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Volume 47 • Number 1 • Winter 2009



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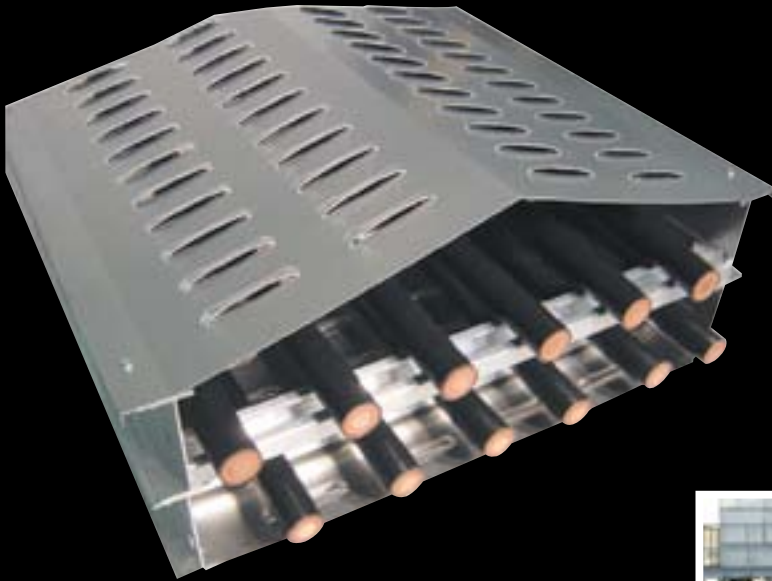


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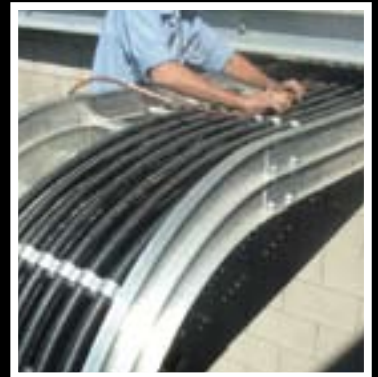
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On The Cover: The Board of Directors of ECAO at the President's Gala during the 2008 Industry Conference in Spain (see story page 18).

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Fred Black

The President's Remarks

Welcome to the first edition of the *Ontario Electrical Contractor* for 2009! In this issue, ECAO staffers, Lyndsy Miceli and Lucy Roberts, look back at the great times experienced at the September 2008 ECAO Industry Conference in Spain. Delegate feedback indicates last year's conference to be the best of any previous off-shore event for both business program and location. The OEC magazine wishes to thank all the delegates who submitted their photos for the article and the website conference page extending the great memories of this conference.

The transition from the third to fourth quarter of 2008 was a watershed between two different economic and political worlds. When we left for Spain in September, the Canadian dollar was a dollar, the price of oil was \$140 and the TSX was around 14,000. Six weeks later, the dollar hit 80 cents, the price of oil crashed through \$70 and the TSX was down to 9,000 points. In this new world of financial upheaval, economic prognostication is a dangerous activity, but Katherine Jacobs of the Ontario Construction Secretariat readily accepted our invitation to forecast the near term fortunes of the

Ontario economy and construction market. Though there are clearly tough times ahead, Katherine sees some bright spots for construction such as lower inflation, a shift to infrastructure investment by all levels of government and possibly lower material prices.

In times of economic downturn, we often need to change focus from the volume of business we are doing to the way we actually do it. How might we maintain profitability in times of lower volume and tighter pricing? Gary Lehman's article on Lean Construction, entitled *A New Way of Thinking and Doing to Improve Quality and Productivity*, examines productivity as a vast untapped resource for improvements to the bottom line. Borrowing from experiences of Toyota and Lean Manufacturing, Lean Construction bases success on concepts designed to reverse the slide in construction productivity experienced over the last 40 years.

ECAO has incorporated many aspects of the Lean philosophy into its Electrical Project Supervision courses to enhance electrical contractor productivity, but at the

end of the day, maximum benefits will be achieved only when the entire construction chain is engaged.

Risk management and protecting your assets is always on the top of the agenda. It was the central theme of the ECAO conference in Spain. ECAO industry partner, Federated Insurance, provides two additional articles about risk management and security. The first introduces their new "contract review" service to ensure that your insurance coverage matches the potential liabilities imbedded within construction contracts. The second discusses the basics of security for your outdoor storage lot.

I am sure you will find this first 2009 issue informative and useful as you make your way through the challenges of the New Year and the new economic environment. The *Ontario Electrical Contractor* magazine strives to provide practical information and advice and as always your comments and feedback about how we are doing are welcomed.

Meet the gang.



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* Per CEC 12-3010(3), boxes over 4 in. (100 mm) wide require additional support.

Thomas & Betts

Ontario's Economy on the Edge

By Katherine Jacobs

The outlook for the Canadian economy has clearly taken a turn for the worse given the dramatic, ongoing financial market crisis in the United States and around the world. The U.S. economy appears to have succumbed to a recession, with Europe, the U.K. and Japan not far behind. While Canada is in a better position, overall economic growth will be substantially weaker than previously anticipated. Canada's economy contracted in August with real GDP falling by 0.3 per cent. Overall, third-quarter growth is expected to be above zero, but not by much.

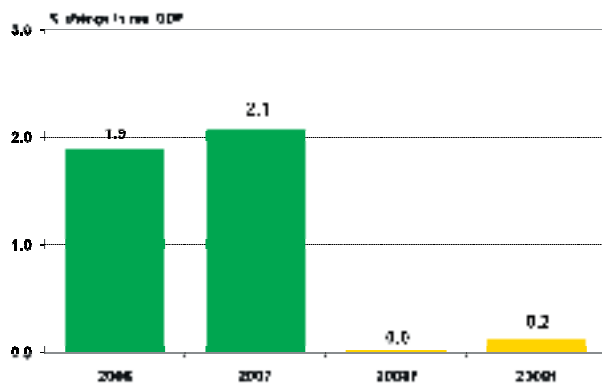
Most of the current economic forecasts are assuming the historic actions being taken by central banks and governments around the world will ultimately be successful in restoring investor confidence and bringing normalcy to financial markets. It is therefore widely anticipated that a recovery will start in the latter part of 2009. The Bank of Canada announced that they expect growth to rebound to 3.4 per cent in 2010. However, the ever-increasing uncertainty and the global nature of this

economic shock has led at least one major forecaster to revise down its 2008 and 2009 economic forecasts and now consider it likely that Canada will formally tip into a recession at the end of this year.

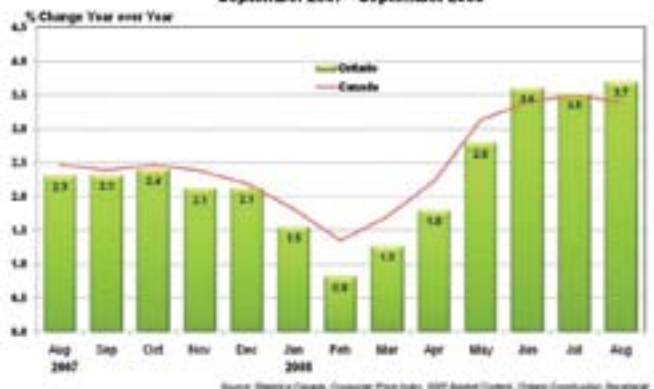
Ontario is particularly impacted by the ongoing crisis in the U.S. One bank economist suggests "the vortex created by the likely descent of the U.S. economy into recession will be virtually impossible for Ontario to withstand." Although Ontario may technically avoid a recession, defined at two consecutive quarters of negative GDP growth, it may not feel like we have avoided anything. While the Ontario economy should continue to benefit from public infrastructure programs, low interest rates and fiscal relief from the federal government, overall performance is expected to be the weakest since the recession of the 1990s with real GDP growth forecast at zero this year and 0.2-0.6 per cent next year.

Infrastructure investments can create a vital economic stimulus while providing long-term benefits for

Real Gross Domestic Product - Ontario



Consumer Price Index (All Items) - Ontario and Canada
September 2007 - September 2008



