

# THE INSPECTOR

Newsletter for the Members of the EIA of BC



April 2002

## President's Message

Spring is in the air, and so it should be. We finally adjusted our clocks and watches - to wake up one hour earlier and to enjoy the sun. We left behind our annual election and added a few new names and faces to the Executive Committee. This issue of **The Inspector** will try to reflect on our recent activities and planned events.

During the first three months of this year we were actively involved in the review of the proposed Safety Act and Regulations, and our passionate and tireless fighter Jack Ball, who represents the EIA membership on the Electrical Safety Advisory Committee, will report on the EIA participation in this emotional exercise.

Our Association was consistently involved in the process of adoption of the CE Code, part I for

use in BC as the BC Electrical Code. Jack Marsh, who diligently represents the EIA on the Electrical Wiring and Equipment Standards Committee, will share with the members the result of the code adoption.

Dave Shavalier, Mark Neath and Jack Ball are working on the logistics of our Fall Code Seminar, and they will provide the members with the update at the May general meeting so that members can plan to attend this very important event. Our well known old timer Rick Porcina, the outgoing member of the Executive, will brief the members on details of the presentation made by John Murphy, our Guest Speaker at the February 2002 General Meeting.

And as usual, you'll find variety of useful information, ranging from

Code file by Ted Simmons to a relevant cartoon by Mauro Rubini.

So, happy reading, folks.

In conclusion, I'd like to thank our out going Board members for their uncompromising dedication and to welcome new members of the Executive to a life of new responsibilities and commitment.

*Ark Tsisserev*

*Ark Tsisserev*  
President of the EIA B.C.

**P.S Harry Diemer, Executive Director of the BC Safety Engineering Services Division** has been appointed by the Minister as Executive Director of the Transformation Project. In this capacity, Harry oversees the major restructuring of the Safety Act and Safety Regulations in the Province.

As the keynote speaker at our **General Meeting, May 6**, Harry will share with EIA members the essential aspects of this project and will answer questions on this very important subject. **Members, remember: this transformation project impacts all of us. Please, make an effort to be prepared to ask about your concerns and uncertainties with regard to the proposed Act and Regulations. See Page 7 for a report from Jack Ball, the EIA representative on the Electrical Standards Advisory Committee.**



A meeting of the EIA Executive: left to right, Jack Marsh, Duncan Stevenson (guest), Paul Stevens, Bob Cornwell, Roger Tuttle, Kerry Peterson, Ark Tsisserev, Mauro Rubini & Jack Ball. Seated: Farmand Ghafari & Ted Simmons

# Underwriters' Laboratories of Canada Adopts Int'l Standards for the Canadian Electricity Industry

Canada, through Hydro-Quebec, has maintained the International Secretariat on IEC/TC78 on Live Working for over 20 years. For the last ten years, the Canadian Electricity Association (CEA) and its member utilities have provided funding assistance for the international secretariat as well as for other members' international participation. The industry felt that it was time to reap the benefits for all its hard work and financial support. It was time to adopt the International Standards in Canada.

As the national forum and voice of the electrical utility business in Canada, CEA had a choice between four accredited Standards Development Organizations in Canada to administer the adoption of these International Standards. Based upon its reputation as a Standards Development Organization and 80 years of certification and testing experience, CEA awarded Underwriters' Laboratories of Canada (ULC) with the contract to administer the adoption of twenty-four International Standards related to tools, equipment, and devices for the electric power utility industry. The Standards apply to a variety of devices, which include voltage detectors, gloves, hand tools, insulating poles, conductive clothing, and grounding and bonding equipment.

As an accredited Standards Development Organization, ULC is administering the adoption of the Standards in accordance with ISO/IEC Guide 21 entitled, "Adoption of International Standards as Regional or National Standards." At the same time, the Standards are being processed as National Standards of Canada in accordance with CAN-P-2

entitled, "Criteria and Procedures for the Preparation and Approval of National Standards of Canada" which is a document published by the Standards Council of Canada.

In keeping with these well-recognized procedures, ULC established the **Committee on Live Working**. This Committee is comprised of a balanced representation of users, producers, regulatory authorities and general interests. The inaugural meeting was held on April 23, 1998. In less than a year, the Committee approved the first series of adopted International Standards.

