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**ECAO**  
ELECTRICAL CONTRACTORS  
ASSOCIATION OF ONTARIO

Volume 44 • Number 4 • Fall 2006

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**On The Cover:** The Palm Court of the Fairmont Empress, the scene of the opening reception of the 2006 National Industry Conference of the Canadian Electrical Contractors Association.

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170 Attwell Drive, Suite 460, Toronto,  
Ontario M9W 5Z5  
Tel: 416-675-3226  
Fax: 416-675-7736  
1-800-387-ECAO (3226)  
e-mail: [ecao@ecao.org](mailto:ecao@ecao.org)  
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#### Publisher

Robert Thompson

#### Associate Editor

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#### Editor

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#### Graphic Design Specialists

James T. Mitchell,

Krista Zimmermann,

Zig Thieson,

Annette Carlucci

#### Project Co-ordinator

Sharon Komoski

#### Published by:

**MediaEDGE**  
PUBLISHING INC.

5255 Yonge Street, Suite 1000

Toronto, ON M2N 6P4

1-866-216-0660 ext. 229

Email: [robert@mediaedge.ca](mailto:robert@mediaedge.ca)

1 Wesley Ave., Suite 301

Winnipeg, MB R3C 4G6

1-866-201-3096

Fax: (204) 480-4420

[www.mediaedgepublishing.com](http://www.mediaedgepublishing.com)

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Kevin Brown

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#### Branch Manager

Nancy Price

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# From the President...



Welcome to the fourth and last edition of the Ontario Electrical Contractor magazine for 2006. It has been an extremely busy year for the association, the industry and the magazine. It is satisfying to look at this issue's stories particularly of the CECA National Industry Conference, the ECAO Annual General Meeting and the official launch

of the ECRA of ESA (provincial licensing) recording the significant accomplishments of the past year.

The National Industry Conference in Victoria, British Columbia was the best-ever and set the stage for next year's conference and product exposition in Ottawa, which will be hosted by ECA Ontario. The local conference committee (ECA Ottawa) is already hard at work planning the event.

ECAO has found that holding its annual meeting in conjunction with the national conference creates synergies which benefit both functions. This year's AGM is an excellent example with more than 80 contractors present. One of the more satisfying roles as President of ECAO is to be able to recognize our industry leaders.

Please take a moment to review this year's list of award winners, in particular, congratulations to Dave Mason, our newest Douglas J. B. Wright award winner.

Many words have been written in this magazine about provincial licensing. In this issue, two pictures tell the whole story...the official launch of ECRA of ESA. Special recognition must be extended on behalf of ECAO to Glenn Carr, Campbell & Kennedy Electric and Peter Marcucci and Lucy Impera of the Electrical Safety Authority for their contribution in making provincial licensing a reality.

In addition to the association events above, you'll find articles on original research into the causes and prevention of multi-meter accidents, the increasing necessity for surge and lightning protection as well as our regular features on safety, finance and business management.

I welcome your views and feedback on any of the issues raised here or any other matter you would like to see addressed in your publication.

In closing, I wish you a Happy Thanksgiving and a prosperous fourth quarter.

Brad Vollmer



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# Multi-meter Accidents & Prevention Plan

By Steve Smith



## PEOPLE ARE GETTING HURT USING MULTI-METERS. THAT IS A FACT.

Since the change in the 2002 Ontario Electrical Code requiring the mandatory reporting of electrical accidents to ESA, we have been able to do in-depth investigations, from a root cause perspective, focusing specifically on the electrical factors.

During these investigations, a trend involving multi-meter accidents emerged and alarmingly revealed that approximately half of the reported multi-meter accidents resulted in critical injuries to the victim.

The numbers are alarming, in fact I cannot think of another single piece of electrical equipment that has as high a rate of injury to the worker. Something must be done, and ESA is taking the initiative.

A recent survey ESA conducted with 5,000 electricians across the province revealed that 11 per cent of respondents had experienced a "violent failure of a multi-meter." This number is staggering and unacceptable.

Cause and determination analysis of these accidents pointed to "user error," in the majority of cases, as the source problem followed closely by internal component failure.

### User errors would include:

- Wrong settings (i.e. ohms scale selected when testing voltage)
- Wrong "Cat" area application
- Wrong probe socket used (i.e. amps instead of volts)
- Wrong use of the product, such as switching settings under power
- Wrong voltage applied, exceeding limits of meter.

Adding to the user error problem was wear, tear and contamination within the meter that creates internal component failures.

Closer examination of the devices involved in these accidents indicated that many of these products did not have



internal protection and even with some that did, the protection did not appear to prevent the introduction of a fault into the system, resulting in serious injury to the user from arc flash.

In most cases, it appears that although a direct fault itself did not cause the injury to the user, the meter had initiated a direct fault into the system being tested. As a result, a dead short was initiated right at the test probes' ends. This is the equivalent of putting a coat hanger right across the terminals being tested with the victim standing within a foot or so of the failure point.

With typical fault currents in industrial applications well over 10,000 amps, and the resultant arc flash temperature of up to 3,500 degrees Fahrenheit, it is not hard to see why there are so many critical injuries associated with these accidents.

Next, we assessed the standard governing multi-meters (C22.2 No. 61010) and found that it did not appear to address these specific issues. This is not totally unusual since it is field experience that drives a lot of standard changes. That is why they are constantly being updated by gained field experience.

The biggest challenge before ESA was to determine ways of preventing or reducing such tragic accidents from happening.