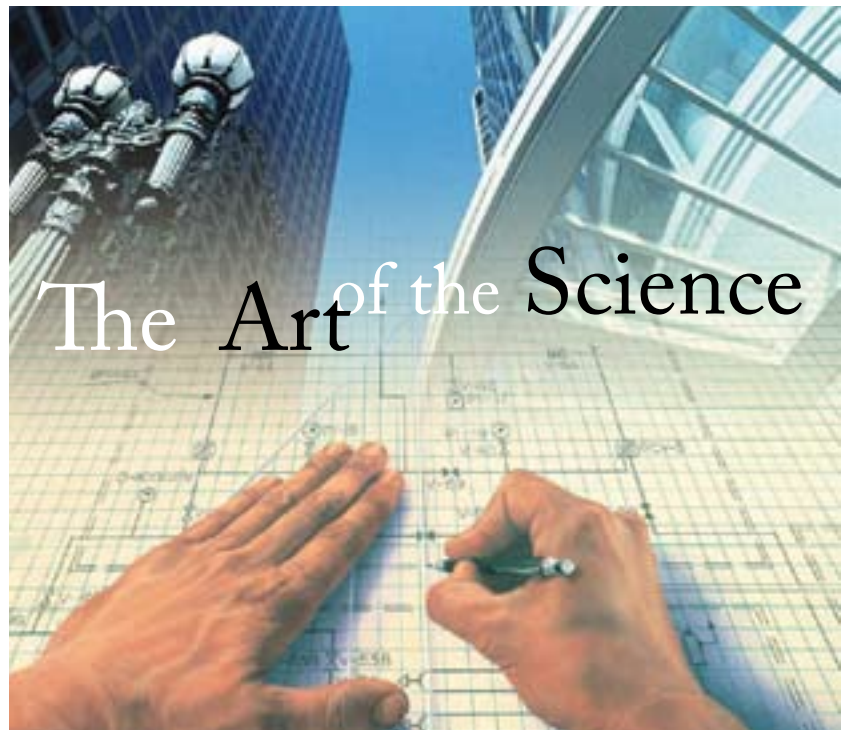
communities. Infrastructure spending was high on the wish list of premiers as they discussed the global economic crisis with Prime Minister Harper in advance to the G20 economic summit in Washington. Municipal leaders have also been advocating continued infrastructure spending. In a recently released report, the Federation of Canadian Municipalities states "injecting about \$8 billion already committed by Ottawa, the provinces and the cities to infrastructure projects through 2010 would create 92,000 jobs and expand the economy by one per cent." The report further says accelerating \$1-billion in infrastructure spending would have the same impact as a \$1 billion tax cut. Transport Minister John Baird, who is responsible for the infrastructure file, has made clear his intent to speed up funding but has warned stakeholders not to expect Ottawa to boost spending beyond what has already been set aside.

Inflationary pressures are expected to ease significantly relative to where things were in July. Core inflation is projected to remain below two per cent until the end of 2010. Total CPI inflation is expected to have peaked during the third quarter of this year and then fall to below one per cent in mid-2009. The Bank of Canada predicts inflation will return to the two per cent target by the end of 2010. The Bank, however, cautions that some further monetary stimulus will likely be required to achieve the two per cent inflation target and that there are significant risks, both upside and down to its inflation projection.

Finally, one positive factor for the construction industry resulting from this economic malaise is the retreat of commodity prices. As most construction materials are commodity-based, lower commodity prices will help to reduce the volatility in construction material inputs. However, don't expect an

immediate decline in material costs as many suppliers have signed raw material contracts that incorporated the huge leaps in costs over the first half of the year.

Katherine Jacobs is Director of Research & Analysis, Ontario Construction Secretariat



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Lean Construction:

A New Way of Thinking and Doing to Improve Quality and Productivity

By Gary Lehman

What is Lean Construction?

Lean Construction is a production management-based approach to construction project delivery. Its origins stem from Lean Manufacturing, a production management system based on the Toyota Production System. Toyota has employed this system to become the number one leading vehicle manufacturer in the world today.

The U.S. Department of Commerce statistics show that the construction productivity index since 1964 has declined from a baseline of 100 to 80 in 2003, while all other industries excluding farming have increased to 200. In comparison, last year overall Canadian productivity fell 1.4 per cent while overall American productivity increased 3.2 per cent.

The construction industry is not efficient and needs to improve.

The construction industry has a 57 per cent waste factor compared to 26 per cent for the manufacturing sector. To understand this waste factor, one

needs to identify what makes up that waste. Lean Construction has identified these as: defects in material/finished product, over-production of material or services, inventories of goods awaiting process or use, unnecessary processing, unnecessary movement of people, unnecessary transport of goods, inconsistent production and under-utilized human resources. Lean manufacturing principles offer solutions to this wastage. A good example is Just-In-Time Delivery (JITD) of materials, which eliminates inventories, minimizes unnecessary movement of product and takes away the temptation to over-produce.

Using the principles and philosophies of Lean Construction changes the way work is done throughout the complete delivery process from planning and design to actual construction and operation.

Lean Construction needs to start at the planning and design stage. The key is collaboration — a belief that collaboration works and a mindset that working together we can

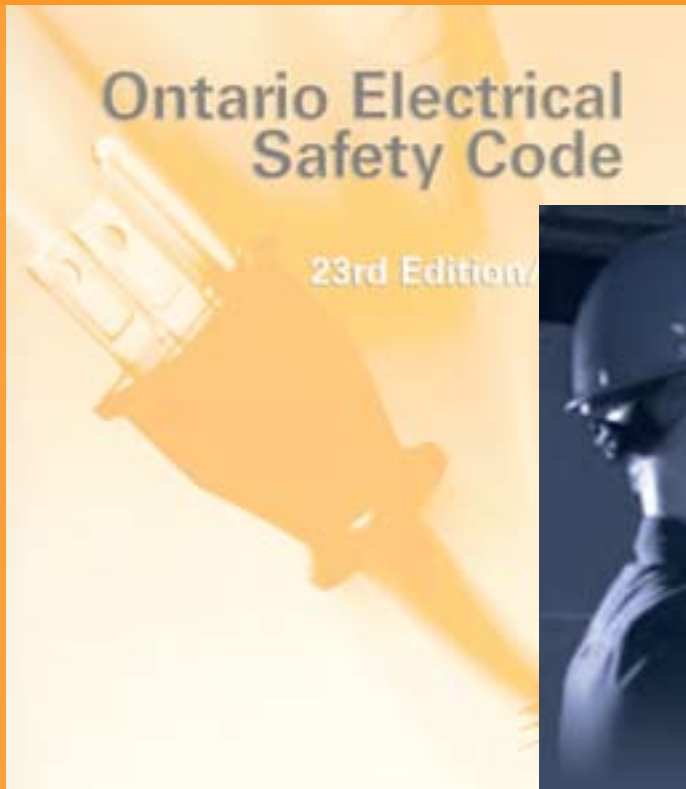
improve the project. It begins with bringing together the core group of stakeholders; owner, owner's representative, the design group (architect/engineers) and the general contractor/project manager at the planning stage. Shortly thereafter, the specialty trades and suppliers are brought on board. Attempts have been made through partnership contracting, such as P3 and DFBM contracts, to move in this direction but fall short by not being inclusive enough.

These stakeholders are considered the Integrated Project Delivery Team (IPDT). This integrated team will develop communications protocols, do a feasibility assessment and develop a target value design plan.

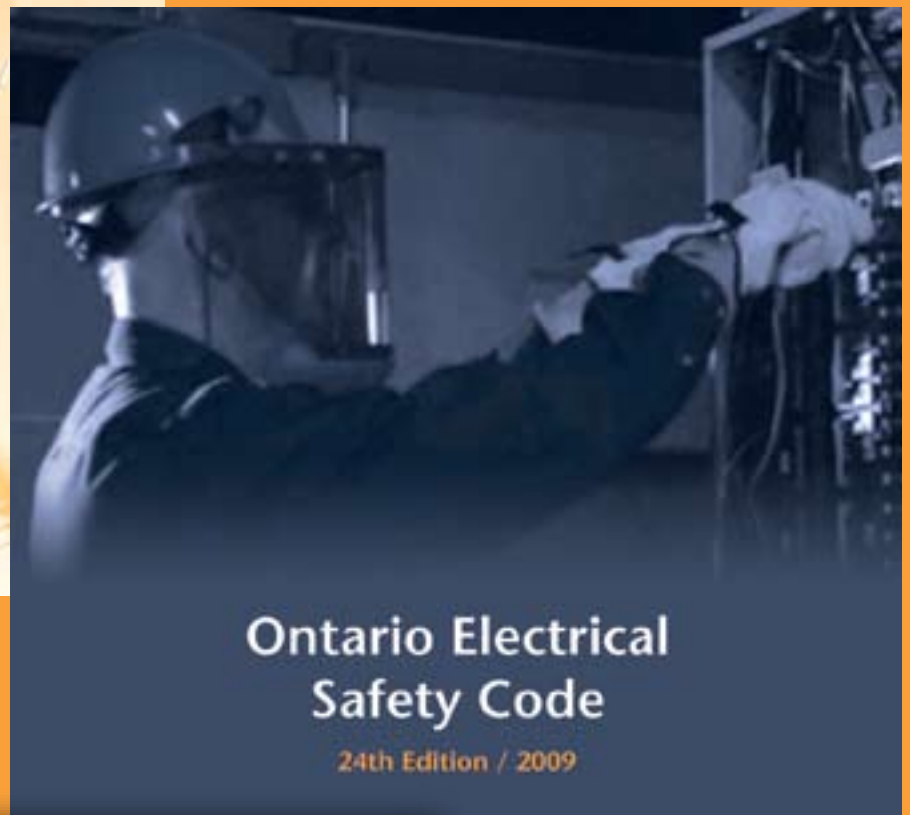
With this approach, a high common level of understanding happens very early on in the project. In the traditional construction project delivery system, specialty-trade contractors are the last to be engaged and this common level of understanding comes too late in the game and may not mature at all before completion of the project.

In 2009 the Ontario Electrical Safety Code will change.

In early 2009, with the introduction of the 24th Edition of the Ontario Electrical Safety Code, the Electrical Safety Authority will be offering New Code training to highlight key changes to the Ontario Electrical Safety Code.



