacturing capabilities.

Revolutionary.

Install. Insert. Rotate. Done.

DIRECTOR

Introducing the latest teck fitting revolution! STAR TECK EXTREME **DIRECTOR**™ — the first truly adjustable, range-taking teck fitting for termination applications requiring angle adjustments.

- Adjusts from 90 to 180 degrees
- Trouble-free cable insertion
- Requires no disassembly
- Can be easily disconnected once installed
- Reduces installation time by up to 50%*

*Compared to 90-degree elbow and LB conduit body installation.

- NEMA Type 4, 4X

What's more, like all STAR TECK® fittings, the STAR TECK EXTREME DIRECTOR™ fitting is manufactured in Canada for Canada. Be a part of the revolution! Check out the STED™ for yourself at your local electrical distributor.

www.tnb-canada.com

Thomas & Betts

Government of Canada supports apprentices in Saskatchewan

More than 630 Saskatchewan apprentices have taken advantage of the Government of Canada's Apprenticeship Completion Grant, while another 5800 are receiving the Apprenticeship Incentive Grant.

"Financial support for apprentices certainly helps them make ends meet, but it also provides a much-valued endorsement of their post-secondary education path and career decisions," said Dr. Robert G. McCulloch, president and CEO of the Saskatchewan Institute of Applied Science and

Technology (SIAS). "In addition to offering 159 certificate, diploma and degree programs, SIAS provides technical training to apprentices in 26 trades."

Under Canada's Economic Action Plan, the Apprenticeship Completion Grant is a \$2000 grant for apprentices who have completed their training in a designated Red Seal trade and have received their journeyman certification. The feds also offer the Apprenticeship Incentive Grant, which is a grant of \$1000 per year for registered apprentices who have successfully completed their first or

second year/level of an apprenticeship program in a Red Seal trade. The maximum amount an individual can receive is \$2000.

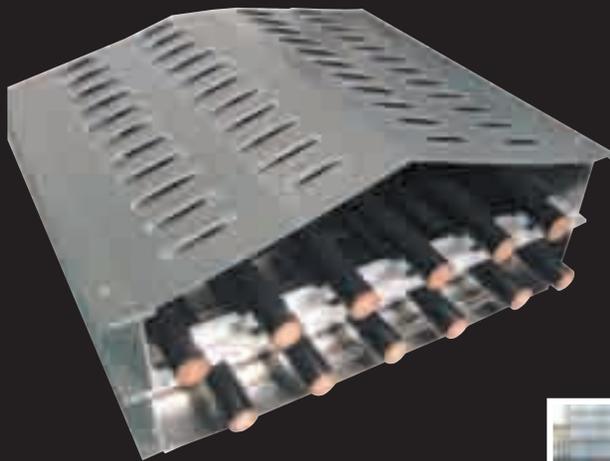
By combining the two apprenticeship grants, apprentices who complete their training and become certified journeymen in a designated Red Seal trade could receive a total of \$4000.

Visit Service Canada at servicecanada.gc.ca/apprenticeship to learn more about applying for apprenticeship grants.

MAXIAMP®

CABLE BUS SYSTEM

The Most Technically Advanced Electrical Power Delivery System



- Free Air Ampacity Rating in ABOVE and BELOW GROUND Installations
- Up to 8000 AMP / 600 V to 230 kV
- Reduced Power Losses
- Lowest Cost System
- Suppresses EMF's
- Expandable Enclosure
- Easy & Quick Installation
- Underwater Installations



Patent Pending



Replaces BUS DUCT, ARMoured CABLE IN TRAY, UNDERGROUND DUCT BANK, DIRECT BURIED and CONDUIT SYSTEMS

United Wire & Cable's expertise in cable and enclosure design, manufacture and application engineering ensures a reliable, versatile and cost effective MAXIAMP cable bus system.

For further information please email us at: sales@unitedwmc.com
Tel: (905) 771-0099 or 1-800-265-8697 • Fax: (905) 771-1658 or 1 800-461-4689 • www.unitedwmc.com

Going to great lengths to serve you



United Wire & Cable

Electrical Business



MEET you in Moncton for MEET 2010

MEET (Mechanical Electrical Electronic Technology) returns to Moncton, N.B., for its 19th edition, May 5-6, and once again, Electrical Business is serving as the **Official Electrical media** show partner!

This show has become Atlantic Canada's most inclusive event, giving visitors a unique opportunity to network and compare the latest products and services available. The Moncton Coliseum again serves as the official venue for this event, with floor space for hundreds of exhibitors showcasing innovative products. Moncton, itself, is strategically located, attracting visitors from all three Maritime Provinces... and beyond!

MEET is more than just a trade show. Along with its four sponsoring associations (Electro-Federation Canada [EFC], ASHRAE, CIPH and Illuminating Engineering Society [IESNA]), MEET is committed to offering a strong educational component. This includes thought-provoking and topical seminars complementing the trade show.

Visit EBMag.com for updates, or the event website at www.meet2010.ca.

Visit **EBMag.com** and click **Calendar** to see an extensive list of upcoming events.

You may have noticed this VIDEO ICON (the movie camera) in the pages of *Electrical Business* and wondered what it's all about. Wonder no more! When you see the VIDEO ICON next to an item in the magazine, it means there is an associated video on our website. Be sure to check it out!
Visit www.EBMag.com and click **VIDEOS**.

Electrical Safety, Technical and Mega Projects Workshop
IEEE IAS (Industry Applications Society)
March 29-31, Calgary, Alta.
Visit ewh.ieee.org/cmte/ias-esw/ESW2010.html

Infrared Training Centre (ITC) 2010
January – June, various locations
Visit EBMag.com to download schedule

Workplace Electrical Safety Workshop Based on CSA Z462
Various dates/locations
Visit learningcentre.csa.ca



NETcomm Prairies 2010 Conference & Exhibition
Presenting Sponsor - SASKTEL
April 6-7, Regina, Sask.
The PLACE TO BE if you are involved in purchasing, designing, installing, integrating or maintaining communications infrastructure!
Visit www.netcommshow.ca

AGM & Business Program
Electro-Federation Canada (EFC)
April 8, Brampton, Ont.
Visit www.electrofed.com

Light+Building
April 11-16, Frankfurt, Germany
Visit light-building.messefrankfurt.com

Upper Midwest Electrical Expo
North Central Electrical League (NCEL)
April 14-15, Minneapolis, Minn.
Visit www.ncel.org

Transmission & Distribution Conference & Exposition
IEEE Power & Energy Society (PES)
April 19-22, New Orleans, La.
Visit www.ieeet-d.org

Electrical Safety and Reliability Conference & Exhibition
PEARL (Professional Electrical Apparatus Recyclers League)
April 24-26, Denver, Colo.
Visit www.pearl1.org

International Open Shop Contractors Conference
April 29 - May 1, Kelowna, B.C.
Visit www.meritalberta.com/iosc6/iosc6_main.html

BICSI Canadian Conference
May 2-5, Montreal, Que.
Visit www.bicsi.org

Partners in Prevention
(Previously Health & Safety Canada)
May 3-5, Mississauga, Ont.
www.partnersinpreventionontario.com



Electrical Business
***Exclusive Media Partner - Electrical MEET Show**
(Mechanical • Electrical • Electronic • Technology)
May 5-6, Moncton, N.B.
Visit www.meet2010.ca

Electrical Industry Conference
Ontario Electrical League (OEL)
May 5-8, Collingwood, Ont.
Visit www.oel.org

ENEX: Energy Excellence
(Energy Efficiency Best Practices)
May 10-12, Hamilton, Ont.
Visit www.energyexcellence.ca

Lightfair
May 12-14
Las Vegas, Nev.
Visit www.lightfair.com

Annual Ontario Energy Industry Spring Networking Evening
Ontario Energy Network (OEN)
May 13, Toronto, Ont.
Visit www.ontarioenergynetwork.com

National Electrical Leadership Summit, NAED
(National Association of Electrical Distributors)
May 15-19, Chicago, Ill.
Visit www.naed.org/meetings/national

16th Canadian Skills Competition
Skills/Compétences Canada (S/CC)
May 20-23, Waterloo, Ont.
Visit www.skillscanada.com

Regional Solar Conference
CanSIA
May 25-26, Calgary, Alta.
Visit www.cansia.ca

Home & Builders Electrical Expo
BCEA (British Columbia Electrical Association)
June 1, Kelowna, B.C.
Visit www.bcea.bc.ca

Annual Conference
Supply & Distribution Council (S&D), Electro-Federation Canada (EFC)
June 2-5, Kelowna, B.C.
Visit www.kelownabound.blogspot.com

Annual General Meeting
IED (Independent Electrical Distributors)
June 14-16, Jasper, Alta.
Visit www.ied.ca



Electrical Business
Media Partner!
Smart Grid Interoperability Summit
June 15-16, Toronto, Ont.
Visit www.strategyinstitute.com

www.northerncables.com

northern cables
INCORPORATED

Canadian manufacturer specializing in
AC90 (Cu & Al) ACWU90, TECK90, MCTHHN, ACTHH, HCF

getwired.

P.O. Box 1564, 50 California Avenue, Brockville, ON K6V 6E6
Tel: 613.345.1594 Fax: 613.345.3147 Toll Free: 1.888.524.5050

Electrical community players included in Canada's 50 Best Managed 2009

"This is a very prestigious recognition, which really confirms that Standard is in the Best-of-Class amongst a wide range of Canadian businesses," said David Nathaniel, president and CEO of Standard Products Inc. "We believed this to be the case internally, and so we are thrilled by the result and what it means going forward!"

After opening up their books, operations and

management to careful scrutiny, 50 of the country's leading private organizations have the distinction of being recognized as one of Canada's 50 Best Managed Companies for 2009. These companies, spanning every region across the country and an array of industries, have demonstrated business excellence through a rigorous and independent process that evaluates the calibre of their management abilities and practices.

"Collective vision, shared pride and operational



David Nathaniel, president and CEO of Standard Products Inc.

excellence are the key drivers that sustain and propel us forward," said Tim Horsman, executive vice-president of E.B. Horsman & Son, one of 2009's winners. "The culture at E.B. Horsman creates a passionate workforce that continually strives to improve customer service, profitability, and employee satisfaction. Our team is dedicated to success, are the very best at what they do and I am simply proud to work with them as we create our future!"

Last year, these 50 Best Managed Companies generated \$9.8 billion in combined revenue, had an average revenue increase of 23% and employed over 39,000 Canadians.

"In tougher economic times, great management shines," said John Hughes, Deloitte partner, private company services, and national leader of Canada's 50 Best Managed Companies Program. "One of the most impressive aspects of this year's award recipients is the commitment by management teams and employees to work in concert to develop innovative ways of tackling their company's strategic issues in the face of a reset world."

"As I've mentioned in the past, this award is not earned without the complete dedication and involvement of all staff within our organization. From the reps on the floor of our showrooms, to those working the phones in inside sales—from the drivers out on the job site, to the friendly faces at our Express counters—they have all had a hand in being recognized once again," said Ross Robinson, president of B.A. Robinson Co. Ltd., one of the companies that requalified its 50 Best status.

Here, then, are the 2009 winners from our electrical industry. Congratulations!

B.A. Robinson Co. Ltd. (Winnipeg, Man) - Requalified*
B.A. Robinson is a fully diversified distributor of plumbing, lighting and electrical products to the construction



Don't settle for a locking device, **DEMAND HUBBELL TWIST-LOCK®** and you could *Win a Cruise for 4!*

When you buy \$100.00 worth of Hubbell Twist-LOCK® devices you will receive a ballot to complete and deposit right at the counter.

Your name will be entered in a **GRAND PRIZE** draw for a **CARIBBEAN or ALASKAN CRUISE.**




Additional Weekly Prizes





Contest begins on April 15th, 2010 @ 12:00AM and ends June 10th, 2010 @ 11:59PM

1. Entering Contests and Choosing and Contacting Winners
Winners of random email contests will be chosen at random from entries received. Entrants must send entries using the correct contest entry form, and any other specific entry information requested in the contest announcement. Hubbell Canada LP is not responsible for and will not consider incomplete or incorrect entries, or entries sent but not received by Hubbell Canada LP for any reason, as potential contest winners. Winners of all contests will be contacted at the "sender" email address and/or phone numbers used to enter the contest and the person receiving and replying to the winner announcement email will be considered the winner unless they specify another person within the reply as the winner. Hubbell Canada LP will mail the contest prize to the address of the contest entry. Claiming of prizes requires an email and/or phone response to Hubbell Canada LP from the winning sender email address and/or phone number within 15 days of being notified of winning at the email address and/or phone number used to enter. Failure to respond shall mean that the winner forfeits the prize. Hubbell Canada LP is not required to award elsewhere any prizes forfeited by the chosen winner(s).