From the user error perspective, the fact that these tools are used for troubleshooting live equipment may be one of the problems. With many distracters, including concentrating on trying to figure out what is wrong with the piece of equipment being tested, the user can forget to switch the meter to the proper function and thereby initiate an internal failure. This dead short is then propagated to the system test point; the probes.

Another cause is associated with aging equipment. When a multi-meter has been in service for many years, it can begin to deteriorate or become compromised with contamination of dirt or moisture conductive material. Frequent transient spikes are another leading cause of meter failure and unfortunately the user has no idea when a spike has, or will, hit the meter. So how does the user know what is going on inside the instrument? They usually don't, therefore it is important to have adequate, automatic protection for when things go wrong.

Like driving with worn tires and hitting an unexpected icy road, we have learned that seat belts and air bags can save lives, when user error or mechanical failures happen. I ask you then, why do we not have the equivalent of seat belts and air bags in our multi-meters? The answer is, we can.

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## MULTIMETER ACCIDENTS & PREVENTION PLAN

It is clear that we must do a better job of protecting the worker from life threatening arc faults, initiated by failures within a multi-meter, whatever the cause.



We need to create a so-called safety net that would better protect the operator of a multi-meter from failures within the meter.

The options include:

- Part II Standard Changes, for new equipment being produced; and,
- Adding protection for existing field product; and
- Education and behavioural changes at the user level.

The good news is that ESA has initiated all three of these options, simultaneously.



Fused leads seem like a viable option. The Electrical & Utilities Safety Association or E&USA has had a fused lead policy in place for some time with good success. However, fused leads needed to be tested to verify if they truly would protect the user from any or all of the five most common user errors as well as other internal failures.

To this end, ESA contracted a high voltage, high current laboratory to test the effectiveness of fused leads in handling internal meter failures.

The resultant testing indicated that when properly applied, fused leads prove to be an effective method in preventing at least four of the five most common user error scenarios and most internal failures.

The only scenario the fused leads could not protect the user from was an extreme over voltage condition. This was due to the voltage limitations of the fuse itself.

At the same time, an initiative was begun to update the Part II Standard, based on these laboratory findings. This is presently ongoing. Since the standard change will take time and will only affect new products built after the adoption of the new standard, something has to be



done to address the thousands of multi-meters in use in the field every day. Therefore, the next logical step is to seek stakeholder support for the “mandatory use of approved fused leads on all construction and industrial sites in the province of Ontario.” This initiative is key to the reduction of accidents involving multi-meters and the protection of the worker. With expected stakeholder support, we will begin an aggressive education program, which will reach out to all the electrical trades in Ontario. With this campaign, we hope to significantly reduce the number of accidents involving multi-meters, making it a safer place to work and build added confidence in the electrical safety system of Ontario.

But don't wait for these changes to take effect, take charge of your own safety, now.

Never use a multi-meter without fused leads – your safety may depend on it. Remember to “fuse it” or “lose it!”

*Steve Smith is Projects Manager, Regulatory Affairs, with the Electrical Safety Authority. He is also the Project Administrator for ESA's Multi-meter Safety Initiative. For more information, contact [steve.smith@electricalsafety.on.ca](mailto:steve.smith@electricalsafety.on.ca).*

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“To invest successfully does not require a stratospheric IQ, unusual business insights, or inside information. What’s needed is a sound intellectual framework for making decisions and the ability to keep emotions from corroding the framework.” —Warren Buffett

# How To Protect Your Investments From...Yourself

By Stanley Tepner

**W**arren Buffett is a man who needs no introduction to investors. His investment acumen is legendary. His comments are heeded with the greatest of attention. He has tenaciously adhered to an emotion-free, disciplined, intellectual approach to investing, and became the world’s second wealthiest man (behind a certain Mr. Gates). Along the way, he acquired the alliterative moniker, the “Oracle of Omaha.”

As Mr. Buffett implies in his quote, emotions are an investor’s worst enemy. Consider your own investing experience. How often are you tempted by the competing emotional forces of fear and greed? Have you

ever bailed out of a once-desirable holding after it took an unexpected tumble, or after a prolonged period of declining value, simply because you were afraid of losing much more? How often have you waited on the sidelines to invest, and only felt empowered enough to do so after prices had risen significantly?

Everyone talks about wanting to “buy low and sell high,” but how often have you really done this? And what basis did you use to determine the “low” and “high” points? Did you apply any intellectual framework at all? Or were your investment “decisions” simply emotional reactions?



Writing in *Forbes* magazine, American portfolio manager and newsletter writer John Buckingham cites the oft-quoted work of psychologists Daniel Kahneman and Amos Tversky, who performed studies that show that, for most people, the pain of a financial loss is more than twice as intense as the pleasure of an equivalent gain.

With a two-to-one pain-to-gain ratio, how would you fare in the following exercise? Let's do some arithmetic:

Say I give you 20 \$10 bills and ask you to make 20 investment decisions based on the toss of a coin. In each round, you can choose not to play/invest, and thus get to keep the \$10 bill. If you do play/invest, you will lose the \$10 bill if the coin comes up heads, but you get \$25 if it comes up tails.

If you don't play at all, you will still have \$200. However, assuming an equal number of heads and tails, if you play every single round, you would end up with \$250. One would hope that you would choose to play every round. Unfortunately, as Mr. Buckingham points out, that's not the way most people behave. After a few painful losses they are likely to stop playing, rather than stay in the game and let the odds work in their favour. And that is where emotions become your worst enemy.

Fortunately, the mutual fund industry has created some unique structures, commonly known as "mutual fund wrap accounts," or "wraps," that can go a long way to prevent you from succumbing to the competing emotional magnets known as fear and greed.