For updates on the New Code & New Code Training, visit www.esasafe.com





The first questions the IPDT needs to answer are “*do we provide what the customer wants? Or, do we first help the customer to decide what they want?*” Once the owner’s needs are established an “*allowable*” cost (project budget) is established. The team then determines from historical data what the “*expected*” cost will be. Historical data comes from typical project cost experiences. Traditionally a design is completed and the project tendered in hopes that the end result falls within the budget.

Lean Construction Design takes the process a step further. A “*target*” cost is determined based on a realistic and attainable goal. Typically in the health care sector that might be pegged at 15 per cent below “*expected*” cost. No one person has all the answers, so it requires the collaboration of cross-functional teams. The designer

develops their design options with detailed cost and constructability input from the appropriate IPDT member. For example, the electrical consultant would work with the electrical contractor’s estimator for detailed costing on a design option and with the electrical contractor’s field supervisor around best practices for installation. The project is then designed to the target cost using a design-set based approach in which alternative designs are evaluated against “*target*” costs and decisions are made at the last accountable moment.

The cardinal rule regarding the target cost is: “*The target cost of the project can never be exceeded.*” If target costs are exceeded in one area, they must be made up in another area without compromising quality. The IPDT must refuse to add scope to the project that will overrun the target

cost. Helping the owner to determine what the needs are should eliminate any scope changes throughout the project.

With this approach to planning and design, the dependability (the design won’t change) and constructability of the design is built into the process by virtue of the input from all the members of the IPDT.

An additional process known as Building Information Modeling (BIM) can be used effectively. It employs cutting edge software (i.e., – Navisworks) inputting information from hard copy drawings, electronic drawings, laser scanning and as-built measuring and processing it into a 3-D picture of the project. With one keystroke the software is capable of listing all the interference points in the project. An example might be where

an electrical feeder runs through a supply air duct. These “collisions” are systematically eliminated until an ultimate design is achieved. This effectively reduces change notices and keeps rework to a minimum.

This collaborative approach cannot be achieved with the traditional privacy of contracts in today’s traditional construction hierarchy. The IPDT approach must be done with relational type contracts that employ financial incentives for cost savings sharing.

This puts everyone on the same level and drives the project with common goals and agendas achieving cost of work savings, change orders savings and minimal use of contingencies.

Now that the ultimate design is in place the construction phase of the project can begin.

Turning again to the principles of Lean Manufacturing to improve the way we construct projects, Lean Construction looks at projects as a continuous production system (similar to an automotive assembly line) and a collective enterprise that must be impeccably co-ordinated.

To properly manage a project, there must be some way to measure it. That is the schedule. *“If you can’t measure it you can’t manage it.”* A master schedule is derived based on activities that **should** be done in order to complete the project and determine the overall timeline. This is done in collaboration with all the members of

the IPDT and is regularly updated. Typically this is a weak part of traditional construction.

We now employ the Last Planner System (LPS) of production control. It is a system that converts activities from the schedule that **should** be done to activities that **can** be done. Through a process of “pulling” resources, activities are converted into ones that **can** be done creating an inventory of available work to be done. All resources required to successfully complete an activity are organized and made available. For example, the fixtures can’t be installed if they are not on site. Examples of such resources that need to be pulled are manpower, materials, equipment, space and information.



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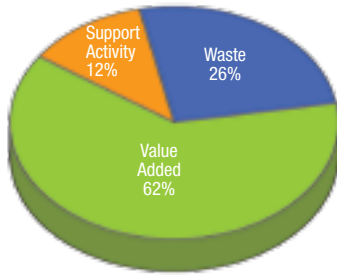
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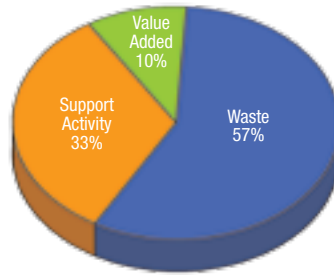
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Current Construction



Source: Construction Industry Institute

The LPS is based on short interval scheduling — usually one week. Activities that **can** be done are available to the last planner (field supervisor). It is the last planner's responsibility to say "no" to an activity that is not ready. Based on the inventory of **can-do** activities, realistic and attainable goals are set and committed to — they **will** be done. These commitments are made on a project basis with all trades collaborating. The concept is to set activities up for success, not failure.

The work of the activity is then performed and measured as to whether it **did** get done or not. This productivity measurement, known as Planned Per cent Complete (PPC), is a measurement of the successful completion of activities in the project and in a traditional construction project averages 55 per cent. In a Lean Construction project it has been seen

as high as 88 per cent. Realistically, achieving 100 per cent in construction is not possible because of variability.

The next concept in the LPS, borrowed from Toyota, is that of learning, to achieve continuous improvement. Why was an activity not successful? Toyota always asks the question "why" at least five times to get to the root of failure. Once that determination is made the problem is corrected before continuing. Do not make the same mistakes over and over again! The systemic mistakes are corrected with no apportioning of blame or finger pointing, a practice that is prevalent in the construction industry. The mindset and the goal is continuous improvement.

All of the scheduled activities must be viewed, as in manufacturing, as a continuous production

system. Whereas in the traditional construction hierarchy, each trade worries about their point speed and productivity when throughput is more important. Efforts are aimed at improving total project performance instead of individual activities. By reducing workflow variability, total system performance is improved, project outcomes are more predictable, co-ordination is simplified and new opportunities for improvement are revealed.

Lean Project Delivery is characterized by three associated principles:

1. Impeccable Co-ordination
 - Creates predictable workflow within and across trades and disciplines (no trade is held up by another trade)
2. Projects as Production Systems
 - Changing the structure to maximize project performance
3. Projects as a Collective Enterprise
 - Create an "all for one, one for all" mentality

Lean Construction recasts the role of the specialty-trade contractor. They are now elevated to the same level as all the project stakeholders contributing input to design and constructability and participating

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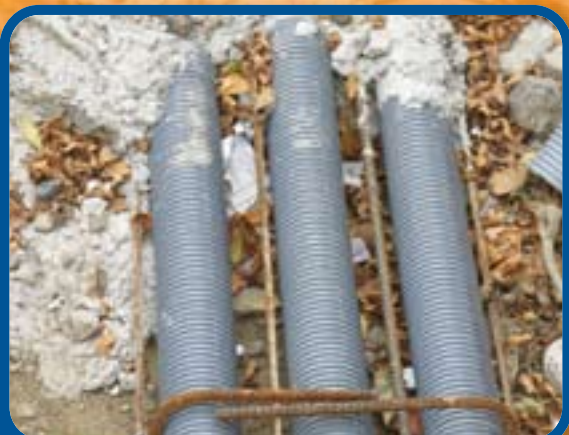
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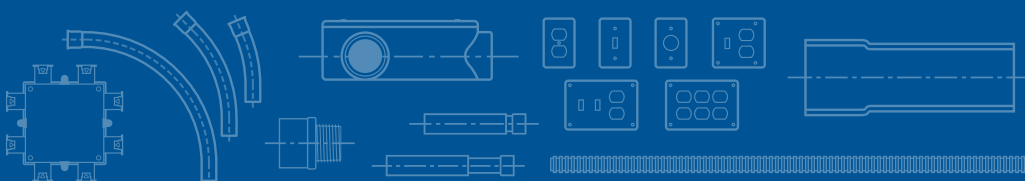
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The Canadian Electrical Contractors Association (CECA) and the Electrical Contractors Association of Ontario (ECAO) both understand the need to move toward Lean Construction and fully endorse the Last Planner System and production management as part of their Electrical Project Supervision program. These elements can effectively increase productivity for the individual electrical contractor but for Lean Construction to be successful,

the construction industry as a whole must make a new paradigm shift.

This article has tried to peel back the layers of these three principles to give a more detailed view of what Lean Construction is. But it would require much more space to elaborate on all of the aspects and benefits of Lean Construction. If this article has peaked your interest, visit www.leanconstruction.org for further information and seminars.

Readings:

"The 14 Principles of the Toyota Way," J. Liker

"The Machine That Changed The World," J. Womack, D. Jones, & D. Roos

Acknowledgements to the Lean Construction Institute for all the graphics imbedded in this article.

Gary Lehman, P.Eng., GSC has over 40 years experience in the electrical construction industry. He is a member of the Lean Construction Institute (LCI) and has attended seminars on the subject. He is currently teaching Electrical Project Supervision (EPS) across Canada for CECA. EPS incorporates some of the Lean Construction philosophies such as the Last Planner System® and production management. Gary is a strong proponent of Lean Construction and this article is meant to be an introduction and synopsis of the principles of Lean Construction.



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La Fiesta!

The Electrical Contractors Association of Ontario kicked off their first ever European Industry Conference, hosting 150 delegates who flew overseas to the Costa del Sol, in Marbella (Malaga) Spain from Sept. 7-13, 2008.

The magnificent view, the warmth of a gentle breeze and the scent and sound of the ocean waves crashing on shore made Hotel Guadalmina Spa & Golf Resort the perfect location. The friendly staff welcomed us with their warm hospitality, colourful culture and charm. The rooms were spacious with a luxurious oceanfront view looking out onto the surrounding Mediterranean Sea and the sweet scent of jasmine and eucalyptus lingering in the air. A favourite spot for the delegates to enjoy was outdoors on the Taray Terrace overlooking the salt water pool, where they enjoyed morning breakfast sunrises, afternoon lunches or an outdoor environment to enjoy late night dinners and drinks. It was paradise at its best.