2. Awarding Prizes
Winners are solely responsible for all taxes and/or fees that may be incurred. All prize winners are required to verify proper and legal picture identification within 30 days of notification of winning the cash prize. Winner may forfeit any and all cash winnings if verification cannot or has not been made within 30 days. Upon proper verification, prize winnings will be awarded at the place of entry, and mailed to winner's mailing address within seven (7) business days. Each prizewinner must supply Hubbell Canada LP with his/her legal name, mailing address, birth date, email address, company name, day time and nighttime telephone numbers and proof of purchase. Winners may not request substitutions of prize winnings. All winners are solely responsible for any and all taxes and/or fees, and all such additional costs that may be incurred. Neither Hubbell Canada LP, Hubbell Canada LP sponsors, nor employees of Hubbell Canada LP or sponsors may be held liable for any warranty, costs, damage, injury, or any other claims incurred as a result of usage of any winners of a prize once possession has been taken of the product by winner. Hubbell Canada LP is not liable for any loss arising out of or in connection with or resulting from any contest promoted by Hubbell Canada LP. If the specified prize becomes unavailable due to unforeseen circumstances, Hubbell Canada LP may substitute a prize of like or equal value.

Management, employees and families of Hubbell Canada LP are prohibited from winning any prizes awarded by Hubbell Canada LP.

industry and retail home improvement market in Western Canada, operating from over 20 distribution warehouses and showrooms. Visit www.barobinson.com.

Cahill Group of Companies (St. John's, Nfld.)

Established in 1953 as an electrical contracting company, GJ Cahill has evolved into one of the largest multi-disciplinary construction organizations in Atlantic Canada. Visit www.gjcahill.com.

E.B. Horsman & Son (Surrey, B.C.)

E.B. Horsman is an independently owned and operated British Columbia-based distributor of electrical supplies. Its primary customers are contractors, OEMs, industrial end users, institutions and systems integrators. E.B. Horsman has been in business for 110 years, and has 17 locations and 165 employees throughout the province. Visit www.ebhorsman.com.

First Energy Capital (Calgary, Alta.)

Since its inception in 1993, FirstEnergy Capital Corp. has grown to become a leading investment dealer focused on Canada's energy sector, including electricity generation and energy technologies. Visit www.firstenergy.com.

Groupe Deschênes Inc. (Montreal, Que.)

Deschênes Group Inc.'s subsidiaries are active in distributing electrical and industrial supplies, fire protection products, heating controls, etc. Deschênes Group Inc. has eight operational centres, over 90 outlets across Canada, and a workforce of more than 1300 employees. Visit www.groupedeschenes.com.

Ideal Supply Co. Ltd. (Listowel, Ont.) - Requalified*

Founded in 1926, Ideal Supply is a distributor of electrical supplies and NAPA Auto Parts with 25 locations in Ontario. Visit www.idealsupply.com.

JV Driver (Leduc, Alta.)

JV Driver has been providing industrial construction services to the oil & gas, energy, petrochemical, forestry, and mining sectors since 1989. JV Driver self-performs all electrical services, and partners with select electrical subcontractors who share its philosophies. Visit www.jvdriver.com.

Standard Products Inc. (St. Laurent, Que.)

Standard provides lighting solutions to Canada's commercial, industrial, and residential markets, and continually seeks out advanced lighting technologies that address market concerns. It has a national infrastructure of 16 sales offices and distribution centres, the latter located in Montreal, Toronto, Edmonton and Vancouver. Visit www.standardpro.com.

Tarpon Energy Services(Calgary, Alta.)

Tarpon Energy Services Ltd. is a leading supplier of products and services to the global oil and gas market. Tarpon's Electric & Controls division is one of the largest electrical and instrumentation contractors in Western Canada, providing a complete service solution from design and engineering to procurement, construction, installation and maintenance. Visit www.tarponenergy.com.

"To be recognized once again with the Best Managed company award demonstrates the depth of pride and commitment throughout our entire organization to the highest standards of professionalism in order to ensure success for our customers, employees and suppliers," said Ideal Supply Co. president and CEO, Tim MacDonald.

To learn more about the characteristics and common themes exhibited by this year's winners, check out the full story at EBMag.com (under Industry News). **EB**

Now You're Talking!

LIMITED TIME Special Extech Instrument offer with the purchase of a new FLIR IR Camera!







METERLiNK
Bluetooth

METERLiNK™ is an exclusive wireless technology that records essential meter readings at a job site directly on your infrared images. METERLiNK™ connects your FLIR with select Extech meters via Bluetooth, transmitting readings that add value and insight to your infrared inspections and reports. Get connected and take advantage of FLIR's exclusive METERLiNK™ today.

Receive
a **FREE**
Extech
EX845

with the purchase
of a FLIR T-Series
camera.

Pay only
\$**250** for
an Extech
EX845

with the
purchase of
a FLIR i60.



Get an expert demo **NOW!**

866-937-2622

www.WESCO.ca

or visit: <http://extech.com/instruments/video.asp>

i60

Now with
Voice!

Offer valid on purchases made **April 1 - June 30, 2010** through WESCO Distribution.



Hard hats and jerking knees... again



My column regarding foam-insert hard hats seems to have created a bit of controversy (EBMag Dec/January 2009/10, "Heads up and hats off with foam inserts"). I received an email from an individual who was concerned my column may be misconstrued. He writes:

I am very worried that your article will [push] the electrical community to [a] knee-jerk reaction, and many workers—as you say—[may] exercise the right to refuse unsafe work.

In that column, I advise that when you are wearing a foam-insert hard hat inside the Limited Approach Boundary or Flash Protection Boundary, you should ensure that it has been arc flash or flame-resistant tested. Since there is presently no standard for testing these materials, this cannot be done.

A sidebar to the article referenced a video clip of a foam-insert igniting and melting the plastic hard hat. The result was a hard hat that dripped to the floor around the test mannequin.

Critics of the video have focused on the fact that it showed a 15-calorie test, claiming it is invalid because, with 15-cal exposure, you would be required to wear Category 3 FR clothing. (Which, by the way, is absolutely correct if you knew you were being exposed to 15 calories of incident energy. If you identify the incident energy as 15 cal, then you definitely need to be in a Category 3 suit with a minimum rating of 25 cal, plus other PPE listed in Table 5, page 48 of CSA Z462, "Workplace Electrical Safety".)

But if you thought you were being exposed to a Category 0 HRC (based on the tasks in Table 4, page 43, or incident energy below 1.2 cal, as stated on an equipment label), then the present industrial standard is to only wear a hard hat and safety glasses. If that hard hat was of the foam insert variety, you would have a risk.

The first step prior to doing any electrical work is to perform a Hazard/Risk Evaluation (pg 22, 4.1.7.6 and pg 99, Annex F). You need to understand that, when the incident energy at 18 in. from the source of the energy is determined

IDEAL

TEST & MEASUREMENT SOLUTIONS!

60 years of experience designing & manufacturing Test & Measurement products that contractors demand.

ELECTRICIANS CHOOSE IDEAL

- Digital Multimeters
- Thermal Imaging
- Light Meters
- Clamp Meters
- IR Thermometers
- Power Quality Analyzers
- Voltage Testers
- Insulation Testers
- Circuit Tracers and Analyzers

Test & Measurement
www.idealindustries.ca
1-800-824-3325

I do not espouse knee-jerk reactions, but I'm all for some kind of reaction...

to be 1.2 cal then, as you move closer to the source, the incident energy would— theoretically— increase by the inverse of the distance squared ($1 \div \text{distance ratio}^2$).

So at 9 in., the distance decreases by half (9 in. versus 18 in.), and the incident energy shoots up to 4.8 cal. At 5 in., the incident energy rockets up to 15.6 cal! These distances are easily achieved when you lean forward to take a close look at something while troubleshooting an energized circuit. When that happens, trust me— your exposure is no longer a mere 1.2 cal.

In addition, when you are working downstream from an older circuit breaker that's out of spec, you would have no idea: a) how fast that circuit breaker would actually operate, or b) whether it actually can operate.

Several years ago, members of NETA (InterNational Electrical Testing Association) conducted a study in which they performed tests on 34,000 circuit breakers; of those, 10.5% did not operate at all, and a further 23% did not open within their specifications.

This means that 33.5% of 34,000 breakers would constitute a serious hazard to any worker working downstream who is also relying on an arc flash hazard study that says 1.2 cal or task tables indicating Category 0.

So why is this 15-cal video clip valid? Because 1.2 cal at 18 in. and 2 cycles of clearing time becomes 19.2 cal by leaning in within 9 in. of equipment protected by a device that takes 8 cycles to open.

There is chaos and uncertainty within all of the arc flash work we do. Our equipment is getting older and older. You know the age of the equipment you face every day, and you know the last time it was properly maintained. Even when you go into a facility whose maintenance history is a mystery, it does not take you very long to get an understanding of what it looks like, smells like, feels like and sounds like.

In truth, I am astounded that anyone would be react negatively to that column; it is a slam dunk that you do not wear melting materials on your body when you may be exposed to energized electrical systems. I do not espouse knee-jerk reactions, but I'm all for *some kind of reaction...* preferably one that leads to action.

Let's face it... every safety intervention has had its opponents and detractors: steel-toed boots are too heavy; hard hats make you bang your head; safety eyewear

is a scratchy waste of time; gloves are bulky; FR clothing is hot; if we do this, our productivity will suffer... ad infinitum, ad nauseam!

Kurt Lewin's Force Field Analysis shows that, for every good intention, there will be a force that opposes it, and the former must possess greater force to override the negativity of the latter. It has taken many deaths, disfigurements and amputations to get electrical safety to where it is today.

But there's more to do.

Arc flash danger is based on time, current and distance, and to turn a 1.2-cal danger into a 15-cal flash, it takes two things: move in closer, and have a poorly operating protective device. Regardless, if it can melt (like the foam insert), keep it away from your electrical systems.

Until next time, be ready, be careful and be safe. © **EB**

Canada Training Group has been providing consulting services to industry since 1980; Dave Smith, the president, can be reached at davesmith@canada-training-group.ca. At www.canada-training-group.ca, you will find this article (and others) available to you. Feel free to use them to support your own safety program and other initiatives.



canada
training group

**Training
Calendar**

5 Day Course:
Maintenance and Testing of Low and Medium Voltage Circuit Breakers

Circuit breakers have enjoyed a very high profile since NFPA 70E and CSA Z462 have made their regular maintenance a mandated requirement.

Arc flash studies and label information are based upon breakers opening up within their specifications. If a breaker is not properly maintained it will not open correctly, or perhaps at all, and whatever PPE is listed on the label is immediately under rated.

When breakers fail, the explosions are catastrophic, with injuries, damages and downtime quickly costing millions of dollars. This training course is designed to give plant maintenance personnel hands on experience with inspection, testing and maintenance of common breakers.

Through class discussion and hands-on labs using industrial circuit breakers and specialized test gear, participants will clearly understand how to fulfill the requirements of CSA Z462 and NFPA 70E to keep their systems, companies and most importantly their personnel properly protected.

April 26, 2010	Fort McMurray, Alberta	OR10003
September 20, 2010	Edmonton, Alberta	OR10029
October 25, 2010	Saskatoon, Saskatchewan	OR10037

This course is also available privately onsite anywhere in North America, call the number below to schedule one for your organizations maintenance team

1-800-661-1663

For full schedule information visit
www.canada-training-group.ca/eb

A tradition
of innovation.



STAR TECK®

A pioneer in the design of teck cable fittings, the **Thomas & Betts STAR TECK®** product line remains an indisputable industry standard to this day.

All **STAR TECK®** fittings are designed and manufactured in Canada for Canada.

STAR TECK® cable fittings.
A tradition of industry firsts.

