CCMC CANADIAN CODE COMPLIANCE EVALUATION

CCMC EVALUATION

CCMC 13316-R

CCMC Canadian code compliance evaluation

CCMC number:	13316-R
Status:	Active
Issue date:	2008-09-15
Modified date:	2023-11-08
Evaluation holder:	**Always On UPS Systems Canada Inc** 100 - 150 Campion Road Kelowna BC V1X 7S8 Canada Telephone: 250-491-9777
Product name:	Always On™ ELI AC Inverter - Borealis and Aurora Series
Compliance:	NBC 2015
Criteria:	CCMC-TG-265201-15, "CCMC Technical Guide for AC Inverter System for Emergency Power Supply for Lighting (Single Phase)"

In most jurisdictions this document is sufficient evidence for approval by Canadian authorities.
Learn more about CCMC recognition Look for the trusted CCMC mark on products to verify compliance.

Compliance opinion

It is the opinion of the Canadian Construction Materials Centre that the evaluated product, when used as an emergency power supply for lighting in accordance with the conditions and limitations stated in this evaluation, complies with the following code:

National Building Code of Canada 2015

Code provision	Solution type
3.2.7.4. Emergency Power for Lighting	Acceptable
3.2.7.5. Emergency Power Supply Installation	Alternative
9.9.12.3. Emergency Lighting	Acceptable

The above opinion(s) is/are based on the evaluation by the CCMC of technical evidence provided by the evaluation holder, and is bound by the stated conditions and limitations. For the benefit of the user, a summary of the technical information that forms the basis of this evaluation has been included.

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Product information

Product name

Always On™ ELI AC Inverter - Borealis and Aurora Series

Product description

The product is a battery powered, uninterruptible power system that provides emergency AC power for lighting circuits in the event the primary power source fails. The selected loads continue to receive safe and clean AC power during major power events, such as blackouts, brownouts, and over- or under-voltage conditions.

The equipment consists of:

- a battery bank;
- a battery charger;
- a transformer; and
- Insulated Gate Bipolar Transistors (IGBT) to convert DC power to AC.

The microprocessor-controlled unit also provides self-diagnostics and monitoring of the operating parameters.

The Aurora Series is offered in many configurations, which are outlined in the manufacturer's literature. These configurations include unit ratings and critical load models ranging from 3 kW to 15 kW (single phase). The kW ratings and corresponding input/output voltage combinations are indicated in Table 1.

The Borealis Series is offered in many configurations, which are outlined in the manufacturer's literature. These configurations include unit ratings and critical load models ranging from 8 kW to 48 kW (3 phase). The kW ratings and corresponding input/output voltages are indicated in Table 2.

The system is capable of powering any combination of lighting (e.g., electronic ballast, power factor-corrected ballast and self-ballasted fluorescent, incandescent or high-intensity discharge [HID]).

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Figure 1. Aurora Series Single-Phase AC Inverter

Figure 2. Borealis Series Three-Phase AC Inverter

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Manufacturing plant

This evaluation is valid only for products produced at the following plant:

Product name	Manufacturing plant
	Kelowna, BC, CA
Always On™ ELI AC Inverter - Borealis and Aurora Series	⊙

⊙ Indicates that the product from this manufacturing facility has been evaluated by the CCMC

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Conditions and limitations

The CCMC's compliance opinion is bound by this product being used in accordance with the conditions and limitations set out below.