These are the current list of adopted International Standards:

- CAN/ULC-D60832-99, Insulating poles (insulating sticks) and universal tool attachments (fittings) for live working [Amended March 2000]
- CAN/ULC-D60855-00, Live working – Insulating foam-filled tubes and solid rods for live working
- CAN/ULC-D60900-99, Hand tools for live working up to 1 000 V a.c. and 1500 V d.c. [Amended March 2000]
- CAN/ULC-D60984-00, Sleeves of insulating material for live working
- CAN/ULC-D61112-01, Blankets of insulating material for electrical purposes
- CAN/ULC-D61229-00, Rigid protective covers for live working on a.c. installations
- CAN/ULC-D61230-99, Live working – Portable equipment for grounding and bonding [Amended March 2000]
- CAN/ULC-D61235-00, Live working – Insulating hollow tubes

for electrical purposes

- CAN/ULC-D61236-99, Saddles, pole clamps (stick clamps) and accessories for live working [Amended March 2000]
- CAN/ULC-D61243-1-00, Live working – Voltage detectors – Part 1: Capacitive type to be used for voltages exceeding 1 kV a.c.
- CAN/ULC-D61243-2-99, Live working – Voltage detectors – Part 2: Resistive type to be used for voltages of 1 kV to 36 kV a.c. [Amended March 2000]
- CAN/ULC-D61243-3-00, Live working – Voltage detectors – Part 3: Two-pole low-voltage type

These recent developments ultimately address many issues that have concerned the electrical utility industry. First, they provide harmonized Standards in various categories so that product manufacturers only need to comply with a single set of internationally-accepted standards. Next, they provide electrical utility companies the additional information for developing internal guidelines and procedures. It also allows regulators to use these Standards as part of their regulation development, which will provide a level playing field for manufacturers and harmonize the national requirements to international requirements. Finally, and most importantly, it increases the level of electrical safety throughout the whole industry.

In order to keep abreast of international activities in this area, The ULC Committee on Live Working is also harmonized with the Canadian Subcommittee on IEC/TC78.

*Continued on page 3, See: International Standards*

*International Standards, Continued from Page 2.*

The concept of "harmonization" is the formal linkage between people that decide on national requirements with those at the international level with the overall objective of producing common Standards that can be used worldwide. Once the majority of the International IEC/TC78's Standards have been adopted as National Standards of Canada, the Committee will then focus more of its attention internationally so that once a new International Standard is

presented for adoption, the adoption process will be considerably shortened.

Underwriters' Laboratories of Canada is a not-for-profit organization incorporated in 1920. ULC is accredited by the Standards Council of Canada as a Certification Organization, a Testing Organization, a Quality Systems Registration Organization (ISO 9000/QS 9000), and a Standards Development Organiza-

tion, under the National Standards System of Canada. Underwriters' Laboratories of Canada is an affiliate of Underwriters' Laboratories Inc.

For further information, please contact ULC at 1-800-INFO-ULC (1-800-463-6852) or visit ULC at [www.ulc.ca](http://www.ulc.ca).

*Reprinted with permission from the ECA Update, March 2002*

## **After ITAC: The Future of Apprenticeships in BC**

Effective immediately, 10 regional ITAC offices will be closed, leaving five, which will be closed by May 2003. The five remaining offices are Vancouver, Burnaby headquarters, Surrey, Victoria, Kelowna and Prince George.

A transition team comprised of ITAC and Ministry of Advanced Education staff are developing a new industry training and apprenticeship model. A transition advisory committee, which ECABC is trying to participate in, will be providing recommendations on the implementation of the new model to ensure that it is more flexible, efficient and responsive to industry needs.

### **How are apprentices and their employers going to be affected?**

ITAC maintains that apprentices and their employers will continue to receive services through the transition to the new model.

The new model will be different from what ITAC has been doing in a number of ways, for example:

- Industry will take a lead role in the new model by working with

government on their training needs;

- A small number of broad-based sector advisory committees will be established to replace the existing Trade Advisory Committees;
- Opportunities will be increased for private trainers to participate in training and credentialing;
- Trainees will take an increased responsibility for their own training;
- Multiple pathways for training will be implemented to increase flexibility;
- Government's role will be limited to standards and credentialing;
- The average length of programs will be reduced and new programs will be developed to address areas where skills shortages exist and to better meet the needs of industry; and,
- Individuals will have the opportunity to be assessed (assessed by who?) for a credential whether their skills are developed on the job or a combination of work-based and classroom training. The goal is to focus on outcomes not processes and to develop a

system of credentialing that is based on demonstrated competencies rather than time spent in a trade.