Thomas & Betts



Duty of fairness restored in tender situations

After nearly a year's wait, the Supreme Court of Canada released its decision in *Tercon Contractors v British Columbia Ministry of Transportation*,¹ in which it essentially declared: a) that the duty of fairness applies in RFPs as well as tender situations; b) an exclusionary clause must be reviewed on its own merits to determine whether it

can function to set aside the usual duty of fairness; and c) the Contract A/B form of analysis subsists. That analysis requires the owner or others submitting a request for tender to treat all those submitting tenders fairly; specifically, they cannot apply undisclosed rules or criteria when judging those bids ([2010] SCC 4).

The majority of the court also ruled that this

decision should settle the issue "once and for all".

Background to Tercon case

This case involved a road construction project for which BC's Ministry of Transportation issued calls for tender. Of the six bids received, not one came even close to budget, so the ministry withdrew the project, redesigned it, and reissued it as an RFP, advising all concerned that only bids from the six original tenderers would be considered.

The RFP contained an exclusionary clause to the effect that the mere submission of a bid constituted a release of any claim against the Crown as a result of participating in the tender.

One of the original bidders entered into a joint venture with a company that specialized in certain aspects of the work, enabling him to reduce his price. He, not Tercon, was subsequently awarded the work.

Tercon conclusion

The court held that, in interpreting such a clause, it should first be reviewed to determine whether it actually applied to the persons and situations under review by looking at both the facts of the situation and the rest of the contract under review.

The evidence was that the BC Crown knew perfectly well of the facts surrounding the joint venture and proceeded to award the contract anyway. Indeed, there was evidence they 'covered up' the facts.

The concepts that only compliant bids will be considered, and the implied obligation to treat all bidders fairly, are factors that contribute greatly to integrity and business efficacy. By submitting their joint venture bid, the bidder—who wasn't Tercon—had submitted an unqualified bid which was incapable of acceptance.

It is to be hoped that this definitive pronouncement will finally settle the question, and eliminate debate on the adequacy or acceptability of any tender. **EB**

Stephen Tatrallyay is certified by the Law Society as a specialist in Construction Law, and has been president of the Canadian College of Construction Lawyers (CCCL) and both the National and Ontario branches of the Construction Law Section of the Bar Association. He practices in Stratford, Ont., and can be reached at (519) 271-6360 or statrallyay@rogers.com.



As the recognized leader in the lighting industry, our mission is to deliver consistently superior value to our customers. This commitment is a part of everything we do, driving us to continuously develop and improve our products and the processes to fulfill your need for quality lighting solutions.

Please contact your local Acuity Brands representative with questions. For more information, visit www.AcuityBrands.com

© 2010 Acuity Brands, Inc. All rights reserved.



PEERLESS

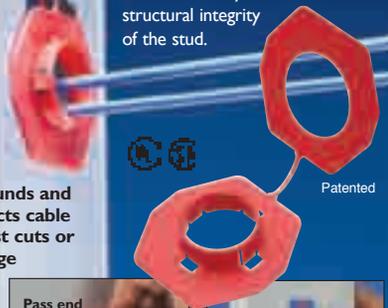


ONE SIZE SB

FITS ALL PRE-CUT METAL STUD HOLES

Arlington's time-saving **SB13 Stud Bushing** fits any pre-cut metal stud hole!

With no holes to punch, you'll save time and money, and maintain the structural integrity of the stud.



SB13 surrounds and protects cable against cuts or damage



Pass end through hole

Snap both pieces together



800/233-4717 • www.aifittings.com

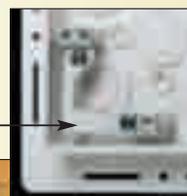
ONE & TWO PIECE

FIXTURE BOXES FOR SIDING

Arlington's boxes give you the fastest, easiest way to install light fixtures and receptacles on siding!

BOTH 808IF & 814IF OFFER:

- Ground clip for fixture installations
- UV rated plastic
- Textured, paintable finish
- Installation before or after siding's up



Patented. Other patents pending



814IF VS 808IF
Fixture Box vs Electrical Box

One-piece
 No extracover to lose or store
 For light fixtures

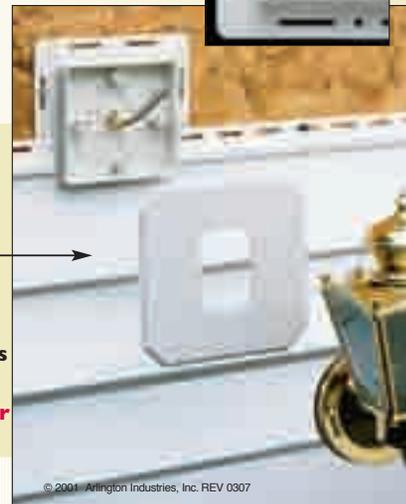
Two-pieces
 Electricalcover and box
 For light fixtures & standard receptacles

Costs 20% Less than 808IF!

Both come with NM Cable connector



800/233-4717 • www.aifittings.com



© 2001 Arlington Industries, Inc. REV 0307

CSA LISTED
 BOX EXTENDERS for SET BACK ELECTRICAL BOXES



BE1

© 2001-2010 Arlington Industries Inc.

Our **CSA/UL Listed** Box Extenders extend set back electrical boxes up to 1-1/2".

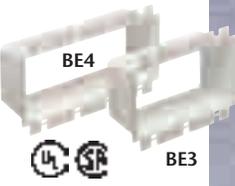
Made of heavy-duty, non-conductive plastic, they level and support wiring devices, and protect wires against damage and stripping.

BE1R for round or octagonal boxes, the single (BE1), two-gang (BE2) for all standard devices, switches and GFCIs - **and now three- and four-gang box extenders for multiple gang boxes!**



BE1R

© 2001 Arlington Industries, Inc.



Try them all for the safe, easy way to meet CEC 12-3018 (I) for flush boxes!

800/233-4717 • www.aifittings.com

for OUTDOOR FIXTURES & DEVICES

GARD-N-POST™

ENCLOSURES & SUPPORTS



Arlington's Gard-N-Post™ enclosures and supports offer the attractive, safe, and easy way to install a light fixture and/or one or two devices outdoors!



(Note: minimum 120v line)

GP19, GP26, GP37 our most popular sizes, come with a separator so you can install power and low voltage outlets outside - in the same post.

- Non-metallic, heavy-duty UV rated plastic
- Damage resistant
- No chipping or loss of color
- GARD-N-POST - in a variety of styles from 9" to 72" tall



Four coordinating colors!



Arlington

www.arlnew.com/gp 800/233-4717 • www.aifittings.com

Smart grid outlook 2010

By Andy Zetlan



The term 'smart grid' has so many definitions that it is often difficult to find industry experts who can agree on trends in the industry. However, based on our work at Telvent with hundreds of utilities in North America and around the world, we have found several trends that should continue to drive activity in 2010. We base these observations on our own straightforward definition of smart grid, which is:

An integrated toolset to efficiently plan, design and reliably operate the grid in a sustainable manner.

While there are many factors that affect grid development—such as a diverse customer base, cost of power, operational hurdles of increasing demand to a stressed delivery network, and peak demand management—we believe one of the most significant factors driving smart grid trends in 2010 will be the shift in government regulations. Government regulation is evolving away from creating general mandates and moving toward judging the business and social benefits of additional smart grid investments suggested by utilities. It is likely those investments will fit the trends described below.

More customer-centric technology

Utilities will continue to invest in customer-centric technologies, including smart meters, home-based smart devices, demand-response devices and associated networks. Some of these are mandated by government regulation (as in Canada) while other utilities are aggressively pursuing these investments to enhance customer communication, to better understand consumption patterns, and to enable demand response. Dozens of requests for proposal, contract announcements and implementation projects have been initiated over the past two years, and that trend is likely to continue for at least two more, as many of the projects will be completed within that period.

Better analytics to reduce operations costs

Utilities are beginning to understand that analytical engines such as Distribution Management Systems (DMS) will bring detailed knowledge about distribution networks that has not existed in the past. Dispatchers will be able to manage the network to avoid overloads, balance loads, manage voltage and determine the most effective use of demand response (at peak and at other times).

In addition, DMS enables stronger outage management capability and identifies potential loss points for investigation. Up to now, there has been a rush to collect data from the field, which has led to a massive surge in the demand for smart meters and other devices. Utilities now understand that

a better approach is to install measurement devices in conjunction with analytic software; they not only measure but provide intelligence regarding the operation of the network in real-time and into the future.

The recent use of DMS software at Progress Energy and the University of Michigan in the United States (and at several utilities worldwide) demonstrates this trend.

Data management and security

The smart grid brings with it a great deal of additional data to manage, plus many additional attributes and data types. New assets like smart meters and smart switches will be added, and information must be maintained about those devices. Data will be collected from those assets more frequently than they are today, and will raise challenges for managing the data for many uses.

Utilities will start to deal more aggressively with the reduction of the number of databases to ensure the integrity of the data that is maintained, including automating work processes that update asset information. Also, government regulation and common business practice will force a dramatic rise in the attention given to security of both the data and of the devices that collect it.

Utilities will focus smart grid efforts on business benefit

Until now, the priorities for the smart grid were often set by government regulators. Once these initial investments are completed, however, utilities will continue with incremental investments that provide strong business benefit. For some utilities, the investment will result in cost savings, such as the cancellation of power plant construction or of circuit reconstruction to handle increasing demand (for example, the influx of electric vehicles and their charging stations).

For other utilities, increased reliability, reducing outages and interruptions, and managing voltage carefully to improve quality of service will be the objective. And, for others, success will be defined by stronger customer interaction, which will provide both new revenue and conservation opportunities, and change the demand patterns to enable growth of consumption without significant investment.

In all instances, these changes

will provide the ultimate benefit of added sustainability to our already fragile environment.

New technology to monitor distribution network

Utilities will add technologies to more closely monitor the distribution network to enhance its management and integrity. Coupled with DMS analytical functionality, SCADA systems will grow through additional Remote Terminal Unit (RTU) deployments to provide a more comprehensive view of the power delivery network.

Because voltage management will require RTUs to employ more precise sensors, the industry is responding with the development of smart RTUs; the addition of motorized switches in conjunction with those RTU deployments will enable the level of 'self-healing' that improves the integrity of the power delivery network.

Of course, utilities will have to deal with the challenges that these smart grid advancements will bring. For example, traditional 'silo' functions in utilities will need to integrate more effectively. Customer service, system operations, engineering, maintenance and other functions will be collaborating on smart grid issues in a manner that is different than traditional work practices of the past, and may, as a result, be one of the more difficult goals to achieve.

Utilities will simply have to organize themselves around important business processes (new service design and

Business benefit, data, analytics and customer-centric technologies ahead

deployment, outage management) while retaining traditional organizations to cultivate and grow important skill sets.

Intense growth ahead

The smart grid era is driving significant changes to utilities and their customers, and these trends provide a level of understanding of where we are today and what to expect in 2010—and beyond. The next few years should be, as a result, a period of intense growth and change in an otherwise unchanging industry. **EB**

Andy Zetlan has more than 35 years of utility industry experience and an advanced knowledge of smart grid technology. As a Telvent smart grid industry expert, he is a frequent speaker at industry conferences and has served as a professor of GIS technology at the University of Delaware. You can reach him at azetlan@telvent.com. For more information, visit www.telvent.com.



Smart Grid

Interoperability Summit

Tuesday June 15th and Wednesday June 16th 2010 | Delta Toronto East | Toronto, ON

- Integrate Communication
- Prepare for Regulations
- Source New Technologies

- Maximize Security
- Overcome Silos
- Meet Compliance

REGISTER TODAY!

Space Is Limited and Sure to Sell Out

Call: **1-866-298-9343** or
email: registrations@strategyinstitute.com today.
Website: www.strategyinstitute.com



Sponsors:



Media Partners:



✉ **Plug-n-play not meant to replace electricians**

I was very interested in your editorial regarding plug-n-play in the electrical installation industry (EBMag February 2010, "Is electricity ever plug-n-play?"). The term 'plug-n-play' is also being bantered about in the heavy industrial installation industry.

Technically, it pertains to the same type of technology—namely, end devices with 'plug-in' receptacles and connecting cables with pre-terminated connectors. The intention is to reduce expensive installation/termination hours in the field with far less costly hours in a shop where the receptacles and connectors would be installed.



The savings from the use of the plug-n-play in the field instead of

the typical cable glands and terminal strips would more than pay for the installation of the receptacles and connectors in a controlled shop environment. This new plug-n-play technology is not meant to remove electrical work from trained electricians, but to move the work to more economical locations.