Welcome Dinner

The conference began Monday evening with the opening welcome party, where delegates were introduced

to traditional Mediterranean lifestyle and cuisine. The gates of the Cortijo de Cortes opened to an outdoor reception, serving homemade sangria and Spain's world-famous sherry along with authentic hors d'oeuvres that tantalized the tastebuds. The evening's entertainment began with an equestrian show displaying a variety of complicated riding techniques mastered by these beautiful creatures. A dancer then choreographed a performance with the horses to traditional Spanish music. After the show, delegates experienced a true delight of the senses with plate after plate of traditional tapas while the sounds of the Spanish guitarist filled the room with a beautiful melody. Afterwards, a group of very energetic *Bandoleros* serenaded each table with delightful sounds that had the ladies on their feet dancing. The evening ended with a passionate flamenco performance and an interactive opportunity for

some of the delegates to show their talent on the stage. Congratulations to delegates Gary Beer and Robyn Overwater and Keynote Speaker Bruce Kirkby who delighted the crowd with their charisma, style and, in particular, bravery. Delicious food, great entertainment, a lot of laughter and a chance to rekindle relationships made for a memorable night.

Business Sessions

Presentations began the following morning with keynote speaker, elite adventurer and photographer Bruce Kirkby, as he introduced his top 10 strategies for managing risk by providing a guideline on the fundamentals of risk management. His personal challenges and many expeditions lead him to educate the delegates on the importance of assessing the current situation, determining and avoiding the risk it can or may cause, the attitude and



approach to risk management, and finally, how to prepare, plan and overcome many of these obstacles. Bruce shares his knowledge by talking about the many challenges and lessons he has learned during some of the toughest expeditions on which he has ventured — the Arabian Desert, ice climbing summits and many more. Risk and reward continued to be the

key topic of discussion throughout the entire conference, with other speakers communicating their perspective. Speaker Lynne Jacob gave a two-part mini workshop on Earning More Profit\$, While Having More Time Off; Dan Leduc, Ogilvy Renault, touched on Contracting to Appropriately Allocate Risk; Mauro Di Tullio and Doug Overwater,

Federated Insurance, gave an overview on Risk Management; and Andy Kerr, Electrical & Utilities Safety Association discussed Controlling Electrical Hazards.

Partner Program

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as their partners indulged in an exclusive combination of Spain's very best gourmet experiences. The morning special was sizzling paellas, with the chance to sip the flavours of Spain's many array of wines. This hands-on demonstration allowed the spouses to discover the joys of cooking, while using the finest local ingredients and learning the secrets of the expert chefs. For a unique experience of Spain's most passionate form of art, partners embraced the opportunity to explore and develop their talent and style in Flamenco dancing. They learned firsthand about the expressive dance that mixes percussive footwork

with intricate hand, arm and body movements all while holding a set of castanets. The lesson focused on a number of things such as the dance technique, the structure of Flamenco dances, the strength and endurance for a dancer, improvisation, and finally, creating one's own style with the palms and castanets. Those who participated in these programs had a memorable experience never to be forgotten.

Tours

The stresses of Canadian life were left behind and the relaxed attitude of this country began to make its mark.

Delegates ventured out to explore the many wonders Spain had to offer.

Puerto Banus and **Marbella** proved to be a popular choice for the delegates where they admired the picturesque marina filled with multimillion-dollar yachts, the many shops and boutiques and of course, the historic charm and beauty of the two small cities that were traditional Spanish fishing villages decades ago.

Apart from the bustling energy of its suburban communities, delegates took a guided tour through Costa del Sol's capital city, **Malaga**. This artful city is full of wide boulevards, swaying palm trees, over 20 museums, beautiful cathedrals and excellent restaurants. Delegates first headed towards the best viewpoint in the city to take a few pictures then entered one of the beautiful cathedrals where the knowledgeable and passionate guide fielded questions on Malaga's history. Malaga is the birthplace of Pablo Picasso's museum, the next stop, which displayed some of Picasso's world-renowned masterpieces, from sketches to paintings and one-of-a-kind art pieces. To end the day, delegates enjoyed a delightful tapas lunch at El Pim-Pi, carefully chosen



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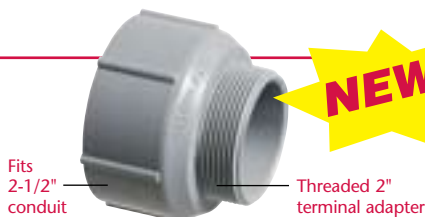
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for its quality and character, and then a little shopping in the city's square.

In the majestic town of **Ronda**, delegates emerged deep into the city's culture. Delegates were "rocked" by the beauty of this little town and could only use one word to describe this heavenly place, simply, "breathtaking." Ronda is the birthplace of modern bullfighting, which began in 1785, and is one of the oldest cities of Spain full of historic charm. Delegates visited the Ronda Wine Museum, the bullring, and the Santa Maria la Mayor Cathedral then looped around the region taking in the scenic escarpments and views of the deep El Tajo gorge that carries the rio Guadalevín through its centre. Delegates enjoyed a tapas here and there, a few glasses of sherry and watched the comings and goings of this mountain town.

There was still much to experience in Spain, however, that did not stop delegates from grabbing their passports and departing to visit some of Spain's most colourful neighbouring countries.

Delegates had a breathtaking introduction to the former British Territory of **Gibraltar** and its world famous The Rock, also known as the "Pillar of Hercules." Gibraltar is also

known for containing some of the most extensive military fortifications in Europe. The journey included a combination of tunnels, gates, walls and caves as the guided tour drove past scenic views of the rock to the highest peak allowed for tourists. The first stop was St. Michael's Cave, where delegates explored several passages displaying incredible rock formations before descending back down the narrow roads and busy streets. Next stop was a nature reserve that is protected and is home to the semi-wild Barbary Macaques. Even before the delegates could get off the bus, these tree swinging creatures were there to greet them — however, delegates were warned not to be so trusting of these cute monkeys as they can bite and even know how to pick pockets. The delegates ended their outdoor adventure by joining civilization and doing a little shopping with their free time.

And finally, delegates set their alarm clocks for an early morning rise as they prepared to embark on a Moroccan adventure. Delegates rubbed the sleep from their eyes, climbed onto the bus and then onto a high speed ferry to Morocco's capital city — **Tangier**, also known as the White City. Morocco is diverse in both flavour and culture and the delegates indulged and submerged

themselves in to the Moroccan lifestyle and historic charm. The guide led them to discover and explore the medina (old town) with its artistic and architectural influences. The journey was both fascinating and, at times, overwhelming. The views were stunning, the food exotic, and the marketplace was a kaleidoscope of colour. The sun was setting as the delegates returned after a long and eventful day and an experience of a lifetime.

At the end of the week's events, the delegates came under one roof one last time for an unforgettable evening — The President's Gala dinner and dance. A delightful menu was enjoyed to the elegant sounds of the Spanish guitar. After dinner, a tango show set the tone, while the delegates reminisced on their adventures. Later, they danced the night away to a live performance by the Daquiri band, a wonderful way to end the day.

It was not easy to say farewell to Spain's gorgeous coastline with the sun dazzling on the waves and it's a good bet that delegates are already looking forward to the next European destination.

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New Code 2009

By Ted Olechna

With the implementation of the New Code fast approaching, the Regulatory Group within ESA has been working hard in assessing changes and the impact to the industry. The *Ontario Electrical Safety Code* will contain the full edition of the *Canadian Electrical Code* with Ontario amendments. With both these documents there are hundreds of rules being considered for adoption. The following are some changes being considered:

- Rule 2-130 will require wiring and cables and totally enclosed non-metallic raceways, where exposed to direct rays of the sun, shall be specifically approved and marked “sunlight resistant.”
- Rule 10-204 has been modified to address the size of the grounded conductor (neutral in some cases) which will carry the same fault current as the bonding conductor in the following Table.

Ampacity (A)	2002 requirements (copper)	2009 requirements (copper)
200	#3	#6
400	00	#3
1000	000	00
2000	000	250 kcmil

- New requirement in Rule 26-700(11) that all receptacles having CSA configuration 5-15R or 5-20RA installed within 1.5 m of sinks (wash basins complete with drainpipe), bathtubs or shower stalls shall be ground fault protected of a Class A type with some exceptions.
- New requirements in Rule 26-712(d) to install receptacles in kitchen island and peninsular in residential occupancies at:
 - Each permanently fixed island counter space with a long dimension of 600 mm or greater and a short dimension of 300 mm or greater;
 - Each peninsular counter space with a long dimension of 600 mm or greater and a short dimension of 300 mm or greater.

- The installation of “tamper resistant” receptacles in all dwelling units. Rule 26-712 (g) has this new requirement to protect small children from burns and shocks relating to sticking keys and other small conductive materials in the receptacle.
- Rule 22-704 is to be included for sewage lift and treatment plants and how they are to be classified, taking into consideration the hazardous areas as well as corrosive liquids, vapours or moisture. These requirements are currently in Bulletin 18-6-2 Electrical Requirements For Sewage Pumping Station Wet Wells.
- The introduction of the Primary and Secondary seal located in hazardous locations in Section 18:
 - **Primary Seal** isolates process fluids from an electrical system and that has one side of the seal in contact with the process fluid.
 - **Secondary Seal** is a seal that is designed to prevent the passage of process fluids at the pressure it will be subjected to upon failure of the primary seal. The designer of the system determines where secondary seals are required.