The simplest way to describe a mutual fund wrap account is to start with a picture of how you might build a portfolio of mutual fund investments that represents your ideal asset mix. Once your desired asset allocation (a term that describes your particular mix of

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stocks, bonds and cash investments, which is based on your risk tolerance and investment objectives) is determined and the underlying investments are selected, a portfolio steward oversees the mix to ensure that:

1. when market forces cause your desired asset allocation to change (for example, the stock component grows by 10 per cent while the bond component shrinks by 10 per cent), the portfolio will be re-balanced back to your initial allocation;
2. the individual mutual fund managers within the “wrap” structure are performing to expectation (or they stand to be replaced); and
3. some discretion is used to steer the asset allocation to a more optimal mix, when market conditions warrant.

This combination of deliberate portfolio structuring and stewardship

can act as the “intellectual framework” and can scuttle the emotional enemy that Mr. Buffett so decries. Often you will be asked to complete a 10 – 15 part questionnaire that enables your financial advisor to help you select the ideal asset allocation for your risk profile and investment objectives.

For example, the questionnaire may reveal that you are a growth-oriented investor, and as such ought to maintain a steady 80 per cent asset allocation to equities. To reduce the potential risk of the portfolio, it might be divided geographically, for example, by allocating 30 per cent to Canada, 30 per cent to the United States, and 20 per cent for holdings outside of North America, you will have three portfolio managers working for you, one in each country/region.

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portfolio when the market has been falling. With each successive negative day or Armageddon-warning newspaper headline, your emotions are telling you to bail out, and wait "until things get better."

The equity component of your mutual fund wrap account has been dropping, but instead of selling out, the portfolio steward buys in at the lower prices, knowing that almost always, markets recover. The portfolio steward funds the acquisition of the lower priced equity positions by selling an equal amount of the more successful income component of the portfolio. Instead of "buy low, sell high," the portfolio steward goes one better, by following the mantra that states, "sell high, buy low."

This disciplined approach also works when markets are running upwards. The portfolio steward knows that bull runs have to end sometime, and will "sell high, buy low" to reap some of the profits provided by the equity compo-

nent of the wrap, to fund the lesser-performing elements of the mix.

Warren Buffett said of his disciplined approach to investing, "Occasional outbreaks of those two super-contagious diseases, fear and greed, will forever occur in the investment community. The timing of these epidemics is equally unpredictable, both as to duration and degree. Therefore we never try to anticipate the arrival or departure of either. We simply attempt to be fearful when others are greedy and to be greedy only when others are fearful."

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*Stanley M. Tepner, MBA, CA, CFP, TEP, is a First Vice President and Investment Advisor with The Tepner Team at CIBC Wood Gundy in Toronto.*

*He can be reached by telephone at 416-229-5566 or 1-800-488-8688 or by e-mail at stan.tepner@cibc.ca.*

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# Long Live The King

Can A Family Business Survive  
Past The Founder?

By Gordon D. Wusyk  
*Adapted from Beyond Survival*  
by Léon A. Danco



*Dream all the impossible dreams you want, but remember who's the unbeatable foe around here.*  
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In the majority of family-owned businesses an organization chart does not exist. The owner-manager often depends upon second-class advisors, a non-functioning and/or rubber stamp board of directors, and an archaic accounting system.

## Long Live The King

One of the basic problems of the family-owned business is that too often the shareholders, directors, and employees are all one person: the founder. Sometime between the age 20 and 40, newly fired from his last job and confident that he could do it better by himself, this self-appointed CEO scrapes together enough cash to start his own business.

Since he can't find anyone else more qualified, and because he holds or owes all the marbles, he appoints himself president. He starts with nothing and grows slowly, hopefully getting bigger and better. He is the first annual king of a dynasty. He has not time to talk to other kings because he's working 18 hours a day.

His kids don't remember what he looks like, the dog bites him when he comes in the door, and his wife knows him mostly as an empty chair at the dinner table. When he finally does find time to talk with other monarchs he tells himself privately, "my kingdom is different."

The men who run these businesses with guts and nerve are for the most part lonely, scared, tired, harassed and running out of time.

At age 50 a person has, on the average, only 300 months more to live. The first 200 of these months will be devoted to their business.

For those 200 months the owner often has no written plans, no organization chart, no calendar, no shared vision of the future, and no idea of what they will eventually do with their business...or the last 100 months.

Yet, unless the president of the family-owned business trains their successor(s) on a regular, formal basis, they risk not only the loss of their dream but they



contribute to a withering away of the North American dream.

One million owner-managed businesses in Canada generate one half of the Gross National Product. They are the constant reminder that in this land of opportunity, a person can still dream big and be their own boss. We have become a nation of family-owned businesses, surviving for the most part, however, for only one generation.

In the last 100 months, the founder must begin transferring his energy from reaping the harvest to replanting for tomorrow. Somewhere down the line are the children and successors, but dad is still really running the show. The successor is often told, in effect, "shut up, watch, and you'll learn." That's not a curriculum; it's a recipe for chaos. If they grin and bear it, they may inherit.

Bright young men and women find that shoveling sand, filing invoices or loading trucks are hardly useful pre-requisites for

becoming president of the company and poor use of their B. Comm. or MBA's or perceived "experience."

The founder must cease to be the company's oldest and hardest working employee. Instead, he must take on the role of teacher (CTO – Chief Training Officer) with the successor as their brightest student.

The curriculum must take into account the real nature of the business, with regular progression steps that incorporate standards of interim accomplishment. The student can't go from general manager in charge of the company picnic directly to executive vice president.