I agree that this move to more efficient termination procedures (such as that being touted in the solar industry) should not be seen as an opportunity to move work away from properly trained electricians who are responsible for the proper installation of the equipment.

While policing the Average Joe homeowner electrician is an ongoing issue with the local inspection departments, it should not hinder the ongoing effort to make electrical installations as efficient as possible.

*George Morlidge, Chief Electrical Engineer
Subject Matter Expert, Codes and Installations, Fluor Canada Ltd.*

✉ **Electricity demands electrical workers**

Just read your Editor's article re. CanSIA—great job! There are too many backyarders and salesmen just trying to get product out there and installed cheaply. The solar industry, if anything, needs higher standards than normal electrical work because it can be more dangerous—big battery banks, a power source that's not easily turned off (the sun!), working on roofs, etc.

*Erhard Hermann ME, REC
Boyd Solar Corp.*

✉ **UPDATE**

In our March issue, we ran a story on Millennium Water, site of the 2010 Olympic and Paralympic Village, which employs a strategic, I/O-driven energy-reduction plan. It is situated in the Southeast False Creek development—a reclaimed industrial brownfield—and the developers were seeking Leadership in Energy and Environmental (LEED) Gold certification.

In February 2010, the Southeast False Creek development area was certified LEED ND Stage 2 Platinum from the U.S. Green Building Council (USGBC, www.usgbc.org). Meantime, all Millennium Water residential buildings earned LEED Gold certification from the Canada Green Building Council (CaGBC, www.cagbc.org). Congratulations! **EB**




VENTURE LIGHTING®

Make the Switch



Energy Saving Retrofit Solutions

Make the switch from old standard probe start metal halide to Venture's greener, more efficient Uni-Form® pulse start systems and save energy and money! For example, replace standard 1000-watt systems with Venture's 875-watt systems and save up to **155 system watts** per luminaire!

- **More Maintained Lumens**
- **Better Lamp Life**
- **Huge Energy Savings**

Call and ask how Venture can assist with your retrofit solution so you can start saving today!

800-265-2690

Ballastronix inc.®
by **VENTURE™**

THE SYSTEMS APPROACH:
BALLASTRONIX® BALLASTS AND
VENTURE LIGHTING™ LAMPS

Ballastronix and Venture Lighting products are available from electrical and lighting distributors across Canada. Contact your local sales agent. Visit our website to find an agent near you.

VentureLighting.com/Canada

© 2009 Venture Lighting International



VLC-0004A6-0409

Quality tested, reliable, and always delivered on time.



**GE
Transformers
Now available
in Canada.**



DRY Type Transformers - Type QL 15-225kVA, Three-Phase

Every aspect of a GE QL transformer is designed to enhance customer satisfaction and security.

GE has been building transformers for nearly 100 years, and we continue to innovate and improve the reliable QL design.

- An industry leader in transformer safety innovations
- GE manufactures one of the quietest transformers in the industry

www.geelectrical.com www.ge-ed.ca

To find out more, call GE Canada at
1-877-259-0941, ext. 2912
or e-mail us at
marketingcdn@ge.com



imagination at work

The role of overcurrent protective devices in **electrical safety**

An electrician working in an energized panelboard, or just putting equipment into an electrically safe work condition, is potentially in a very unsafe place. A falling knockout, a dislodged skinned wire scrap inadvertently left previously in the panelboard, or a slip of a screwdriver can cause an arcing fault.

The temperature of the arc can reach up to 35,000°F—about four times as hot as the surface of the sun. These temperatures can easily cause serious or fatal burns, and/or ignite flammable clothing.

Figure 1 shows a model of an arc fault and the physical consequences that can occur. The unique aspect of an arcing fault is that the fault current flows through the air between conductors, or a conductor and a grounded part. The arc has an associated arc voltage because there is arc impedance. The product of the fault current and arc voltage concentrated at one point results in the release of tremendous energy... in several forms.

The high arc temperature vaporizes the conductors in an explosive change-of-state from solid to vapour (copper vapour expands to 67,000 times the volume of

solid copper). Because of the expansive vaporization of conductive metal, a line-to-line or line-to-ground arcing fault can escalate into a three-phase arcing fault in less than a thousandth of a second.

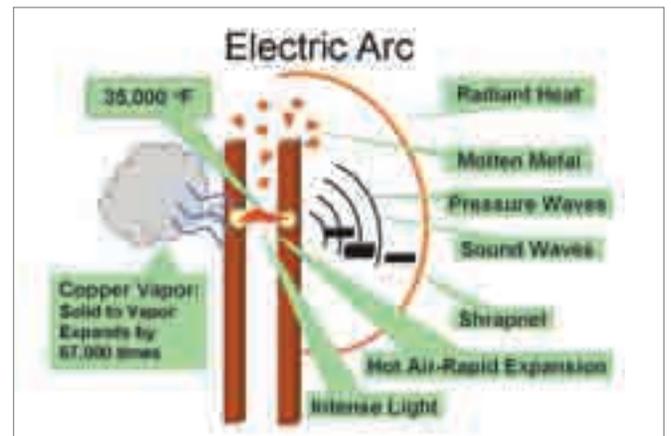
The event unfolds so quickly, the human system simply cannot react fast enough for a worker to take corrective measures. When an arcing fault occurs while a worker is in proximity, the worker's survival depends upon:

1. System design aspects, such as characteristics of the overcurrent protective devices (OCPDs).
2. Precautions the worker has taken prior to the event, such as wearing PPE appropriate to the hazard.

The effects of an arcing fault can be devastating on a person. The intense thermal energy released in a fraction of a second can cause severe burns. Molten metal is blown out and can burn skin or ignite flammable clothing. One of the major causes of serious burns and death is the ignition of flammable clothing due to an arcing fault.

The tremendous pressure blast from the vaporization of conducting materials and superhot air can fracture ribs, collapse

Figure 1



lungs, knock workers off ladders and/or blow them across a room. The pressure blast can cause shrapnel (equipment parts) to be hurled at very high velocity; sometimes in excess of 700 mph (about 1030 ft/s or 0.9 mach). And the duration of the event can be only a small fraction of a second. (Testing shows that the arcing fault current magnitude and time duration are the most critical variables in determining the energy released.)

Serious accidents are occurring at an alarming rate on systems of 600V or less; in part because of the high fault currents that are possible, but also because designers, management and workers tend not to take the same necessary precautions they do when designing or working on medium- and high-voltage systems.



Visit us at the BICSI Canadian Conference, BOOTH 125, online at leviton.com or call 800-461-2002 for more information.

leviton.com | 800.405.5320 | FAX 800.563.1853
ISO 9001:2000 registered quality manufacturer
© 2008 Leviton Manufacturing Co., Inc

LEVITON

Building A Faster Network

Leviton's component rated eXtreme Cat 6A system delivers exceptional electrical performance to meet 10 gigabit Ethernet requirements in any environment.

Leviton has the fastest turn-around time in the industry for custom configured fibre products including enclosures, pre-terminated harnesses, trunk cables, and jumpers.

www.leviton.com/configurator

The role of OCPDs in electrical safety

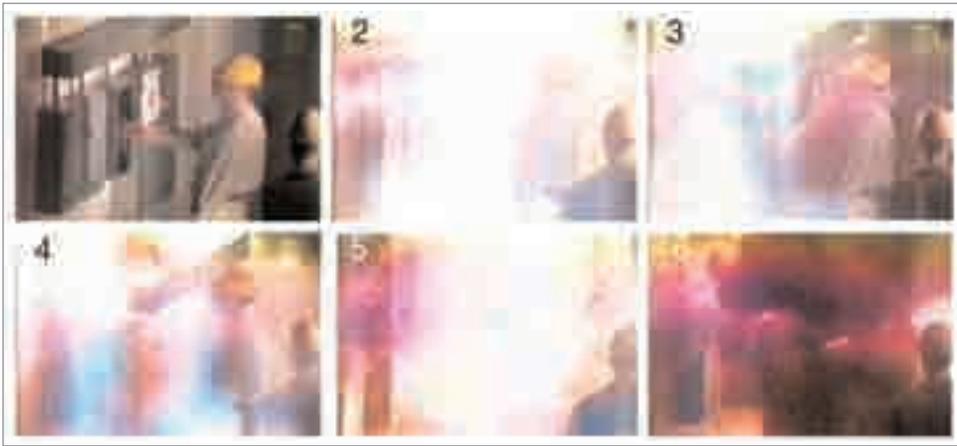
The selection and performance of overcurrent protective devices play a significant role in electrical safety.

Extensive tests and analysis by industry has shown that the energy released during an arcing fault is related to two characteristics of the overcurrent protective device protecting the affected circuit:

1. The time it takes the overcurrent protective device to open.
2. The amount of fault current the overcurrent protective device lets through.

For instance, the faster the OCPD clears the fault, the lower the energy released. When the OCPD also limits the current—thereby reducing the actual fault current magnitude that flows through the arc—the lower the energy released. Current-limiting OCPDs, therefore, may greatly reduce the current let-through, having a great effect on reducing the energy released. The lower the energy released, the better for both worker safety and equipment protection.

Figure 2a



TEST 4: Staged test protected by circuit breaker with short time delay (not a current-limiting overcurrent protective device). Short time-delay intentionally delayed opening for six cycles (0.1 second). Note: Unexpectedly, there was an additional fault in the wireway and the blast caused the cover to hit the mannequin in the head. Analysis results in incident energy of 5.8 cal/cm² and arc flash protection boundary of 47 in. per IEEE 1584 (basic equations).

Figure 2b

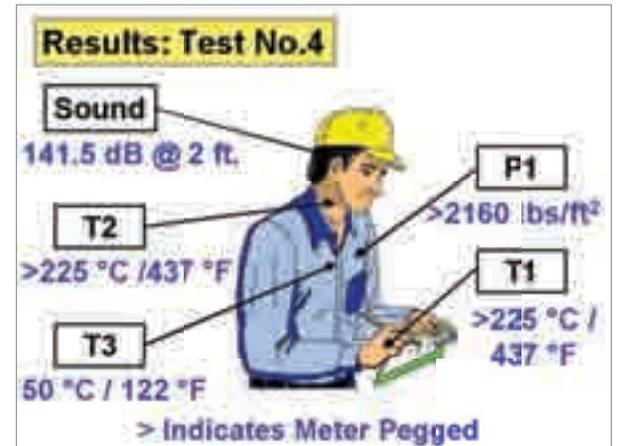
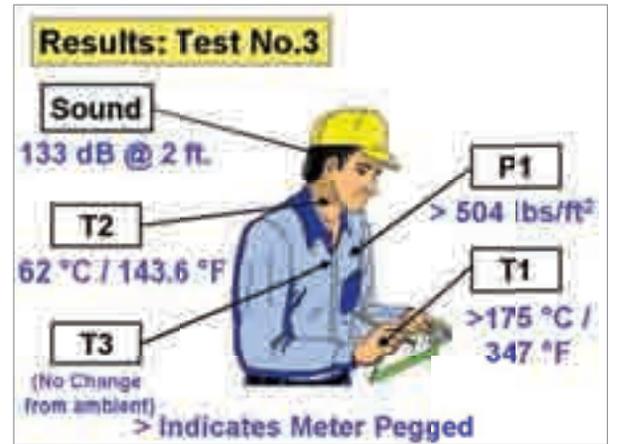


Figure 3a



TEST 3: Staged test protected by KRP-C-601SP Low-Peak current-limiting fuses (Class L). These fuses were in their current-limiting range and cleared in less than a 1/2 cycle (0.008 s). Analysis results in incident energy of 1.58 cal/cm² and arc flash protection boundary of 21 in. per IEEE 1584 (simplified fuse equations).

Figure 3b



New look. Same great performance.

Telemecanique and Merlin Gerin products are changing over to new, more environmentally friendly and energy efficient Schneider Electric packaging and logo marks. A new look, but:

- Same part numbers.
- Same dimensions and high-performance design.
- Same interchangeability with existing products in the field.
- Same genuine replacement parts availability.
- Same warranty coverage.