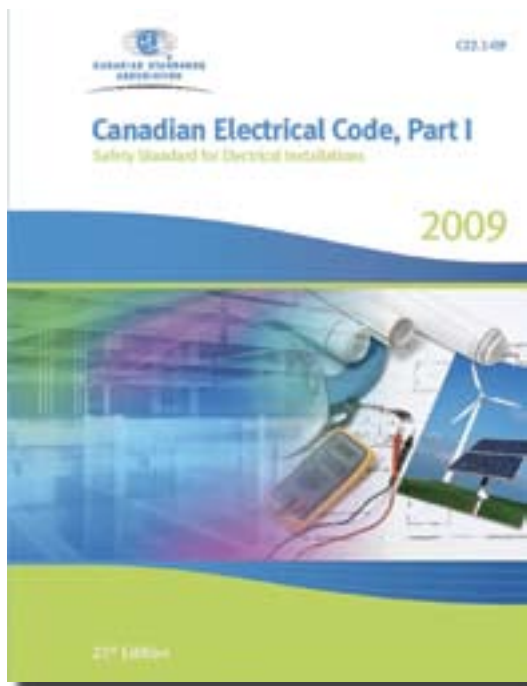
The above rules are just a small sampling of the upcoming code changes being considered in Ontario for the New Code 2009, 24th edition. A training package is also being developed that will highlight changes, and is intended to be introduced in February 2009. Specific details on the locations and timings for ESA training courses will be advertised. Please check our website for more info.

Ted Olechna is a Provincial Code Engineer with the Electrical Safety Authority – www.esasafe.com



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GPS Technology

By Wayne Candy

With a growing fleet of vehicles ranging from pickup trucks and service vans, through to Radial Boom Derrick trucks (RBDs) and aerial devices (Bucket trucks) and other equipment, K-Line Maintenance and Construction Ltd. was certain that better fleet management could improve its bottom line.

“We try to be leaders in the industry with everything from our ISO and safety programs and labour relations initiatives. GPS technology on our vehicles just naturally followed and allowed us to gain control over one of the largest cost centres in our business,” says Jim Kellett, senior vice-president of operations and engineering, K-Line.

K-Line originally implemented its first GPS system in 2005 and recently re-fitted its fleet with a Live GPS system that provides management with up-to-the-minute visibility on its vehicles and their performance.

“Initially, the primary areas we were interested in were worker safety, the Provincial Fuel Tax Rebate and, of course, productivity,” says Kellett. “After our initial installation, we realized that a good GPS system is not just about dots on a map or being able to ‘watch a truck.’ It covers a number of areas that are critical to managing the core of our business. It started paying for itself on day one.”

What benefits has K-Line and other fleets discovered using GPS as a management tool?

Worker Safety

Being able to locate and position a vehicle on a map in the event of an emergency is important for health and safety reasons. While K-Line vehicles are, for the most part, crewed with multiple staff per vehicle, knowing the location of a lone worker in the event of an incident or injury pays off in labour relations and peace of mind.

Risk Management

Insight into driving habits for speeding and harsh braking offers the opportunity to counsel with drivers to reduce incidents and potential public claims of driving patterns.

At one time or another, most companies have received calls from the public complaining about their staff's driving. Depending on the insurance carrier, premium reductions may be available. In the event of a vehicle incident, the GPS units are outfitted with accident keys, which can accurately determine travel speed, braking etc., for evidence to support the investigation.

Productivity & Job Costing

Measuring field productivity and job costing has always been a difficult data capture area. The ability to effectively and quickly determine times at site, numbers and types of vehicles involved and to be able to move that data to

back-end systems offers a significant opportunity to manage, measure and track costs on any project. K-Line is currently working to develop a system of automated field reporting by issue and activity. Tied to the metrics from its GPS system, the end result is to be a concise picture of applied labour resources by site location and project. This adds great value to the customer.

Provincial Fuel Tax Rebate

The province of Ontario offers a little-known opportunity for tax rebate for the fuel burned while idling a vehicle to run the PTO. This can apply to any vehicle running PTOs such as RBDs, buckets, drills, etc. The basic premise is that the tax paid is to offset infrastructure costs and that any vehicle idling, working and not moving is not utilizing the infrastructure and is therefore entitled to a rebate of the tax paid on the fuel consumed.

The GPS system used by K-Line has the ability to track PTO use to the second by location, and is an important reporting contributor to assessing, maximizing and validating their rebate claims.

While simple on the surface, the Provincial Fuel Tax Rebate formula, the extent of information required to make the claim and back up documentation required to sustain audit scrutiny, are best accomplished by firms who specialize in this area.

Quality Control and Customer Satisfaction

Being able to view and dispatch the right vehicles and personnel to a call in a timely fashion drives quality of work and is proven to increase customer satisfaction and loyalty.

Proactively reviewing the time on a job and activity, particularly if jobs are PM-related with set hour and labour rates, can assist on whether too much time has been spent — does the tradesperson require more training? Or was too little time spent and what issues will arise when related to quality of work against the necessity of repeat calls to correct problems?

Customer disputes or inquiries over billing are rapidly addressed by the audit trail and time at site data that is provided by an accurate GPS recording system.

Reduced Fuel Costs & Maintenance

Reducing your company's carbon footprint and greening your fleet is not only good for the environment and public relations, it's plain good business that results in bottom line returns.

Reducing excess idling and wasted fuel immediately cuts fuel cost. As importantly, idling is extremely hard on today's modern engines, leading to increased maintenance costs.

Kellett notes that many opportunities exist within their fleet to continue to reduce idling.

"We have to be very vigilant in this area. We have managed to dramatically reduce the idling that seems to naturally

occur in our yards and various sites, particularly in the winter months. The nature of our fleet is that we have to idle to operate our PTOs, however our GPS system allows us to track the total amount of idling that occurs at site against the actual use of the PTO. We want to eliminate the idling that occurs before and after PTO deployment. That's wasted fuel and money."

On the maintenance side, K-Line RBDs and bucket trucks were serviced on a time-frame basis, not on the engine hours recommended by manufacturers. This servicing schedule, that is employed by most fleets of this nature, was a result of not being able to easily accumulate engine hours. The nature of their operation is that they may drive very little, but constantly idle when operating the PTOs.

This "time frame" servicing led to some vehicles being under serviced, while others were over serviced. Costly on either side of the coin.

As a result of the Engine Hours Report built into the system, K-Line

now accurately forecast and service based on actual engine hours, greatly reducing costs in labour and effecting preventative maintenance prior to breakdown.

"We continue to find soft-side savings opportunities from the information generated by our GPS system. Things we either never considered or had trouble getting information on. Working with our supplier, we are looking to areas where we can integrate the GPS data with other controls and to extend the value of the GPS information."

K-Line acquired their GPS system from Mobilizz Inc. of Markham, Ont. Their services include consulting, supply and installation, as well as after deployment support and reporting analysis.

Wayne Candy is the President of Mobilizz. He may be reached at 905-731-4727 or wcandy@mobilizz.com

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Storage Lot Security



Storage lots are used for a variety of items including vehicles, stock and equipment. There are many ways of protecting the lot, but the best method will depend on the level of protection required and the traffic being restricted. Some retail businesses want to restrict vehicle traffic, but encourage pedestrian traffic. They want their potential customers to be able to view items held for sale during non-business hours.

A properly designed storage lot should enhance security and discourage

thieves by making theft difficult. The level of protection is highly dependent on the attractiveness of the items on the lot. Target theft items cannot be stored on the lot without some kind of protection.

The following are several solutions that can be used however each situation is unique and may require a combination of techniques:

Physical Barriers and Landscaping

Physical barriers usually are utilized to prevent vehicle access or removal

of equipment from the open lot. Barriers can include concrete barriers and blocks. Landscaping can be used effectively as well — perimeter ditches or large rocks strategically placed will prevent vehicle traffic. Temporary barriers can be moved around the open lot as necessary and are generally used to block entrances or create a barrier along the side of an open lot.

Fencing

Fencing is typically used to prevent pedestrian and vehicle traffic from

entering the lot. The methods used depend on the type of traffic being restricted. If the goal is to restrict vehicles but not pedestrians, a solid fence is not necessary. Steel posts joined with cable or chain may provide adequate protection.

Chain link is the most common fencing material, but other options include iron, masonry and wood. Chain link fences can be cut; therefore additional security may be required. Installing additional horizontal steel pipes between the posts can reduce the possibility of items being removed through a cut fence. To prevent intruders from climbing over the fence, barbed or razor wire should be installed on top of the fence.

Fence gates should be constructed to the same or higher standards as the fence and be equipped with good quality professional series padlocks. If chain is used to lock the gate, it should be a minimum 3/8-inch, grade 70 transport chain.

Lighting

Good lighting will discourage intruders. Installing perimeter lighting reduces dark areas and places for intruders to hide. Lights should operate from dusk to dawn.

Open Lots

Items on an unfenced lot can be secured with grade 70 transport chain or high-quality steel cable and high-quality professional series padlocks. The items can be secured together or to a solid object on the lot. This may not be adequate for high-target theft items such as All Terrain Vehicles (ATVs).