- The product is intended for use as an emergency power supply for lighting in buildings that require a separate emergency power supply.
- After installation, the system must be inspected and tested in accordance with the System Operating and Maintenance Manual, which must be kept on-site at all times, and certified and stamped by a professional engineer.
- The system is not considered applicable for hospitals or nursing homes unless it qualifies under CAN/CSA-Z32-04, "Electrical Safety and Essential Electrical Systems in Health Care Facilities."
- Operating parameters can only be changed by a professional engineer who will certify that the life safety parameters will not be affected. The manual must be updated accordingly.
- Required site-specific information includes:
  - a single line diagram of the installation;
  - panel schedules for all lighting panels connected;
  - the equipment room layout showing the location of the system and required auxiliary equipment;
  - the sprinkler zone shutoff valve location (when installed in a sprinklered room); and
  - a list of external devices required for the operation, including:
    - the location of feeder circuit switches, and/or circuit breakers for the system; and
    - interlocking devices.
- Batteries must be labelled with the manufacturer's model and contact number along with a certification mark. They must be kept in a ventilated locked cabinet.
- The output of the inverters must be a true no-break supply to ensure that all types of lighting load can be used.
- When the system is located in a sprinklered building, the service room where the system is installed must be sprinklered and the enclosures housing the inverters must be sprinkler-proof.
- The system must be located in a ventilated room where the ambient temperature must be maintained at not less than 10°C.
- Where permitted, auxiliary loads must be supplied from separate circuits than the emergency lighting loads.
- All aspects of the installation must be in compliance with the Canadian Electrical Code and applicable local requirements.
- The product must be labelled with the following information:
  - product name;
  - handling precautions;
  - manufacturer's name;
  - UL 924-2012, "Emergency Lighting and Power Equipment" certification mark;
  - electrical certification mark;
  - manufacturer's certification mark for battery times other than 90 minutes; and
  - "CCMC 13316-R".

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Technical information

This evaluation is based on demonstrated conformance with the following criteria:

Criteria number	Criteria name
CCMC-TG-265201-15	CCMC Technical Guide for AC Inverter System for Emergency Power Supply for Lighting (Single Phase)

The evaluation holder has submitted technical documentation for CCMC's evaluation. Testing was conducted at laboratories recognized by CCMC. The corresponding technical evidence for this product is summarized below. The emergency power supply is designed and installed so that, upon failure of the regular power supply to the building, the emergency power supply will assume the electrical load automatically for a period of 2 hours, 1 hour or 30 minutes as required by the NBC and incorporated in the electrical system design by a professional engineer.

Table 1. System input/output ratings for Always On™ ELI AC Inverter – Aurora Series

Unit rating (kVA/kW)	Input voltage	Output voltage	Result
6/3	208, 240, 277, 347 V AC single phase	120/208, 120/240, 277, 347 V AC single phase	CSA certified compliance with UL 924
8/5			
10/7.5			
12/10			
20/15			

Table 2. System input/output ratings for Always On™ ELI AC Inverter – Borealis Series

Unit rating (kVA/kW)	Input voltage	Output voltage	Result
10/8	120/208, 277/480, 347/600 V AC, three phase, four wire	120/208, 277/480 and 347/600 V AC three phase, four wire	CSA certified compliance with UL 924
15/12			
20/16			
30/24			
40/32			
50/40			
60/48			

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Administrative information

Use of Canadian Construction Materials Centre (CCMC) assessments

This assessment must be read in the context of the entire CCMC Registry of Product Assessments, any applicable building code or by-law requirements, and/or any other regulatory requirements (for example, the Canada Consumer Product Safety Act, the Canadian Environmental Protection Act, etc.).

It is the responsibility of the user to confirm that the assessment they are using is current and has not been withdrawn or superseded by a later version on the CCMC Registry of Product Assessments.

Disclaimer

The National Research Council of Canada (NRC) has evaluated only the characteristics of the specific product described herein. The information and opinions in this evaluation are directed to those who have the appropriate degree of experience to use and apply its contents (such as authorities having jurisdiction, design professionals and specifiers). This evaluation is valid when the product is used as part of permitted construction, respecting all conditions and limitations stated in the evaluation, and in accordance with applicable building codes and by-laws.

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Language

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The Canadian Construction Materials Centre (CCMC) assesses compliance with Canadian building, energy and safety codes. We are the only construction code compliance service supported and operated by the Government of Canada. Trusted by over 6,000 regulators across Canada.

> Most Canadian authorities having jurisdiction (AHJs) consider CCMC product assessments acceptable as evidence for product approval.