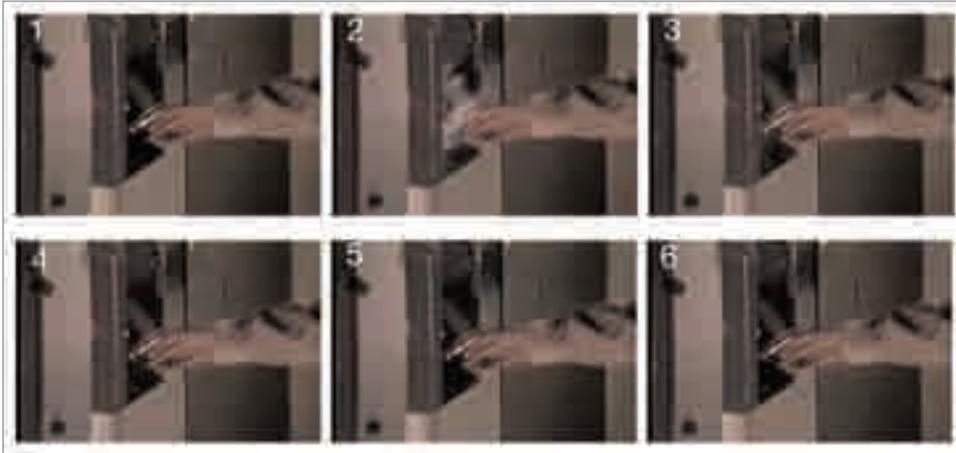


Download our new Energy Efficiency white paper!
Visit www.SEreply.com and enter key code: s198w

Schneider
Electric

© 2010 Schneider Electric All Rights Reserved

Figure 4a



TEST 1: Staged test protected by LPS-RK-30SP, Low-Peak current-limiting fuses (Class RK1). These fuses were in current-limiting range and cleared in approximately 1/4 cycle (0.004 s). Analysis results in incident energy of less than 0.25 cal/cm² and arc flash protection boundary of less than 6 in. per IEEE 1584 (simplified fuse equations).

Figure 4b

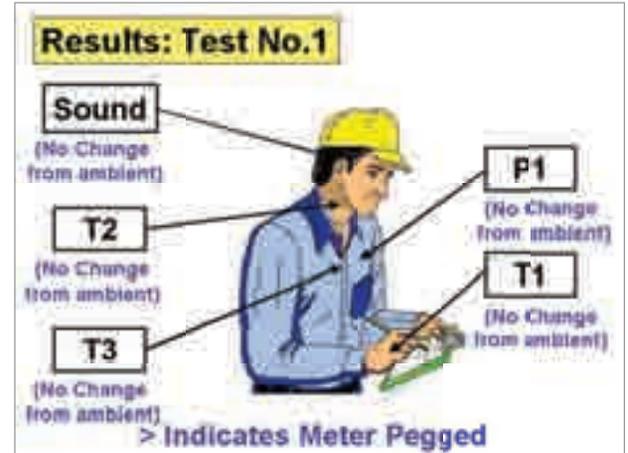
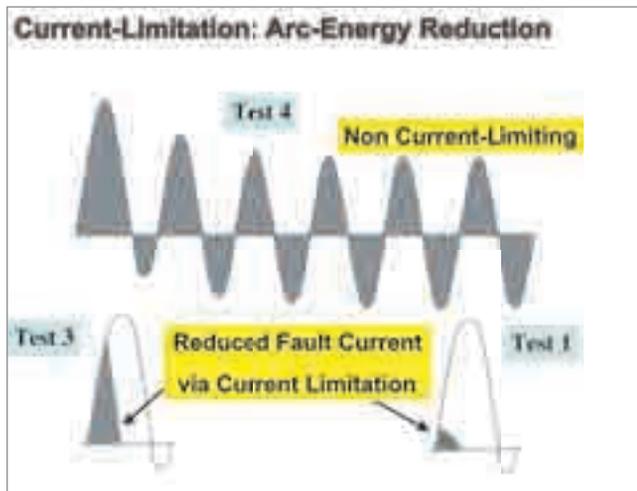


Figure 5



Arc-flash tests

The photos and recorded sensor readings from actual arcing fault tests illustrate this point very well. An ad hoc electrical safety working group (within the IEEE Petroleum and Chemical Industry Committee) conducted tests to investigate arc fault hazards. (These tests and others are detailed in “Staged Tests Increase Awareness of Arc-Fault Hazards in Electrical Equipment”, IEEE Petroleum and Chemical Industry Conference Record, September, 1997, pp. 313-322.) One finding of this IEEE paper is that current-limiting OCPDs reduce damage and arc fault energy (provided the fault current is within the current-limiting range).

To better assess the benefit of limiting the current of an arcing fault, it is important to note some key thresholds of injury for humans. Results of these tests were recorded by sensors

on mannequins and can be compared to these parameters:

- Just-curable burn threshold: 80°C (0.1 s)
- Incurable burn threshold: 96°C (0.1 s)
- Eardrum rupture threshold: 720 lb/sf
- Lung damage threshold: 1728 to 2160 lb/sf
- OSHA required ear protection threshold: 85 db (for sustained period). Note: an increase of 3 db is equivalent to doubling the sound level.

All three tests were conducted on the same electrical circuit set-up with an available bolted three-phase, short-circuit current of 22,600 symmetrical RMS amps at 480V. In each case, an arcing fault was initiated in a size 1 combination motor controller enclosure with the door open, as though an electrician were working on the unit ‘live’ or before it was placed in an electrically safe work condition.

Tests 4 and 3 were identical except for the overcurrent protective device protecting the circuit. In Test 4, a 640-amp circuit breaker with a short time delay is protecting the circuit; the circuit was cleared in 6 cycles. In Test 3, KRP-C-601SP, 601-amp, current-limiting fuses (Class L) are protecting the circuit; they opened the fault current in less than 1/2 cycle and limited the current. The arcing fault was initiated on the line side of the motor branch circuit device in both Tests 4 and 3. This means the fault is on the feeder circuit but within the controller enclosure.

In Test 1, the arcing fault is initiated on the load side of the branch circuit OCPDs, which are LPS-RK 30SP, 30-amp, current-limiting fuses (Class RK1). These

NEW

12 CAL/CM² WEIGHT BALANCING ARC FLASH PROTECTION FACESHIELD UNIT AS1200HAT-CV

Salisbury by Honeywell's NEW AS1200HAT-CV is a Weight Balancing Arc Flash Protection Face Shield, that stays in a balanced, compact position, centered over the top of the hard hat when not needed. The shield/window is designed to be easily retracted without tools. The AS1200HAT-CV has an AEPY rating of 12cal/cm².

SALISBURY
by Honeywell

101 E. Greenleaf Pkwy., Suite 4
Bellingham, WA 98240
tel: 877.406.4501
www.walshsalisbury.com www.arcsafety.com

Salisbury by Honeywell © 2010 Honeywell International Inc. All Rights Reserved.

fuses limited this fault current to a much lower value and cleared this circuit in about 1/4 cycle or less.

The following results were recorded from the various sensors on the mannequin closest to the arcing fault. T1 and T2 recorded the temperature on the bare hand and neck, respectively. The hand with T1 sensor was very close to the arcing fault. T3 recorded the temperature on the chest under the cotton shirt. P1 recorded the pressure on the chest. And the sound level was measured at the ear. Some results “pegged the meter”, meaning the specific measurements were unable to be recorded in some cases because the actual level exceeded the range of the sensor/recorder setting. These values are shown as (>), which indicates the actual value exceeded the value given, but it’s unknown how high of a level the actual value attained.

Conclusions drawn from testing

A couple of conclusions can be drawn from this testing.

First, arcing faults can release tremendous amounts of energy in many forms in a very short period. Look at all the measured values compared to key thresholds of injury for humans given in the paragraph above. Test 4 was protected by a 640-amp, non current-limiting device that opened in 6 cycles or 0.1 s.

Second, the overcurrent protective device’s characteristics can have a significant impact on the outcome. A 601-amp, current-limiting OCPD protects the circuit in Test 3. The current that flowed was reduced (limited) and the clearing time was 1/2 cycle or less. This was a significant reduction compared to Test 4.

Compare the Test 3 measured values to the key thresholds of injury for humans, then the Test 4 results. The measured results of Test 1 are significantly less than those in Test 4, and even those in Test 3. The reason is that Test 1 employed a much smaller (30-amp), current-limiting device. Tests 3 and 1 both show there are benefits to using current-limiting OCPDs. Test 1 just proves the point that the greater the current-limitation, the more the arcing fault energy may be reduced.

Both Test 3 and Test 1 employed current-limiting fuses, but the lower amp-rated fuses limit the current more than the larger amp-rated fuses. It is important to note

the fault current must be in the current-limiting range of the overcurrent protective device to receive the benefit of the lower current let-through. See the diagram (Figure 5) depicting the oscillographs of Test 4, Test 3 and Test 1. **EB**

This article is based on parts of the Cooper Bussmann document, “Selecting Protective Devices” © 2010.

Electrical Business is also **Digital!**

Visit www.EBMag.com and click to start your experience!



Please call John MacPherson @ 905-713-4335 or Scott Hoy @ 905-726-4664 for Online Edition sponsorship opportunities!

Eaton can help your building go green

Save energy

- Pow-R-Command™ lighting controls
- Powerware® 9395UPS and Powerware BladeUPS™
- Harmonic mitigating transformers
- Paralleling switchgear
- Energy audits
- Automatic transfer switches
- Variable frequency drives and soft start motor controls
- Power Xpert® software and meters

Protect the environment

- Prefabricated product assemblies
- Circuit Breakers
- Busway
- Medium voltage switchgear
- Integrated Facilities Systems (IFS)
- Refurbishing services
- Alternative energy solutions

Our electrical solutions can contribute up to 27 of the 70 LEED® certification credits available through the Canadian Green Building Council.

Want to find out more? Visit www.eaton.ca/greenbuildings

EAT•N
Powering Business Worldwide

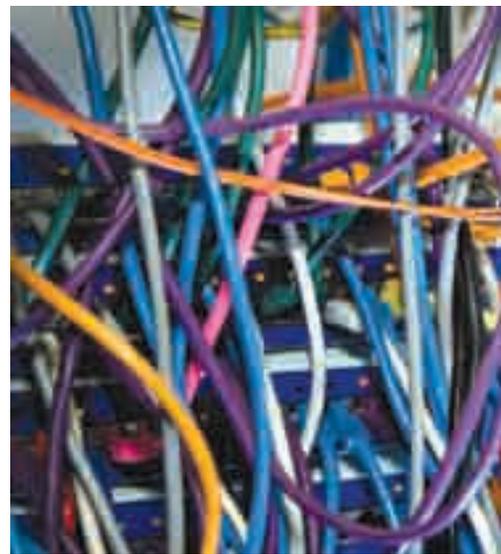
PowerChain Management is a registered trademark of Eaton Corporation.

Continuing education & training key to information technology success

By Richard S. Smith, RCDD, NTS, OSP

Forward-thinking electrical contractors and electricians adding datacom, low-voltage IP-addressable products to the list of their one-

stop services in an effort to keep pace with technological change have the same educational challenges as students who are considering a new career in



information technology infrastructure.

Technological change is the great equalizer in the industry today. A person's knowledge of what works because of how it always used to work is about as useful as sunscreen at night. To the information transport systems (ITS) industry, your understanding of the transmission of infrared bandwidth light pulses or electrical signals needs to keep up with changes impacting transmission. The productivity, profitability and credibility of today's ITS company is impacted by its employees' ability to make informed decisions about installing IP-addressable devices on good quality, properly designed IT infrastructure.

Productivity and liability are integral components of ITS and many other industries. Knowing how to simply make connections quickly with compatible products is as important as it ever was; however, knowing 'best practices' defined by subject matter experts (SMEs) is a very productive way of becoming the best in the industry. Install times are still important, but only when there are no repair calls or data throughput issues.

Whether you have been in the industry for decades or you are just starting to consider a new career in IT at the infrastructure level, it is important that you are aware of, and stay current in, new and changing life safety codes, performance-focused standards and best practice information—all of which combine with industry expertise to maximize productivity and minimize liability.

BICSI is a globally focused association that works to improve an individual's knowledge specific to IT infrastructure. Electrical contractors and electricians can benefit from the efforts of BICSI staff and the hundreds of BICSI volunteers who make up its board of directors and committees. The efforts of these individuals not only provide direction to the industry as a whole, but produce content for technical publications that professionals worldwide use to keep pace with technological advancements.