Burglar Alarms

Additional security can be utilized by alarming the storage lot. Burglar alarms are designed to detect intruders and to be effective should sound a local alarm as well as notify a monitoring company.

Common methods for alarming a fenced compound are:

1. Fence monitoring: alarm wires are strung through the fence — cutting the wires will trigger the alarm.
2. Photoelectric beam transmitters and receivers are placed inside the perimeter of the fence. The alarm is triggered when the beam is broken.

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If the lot is not fenced, individual items can be protected by the alarm using a closed-loop system. An alarm cable is strung through each item to protect — removing the cable will trigger the alarm. Some high-target theft items require a fenced compound and closed-loop alarm system.

Closed-Circuit Television Cameras

Security cameras are an important component to crime prevention and should be used in combination with other deterrent measures. Large visible signs warning that the area is under surveillance should be installed.

Guard Dogs

Guard dogs can be a useful deterrent to crime but require special precautions to ensure the public's safety. Very serious and traumatic injuries have occurred to the general public, especially to children. Most security concerns can be addressed by methods other than a guard dog.

We do not recommend guard dogs, however, should you choose to have one, an independent security service should be used.

The following precautions are necessary for all guard dogs:

1. The fence should be well-maintained and of good quality with no openings.
2. The fence should have no gaps between it and the ground. It must be of adequate height to prevent the dog from jumping over the fence.
3. The fence should be secured to the concrete or asphalt surface.
4. If the fence is placed above a dirt or sand surface, the fence should extend a minimum 2 feet below ground level to prevent digging under the fence.
5. Dogs should be kept in a secure enclosure, away from the public during business hours.
6. Warning signs should be placed on all sides of the compound indicating the presence of a guard dog.
7. If the dog is kept inside the building, warning signs should be placed at all entrances.

Partners In Prevention

At Federated Insurance, we believe Loss Prevention is a critical component of your Risk Management Program. Your Risk Services Coordinator together with our Loss Prevention Team is available to assist you in determining the security measures most appropriate for securing your business. Working together to reduce your loss exposures protects your bottom line!

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Federated Insurance provides this Loss Prevention Bulletin as a service to our policyholders and their business advisors. The information provided is intended to be general in nature, and may not apply in your province. The advice of independent legal or other business advisors should be obtained in developing forms and procedures for your business. The recommendations in this bulletin are designed to reduce the risk of loss, but should not be construed as eliminating any risk or loss.

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FOLLOW THROUGH: Hold Yourself VISIBLY ACCOUNTABLE



By M. Lynne Jacob

In the first of this series of articles covering the MLJ 7 Key Strategies on which I train, consult & coach, I explained the value of an NTBP (Non-Traditional Business Plan) — your three-year vision — as well as the value of time spent planning the development and growth of your business.

We can plan 'til the cows come home; but only when we **follow through** on our planning will we reap those rewards we envisioned when creating our three-year vision. Strategy #3 in The *Trade-Contractors' Business School* is **Follow Through: Hold yourself visibly accountable.**

We have the best of intentions while chunking our time and putting it into our agenda. Then urgent issues come up and off we go to deal with them, never to come back to what we had planned to work on.

Which came first — the chicken or the egg? Which changes are you going to make first to get out of the cycle you're in?

You're tired of putting out fires. You know that changes have to be made. You still react to what your customers deem to be an emergency — during the business development time you planned.

Almost all people resist change. This is why it's so important that we truly know what we want for **our** company and for ourselves. Goals have to truly be our goals — goals for ourselves that are compelling enough to draw us to them through the resisted changes we must make. If you feel little excitement when you think about your goals, they're simply not powerful enough.

A really good goal is not only exciting but feels a bit scary. It exhilarates you, there's risk involved. The more risk involved, the more fear you feel. And FEAR is precisely what holds us back. **FEAR** is simply **False Evidence Appearing Real**.

This is the time when we really need to get **proper**, **external** sup-

port to make changes. By proper I mean someone from outside of your life and outside of your company. Someone who has a fresh perspective; someone who will dare to **tell it like it is** — not someone who will commiserate with you, feel your pain and assure you that what you're doing is, of course, the only way you can do it. Misery loves company, we say, so there's lots of support for you to stay stuck.

And I repeat: People resist change. It isn't easy for us to go through the changes ourselves, and we're the ones with the great ideas for which we see fantastic results. Those around us — family and staff — also resist change and because the change you're implementing is not their idea, nor do they "feel" the great results you

do, it's unrealistic for you to expect them to provide you with the support you need.

It's not a stroll in the park to incorporate changes to **the way we do things around here**. There'll be some rocky roads, but staying focused on your vision keeps you motivated to continue **consistently and persistently** taking one small step after another. Eventually, staying on track, you will, inevitably, reach your destination — your vision.

There are numerous reasons as to why we don't **Follow Through** on the changes we've planned to reach our goals.

One reason is because we are working towards someone else's goals.

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Let's look closely at the goal, dissecting it and studying all of the why's you want to reach this goal. Are you still passionate about your three-year vision? Or are you hearing yourself saying "I *should* ..."

"Should" is a word used to give advice. Why would we give ourselves advice? We're the decision-makers when it comes to what we do, aren't we? If you hear yourself using the word "should," listen again. Whose voice do you hear? That person who gave you that advice, by telling you what you *should* do had good inten-

tions. However, that may be something that that person would do ... or not. After all, is that person in your shoes? If so, has that person done what (s)he said you should do?

When we're working towards accomplishing goals that aren't ours, it's really easy not to *follow through* on the actions that we know we need to take to reach the destination.

Another reason to not *follow through* is because of our "societal conditioning." We have been conditioned since birth to behave in certain ways

in order to get certain results. It's time to break away from those rules and create your own. As long as what you desire for yourself hurts no one, it will enhance everyone. It may not delight everyone, but as long as it's not taking anything away from anyone then it is, by natural law, giving to them. I could write pages on this, but suffice to say that if you can think of "it" you can have it. The only reason for your not having it is because of how you've been conditioned to tell yourself you should not/cannot have it. So maybe a part of your vision includes something that is so far "out there" that your conditioning is holding you back from *following through*; for fear you will actually *get your desired results*.

Did you know that more people are afraid of becoming successful than those who do not fear success? Strange but true.

The only thing stopping us from GREATNESS is ... ourselves!

Along the journey to making your vision materialize, you will have doubts. This is normal. After all, we're now travelling in unknown territory — and we're dealing with the conditioning, above.

Listen to your doubts; and continue on the path toward your vision.

Ask yourself: ***What if*** this (that my doubt is telling me) were to happen?

And think it through and prepare yourself: If this happens I'll _____ (do this)_____.

But ***what if*** this were to happen?

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Again, thinking it through, prepare yourself for that scenario, as well: If this were to happen then I'd _____ (do this)_____.

Now that you have a couple of alternative plans of action you are more empowered. So move on.

It seems simple and it is. In fact, the simplest steps are often the most profound and the simplest changes give us the most profound results.

This is why it's so important to get **tough, external** support. Create a mastermind group; a round-table. Seek out a mentor; someone in your field who's been there and done that. People love to share their success stories. It's most important to work with a strong accountability partner; someone who won't let you mislead yourself anymore. Someone who will **tell it like it is** regardless of whether or not you'll like hearing what they have to say.

Only by taking action — consistently and persistently — on our ideas will we **get the results we desire**.

*M. Lynne Jacob, business success coach of MLJ Coaching & Consulting, offers an e-course with 7 weeks of simple one-page lessons and 15-minute, 1-on-1 telephone coaching sessions to help you better manage your time so that you, too, can **Easily Get What You Want Simply From The Way You Use Your Time**.*

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Risk Management in the Electrical Contractor's World

At Federated Insurance, we are very proud of our relationship with ECAO and its members. As the sole recommended insurance provider, we are committed to offering programs, resources, loss-prevention training and information that provide added value to ECAO members. We would like to thank ECAO for inviting Federated Insurance to be a regular contributor in the *Ontario Electrical Contractor* magazine. We will provide information on loss prevention, issues and trends that are timely and relevant to electrical contractors. Our first article will address some of the issues around construction contracts and liability coverage.

Construction contracts and your liability – Are you covered in case something goes wrong?

In many instances, as a pre-condition to obtaining work, a contractor will be asked to sign a construction contract. These contracts specify the extent to which a contractor may be held liable and require that the contractor obtain sufficient insurance coverage to pay out on their behalf in the event of any liability they cause.

Notwithstanding the conditions outlined in the contract, contractors could still be liable to the person who hires them, other contractors, sub-contractors, other parties and the public at large.

Contractors should never assume they are automatically covered under their commercial general liability policy or any other policy for the work they are taking on with such contracts nor should they assume their existing

commercial general liability policy contains sufficient coverage for any new work they take on.

When being asked to sign a construction contract, the contractor should consult with a lawyer and have the lawyer thoroughly review the contract's terms and, if appropriate, negotiate more favourable terms on their behalf.

Contractors also need to notify their insurance provider of any new work they are doing to determine if changes or additional insurance coverage is required to ensure they are properly protected before something happens.

As part of Federated Insurance's ongoing commitment, we have introduced a new service available to members of ECAO who are also Federated Insurance policyholders. We understand contracts can be complicated and confusing. At your request, we will review any construction contracts or bid specification documents you are being asked to sign and provide you with written feedback with respect to your liability exposure and insurance coverage needs. To take advantage of this value-added service, contact your Risk Services Co-ordinator.