Apprentices will have more options for training and will be able to schedule their own training when convenient for them. (is this possible?) As needed and appropriate, training will be delivered on-line and in flexible delivery formats.

Industry bodies are responsible for the development of training standards in New Zealand, UK and Australia. In Alberta, Ontario, Ireland, and the new B.C. model, government sets the training standards; however, government establishes these standards based on consultation with industry.

### **ECABC/COCTA Concerns**

- Gerry Lengert of ITAC has suggested that compulsory trades may disappear.
- Modularization, which is another word for splintering or "dumbing down" the trades, has been proposed. i.e. 1-year house wiring apprenticeships.

*Continued on Page 4, See: ITAC*

ITAC: Continued from Page 3

- Another proposal is to make formal training optional. Alternatively, apprentices would be allowed to learn their trade on the job and challenge (be coached for?) an exam for their qualifications.
- George Douglas of ITAC has suggested that there will no longer be monitoring of apprentice-journeyman ratios and no monitoring of work or wage increments.
- Stuart Clark of the Industry Training Branch (Ministry of Advanced Education) maintains that Red Seal approval will be maintained, but we question their ability to do that in light of the proposed changes.

### Opportunities

COCTA/CLRA and BCCA have recognized that there may be an opportunity for the industry to take over apprenticeship training. Following are the established criteria:

- Industry based and inclusive of the entire industry
- A construction industry controlled training system
- Legislative Act required to provide enabling authority
- Authority to include power to tax participants
- Authority to assign tax collection to an appropriate entity i.e. WCB

- Training delivery to be on the open market from eligible private and public providers.

### Proposed Format

A non-profit society called the Construction Training Institute (CTI) with its own infrastructure, administration and Board of Directors who would represent the 23 trade groups included in the 16 sections of the Master Format.

Trade Advisory Committees for electrical and other trades would continue to function with representation on the Board of Directors for the CTI. As before, all sectors of the electrical industry, including the JTC and Western JETS, would be represented on the TACs.

The CTI would work closely with government and the TACs on the content and delivery of apprenticeship training. It would also conceivably fund public and private training from existing and new training providers with an industry levy collected by government.

COCTA is responsible for developing the structure for CTI and CLRA with BCCA are working on the funding model. We have until June to deliver a proposal to government.

*Reprinted with permission from the ECA Update, March 2002*

## Let's twist again?

By Mark Neath

To twist or not twist is more a question of personal preference rather than a safety issue. Now I'm talking about making a connection with two wires - not the same kind of connection that we made with the 60's party game. (Not that most of us are limber enough nowadays to play anyway.) Now before you get all up in arms about whether or not I'm right, I know that the code tackles the issue of good practice, but the code is silent on the need to twist wires.

In fact some manufacturers expressly state that you need not twist the wires together. Still, I have to admit that I would find it near impossible to feel good about stuffing a couple of number 12s into a connector without applying my Klein's to put in a good curl. Of course I blame my first journeyman, a stalwart fellow who was rather free with the electrons from time to time but never made a connection without a good twist.

The need to twist conductors most likely goes back to when connectors were not quite as reliable at creating a firm connection. The need may even predate the twist on connector entirely. Thankfully I'm a little too young to have any memory of those days.

However, the practice does raise an interesting question. Can we assume that every practice learned as a wee apprentice on the job or in trade school is still valid or even safe? It's a good practice to get into the habit of reviewing the manufacturer's installation instructions along with the appropriate code rules to ensure you're up to par with the times.

## Life Members

At the November general meeting two new "life members" were appointed: Bill Burr, CSA International and Jerry Jirasek, City of Surrey. The photo shows Jerry receiving his certificate from President, Ark Tsisserev.



# Code Issues

By Ted Simmons

## Class 1 versus Class 2 circuits.

Differentiating between Class 1 and Class 2 circuits is not an easy task considering that either circuit classification can be identified as a remote control and signal circuit. There is also the confusion between the terms "Extra Low Voltage Power Circuit" and "Low Energy Power Circuit".