Are You Ready For Affordable Outdoor LED Lighting?



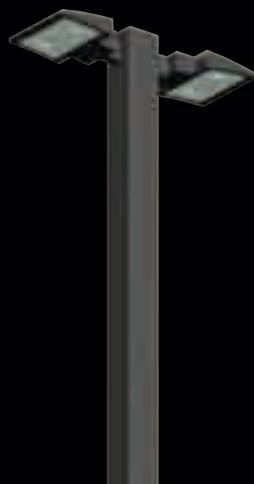
We Are!

Save energy and relamping costs with LED Wallpacks, Area Lights, Floodlights & Bollards

www.rclighting.ca



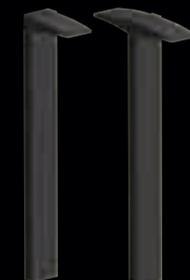
Wallpacks



Area Lights



Floodlights



Bollards

Making Energy Efficiency Easy for You



888 722-1000 • sales@rclighting.ca



conferences where people are able to participate in technical updates in a vendor-neutral, manufacturer-independent setting. These events are open to both BICSI members and non-members who desire to learn and benefit from the presentations.

Next month, May 2-5, BICSI will be holding its Canada Conference in Montreal at the Hilton Montreal Bonaventure hotel. Thousands of individuals participate in events such as these, and I encourage you to attend so you can share in the valuable knowledge-sharing that will take place.

This is the place to be when your career or business is in need of updated technical training or access to current IT/IP infrastructure-focused information. **EB**

Richard S. Smith—the manager of Bell Aliant Cabling Solutions—is the Canadian region director for BICSI, a professional association supporting the information transport systems (ITS) industry—including designers, installers and technicians—with information and education. Email the author at rsmith@bicsi.org, and visit BICSI online at www.bicsi.org.

There is a right way to install and maintain IT infrastructure, and then there are *all the other ways*. BICSI members are active in promoting the right way of doing things by participating in writing IT infrastructure-focused codes, standards and best practice documents. This information is included in—and forms the basis of—BICSI's globally recognized credentials and training programs. Its design and installation methods manuals are what BICSI master instructors—and many others around the world—use to improve the level of IT infrastructure technical expertise.

To ensure the information individuals receive through instructor-led or self-paced training has been retained, BICSI offers, not just hands-on and theoretical testing, but proctored exams as part of a professional credentialing program. The benefit to those hiring credentialed professionals is that it provides assurance the individuals not only understand and retain the information they have received but, going forward, the credential-holder is staying up-to-date by participating in training relevant to the designation.

Information technology infrastructure training comes in many forms from many entities. Massive amounts of information available but, sadly, much of it is dated. You need to keep this in mind because it can either help or hinder your company's productivity. Documentation and access to current information are critically important.

Just consider the service that Google offers. Information pertaining to just about anything in which you have an interest can be delivered to you in seconds, but then you have to wade through the results to find what's most important to you... and may even give up after a while before ever finding it. This is why participation in qualified, career-focused IT infrastructure training should be top priority important to you, your career and your business.

BICSI not only produces and provides these products and services, but it also coordinates meetings and



MNS-MCC. Delivers enhanced safety, simplified maintenance and reliability.



ABB Low Voltage Systems Canada
Tel.: 1-800-567-0283
Fax: 514-420-3138
lvs.rfq@ca.abb.com

For over 30 years, ABB has been the global leader for low voltage switchgear and motor control centres. Since 1976, ABB's unique MNS withdrawable unit technology has led the industry worldwide. Drawing upon the heritage and excellence of the MNS product, ABB has incorporated innovative technology in the MNS-MCC for the North American market. Canadian customers can now count on a complete low voltage solution from the LVS team across the country. www.abb.ca/lowvoltage

Power and productivity
for a better world™



They say “class-leading” and “segment-best,” but you decide

EBMag was pleased to have the opportunity to sit in on a media-only, sneak peek of Chevrolet's new 2011 Silverado HD (www.chevrolet.com) before it was officially shown off at the Chicago Auto Show. And the Chevy executives delivering the presentation were pretty pleased with what they've assembled.

This truck is pretty important to the folks at Chevy (quite understandably, considering the dive the auto sector has taken of late), and they want it to become important to you. So much so that, for this presentation, Chevy sent in its top trucks execs to convince me (and you) that this is the pickup you've always dreamed of.

Making the pitch were: Rick Scheidt, executive director, product marketing, Chevrolet Trucks; Rick Spina, vehicle line executive, full-size trucks; Jeff Luke, global chief engineer; Gary Arvan, chief engineer, Duramax diesel; and Jim Mikulec, lead development engineer. And here's what they had to say about the truck that goes on sale this summer...

Some of the ways the 2011 Silverado HD leads... according to Chevy

New frames

In the quest to redesign the Silverado HD chassis to improve durability and ride while supporting increased capability, engineers developed 11 all-new, fully boxed-frame assemblies. The frames have increased cross sections and use more high-strength steel for greater durability, higher towing capacity and improved ride and handling.

Engineers addressed common customer and



aftermarket uses when designing the new frames; also, the frame-mounted hitch for conventional trailering is stronger, with a box-tube design.

New and strong independent front suspension

A completely redesigned independent front suspension system offers up to a 25% greater front axle

weight rating—up to 6000 lb front gross axle weight rating (FGAWR). Five different torsion bar rates support five different FGAWRs (a single torsion bar was previously used for all models).

New asymmetrical leaf-spring rear suspension

Commensurate with the Silverado HD's greater strength and capability is a rear suspension designed to support greater loads. It features a new, larger asymmetrical leaf-spring design that also contributes to improved ride and handling characteristics.

The larger leaf-spring design supports increased rear gross axle weight ratings across the board. On the 2500HD models, the rating is 6200 lb (up from 6084 lb). On 3500HD models, the rating increases to 7050 lb on single-rear-wheel models and 9375 lb on dual-rear-wheel models—the latter representing a nearly 14% increase over the previous 8200-lb rating.

“Segment-leading towing and payload capability”

Stronger frames, suspension systems with greater weight ratings and enhanced powertrain systems contribute to the Silverado HD's towing and payload capability. The maximum conventional (ball hitch) towing rating increases to 16,000 lb. A Silverado 3500HD crew cab/long



THOUSANDS OF APPLICATIONS.

HUNDREDS OF LABELS.

ONE LABEL PRINTER.

BMP™ 71 LABEL PRINTER



The new BMP™71 Label Printer does it all.

With more than 400 different label options, this portable label printer can create everything from ¼" self-laminating wire marker labels to 2" wide panel labels. It has a large full color display, high speed print (1.5" per second!) and electrical design wizards that can cut your design time in half. This easy-to-use labeler can cut material waste, save time, and help you create labels more efficiently than ever before.

TO LEARN MORE, watch the BMP™71 Printer demo video or request a free sample pack at www.bradycanada.ca/bmp71



AEB040

box can tow up to 20,000 lb with a fifth-wheel hitch. The maximum payload (3500HD) is 6335 lb.

New 6.6L Duramax diesel and Allison 1000 six-speed combo

Helping the new 2011 Silverado HD trucks deliver is a new version of the Duramax 6.6L diesel and Allison 1000 six-speed automatic transmission powertrain combination. The Duramax 6.6L's horsepower and torque are expected to top previous models (testing is ongoing).

The exhaust brake system enables controlled vehicle slowdown on downhill grades without actuating the brakes. There's also B20 biodiesel capability for an alternative fuelling option.

Strengthened Vortec 6.0L/Hydra-Matic 6L90 six-speed powertrain

The Vortec 6.0L gas V8 with variable valve timing returns, along with a strengthened version of the Hydra-Matic 6L90 six-speed automatic transmission. A new camshaft profile in the Vortec 6.0L helps the engine produce more torque lower in the rpm band for improved launch feel and a greater feeling of overall performance at higher altitudes (and when towing a trailer).

Refined and capable ride, handling and steering

Longer wheelbases and wider front/rear tracks enhance the ride and handling characteristics of the Silverado 2500HD and 3500HD, giving them a greater feeling of smoothness and control.

Also enhancing the driving experience is a revised steering system designed to support the trucks' greater FGAWR. It includes a new, larger steering gear, power steering pumps and linkages.

Safety and functional technology

The 2011 Silverado 2500HD and 3500HD models have a roster of safety features and functional technologies, including: StabiliTrak electronic stability control system on all single-rear-wheel models; high-strength steel tubular frame cross member; seat pelvic/thorax and head curtain side air bags available on 2500HD; available rear backup camera; trailer sway control system on all single-rear-wheel models; hill start assist (standard on SRW models).

Drives better, works harder

The interiors boast improved quietness and attention to detail, but

are designed for work. The Silverado HDs offer mobile WiFi, USB and Bluetooth connectivity, XM Satellite Radio and a navigation system. Multiple charge points enable multiple electronic devices to operate simultaneously; and, when equipped with the available navigation system, XM NavTraffic offers real-time updates of traffic conditions (in selected areas).

Cold-weather customers will appreciate the Duramax 6.6L's quick start-up, says Chevy, with a starting

time on par with gas engines. Its glow plug cycle time takes no more than 3 seconds in temperatures as low as -29°C. There's also a cab heat-up feature that allows the engine to idle faster in low temperatures to warm up the interior faster.

The Silverado HDs aims to take you farther without stopping. A new, 136L fuel tank is standard on all models and, with the improved fuel efficiency of the powertrains, enables a cruising range of up to about 1090 km (with the Duramax 6.6L). **EB**

All of Visioneering's products are proudly manufactured in Canada. To locate a Canadian agent near you, visit www.visioneering.com.

Visioneering... so much more than just strips and wraps.

Whether you are looking for an environmentally friendly troffer dish or a high impact high bay luminaire, Visioneering has the solution you are looking for and we have been doing it right here in Canada for over 55 years.

Think of Visioneering the next time you are specifying a project that requires a diverse offering of luminaires other than just strips and wraps.

Labels in the image include: Social Pendant Luminaire (VMCCM), High Bay Lighting (FHDB), Track Light (TL), Ceiling Mount Fixture (VM), Low Profile Troffer Dish (TDLF), Deep Cell To Fixture (DCMAY), Back Lit Box (BLB), Facade Illumination (FYB), High Bay With Wire Guard (FHSE), Surface Mount Fixture (WPRE), All Handling Table (WHTB), Surface Mount Fixture (WPRE), Quad Walled Troffer Dish (TDQM), Vertical Pendant Luminaire (VPL), Under Cabinet (UC), Illuminated Fixture (IVM), Indirect Pendant (ETU), Water Resistant High Bay (FHBV), and Hicoby Wall Mount Luminaire (HCAW).

VISIONEERING
 Visioneering Inc.
 1100 Midland Ave.
 Toronto, ON M3B 1Y1
 www.visioneering.com

Visioneering's Toronto office is a proud member of the
 Lighting Association of Canada (LAC) and the International
 Illumination Association (IIA).

EB lighting products

Cooper Lighting LED outdoor solutions



Cooper Lighting boasts it has introduced one of the industry's largest LED outdoor product offerings, providing solutions

for streetlighting, area/site, wallmount, parking garage, canopy and pathway applications. The initial rollout includes 16 luminaires featuring Cooper's patent-pending modular LightBAR technology and AccuLED Optics. The company says the luminaires—including brands Invue, McGraw-Edison, Lumark and Streetworks—can provide up to 75% energy savings over high-intensity discharge outdoor sources, and all are Dark Sky compliant.

COOPER LIGHTING
www.cooperlighting.com

BetaLED 304 series achieves 100+ lumens per watt

BetaLED—a division of Ruud Lighting Inc.—introduced the 304 Series luminaires, BetaLED's first luminaire to achieve over 100 lumens per watt (LPW). The luminaires are scalable up to 12,000 lumens of delivered light output; the series achieves superior efficiency, longevity, lumen maintenance and light control, boasts BetaLED, while reducing energy use. By employing a two-level dimming option, the luminaires save even more energy. The luminaires can be installed in single- or double-skin open-air petroleum station canopies and building soffits (i.e. banks and quick serve-restaurants). Other optics with the new technology upgrade will be available soon for additional applications, such as parking structures.