Owner-managers must learn to allow their heirs to make mistakes. The mistake at the learner-level may cost \$10,000 – or even \$100,000 – but this is nothing compared to the whoppers they can make when they control the whole company. In the long run, a \$100,000 mistake might be the

cheapest blooper a company ever made, because, if learned, the lesson may avert a disaster later on.

*Gordon D. Wusyk is President,  
Predictable Futures –  
Business Family Centre.*

*This article is an excerpt adapted from  
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# Surges

## An often underestimated risk!

By Ruud Roeleveld

**Only split  
seconds are  
sufficient to cause  
complete chaos**

**Thunderstorms are fascinating** and frightening at the same time. They are nice spectacles, but are a danger. Thunderstorms not only indicate a change of weather, but are a threat to industry.

Protection against the damage from a thunderstorm is not a luxury, but a necessity, especially for sophisticated equipment.

Without protection, the effects of a thunderstorm can paralyze IT and power systems. Loss reports from insurance companies show clearly that there is a backlog demand both in the private and commercial sector. Approximately 24 out of 100 cases of damage are caused by surges. In fact, the number of lightning activities are increasing. The city of Toronto has on average 200 flashes a year per 100 sq km, Hamilton 191, Windsor 251, et cetera (Source: CLDN; Canadian Lightning Detection Network).

However, it is not only lightning which can cause destruction or interferences to sensitive electronic equipment. Even a low peak voltage at the power supply can be sufficient. Surges can also occur during operational switching of large loads or uncompensated inductances, causing damage even from a distance.

Only split seconds are sufficient to cause complete chaos in a company, especially if surges have been underestimated.

### **Protecting Personal Property**

Modern homes are filled with electronic equipment. Although surges are fatal for these devices and systems, thousands of dollars worth of equipment are still being left unprotected.

In addition to TV, stereo and satellite receivers and personal computers, equipment such as security systems, dishwashers, and washing machines with micro-processors are also sensitive to surges caused by lightning.



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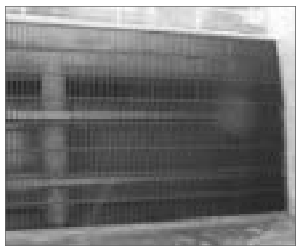
For administration work, data processing has become indispensable. PCs, servers and networks are standard equipment, and a breakdown is unacceptable. Moreover, there are building automation systems interconnected via bus systems. Everything has to work without interference.

### Increasing Operational Safety

Industrial automation is standard in most companies. A breakdown of the production can be financially devastating, and insurances against operational breakdowns are often nonexistent.

### What are surges and how do they come into existence?

Surges are short-time voltage impulses – so called transients – which only occur for less than a second, with peak voltages in the tens of thousands. Surges arising due to thunderstorms are caused by direct or near lightning strikes or strikes from a distance (Fig.1). Direct or near lightning strikes are strikes into the lightning protection system of a structure, into its immediate surroundings or into the constructive systems entering the structure (e.g. low voltage power supply, telecommunication and control lines). Due to the amplitudes and energy loads, the arising impulse currents and impulse voltage represent a special risk for a system. During a near or direct lightning strike, the surges (fig 1: Case 1a) are caused by a voltage drop at the impulse earthing resistance and



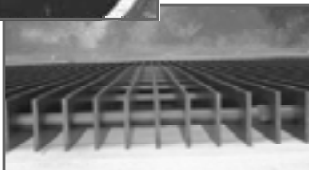
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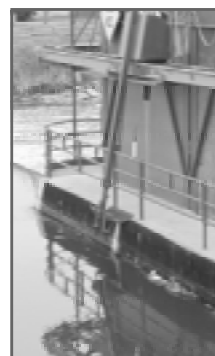
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the resulting potential increase of the structure towards the distant surroundings. This is the maximum load on electrical installations in structures.

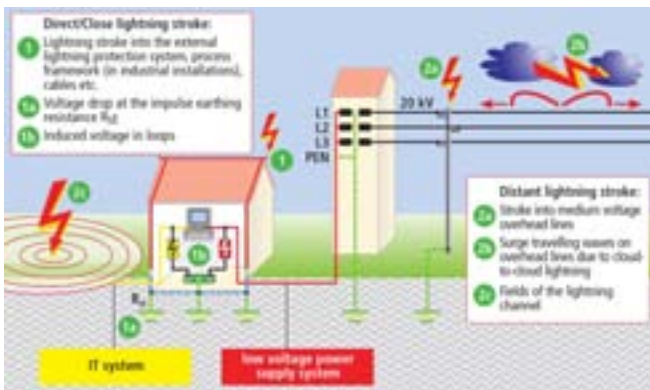


Fig. 1 Causes of Surges in Lightning discharges

The characteristic parameters of flowing impulse currents can be described with the impulse-current wave form 10/350  $\mu$ s (Fig. 2) and defined in international standards as test currents for components and devices for protection against direct lightning strikes.

In addition to the voltage drop at the impulse earthing resistance, surges are caused in the electrical structure and the connected systems and equipment due to induction effect of the electromagnetic lightning field (Fig. 1: Case 1b). The power of these induced surges

and the resulting impulse currents is considerably lower than the power of a direct lightning impulse current and is therefore only described with the impulse current wave form 8/20  $\mu$ s (Fig. 2). Components and equipment, which do not have to carry currents out of direct lightning strikes, are therefore tested with impulse currents of 8/20  $\mu$ s.