The major difference between a Class 1 and Class 2 remote control circuit is the level of energy available. The most common example of a Class 1 remote control circuit is a magnetically operated motor controller. In most cases the operating coils for these controllers require a relatively high amount of energy and therefore would exceed the maximum energy limitations permitted for Class 2 circuits that are limited to 100VA at 150V.

The 100VA/150V limitation on a Class 2 remote control circuit restricts its use to circuits that have very low energy requirements such as thermostats, door bells, intercoms, low voltage switching relays, etc.

It should be noted, however, that there are remote control and signal circuits such as fire alarm systems and

nurse call circuits that meet the requirements of a Class 2 circuit but are deemed to be Class 1 circuits because failure of these circuits would introduce a direct fire or life hazard. Refer to Code Rule 16-010 for details.

The difference between a Class 1 extra low voltage power circuit and a Class 2 low energy power circuit again comes down to the amount of energy available. The 100VA limitation for Class 2 low energy power circuits restricts their use to devices such as zone valves used in hot water heating systems and low voltage lighting systems such as under cabinet lighting and landscape lighting.

Devices such as door openers, damper controllers, large solenoid valves, etc. that operate at 30V or less will have energy requirements that far exceed the 100VA limitation for Class 2 circuits and therefore will be classified as Class 1 Extra Low Voltage power circuits.

The following table provides examples of the different circuits and the applicable Code rules.

### Class 1\*

<p><b>Remote Control and Signal Circuits.</b> <b>Max 600V.</b> <b>Rule 16-100(2).</b></p> <p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>• Motor Control Circuits</li> <li>• Fire Alarm Systems (refer to Rule 16-010)</li> <li>• Nurse Call Systems (refer to Rule 16-010)</li> </ul>	<p><b>Extra Low Voltage Power Circuits.</b> <b>Max 30V. 1000VA</b> <b>Rule 16-004, 16-100(1).</b></p> <p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>• Valve Operators</li> <li>• Damper Control</li> <li>• Door Openers</li> <li>• Low Voltage Lighting exceeding 100VA</li> </ul>
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\*Note: Rule 16-102 states that the wiring and equipment for Class 1 circuits shall be in accordance with the requirements of the appropriate sections of the Code except as modified by Rules 16-104 to 16-118.