BETALED
www.betaled.com

Ledtronics CLL2X2-400-TPW-001W recessed ceiling luminaire

Ledtronics has introduced LED replacements for recessed T-bar fluorescent ceiling luminaires: the CLL2X2-400-TPW-001W uses only 24W of power and replaces 2x2 standard



64W units, while the CLL2X2-800-TPW-001W consumes less than 36W and replaces 80W fluorescent fixtures. They operate on a voltage range of 100-277vAC, providing solid-state 5000K pure-white lighting that creates less heat than conventional lighting. Ledtronics says the luminaires offer up to a 300% longer lifespan than fluorescents, using up to 50% less energy than standard 2x2s. The luminaires are installed using existing T-bar recessed 2x2 module light fixtures, and constructed with a 22-ga, cold-rolled steel housing with baked white-polyester finish; clear prismatic acrylic lens in a 20ga steel frame, with T-hinge and positive spring-loaded latch.

LEDTRONICS
www.ledtronics.com

Pass and Seymour dual-technology wall switch sensors

Legrand/Pass & Seymour introduced dual-technology wall switch sensors to provide "optimum energy management and control" for a variety of commercial applications. Suitable for small offices, executive suites, etc., the sensors offer the choice of automatic or manual ON operation; the combination of passive infrared (PIR) and ultrasonic technologies provides high sensitivity to both small and large movements, along with wide, dense detection. Three control options can set the ON/OFF time delay once occupancy is detected; a self-adaptive option adjusts time delays based on usage patterns, assigning delays as brief as seven minutes when space is typically vacant, and up to 30 minutes for busier times. The product design fits into existing boxes for simple installation, and a bi-level model provides control of two independent lighting loads from the same box.

LEGRAND/PASS & SEYMOUR
www.legrand.us



NxGen LED S14 bulbs



NxGen Technologies has developed LED replacement lamps for the S14-shaped incandescent bulbs commonly found in decorative lighting applications. The lamps consume less than one watt of electricity, says NxGen, while giving off the same amount of light, and have been designed to last up to 40,000 hours. The S14s come in various transparent and opaque (ceramic) colours and, according to the company, are indistinguishable from their incandescent counterparts. Common applications for the S14 include decorative lighting found in restaurants, bars, theatre signage, shopping malls, etc.

NXGEN TECHNOLOGIES
www.martekled.com

Leviton launches new Decora CFL slide dimmer

Leviton launched what it calls the industry's first slide dimmer specifically designed for use with a variety of dimmable CFL bulbs. When in Auto mode, the Decora dimmer detects whether the bulb is an incandescent or dimmable CFL, determines high- and low-end dimming capabilities, and adjusts the dimming range accordingly. According to Leviton, this slide dimmer addresses consumer concerns over flickering, inability to turn the light On, and so forth.

LEVITON
www.leviton.com

EB products

Brady launches BMP71 label printer

Brady launched what it calls its most versatile portable printer. The BMP71 label printer boasts over 400 different label options and a fast print speed, and can print on more than 30 different types of label materials, including self-laminating sleeves and flag labels, indoor/outdoor vinyl up to 2-in. wide, polyester die-cut labels and more. The BMP71 labeller includes label design wizards for electrical, voice/datacom and safety/general ID applications. With step-by-step instructions and easy-to-use templates, these wizards provide a convenient shortcut for creating popular labels. Hundreds



of symbols and graphics are available, and storage space to save more than 100,000 label files. The labeller's full-colour screen shows a full-scale image of the label as it is being created, meaning there's no need

to create multiple 'test labels' to see how the label will turn out.

BRADY CANADA
www.bradyid.com/BMP7

Ideal Industries 25-ft Auto-Lock two-sided measuring tape

Ideal's 25-ft Auto-Lock two-sided measuring tape measure boasts a 1-in. blade with bold, black numbers on both sides, meaning you don't have to twist the tape to read a measurement. This simple enhancement can take several minutes off a multi-bend conduit job, says Ideal, facilitating more precise fits. The Auto-Lock system automatically locks the blade into place when it's pulled out, eliminating snap-backs or the need to manually lock the blade with a push-button mechanism. Once finished, you simply push the retrieval button to safely unlock and return the blade.

IDEAL INDUSTRIES
www.idealindustries.ca



Milwaukee 2237-20 clamp meter

Milwaukee introduced clamp meters to its line of test & measurement products, with a feature set specifically tailored to electricians (and HVAC/R technicians). The 2237-20 boasts embedded non-contact voltage detection and LED worklights, frequency and true-rms measurements. The meter has a 1.3-in. jaw opening for large conductors, a thin jaw profile for tight spaces and a high-contrast, white-on-black display. Rated Cat III 600V.



MILWAUKEE
www.milwaukeetool.com

Greenlee redesigns holesaw line with faster cutting products



Greenlee says it has redesigned its entire line of holesaws to drill faster, stay sharp longer, and provide a cleaner and safer

cut. The new design includes a fully hardened tooth for a stronger, longer-lasting saw, and includes a 4-6 variable pitch for smoother cuts. The oxide finish resists rust and chip build-up for easier cutting; there's also no paint on the saw to melt while you're drilling, meaning no paint gum-up or possible smoke when hot. The holesaws can be used with the Greenlee removable depth-stop for added control and protection when drilling in areas where wires may be present.

GREENLEE
www.greenlee.com

Rubbermaid heavy-duty cart and truck line

Rubbermaid Commercial Products' (RCP's) line of heavy-duty material-handling carts and trucks has been significantly redesigned and expanded, says the company, into new categories, products and innovations to help you work smarter, faster and safer. The line offers several solutions for moving heavy payloads in construction, from platform trucks and utility carts to the patent-pending convertible A-frame and platform trucks. Most of the units are available in different sizes to meet a range of needs, and employ Duramold technology for high strength-to-weight ratio.

RUBBERMAID
www.rcpmaterialhandling.com

Lenox HT50 hacksaw frames and T2 hacksaw blade



Lenox introduced the HT50 hacksaw frame and T2 hacksaw blade. The new frame design has the highest tension of any hacksaw (50,000 psi), boasts the company, while the T2 blade provides up to two times the life of existing Lenox blades. The hacksaw's I-beam construction allows the frame to attain its tension, which maximizes blade life, says Lenox, while providing straighter cuts. The design also features a handle grip that absorbs shock and reduces discomfort in cold weather, says the company, and can be used by both right- and left-handed users. A convenient storage area inside the I-beam is opened without a tool and can hold up to five extra blades. The HT50 also converts to a jab saw. Lenox T2 hacksaw blades

will be available March 2010.

LENOX
www.lenoxtools.com

Hilti introduces TE 1500-AVR breaker

Hilti says it has introduced its most powerful breaker ever. The TE 1500-AVR combines "tremendous impact energy with the lowest vibration in its class", boasts the company, for "exceptional demolition productivity". It is suitable, says Hilti, for everything from concrete foundation removal and digging in clay to

penetrations for pipes and electrical boxes. The breaker delivers 22 ft-lb of impact energy (generated by a 1800W motor) at a maximum 1950 bpm.



An active cooling system reduces wear and tear on the motor, electronics and hammering mechanism, while three-chamber sealing keeps dust out of the tool. Plus, the TE 1500-AVR features a brushless SR motor.

HILTI CANADA
www.hilti.ca



Goodbye to Wrapping & Taping

A PVC alternative for installing wall boxes in poured-in-place concrete, the **NEW Kwikon® Concrete Wall Box** arrives at the jobsite ready to install...no more time-consuming wrapping and taping work required. The unique protective film covers the box opening to prevent concrete entry during the pour and comes with external Kwikon ENT hubs for easy conduit connections.



Scepter
PVC Conduit & Fittings



COR-LINE ENT **KWIKON** Fittings



SUPER DUCT
Power & Communication Duct

Cdn. Toll Free: 1-866-473-9462 | www.ipexelectrical.com



Products manufactured by IPEX Electrical Inc. Cor-Line®, Kwikon® and SuperDuct® are trademarks of IPEX Branding Inc.



General Machine heavy-duty stiff spine conduit cleaners

General Machine Products Co. Inc. introduced heavy-duty stiff spine conduit cleaners to its line of underground cable placement tools and equipment. Constructed with resilient, oil-tempered spring steel bristles, GMP's conduit

cleaners remove obstructions like dirt, ash, sand, oxides and debris. They're offered in sizes ranging from 2 in. to 6 in. in diameter, and 4 in. to 5 1/4 in. in length; their construction provides a workload capacity of up to 1250 lb.

GENERAL MACHINE
gmptools.com/nf/10152.htm

Knaack Weather Guard Storage for Ford Transit Connect



Weather Guard introduced van storage solutions for the Ford Transit Connect van. Features include a custom bulkhead, space-maximizing design and a range of shelving and accessory options. For greater visibility, a wire mesh bulkhead is available, along with wire mesh window screens. Shelving units fit tightly to the Transit Connect's walls, freeing up floor space while 12-in. and 14-in. shelf widths provide storage flexibility. There's also a range of cabinets, drawer units and floor storage options; Pack Rat and Itemizer drawer units are available in a variety of sizes, compartments and divider configurations.

KNAACK WEATHER GUARD
www.weatherguard.com

The Exhibition for Technology Innovators

MEET 2010

MAY 5 & 6 2010

CUTTING EDGE SEMINAR PROGRAM

MEET's four sponsoring associations will once again deliver a thought-provoking and topical seminar schedule. Visit www.MEET2010.ca for more information.

EXCITING SKILLS CANADA NB COMPETITION

MEET will showcase the plumbing, electrical wiring and refrigeration & air conditioning portions of the Skills Canada NB Competitions (Compétences Canada NB). Visit www.skillscanada.nb.ca for all the details.

MEET INDUSTRY DINNER

Wednesday, May 5th at the Delta Beauséjour...
SURE TO BE A SELLOUT!

ATTENTION VISITORS!

TAKE ADVANTAGE OF OUR SPECIAL ONLINE DISCOUNT

Visit www.MEET2010.ca to register and **save \$5.00 off admission.** (Registration at the door will be \$10.00)

SHOW HOURS

Wednesday, May 5 9:00am - 6:00pm
 Thursday, May 6 9:00am - 5:00pm

MONCTON COLISEUM COMPLEX

WWW.MEET2010.CA

ADVERTISER	PAGE#
ABB Inc.	23
Acuity Brands	12
Arlington Industries	13
Brady Corp.	24
Britech	29
Canada Training Group	11
Canadian Standards Association	30
CodeSafety Associates	29
Eaton Electrical	21
Falvo Electric	29
Flir Systems	9
Fluke Electronics	29
General Electric	17
Hammond Manufacturing	4
Hubbell Canada	8
I.E.D. Limited Partnership	32
Ideal Industries	10
IPEX Inc.	27
Leviton Manufacturing	18
MEET Show 2010	28
Nexans Canada	1
Northern Cables	7
Power Survey	29
Raylew Power Systems	29
RC Lighting	22
Schneider Electronics	19
SmartGrid	15
Standard Products	2 & 29
Techspan Industries	31
Thomas & Betts	1, 5 & 11
United Wire & Cable	6
Venture Lighting	16
Visioneering Corp.	25
W.H. Salisbury	20

CELEBRATING 15 YEARS OF QUALITY SERVICE
BRITECH
CABLES & CONTROLS

WE HAVE THE HEATING CABLE YOU NEED
"Construction Site Tough"

120 TO 600 VOLT, SHIPPED FROM STOCK
THE BEST PRICED CABLES IN CANADA

Call today and start making money!
www.britech.ca 1-877-335-7790 info@britech.ca

LOADBANKS for RENT

600V, 480V & 208V Genset load testing and UPS load testing equipment.
Metering, Cables and tech support available.
Shipped anywhere.
Call 1-800-385-4421 for rates.

WE BUY AND SELL GENERATORS

POWER SYSTEMS
Electric Power Generating Equipment Inc.
www.raylewpower.com

Don't miss out
on your next issue of
Electrical Business

Sign up for your FREE SUBSCRIPTION
It's fast, it's easy and it's free!