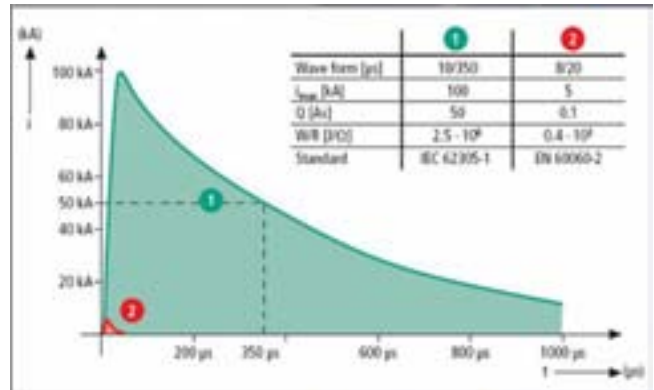



Fig. 2 Test impulses for Lightning arresters (1) and Surge arresters (2)

### Protection Philosophy

Distant strikes are lightning strikes from a distance to the object to be protected, lightning strikes into the medium voltage overhead line network or into its immediate surroundings, or lightning discharges from cloud to cloud (Fig. 1: Case 2a, 2b and 2c).



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## SURGES - AN OFTEN UNDERESTIMATED RISK

For ensuring a continuous availability of complex electrical and IT-systems, even in the case of a direct lightning effect, further measures for the surge protection of electrical and electronic installations are necessary, based on a building lightning protection system. Taking all causes of surges into consideration is very important. For this purpose, the Lightning Protection Zone Concept is defined.

**Safety according to Specification**  
The "Lightning Protection Zone Concept" - Failures of technical systems and installations are very costly for business. These require faultless operation from equipment both under "normal" conditions and in the case of thunderstorms. A comprehensive protection concept would help to enhance this. Protection against surges is necessary for all companies in all kinds of industries. Every company has

more than enough sensitive targets for these destructive transients: power supply, EDP system, IT systems, process control systems, telephone system, regulation of the air conditioning and heating, lighting control, etc.

For this purpose, lightning current and surge arresters are used. Lightning current arresters are responsible for the conduction of high energies without damage. The surge arresters protect the terminal equipment. Lightning current arresters have to be installed as close as possible to the service entrance of the electrical system, and surge arresters as close as possible to the equipment to be protected. That is why power bars with a surge protector unit are not sufficient to handle the power and high energy of lightning currents.

*Ruud Roeeveld works with R3&A Limited, Business Partner of DEHN.*

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# Frequently Asked Questions

By Ted Olechna

ESA is creating an online FAQ to address Code consistency issues in relation to the Ontario Electrical Safety Code, in order that both the inspector as well as the contractor are aware of the issue and direction. It will be an addition to the consumer FAQ and will require a unique password to access. You can currently access the consumer FAQ at [www.esasafe.com](http://www.esasafe.com).

Technical Advisors who are located in each territory are the primary resource to inspectors for Code issues. In addition, contractors should be contacting the TA in order to clear up Code issues or deal with consistency issues. The TAs and their local numbers are printed in the bulletins.

## Rule 4-004(14) – Parallel Conductor Installations

- 1) *In single conductor installations does this mean four single conductor cables per phase, or four single conductor cables total (one per phase plus neutral)?*
- 2) *In multi conductor cable installations does this mean one cable with four conductors or four cables?*

Response:

A literal interpretation, considering the definition of “conductor” in Section 0, would mean four single conductor cables or one four conductor cable. This means the easement given in 4-004(14) for short transitions would not apply to installations of more than one conductor per phase; therefore 4-004(13) would apply.

For installations consisting of more than one conductor per phase, the lowest applicable ampacity would govern at all times. [4-004(13)]

For installations consisting of only one conductor per phase, the lower applicable ampacity would govern only where that portion exceeded the lesser of 3 m or 10 per cent of the circuit length. [4-004(14)]

## Rule 2-308(4) and 6-206(1c) – Headroom Clearance Requirements

*What headroom clearance is required for switchboards?*

Response:

Rule 6-206(1c) deals with clearance requirements specifically for consumer service equipment. Consumer

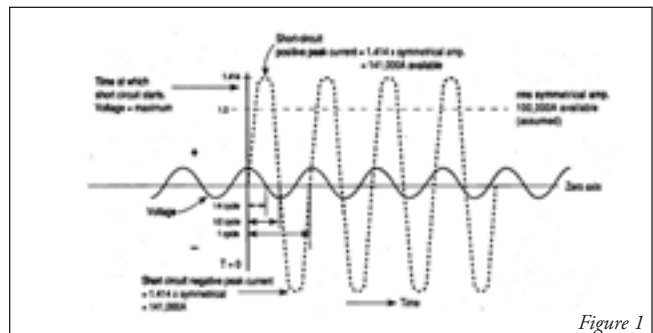
service equipment includes that portion of the consumer’s installation from the service box or its equivalent up to and including the point at which the supply authority makes connection. In this situation the headroom clearance is only required to be a minimum of two meters (6 ½ ft). Rule 2-308(4) deals with switchboards or motor control centres and requires a minimum headroom clearance of 2.2 meters (7 ft) where bare live parts are exposed at any time. A switchboard is a panel or assembly of panels on which is mounted any combination of switching, measuring, controlling and protective devices, buses, and connections. In some situations you might have the consumer service equipment part of the switchboard and this will require a headroom clearance of 2.2 m.

