

Objective Based Industrial Electrical Code Overview

History

Trade liberalization has compelled industry to become more competitive in the new global economy and technology is changing at an exponential rate. Economic pressures have caused industry to re-evaluate how they operate in order to become more effective. In order to remain competitive in a global market, best practices from around the world need to be applied. For the electrical industry, this includes revising how installations are designed, operated and maintained without compromising safety.

Leveraging off work done by others in other disciplines in Canada and work done by the IEC, preparatory work has been commenced to establish the mechanics and environment to develop an Objective Based Industrial Electrical Code (OBIEC). This is a code that would allow the user to apply good engineering judgment in designing, installing, operating and maintaining electrical equipment within an industrial environment. This code will not replace the Canadian Electrical Code Part I (CE Code Part I), but form a method to apply the CE Code Part I or any other industry recognized Codes and Standards. The new code will not allow the user carte blanche to interpret the OBIEC in any way he or she chooses; toasters will not be used as space heaters nor will it allow substandard installation practices.

The two main components of applying this code are the OBIEC itself and the Safety Management System.

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What is an Objective Based Code?

An objective is the desire to achieve a specified goal. An objective based code therefore, starts with a high level objective. For example, one objective statement would be to provide protection against dangers arising from contacting live parts of an installation by limiting the current passing through the body to a non-hazardous value.

Compare this to a prescriptive based code text solution existing in the CE Code Part I, Rule 26-7100(11) which states “Receptacles located in bathrooms or washrooms and installed within three meters of washbasins, bathtubs, or shower stalls shall be protected by a ground fault circuit interrupter of the Class A type.”

The OBIEC committee plan is to develop these objective statements for industrial installations, building on the work already done in IEC 60364, “Electrical installations of buildings – Part 1”. Further, the OBIEC will list the codes and standards, the acknowledged best practices, and other recognized documents that will provide the optimum solutions and prescriptions that would meet this objective.

What is a Safety Management System?

The Safety Management System is the system approved within each Province and territory and has authority from the Provincial Government to ensure the codes and standards approved by government and passed into Regulation are applied within the law. Aspects of the SMS are the approval of the use of a code or standard, and who would be authorized to utilize it for building and installation, testing, inspection, ongoing maintenance and operation of equipment.

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Industry initiated, widely supported, backed by provincial governments

The idea of an objective based code for industry originated within a group of senior electrical engineers in Alberta, was endorsed by the Safety Codes Council in Alberta, and then accepted as a code development project within the Canadian Standards Association (CSA). There are currently 45 leading companies and organizations that have provided financial and/or moral support for this initiative. Please refer to the list of industry supporters in this document for those providing financial support.

In addition to industry support, the provincial regulatory authorities and their respective provincial deputy ministers have all given unanimous support to the development of this code. They recognize the potential of benefits for industry and the needs and benefits for government(s) to move regulation in this direction. The Safety Management System framework will be developed by the provincial inspection authorities and then each Province and Territory will develop its own regulation based on individual need(s).

What are the benefits of OBIEC?

- Allows flexibility for industrial facility designers. Design(s) and installation practices that are accepted as world class standards such as IEC and IEEE would be allowed within Canada.
- Allows easier access to new technology. Products that would be approved by the regulations in the Safety Management System would be available for installation in Canada.
- Objective codes are more stable requiring fewer changes. These changes would include the need to review approved referenced codes, standards, and other documents to ensure changes and revisions within these documents still reflect the objectives.
- Safer installations are expected as the requirements to appropriately operate and maintain the installations would be more clearly defined.

Who will benefit?

The OBIEC is intended for use by industrial companies where facilities are designed and operated by qualified professional staff. The Code is intended for use in conjunction with the implementation of a Safety Management System acceptable to the authorities enforcing this Code. Industries that are expected to benefit from this code are:

- Petroleum and petrochemical
- Power generation, transmission and distribution companies
- Forestry and Pulp and Paper
- Automotive
- Minerals and mining
- Heavy agriculture
- Steel and other heavy industry
- Oil and Gas Pipelines
- Pharmaceuticals

Canadian Standards Association Support

“The Canadian Standards Association was very pleased to be selected by the Committee as the standards development organization for the development and maintenance of this Code. As you are aware, CSA is a strong proponent of the value of objective-based codes for many industries and businesses in Canada. We expect that a significant number of other CSA codes and standards will follow the same path in the future. As an example, CSA is an active participant and facilitator on the joint Canada/US committee to develop this type of code for new technology for the essential safety requirements for elevating devices. CSA is committed to our role in the facilitation, development and maintenance of the OBIEC. We are equally committed to a full partnership with the Stakeholder Advisory Committee to ensure success at every stage of this process. We very much look forward to this exciting and important initiative.”

Pat Keindel
President, Standards
Canadian Standards Association