CCMC assessments are recognized by construction authorities across Canada:

Alliance of Canadian Building Official Associations (ACBOA)	(Alliance of Canadian Building Official Associations (ACBOA))
First Nations National Building Officers Association (FNNBOA)	(First Nations National Building Officers Association (FNNBOA))
Canadian Home Builders' Association (CHBA)	(Canadian Home Builders' Association (CHBA))
Alberta Building Officials Association (ABOA)	(Alberta Building Officials Associations (ABOA))
Saskatchewan Building Officials Association (SBOA)	(Saskatchewan Building Officials Association (SBOA))
Manitoba Building Officials Association (MBOA)	(Manitoba Building Officials Association (MBOA))
Ontario Building Officials Association (OBOA)	(Ontario Building Officials Association (OBOA))
New Brunswick Building Officials Association (NBBOA)	(New Brunswick Building Officials Association (NBBOA))
Nova Scotia Building Officials Association (NSBOA)	(Nova Scotia Building Officials Association (NSBOA))

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> The CCMC provides code compliance assessments to Canadian code requirements, consulting nationwide with construction regulators to elicit regional variations in code requirements as well as provincial and local interpretations. Users are advised to review the technical information presented in CCMC assessments when making approval decisions. Learn more about how the CCMC provides a unique service for Canada.

For more information, contact the CCMC by phone at (613) 993-6189 or by email at ccmc@nrc-cnrc.gc.ca

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Code compliance as an acceptable solution

Code Compliance via Acceptable Solutions

> If a building design (e.g. material, component, assembly or system) can be shown to meet all provisions of the applicable **acceptable solutions** in Division B (e.g. it complies with the applicable provisions of a referenced standard), it is deemed to have satisfied the objectives and functional statements linked to those provisions and thus to have complied with that part of the Code.
>
> — **National Building Code of Canada, Sentence A-1.2.1.1.(1)(a)**

The CCMC has determined that compliance with this provision of the Code has been demonstrated as an **Acceptable Solution**. The evaluation report provides a summary of the basis of CCMC's compliance opinion.

CCMC's code compliance opinions

All CCMC evaluation reports are opinions of code compliance established in accordance with the National Building Code of Canada, Subsection 1.2.1. "Compliance with this Code," which requires compliance to be achieved by:

- complying with the applicable acceptable solutions in Division B, or
- using an alternative solution that will achieve at least the minimum level of performance required by Division B in the areas defined by the objective and functional statements attributed to the applicable acceptable solutions.

The CCMC assesses compliance with Canadian building, energy and safety codes, and is trusted by over 6,000 regulators across Canada.

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Code compliance as an alternative solution

Code Compliance via Alternative Solutions

> Where a design differs from the acceptable solutions in Division B, then it should be treated as an "**alternative solution**." A proponent of an alternative solution must demonstrate that the alternative solution addresses the same issues as the applicable acceptable solutions in Division B and their attributed objectives and functional statements. However, because the objectives and functional statements are entirely qualitative, demonstrating compliance with them in isolation is not possible. Therefore, Clause 1.2.1.1.(1)(b) identifies the principle that Division B establishes the quantitative performance targets that alternative solutions must meet. In many cases, these targets are not defined very precisely by the acceptable solutions [...] Nevertheless, Clause 1.2.1.1.(1)(b) makes it clear that an effort must be made to demonstrate that an alternative solution will perform as well as a design that would satisfy the applicable acceptable solutions in Division B—not “well enough” but “as well as.”
>
> — **National Building Code of Canada, Sentence A-1.2.1.1.(1)(b)**

The CCMC has determined that compliance with this provision of the Code has been demonstrated as an **Alternative Solution**. The evaluation report provides a summary of the basis of CCMC's compliance opinion.

CCMC's code compliance opinions

All CCMC evaluation reports are opinions of code compliance established in accordance with the National Building Code of Canada, Subsection 1.2.1. "Compliance with this Code," which requires compliance to be achieved by:

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