## Rule 14-012 Appendix “B” note

*In the Appendix B note to this rule it states that the interrupting ratings are symmetrical. In different equipment standards, there is mention of current values that are asymmetrical rms amperes or symmetrical rms. What is the difference?*

Response:

“Symmetrical” and “asymmetrical” are terms used to describe the symmetry of the short-circuit current waveform around the zero axis. If a short-circuit occurs in an inductive reactive circuit at the peak of the voltage waveform, the resulting short-circuit current will be totally symmetrical (see Figure 1).



If a short-circuit, in the same circuit, occurs at the zero of the voltage waveform, the resulting short-circuit current will be totally asymmetrical (see Figure 2).

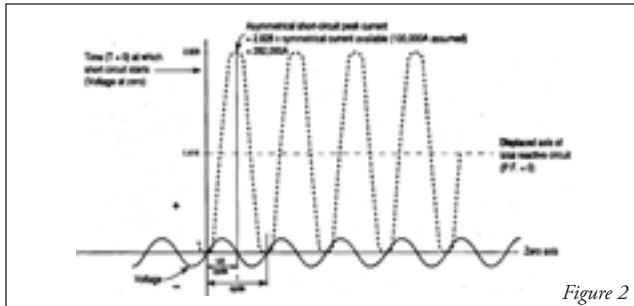


Figure 2

Switchgear has a momentary and an interrupting rating. The momentary rating is the short-circuit duty during the first cycle after a fault, and defines the equipment's ability to close and latch against worse case mechanical stresses. The interrupting rating is the short-circuit duty as the equipment contacts part, and is expressed in symmetrical amperes of MVA. Devices are rated on a symmetrical basis but tests on an asymmetrical basis. Medium-voltage fuses have interrupting ratings expressed in symmetrical amperes.

### Rule 10-406(2) –

#### Bonding Short Pieces of Metallic Water Pipes

*With the introduction of non-metallic water pipes, there are situations where you will have combinations of both metallic and non-metallic water pipes. Are short pieces of metallic water pipe extending from non-metallic piping to showers, bathtubs, sinks and toilets required to be bonded?*

Response:

Yes, bonding of the short lengths are required when the metallic water pipe is in close proximity to electrical wiring or electrical equipment and the possibility exists of the metallic piping becoming inadvertently energized due to cable or equipment failure. On the other hand if there is no electrical wiring or equipment in close proximity to short lengths of metallic water piping, then bonding is not required.

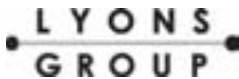
### Rule 26-402(2) – Heights of Panelboards

*The rule specifically states that in dwelling units the handle of an overcurrent device in a panelboard cannot be 1.7 meters above finished grade. What are the minimum/maximum height requirements for commercial or industrial facilities?*

Answer:

The height restriction imposed by Rule 26-402(2) is for panelboards in dwelling units only. For all other buildings Rule 14-106 states that the overcurrent devices shall be located in readily accessible places. A height requirement is dictated by the fact that in order to be readily accessible for operation, renewable or inspection, the use of ladders, chairs, etc. is not permitted.

*Ted Olechna is a Provincial Code Engineer with the Electrical Safety Authority. He can be reached by e-mail at [ted.olechna@ElectricalSafety.on.ca](mailto:ted.olechna@ElectricalSafety.on.ca).*



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# CECA's 7<sup>th</sup> ANNUAL INDUSTRY CONFERENCE

The 7th Annual National Industry Conference of the Canadian Electrical Contractors Association (CECA) was held in Victoria, British Columbia, June 17-20 at the imperial Fairmont Empress. Co-hosted by the Electrical Contractors Association of British Columbia (ECABC) and the Electrical Contractors Association of Ontario (ECAO), the conference attracted over 300 electrical industry contractors and suppliers and their guests.

The theme of the conference was "Leadership in Action." The business sessions examined leadership from many angles, from Afterburner's high-powered, high-tech fighter pilot presentation to local native artist Roy Henry's serene and personally centred approach.

The national conference is quickly becoming the premier electrical contracting industry event drawing large numbers of delegates from across Canada. Some provincial ECAs are taking advantage of this development and are using the national conference venue for

their own corporate meetings. This year, the CECA Board, ECABC and ECAO held their Annual General Meetings within the conference schedule. CECA President Rick Brodhurst observed that "the national conference is one of the most effective vehicles in promoting the Association's main objective, which is the sharing of ideas and experience and networking on a national scale."

Outside of the business sessions, humour prevailed. Evening entertainment included improvisational acts, impersonators and comedians, which kept the delegates laughing well into the night. Victoria was the ideal location as it provided natural beauty as well as opportunities for sightseeing and activities such as garden tours, whale watching, sea plane rides and golf.

Next year's National Industry Conference and Product Exposition will be hosted by the ECAO and will be held in the nation's capital, June 13-16 at the Westin Ottawa.

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*Roger and Catherine Park participate in some "tricky" business at the opening reception.*



*Becky LeBlanc and Frank Randell sit for the cartoonist.*

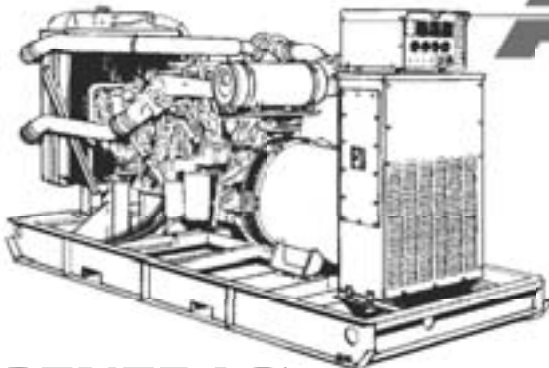


*The kids particularly enjoy the chocolate fountain.*



*Madelon and Garry Fitzpatrick admire the caricaturist's work.*

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*Trish and Ken Crawford (left) and Sue McKee enjoy Friday night's entertainment.*



*CECA President Rick Brodhurst and Karen Flannigan have fun with the feather boas provided as props for the guests.*



*Todd Robert (right) plays along with improv artist Roman Danylo.*



*Leslie Wright single-handedly burns up the dance floor.*



*James Kellett (left), David Jones (middle) and Terry Jeffery ham it up with the entertainment.*

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CECA President Rick Brodhurst proposes a toast Saturday night.