Here's how:
For fastest service visit
www.ebmag.com
and click the subscribe button

www.ebmag.com

Ignitek™ : Energy Saving High Output Metal Halide

Ignitek, the energy-saving high output metal halide lamp by EYE delivers pulse start performance without changing the ballast or socket. This 360 W lamp, which operates on a traditional 400 W ballast, has 29 % higher maintained lumens than that of a traditional 400 W universal metal halide lamp, in turn, resulting in a longer usable lamp life. As a result, this increase in lamp life extends the re-lamp cycle thus, substantially reducing maintenance costs. Ignitek is a direct replacement for existing metal halide lamps. Due to the patented and time tested FEC ignitor inside the lamp, which generates a starting pulse necessary to ignite its high performance arc tube, no installation of a special ballast or ignitor is needed.

www.standardpro.com

WANTED

Molded Case Circuit Breakers. New & Used, All Brands.
Motor Control & MCC. Buckets in A&B, S.D. & W.H. & C.H.

Please call, email or fax Ralph Falvo with your list.

FALVO ELECTRICAL SUPPLY LTD.
5838-87A St., Edmonton, Alberta
1-800-661-8892
780-466-8078 Fax 780-468-1181
email: rjf@falvo.com

FLEXCONNECT™ : Most Versatile Electronic CFL Ballast

FLEXCONNECT, with its multi-lamp design and flexibility for various mounting options, is the most versatile electronic ballast kit available in the Canadian market. All lighting applications and inventory requirements from 120 to 347V are covered with 6 models, making ballast selection easy. These programmed start ballasts extend/maximize lamp life especially in applications with frequent switching, making them suitable for motion and occupancy sensors. The FLEXCONNECT is also ideal for outdoor or cold start application and they feature an auto-restrike capability which eliminates the need to reset power after replacing a lamp.

The installer friendly design of FLEXCONNECT provides a mounting conversion plate which converts the ballast from a side to bottom mount. The plate is designed to include knockouts for center hole wiring or side-wiring. With the pre-stripped colour coded connectors, wiring the FLEXCONNECT with accuracy is a breeze!

www.standardpro.com

FLUKE.

Fluke brings you the world's first remote display DMM.

The new 233 DMM with wireless removable magnetic display allows you to be 30ft away from the measurement point - it's built for you to take measurements where display viewing is challenging. Visit www.flukecanada.ca

CS associates

THE BENCHMARK IN ELECTRICAL SAFETY INFORMATION

Services:
- Electrical Industry Consulting
- Training Development
- Electrical Safety Assessments
- Benchmarking
- Feasibility Studies

Contact
Kris Paszkowiak, P.ENG.
Phone: (905) 599-2702
eMail: kris.paszkowiak@gmail.com

CodeSafety associates
training assessments consulting

FLUKE.

Fluke brings you the first affordable 320 x 240 resolution infrared thermal imager built to withstand a 6.5 foot drop. IR-Fusion® and SmartView® analyzing and reporting software included. Picture-in-picture quality you'll want to find it, fix it, fast! Visit www.flukecanada.ca

PS POWER SURVEY INTERNATIONAL INC.
Serving you since 1948

The Power Factor Correction Capacitor and Harmonic Filter experts
www.powersurvey.com

Automatic medium voltage capacitor bank combined with switchgear

Automatic low voltage harmonic filter bank

Low & medium voltage capacitors units

Fixed harmonic filter

Now available close to you; with over 150 sales offices and business partners coast to coast :

- Fixed capacitor bank and harmonic filter; from 120v up to 35 kV
- Automatic capacitor banks & harmonic filters from 120v up to 35 kV
- Network harmonic simulation to meet IEEE 519
- On site harmonic analysis
- Also manufacturer of custom medium voltage switchgear up to 35 kV

Recent customers that reduced their power bills and harmonics with Power Survey Equipment.

- NASA
- JFK Airport
- Nortel
- Lafarge Cement
- West Fraser Mills
- US Air Force
- Quebecor Printing
- Canadian Forest Products
- Several Ski Centers

Please contact your Power Survey sales office near you

NFLD: (709) 753-6685	Ontario: (514) 333-8392	Alberta: (800) 263-2684
NS & PEI: (902) 450-5155	Manitoba: (204) 694-0000	BC: (604) 882-8488
NB: (506) 862-1515	Saskatoon, SK: (306) 244-7272	USA: (514) 333-8392
Quebec: (514) 333-8392	Regina, SK: (306) 771-2500	



Interconnecting solar power systems

Ever-increasing electricity bills are causing some concerned homeowners to consider the installation of solar panels on the roofs of their homes. Whether motivated by the impact on their pocketbook or the desire to be greener and, thus, reduce their carbon footprint, these homeowners are embracing new ideas for alternative energy generation. Whatever their motivation, their goal would ultimately benefit all ratepayers by reducing demand on the provincial power grid.

In Ontario, for example, the Ontario Power Authority has introduced a Feed-in Tariff (FIT) program for renewable energy projects. One component of that program is something called 'microFIT', which applies to small, renewable power-generating projects of 10kW or less. Prices under the microFIT program range from \$0.11/kWh for landfill gas projects to very substantial \$0.80/kWh for solar photovoltaic systems.

(More information, including the limits on the domestic content requirements for PV systems, is available at www.powerauthority.on.ca.)

The Canadian Electrical Code (CEC) has a number of electrical safety rules that apply to the installation of typical micro-generation systems. The applicable rules are spread out across various sections of the CEC. For example, Section 50 contains specific rules pertaining to the installation of solar photovoltaic systems, while Section 84 deals with interconnecting the electric power production sources with the supply authority system.

Also, we need to remember all of the other applicable sections, such as Sections 4, 10, 12, 14 and 26.

The ability to disconnect the photovoltaic system is critical; the visible single point of isolation provides safety for the supply authority's staff, as well as any person who might be performing any repairs or component replacements. Rule 50-012 "Disconnecting means", requires that a disconnect switch be provided to disconnect all equipment—including the power-conditioning unit—from all ungrounded conductors of all sources. When the

equipment in question is energized from more than one source, the disconnecting means shall comply with Rules 14-414 and 14-700.

The second critical requirement is the use of a grid-dependent inverter certified to CSA C22.2 No. 107.1-01 "General Use Power Supplies". Where inverters approved for grid interconnection are used, the anti-islanding feature will automatically isolate the solar panels from the supply authority upon loss of supply authority voltage. However, various supply authorities and inspection authorities insist on enforcing Rules 84-022

"Disconnecting means – Supply authority system" and 84-024 "Disconnecting means – General" because they do not want to rely on the electronics, and because of the concern that even a small generator can magnetize the distribution transformer primary, resulting in a hazard to linemen.

The installation of even a small solar-powered system can get complicated, and there's major cost involved. A typical 3kW to 4kW solar panel system can have a price tag of about \$40,000 to \$65,000. Other concerns are technical in nature and some are not, such as assessing the solar panels' exposure to the sun, available roof area and roof integrity, building code requirements, insurance and tax implications, etc. **EB**

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

Tackle The Code Conundrum... if you dare

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

How did you do with March's quiz? Are you a...

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

Question 1

Ventilation equipment intended for use with electrical vehicle supply equipment shall be permitted to be supplied by the branch circuit supplying the electric vehicle charging equipment.

- a) True
- b) False

Question 2

Non-metallic sheathed cable type NMWU shall be required for all branch circuits of temporary wiring installations

- a) True
- b) False

Question 3

The station ground electrode shall be connected to the fence by a tap conductor at each end, corner and gate post, and at intermediate posts at intervals not exceeding ___ m by a conductor of not less than No. 2/0 AWG copper.

- a) 3 m c) 6 m
- b) 5 m d) 12 m

Answers to Code Conundrum Electrical Business March 2010

Q-1: Armoured cable is permitted to be fished into a wall cavity containing non-metallic sheathed cable.

b) False. Rule 12-612.

Q-2: Where receptacles exposed to the weather are installed in surface-mounted outlet boxes, the cover plates shall be held in place by two screws or by some other equivalent means.

b) False. Rule 26-702(2) requires the cover plate be held in place by four screws, or some other equivalent means.

Q-3: The branch circuit supplying a cathodic protection system rectifier shall be permitted to supply additional outlets.

b) False. Subrule 80-008 states the branch circuit shall be provided solely for the cathodic protection system rectifier.



2009 Canadian Electrical Code

The 21st version of the Canadian Electrical Code was developed through the most extensive review ever, incorporating 108 revisions and 14 new interpretations. By meeting these standards, you will help ensure the safety of those who rely on your expertise.

ORDER NOW !!! cecode.csa.ca



Safety-Performance-Durability

Techspan IEC309 Pin & Sleeve connectors



3 sizes
of non-metallic back boxes
now in stock

- Watertight - IP67 (indoor/outdoor) 20-100amp
- Splashproof - IP44 (indoor) 20&30amp
- Quick and easy installation
- Rugged construction
- Single & 3 phase voltage ratings - 6 colour codes determines size
- 3, 4 & 5 wire connections, 4 amperage ranges available, -25°C to 90°C OTR

Use this link to for a complete listing of available items

www.techspan.biz/IEC309



“Don’t Get Caught Short On Your Connection”

Use Penn-Union “Penn-Crimp®” Compression Lugs with longer length barrels for added assurance



Choose from a variety of styles including Telecom and Flared lugs for DLO and Flex cables

- Suitable cable types include Concentric, Compressed & Compact stranding, flexible cable, Welding & DLO cable, Class H, G, M and Metric cable.
- Generous entrance chamfer provides easy cable insertion
- CSA & UL approved for Power, Grounding /Bonding & Direct burial
- **CSA & UL Approved with most Major Competitors crimp tools**
- Approved up to 35KV application
- 5 styles to choose from including Flared & Telecom styles
- Copper conductor range from 8 awg. To 2000 MCM
- Aluminum conductor range from 8 awg. To 1000 MCM

Use this link to get your copy of our Wire and Cable-Lug selection chart

www.techspan.biz/lug



Searching for a Classic Design? Look No Further

Techspan Motor Starters bring the Past to the Present



Direct-On-Line Motor Starters

- Non-Metallic NEMA 4 Enclosures
- Select from 4 styles of device set-ups -- stop/reset, reset, start-stop/reset & jog
- 4 amperage ranges available— 9,12, 18 & 25
- CSA/UL Approved
- Overloads sold separately — customer's choice

3 Pole Non-Reversing Starters

- Metallic NEMA 1 Enclosures
- 11 styles of easy plug & play “Quick kits” available
- 9 amperage ranges available
- cUL/UL Approved
- Overloads sold separately— customer's choice

Use this link to view the full on-line catalogue pages and available stock selection from our warehouse

www.techspan.biz/starters



Big changes are coming this Spring to Techspan

Watch for our New Website launching **April 2010**

- Easier Navigation
- Quick Links • More Info
- User Friendly



www.techspan.biz

1-800-363-1588 • www.techspan.biz

Email: sales@techspan.on.ca





HE SHOULD HAVE
TRIED
OUR REWARDS.



If you're not buying from an IED Distributor, you're *not* getting the most out of your electrical purchases.

If you have to buy electrical supplies anyway, then why not receive points towards *cool rewards* while you're at it? You'll find a powerful lineup of products – from the latest gadgets, games and electronics to unique items that are a collector's dream. The program is simple. We reward our customers for purchasing participating suppliers' products from an IED Distributor. You earn one point for every dollar spent⁽¹⁾ at any IED Distributors⁽²⁾ across Canada. Your points are updated monthly and you can begin receiving rewards for as little as 700 points⁽³⁾. It's deliciously easy.

Stop getting *nothing*. Start getting *rewards*. Sign up today.

To enroll, log on to www.iedrewards.ca, click on register and then follow the prompts.

(1) Points earned on purchases from participating IED Distributors and participating suppliers only. (2) Rules on website apply.
(3) Points can be converted to charitable donations to ensure compliance with individual corporate policies.



Visit www.ied.ca for the IED distributor nearest you.

Beaulieu & Lamoureux • CDE • Del's Distributors • Deschênes & Fils • Diversified Ventures
Dixon Electric • Dubo Électrique • Eddy Group • Ecol Electric • Electrimat Ltée • Espo Electric
EWS – Leamington • Grey-Bruce Electric • House of Electrical • J.D. Paré • J.W. Bird • Marchand Electrical
McLoughlan Supplies • P. Wolf Lighting • Les Distributeurs Papineau • Paul Wolf/Kester • E.G. Penner
Powmatic • Province Electric • Robertson Electric • Thornes/Source Atlantic • Tradelco Inc. • Western Equipment

www.iedrewards.ca

IED LIMITED PARTNERSHIP II | WWW.IED.CA | CANADA'S LEADING ELECTRICAL SUPPLY NETWORK