The information provided is intended to be general in nature and may not apply in your province. The advice of independent legal or other business advisors should be obtained in developing forms and procedures for your business. The recommendations are designed to reduce the risk of loss, but should not be construed as eliminating any risk or loss.

New Products & Services

EX470 Multimeter

Extech instruments, a subsidiary of FLIR Systems Inc., recently launched Canadian distribution of its expansive line of test and measurement equipment, including the new EX470 multimeter with built-in infrared thermometer.



The innovative EX470 makes it easy for technicians to accurately perform critical tests. The EX470 stands out from other digital multimeters with its patented, built-in infrared thermometer making it easy to take measurements without the need for a separate IR thermometer.

Part of the EX400 series, the EX470 features not only a built-in, non-contact infrared thermometer with laser pointer, but also advanced multimeter capabilities: $\pm 0.3\%$ True RMS accuracy, low current capabilities down to 0.1 microamps, a large backlit display with 1" digits, and a Type K thermocouple thermometer — all in a rugged housing with multi-position stand and Velcro hanging strap.

"Extech's EX470 is well-designed and meets the demands of professionals in a wide array of industrial, manufacturing, plant maintenance

and electronics testing/engineering settings," says Dario Scognamiglio, partner at BIRDE Marketing, FLIR'S representative to Canada's original equipment manufacturers in various industries including telecom, medical, military, aerospace, security and mass transit markets. "It does everything from DC and AC voltage to current, resistance, capacitance, frequency, diode and continuity, duty cycle and, of course, the versatile, built-in, non-contact IR thermometer and Type K thermometer. Too often we see so-called multi-function testers and meters that trade compromises in capabilities for the sake of bundled convenience. The EX470 delivers on all functions with specs that don't compromise."

Thanks to FLIR Systems' Canadian distribution of the Extech line, OEM, electronics, electrical, HVAC/R, utility and plant/MRO professionals in Canada now have a choice when it comes to choosing high-quality test and measurement equipment with built-in infrared technology including digital multimeters, clamp-on meters, tachometers, thermometers and over 300 other precision instruments.

Further information is available at www.extech.com or www.birde.ca.

PowerPortal Home



Comverge, Inc., a leading clean capacity provider through demand response and energy efficiency, recently announced the expansion of its Advanced Metering Infrastructure (AMI) compatible product portfolio with the introduction of the PowerPortal Home, in-home display (IHD), that provides customers with current energy usage, energy price information and utility messaging.

Energy Aware Technology, a Canadian developer of demand side management products, has licensed the technology for its innovative PowerTab to Comverge, Inc. Under the terms of the agreement, Comverge will have exclusive distribution rights to the PowerTab in North America. Comverge is distributing PowerTab under the brand PowerPortal.

Energy Aware's aim in developing the PowerTab was to create a product that would raise energy awareness and reduce energy waste without requiring significant lifestyle changes. The PowerTab has a sleek design and simple user interface that encourage ongoing interaction by the end-user.

PowerPortal Home weighs less than five ounces, has a battery life of up to two months, and is one of the most portable IHD devices available. As an AMI-read display, PowerPortal Home shows messages that are clear and intuitive, making it easy for consumers to manage their energy usage and costs in real-time. Designed for ZigBee, the PowerPortal Home utilizes the smart energy wireless profile, which allows for broad compatibility with many AMI systems and use anywhere in the home. PowerPortal Home has a magnetic backing, an integrated base and a rechargeable battery, so it can be placed on a table, countertop or even on the front of a refrigerator.

Research has shown consumer energy savings of up to 15 per cent can be realized with the use of a device such

as the PowerPortal Home that allows the end-user access to real-time energy usage data. With growing public interest in energy costs and climate change, the PowerPortal Home offers utility customers an effective solution for use in their residential energy conservation programs. Accurate, real-time data allows consumers and energy managers to control their energy consumption more precisely, producing increased energy efficiency and savings.

"The PowerPortal Home is a fantastic addition to our complete demand response AMI solution," says Robert M. Christie, Chairman, President and CEO of Comverge. "As an integral component to many AMI implementations, this product provides a comprehensive AMI offering for our customers. With the potentially

explosive growth of AMI programs in North America, coupled with our leadership position in the demand response market, we believe Comverge will be a major participant in this strong market growth."

Further information is available at www.comverge.com or by e-mailing sales@comverge.com.

FLIR i-Series Thermal Imagers



FLIR Systems recently launched the all-new FLIR i-Series thermal

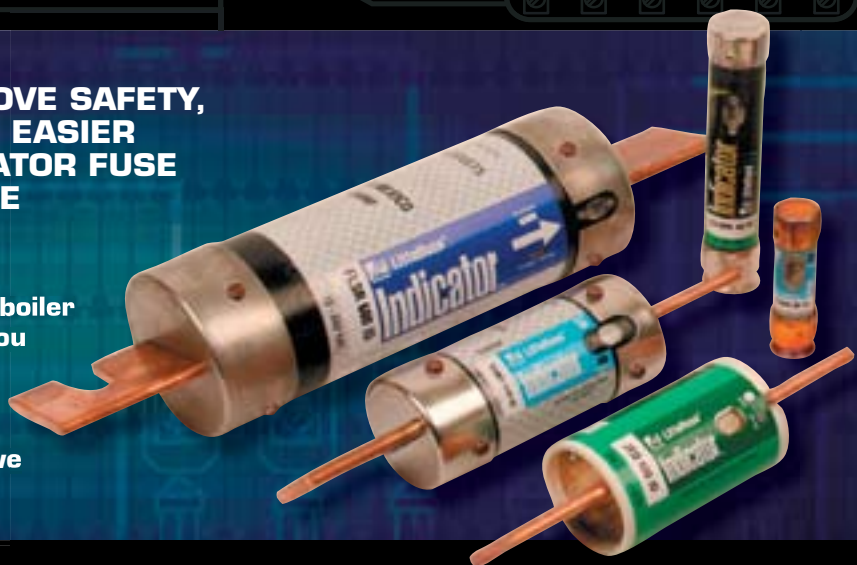


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imaging cameras. The affordable three-camera FLIR i-Series range (i40, i50 and i60) offers stand-out infrared diagnostic capabilities designed to help in-house plant maintenance, electrical and HVAC technicians, building inspectors, and pro-thermographers alike find problems faster and more easily.

The i-Series introduces numerous features found in more expensive cameras:

- Available FUSION scalable picture-in-picture allows the user to precisely blend an IR image with a visual reference image on a large 3.5-inch colour LCD for easier diagnostics and more compelling reports.
- The built-in visual camera offers up to 2.3 megapixel resolution
- Two per cent accuracy and a thermal sensitivity of $<0.1^{\circ}\text{C}$ at 25°C deliver accurate and conclusive findings.
- Infrared detectors ranging from 120×120 , 140×140 , to 180×180 pixels lead the class in IR resolution.
- A five-hour swappable Li-Ion battery and a lightweight, 1.3 pound ergonomic grip design makes all-day, one-handed point and shoot operation easier than ever.

Equipped with everything you need for a rolling start:

- 1GB micro SD Card (stores up to 1,000 radiometric JPEGs that require no special software for

viewing and can be easily e-mailed or placed in Word documents without loss of temperature data).

- Li-Ion rechargeable battery.
- Power supply.
- QuickReport software with USB cable.
- Lens cap, hand strap and heavy duty case.

For identifying electrical, mechanical or building envelope issues, the FLIR i-Series cameras pay for themselves by revealing problems before a failure or expensive teardown. Finding an infrared camera for your in-house predictive maintenance program that's easy on your crew's budget and armed with class-leading capabilities just got easier.

FLIR i-Series thermal imagers are available at local distributors through Extech Instruments, a FLIR company. Further information is available at www.extech.com/iseries.



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ZigBee Certified Products



Comverge, Inc. recently displayed two ZigBee certified products with

the ZigBee Smart Energy profile — the Comverge SuperStat Smart Programmable Thermostat and the Digital Control Unit load control solution — at Autovation 2008 in Atlanta, GA.

As a participant member in the ZigBee Alliance, Comverge has been integral in ensuring support for demand response capabilities as part of the ZigBee Smart Energy public application profile. ZigBee Smart Energy offers utilities and utility customers a reliable open smart energy standard for implementing secure, easy-to-use wireless communications for managing energy. Comverge is part of an elite list of companies who have earned certification status against the ZigBee open standard, widely recognized as the global benchmark for providing low-power wire-

less communication settings. These programs are critical components of Advanced Metering Infrastructure (AMI) deployments.

“ZigBee Smart Energy is widely recognized as an excellent solution for energy companies implementing AMI programs,” says Bob Heile, chairman of the ZigBee Alliance. “Comverge has two ZigBee certified products using ZigBee Smart Energy that gives its customers an easy and rapid way to improve energy efficiency and help the environment. This is really just the latest example of how robust ZigBee really is.”

The SuperStat smart thermostat provides both load control and price-responsive functionality using an intuitive thermostat interface and is compatible with virtually all air

conditioning systems on the market today. The DCU load and voltage control system offers a wide range of capability. The DCU’s inherent distributed intelligence features support efficient management of energy consuming devices such as air conditioners, water heaters, pool pumps and other auxiliary appliances. This allows consumers and energy managers to control their energy consumption more precisely, producing increased energy efficiency and savings.