Wayne and Pat Crockett (from left) and Sue and Terry Jeffery enjoy the show.



Ed Braithwaite calls the shots on stage.



ECAO President Brad Vollmer welcomes guests to the final Gala.

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*Ted Vandevlis (left) and Eryl Roberts (right) with the safety award winners (from left) Brad Vollmer, Wayne Crockett, Tony Decuzzi and Jim Thompson.*

# ECAO's Annual General Meeting

ECAO held its Annual General Meeting on June 16th in Victoria, British Columbia, in conjunction with CECA's National Industry Conference. Prior to the formal business portion of the meeting, special guest Ted Vandevlis, Electrical & Utilities Safety Association President, presented ECAO's safety awards. Congratulations to the following member companies on their achievements in safety excellence:

- BML Multi-Trades (Category: Rate Group 704 – up to 50,000 Total Work Hours)
- Vollmer & Associates (Category: Rate Group 704 – 50,001 to 200,000 Total Work Hours)
- Lockerbie & Hole Eastern (Category: Rate Group 704 – 200,001 to 500,000 Total Work Hours)
- Black & McDonald Ltd. (Category: Rate Group 704 – over 500,000 Total Work Hours)
- Black & McDonald Ltd. (Category: Rate Group 830 – over 50,000 Total Work Hours)

There were no submissions received for Category: Rate Group 830 – under 50,000 Total Work Hours.

Following the safety awards, the 2006

Douglas J. B. Wright Award for contractor contribution and dedication for the betterment of the electrical industry was presented by Dan Lancia, President of ECA Hamilton. This year's recipient, David Mason, is President of D. J. Mason Electric in Hamilton and is also the immediate Past-President and a director of ECAO.

In his tribute, Dan Lancia stated that Dave Mason "puts the concerns of the electrical industry ahead of the concerns of his own business. He has a vast knowledge of the challenges and changes in the industry and steps forward to make things happen on behalf of all of us. Dave is well respected by all that know him, and known by reputation by those that don't."

Congratulations Dave!

Following the awards presentations, President Brad Vollmer presided over the Annual General Meeting. In his address to the membership, President Vollmer gave an overview of ECAO's new Strategic Plan laying out the roadmap to 2010. The nominating committee report was accepted as presented, installing the 2006-2007 directors. The new board held its first meeting following the AGM. The 2006-2007 directors are:

- Ove Bakmand
- Rick Ball
- Gary Beer
- Fred Black
- Ed Braithwaite

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*Douglas J. B. Wright award recipient David Mason (centre) with ECAO President Brad Vollmer (left) and Executive Vice-President Eryl Roberts.*

- Peter Bryant
- Gary Carr
- Wayne Crockett
- George Docherty
- Dave Duffy
- Greg Galbraith
- Gary Ganim
- Jim Kellett
- Dan Lancia
- Dave Mason

- Bill McKee
- John Raeppe
- John Salvatore
- Dennis Tatasciore
- Brad Vollmer
- Brad Walker

At the Board of Directors Meeting following the AGM, the following officers were duly elected:

- Dave Mason, Past-President
- Brad Vollmer, President
- Fred Black, 1st Vice-President
- John Raeppe, 2nd Vice-President
- Bill McKee, Secretary-Treasurer
- Eryl Roberts, Executive Vice-President.

Following the meetings, Lucy Impera, Registrar of the Electrical Contractor Registration Agency of the Electrical Safety Authority (ECRA of ESA) reviewed the implementation of province-wide licensing of electrical contractors and master electricians. She also outlined the business plan for ECRA and province-wide licensing over the next five years.

Gary Lehman, human resources and marketing consultant to ECAO, then gave an overview of the Joint Electrical Promotion Plan's activities to date and discussed the changing nature of industry promotion. He highlighted JEPP's new focus on empowering individual electrical contractors in self-marketing.

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### 012: CEILING AND OVERHEAD TRAY WORK

#### Avoiding electrocution hazards

Overhead areas frequently contain energized wiring. If you are doing a wire pull or running raceway, observe the location of existing wiring and adapt as necessary.

Look for obvious NEC violations in existing installations. For example, if you see SO cord supplying power to recessed fixtures, you can suspect the installer made other violations. Stop work and inform your foreman, immediately. There may be contract issues, in addition to your personal safety issues, to resolve before work can resume.

Use lockout/tagout procedures, even if you are just installing light fixtures.

Communicate clearly with others on the job. Tools for this purpose include end of day notes, labels on wiring, and conversations. Keep others, especially your foreman, informed of what you are doing.

#### Avoiding falling hazards

Never stand on the top step of a ladder, or on the step below that one.

Use the right size ladder for the job. Using the wrong ladder "just for a minute" can mean a lifetime of paralysis. Tie-off extension ladders.

If working on scaffolding, check the inspection tag before use. Or, if you are qualified to erect scaffolding, inspect it before use.