### Class 2\*\*

<p><b>Remote Control and Signal Circuits.</b> <b>Max. 100VA.</b> <b>Rule 16-200.</b></p> <p><b>Examples</b></p> <ul style="list-style-type: none"> <li>• Intercom Doorbell</li> <li>• Low Voltage Switching</li> <li>• Security Alarm Systems</li> <li>• Thermostats</li> </ul>	<p><b>Low Energy Power Circuits.</b> <b>Rule 16-006.</b> Max. 100VA Rule 16-200.</p> <p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>• Low Voltage Lighting such as Under-cabinet lighting</li> <li>• Landscape lighting</li> <li>• Zone valves</li> </ul>
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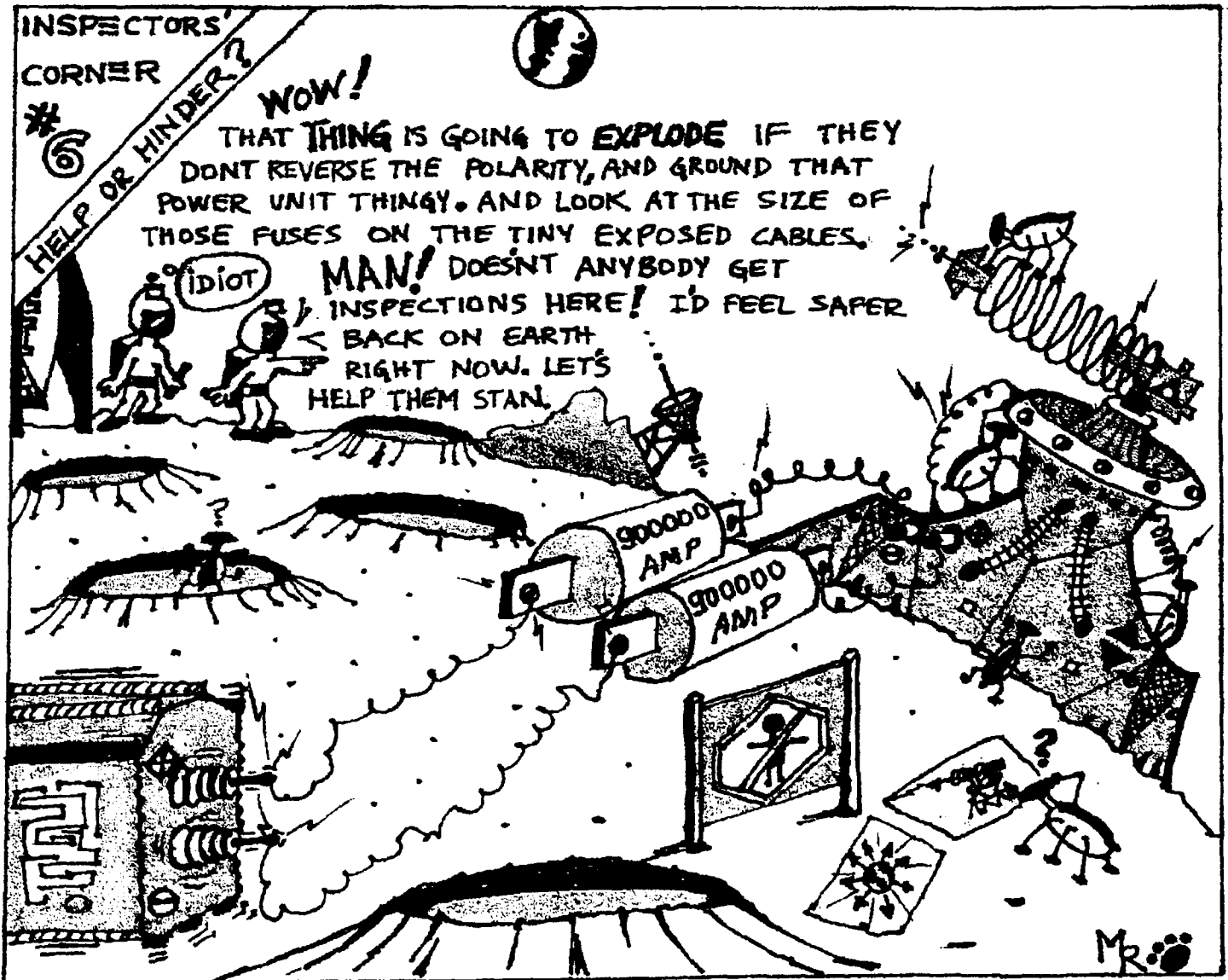
\*\*Note: The wiring and equipment for Class 2 circuits shall be in accordance with Rules 16-202 to 16-226.

## Tom Hamilton appointed Acting Director, Electrical and Elevating Devices Safety Branch

Tom Hamilton is presently the Acting Director of the Electrical and Elevating Devices Safety Branch. He currently oversees Branch operations, including directing and leading the program activities, revising regulations, preparing briefing notes, preparing program reports and variance reports (risk assessment, state of safety, operational status).

Tom previously held the position of Manager of Field Operations since 1998. During this time he was responsible for the operation, policies and regulatory obligations of the safety program with respect to elevating devices, amusement rides and passenger ropeways. He actively participated in strategic planning, budgets, technical and legisla-

tive matters and strategic liaison. Tom previously held the position of Senior Aerial Tramway Inspector for a period of 19 years. During this time he developed a risk management approach to create an effective system of voluntary compliance, one of the most recognized in North America. One of his favorite activities is coaching minor hockey.



Cartoon by Mauro Rubini

# The Proposed Safety Act and Regulations

By Jack Ball, EIA Representative on ESAC

The proposed Safety Standards Act has been around for the past two years, and is up to draft 53D. It can be viewed on the Ministry website (<http://www.marh.gov.bc.ca/SES/SSR/>). The proposed Safety Standards General Regulation and proposed new Electrical Safety Regulation came out in February of this year. These regulations were written by the Ministry, without any input from the ESAC Regulations Review Task Force. ESAC members were then asked to submit their comments on the principals and directions they perceived to be in the documents. As the Act and SSGR are generic documents designed to cover electrical as well as elevating devices, gas, power engineers, boiler and pressure vessels, and part of the Railway Act, they are very vague. A lot of consultation was required to determine what discipline certain clauses applied to.