“Demand response is an essential component of AMI implementations and Comverge’s ZigBee enabled SuperStat and DCU provide utilities with a seamless method to implement demand response programs on AMI deployments,” says Ed Myszka, president and COO for Comverge’s Smart Grid Solutions Group. “Our



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ZigBee-certified SuperStat and DCU demonstrate Comverge's commitment to developing the industry's most advanced smart energy solutions."

Further information is available at www.comverge.com or www.ZigBee.org.

EX800 Series of Clamp-On Meters



Extech Instruments EX800 series of clamp-on meters with built-in infra-

red thermometer has been a hit with customers of E.S. Gallagher Sales, FLIR'S representative to Canada's HVAC-R and electrical markets. The innovative EX800 series makes it easy for technicians to measure AC and DC current accurately and also troubleshoot dangerous or hard-to-reach hot spots without the need for a separate IR thermometer.

The top-level EX830 is an 1,000-amp AC/DC clamp meter that not only features Extech's exclusive built-in non-contact infrared thermometer with laser pointer, but also includes advanced multimeter capabilities, True RMS accuracy, fast peak hold for capturing inrush currents or transients, and a Type K thermocouple thermometer — all in a rugged, double-moulded housing.

"The EX830 is competitively priced to offer today's HVAC contractor a meter that fulfills all needs in the field," says Dave Shaw, sales manager for E.S. Gallagher Sales. "It does everything from DC and AC current, voltage, resistance, capacitance, frequency, diode and continuity, not to mention its non-contact IR thermometer. What more could you ask for?"

Further information is available by calling 1-800-613-0507 or by visiting www.esgallagher.com or www.extech.com.



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Industry Briefs

Extech Receives HKEIA Award

Extech Instruments was recently awarded the Gold Industrial Electronics Innovation and Technology Award for its new EX623 5-in-1 clamp meter at Asia's biggest electronics event, the 28th annual Hong Kong Electronics Fair and electronicAsia.

The competition and event were organized by the Hong Kong Electronic Industries Association (HKEIA). The HKEIA competition aims to recognize and reward makers of outstanding new products that demonstrate excellence in design, technology and features. Nearly 100 products were entered in the competition and award winners in the three categories of consumer electronics, portable electronics and industrial electronics were selected from a narrowed field of 20 finalists.

"Extech Instruments has been an exhibitor at the Hong Kong Electronics Fair for many years and we recognize the major significance of this event in the global electronics landscape," says Jerry Blakeley, president of Extech Instruments. "We are thrilled to receive the gold award for the EX623 5-in-1 clamp meter. I was particularly aware of many discussions with judges, buyers and other exhibitors centred on the current economic conditions. This year, it was clear that judges and buyers were looking for products that are not only built to exceed the demands of customers, but also to meet their budget requirements. By offering one meter that functions in the place of five, the EX623 delivers both high functionality and high value for customers who need to get more and spend less."

The 10th annual HKEIA Innovation and Technology award winners were selected by a panel of judges comprised of distinguished representatives from academia, industry organizations, and CEOs from leading

electronics companies led by Professor Philip Chan, dean of the school of engineering at the Hong Kong University of Science and Technology.

Extech's 5-in-1 clamp meter is specifically designed for HVAC/R and electrical professionals in residential, commercial, institutional and industrial settings. The EX623 accurately measures AC and DC current, voltage and temperatures for troubleshooting both new installations and preventive/ongoing maintenance and repairs. This clamp meter offers the convenience and versatility of five meters in one instrument: AC/DC clamp meter; advanced, True RMS multimeter; infrared thermometer; non-contact voltage detector; and dual Type K thermometer.

The EX623's infrared thermometer and laser pointer make temperature readings simpler and safer. And, having two Type K thermocouple inputs make superheat and sub-cooling temperature measurements easier to perform. The DC microamp function is ideal for flame rod current measurements and the EX623's generous 36 mm jaw opening handles conductors up to 500MCM. To make users' everyday installation, diagnostic, and maintenance tasks simpler and easier, Extech's EX623 offers users a valuable combination of 5-in-1 convenience, a rugged double-molded housing, competitive pricing, top-spec capabilities, and less toolbelt/toolbox clutter. Extech's 5-in-1 redefines expectations about clamp, multimeter, voltage detector, IR thermometer and Type K thermometer functionality and form factor. Designed by customer feedback, users increasingly demand multi-function capabilities.



Toolbox Talks

029: FALLING OBJECTS

To prevent injuring someone

- Rope off areas under elevated platforms, whenever practical. Note that a yellow barrier means “general caution,” while a red barrier means “do not enter.”
- Ensure toeboards on scaffolding and lifts are sufficient to prevent objects from rolling off.
- Tie off large tools, so if you drop them they won’t bounce off the platform and land on someone below.
- If you are in a roped-in area, momentarily stop work when someone alerts you he or she is entering. Resume when danger to that person has passed.
- Observe good housekeeping rules on work platforms. Keep them free of debris and free of tools and materials not needed for the job at hand.
- Keep tools in a bucket or other high-sided container, so these are less likely to fall off the platform or be kicked off. Make sure the container has a low centre of gravity. You may need to place a large fitting or two in the bottom to help ensure this. It also helps to place tools in that container in a “handle-up” orientation.
- Don’t make sudden foot movements when working overhead, to reduce the likelihood of kicking something over.
- Never throw a tool or other object to another person. If that person doesn’t catch what you throw, where will that object go?
- If you are working on grating above another work area or traffic way, place plywood and plastic down to prevent a dropped object from falling onto people in the level(s) below.
- Consider using netting around exposed perimeters.

To prevent being injured

- Wear your hard hat as soon as you enter the job site. Objects can fall on you while you are walking through a construction area, even if your shift hasn’t started. Remember, objects can fall regardless of the time.
- Give roped-off areas a wide berth unless your job requires entry. The rope is someone’s estimate of the safety boundary, as well as a signal that danger is present. Danger may extend beyond the boundary.
- Before entering a roped-off area, make contact with people working in that area — alert them that you are entering the area. You may need to enter the area as part of the team, but don’t assume the falling objects know this.
- If you are working on an intermediary platform, such as a scaffold with other scaffolding above it, ensure you have adequate protection above you. Your hard hat alone isn’t enough.
- Never walk under a crane load. Not only because the load might drop, but also the crane operator isn’t likely to see you and may become confused if he or she does.
- Avoid walking under an opening in the floor above you.
- Use caution before entering through a passageway where overhead work is being performed.

Demonstration

Begin this demonstration by pointing out that jars and bottles are, contrary to what’s in the movies, harder than the human head. Place a glass object in a paper bag. The bag keeps broken glass from flying. If you are using glass panes, place the panes on 2x4s sitting in a cardboard box. The box eliminates glass injury and collects fragments.

Education Matters

Scholarship Winners for 2008



Start with the smallest object you have collected. Drop the object from 10 feet above, or toss it in a smooth arc from the ground. If it breaks the glass, stop dropping objects.

Start with the lightest object that broke the glass. Pass it around and ask people if they handle objects of similar weight very often. Then, pass the other objects around, in order of increasing heaviness. Once all the objects are passed out, ask that the passing be stopped for a few minutes. Ask someone holding one of the heavier objects to tell the group if that object would be dangerous if it fell on someone. Then, ask people to volunteer how they might prevent such an object from falling on someone.

Be sure to dispose of the broken glass properly.

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 to place your order or call 1-800-387-3226.

Electrical Contractors Association of Ontario is pleased to announce the winners of the Scholarship Awards for 2008.

Congratulations to Joe Miles (above left), son of Lloyd Miles, Project Manager of E.S. Fox in London. Joe is currently attending Fanshawe College taking the Electrical Engineering Technician Program, while working at the Toyota Plant in Woodstock. In his letter to ECAO, Joe states, "I enjoy working with my hands and I'm fascinated with the new technology that is being produced."

The second recipient is Bryan Cuthbertson (above right), son of Dale Cuthbertson, Vice-President of Christopher Electric 2000 in Sarnia. Bryan volunteers teaching physically challenged children basic swimming techniques, while at Fanshawe College in the Electronics Engineering Technology program. Bryan similarly conveys his interest in the industry saying, "I have always had a fascination with electricity and electronics."

The winners will each receive \$2,000 towards furthering their education. Congratulations to the winners and good luck to all future applicants!

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Some combinations just don't make sense.

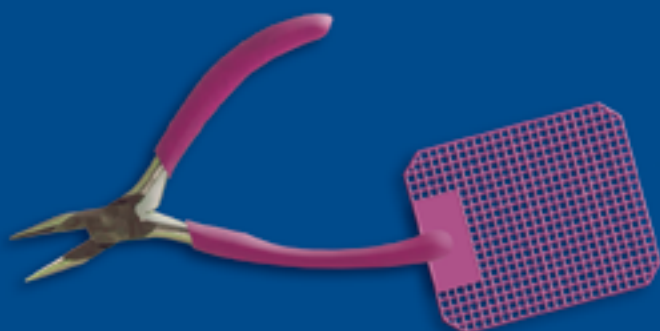


Exhibit A: "The Ply-Swatter"



Exhibit B: "The Cheese-Grating Hard Hat"

Some do.

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