Wear the proper fall restraints, if there is a place on which to tie off. In many cases, there may not be a suitable anchor within reach. You will then need to take a more aggressive approach in other fall protection methods.

You are going to drop things. That's a given. Rope off the area if necessary. To reduce the added falling

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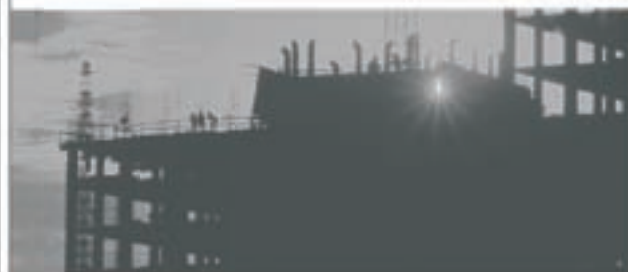
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hazards of climbing up and down, bring extra items with you. At the least, have some extra connectors, mounting hardware, and screwdrivers.

Keep wires bundled and neat. A bird's nest of wires can cause entanglement, entrapment, falling, hanging and other undesirable consequences.

If someone on the ground wants to talk to you, don't try to keep working while dealing with that distraction at the same time.

Look where you place your feet, not just ahead. In one factory, five people fell on five different occasions – through the same hole. None of them saw it, and the company refused to address the issue. One person broke his teeth and all four limbs in the fall.

## Avoiding shoulder injuries

Shoulder injuries are common on overhead work, because the work often places high demand on the stabilizer muscles of the shoulders – muscles that aren't prepared for that load.

Many people think a rotator cuff or shoulder dislocation happens because of strain. That is not true. The cause is disproportionate shoulder development. Your shoulder

sits in a girdle of three muscle bundles: front deltoid, lateral deltoid, and rear deltoid. In most people, the rear deltoid is far too underdeveloped compared to the rest of the shoulder and the result is an unstable joint.

You develop the front and lateral deltoids by lifting things overhead.

You develop the rear deltoid by lifting things up and back – think of picking up a suitcase and pulling your shoulders back. Or rowing.

Many workers in certain trades have very solid rear deltoids because of the work they do. Many ironworkers, for example, lift rebar off the ground and toward their bodies. Electricians do the same thing with raceway. Just make sure you don't neglect this muscle. Tip: If you have rounded or stooped shoulders, you probably have a shoulder accident waiting to happen.

## Avoiding neck fatigue

Working overhead often results in neck strain, because people look up while working. To avoid this, raise yourself to the level of work as much as possible, so you are looking straight at or down at the work.

If your neck feels tired, stop what you are doing for a moment. Rotate your neck gently through its full range of rotation and then back again. If you do this before your neck feels tired, you can greatly extend how long you can work without neck fatigue.

*This Toolbox Talks article is reprinted with permission from 100 Safety Training Toolbox Talks for Electrical Construction Work, 2003, National Electrical Contractors Association (US). The complete set of 100 Toolbox Talks is available in Canada through the Canadian Electrical Contractors Association (CECA). Visit the CECA website at [www.ceca.org](http://www.ceca.org) to place your order or call 1-800-387-3226.*

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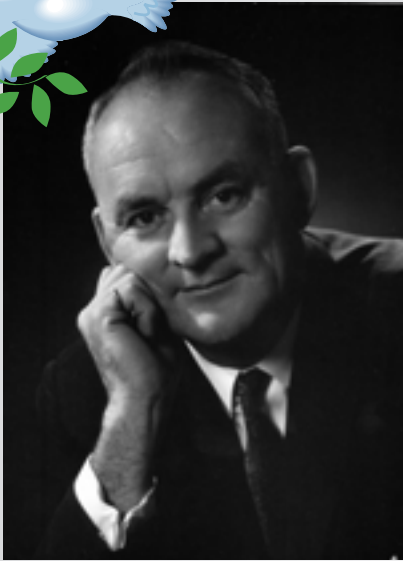
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## *In Memoriam*

# *Mike Sharp*



M. T. "Mike" Sharp, former Vice-President of Black & McDonald Limited, passed away suddenly on July 14th, 2006. He was 83 years old.

Mike's career in the construction industry spanned more than four decades with three prominent construction firms, Comstock, Bedard-Girard and Black & McDonald.

Mike served on many industry boards and committees, including as president of ECAO in 1968-69. He was also the first recipient of ECAO's Douglas J. B. Wright Award in 1993 for his contribution towards the betterment of the industry at the local, provincial and national levels. In his nomination of Mike for the award, Larry Macdonald, a protégé of Mike's with Black & McDonald, stated: "Mike Sharp has epitomized the Canadian contractor...It is this image, together with his honesty, integrity and pleasantness that will be his legacy."

Mike is survived by Betty, his wife of 62 years, and children Mike Jr., Deborah and Jimmy.

## Industry News

### Official Launch of the Electrical Contractor Registration Agency of the Electrical Safety Authority



*Cutting the cake at ECRA of ESA's official opening (from left) are Bob Stelzer, ESA President & CEO, Dane McCarthy, ESA Chair, Honourable Harinder Takhar, Minister of Small Business and Entrepreneurship, Glenn Carr, ECRA Chair, Lucy Impera, ECRA of ESA Registrar, Barry Goodwin, Ministry of Government Services and Don Gosen, ECRA Vice-Chair.*



*Glenn Carr, Campbell & Kennedy Electric (centre left) and Don Gosen, Gosen Electric, receive the first provincial electrical contractor licenses from Lucy Impera, ECRA of ESA Registrar, and Peter Marcucci, ESA's Vice-President, Regulatory and Corporate Service.*

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