The following is a highlight of a few of the changes they contain.

Although the wording has changed, it is intended that both the provincial and municipal inspection services will remain unchanged. Additional wording will be required to permit this. Both will have the ability to impose monitor penalties as an enforcement tool. The qualifications for contractors, workers, safety officers (inspectors) and safety managers will be transferred to policy. Contractors will be permitted to inspect homeowner installations in outer areas of the province. The requirement for equipment approval remains unchanged. Field Safety Representatives (FSRs) will be the new name for Accredited Representatives. Registered Representatives will cease to exist, and be replaced by more FSRs.

The review and comments on the proposed act and regulations are still in the preliminary stages. The Chief Electrical Inspectors will be meeting to review the documents in May. The two new proposed regula-

tions will be posted on the Ministry's website (noted above) at the end of May for all to review and comment on, as the Act is now. The EIA executive, have read all the documents, and Jack Ball has already submitted a preliminary list of EIA concerns to the Minister. If EIA members wish to submit written comments on the Act or Regulations through our association, send them to Jack, our ESAC member at [jball@cnv.org](mailto:jball@cnv.org) or fax them to Jack at 604-985-0576, or mail them to him at 3989 Henning Drive, Burnaby, V5C 6N5.

## EIA Donations

Over the past year, a sub-committee chaired by Jack Ball has explored a number of possible areas for donations, including: sponsoring students in the electrical trade, donating to educational institutes' electrical programs, sponsoring members' attendance to seminars, sponsoring scholarships and bursaries in the electrical trade and donating to charities. After consideration of a number of options, the committee recommended to the Executive that donations be focused on benefitting students in the electrical trade.

The Executive approved the donation of \$6,000.00 to be divided equally between the BC Institute of Technology and Camosun College; \$2,000.00 of the \$3,000.00 donated to each institution to be awarded for excellence in achievement and \$1,000.00 to provide assistance to students in financial need. The distribution of these funds is to be in accordance with the appropriate programs in existence at the individual institutions.

*Plan now to attend the*

**EIA Electrical Code 2002 Seminar**

**Saturday, October 5, 2002**

**8:00 a.m. to 4:30 p.m.**

**3777 Kingsway, Burnaby**  
**(the Telus Boot)**

**Cost: Members: \$85.00**  
**Non-members: \$115.00**

*Registration information and forms will be available shortly*

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**Editor:** Pat Maertz, 604-525-7322

**EIA General Meeting**

**Monday, May 6, 2002**

**Cheers Restaurant, 125 East 2nd Street, North Vancouver**

**Keynote Speaker**

**Harry Diemer, Executive Director,  
Transformation Project, BC Safety  
Engineering Services Division -  
Proposed Safety Act and Regulations**

**Guest Technical Speaker**

**Bill Kruse, Representative from  
NuHeat - Product and installation  
information**

Contact Bob Reimer  
Phone: 532-3648  
Fax: 533-3142

*Have you renewed your membership?  
use the membership renewal form below . . . and  
to avoid the inconvenience of annual renewals  
consider renewing for 2 or 3 years*

**MEMBERSHIP APPLICATION & RENEWAL FORM**

The EIA welcomes applications for membership from individuals and organizations involved in the electrical industry.

- If you are an Electrical Inspector you are eligible to be an **Inspector Member**.
- If you are employed in electrical manufacturing, supplies, contracting, installations or a regulatory agency, or if you represent an organization associated with the Electrical Industry, you are eligible to be an **Associate Member**.

**Please accept my application for membership in the EIA of BC**

Name (Please print) Phone: Fax:

Address

City Postal Code

Employer Title

New Membership  Renewal

Inspector  Associate

Life Member: Do you wish to remain on the EIA mailing list? Yes  No

Enclosed is: \$30.00 for 1 year (Jan 1, 2002 - Dec. 31, 2002)   
\$60.00 for 2 years (Jan 1, 2002 - Dec. 31, 2003)   
\$90.00 for 3 years (Jan 1, 2002 - Dec. 31, 2004)

Mail to: The EIA of BC, 201 - 3989 Henning Drive, Burnaby, B.C., V5C 6N5