Egress Lighting Solutions
Brochure Addendum
Centralized Emergency Lighting Inverters

This Controlled Power Company brochure addendum references the major codes and standards that pertain directly to the selection and application of emergency lighting inverters in Canada.

In Canada, the requirements for emergency power and egress lighting are defined in the “National Building Code of Canada (NBCC) 2010”. Within the “NBCC 2010 Division B, Appendix A”, buildings are given major occupancy classifications and segmented into Groups A through F. These groups are then referenced in “Division B, Part 3” which provides emergency power runtime definitions (2 hours, 1 hour, and 30 minutes) based on a building’s height and classification, as well as the number and location of its occupants.

<table>
<thead>
<tr>
<th>Examples of Major Occupancy Classifications: “NBCC, Division B, Appendix A, Article A-3.1.2.1.(1)”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group A</strong> - Arenas, Churches, Movie Theaters, School Classrooms</td>
</tr>
<tr>
<td><strong>Group B</strong> - Assisted Living Facilities, Hospitals, Jails, Penitentiaries</td>
</tr>
<tr>
<td><strong>Group C</strong> - Apartments, Dorms, Hotels, Monasteries</td>
</tr>
<tr>
<td><strong>Group D</strong> - Banks, Dental / Medical Offices, Police Stations Without Detention Quarters</td>
</tr>
<tr>
<td><strong>Group E</strong> - Department Stores, Exhibition Halls, Supermarkets</td>
</tr>
<tr>
<td><strong>Group F</strong> - Aircraft Hangars, Factories, Feed Mills, Warehouses</td>
</tr>
</tbody>
</table>

Note: Controlled Power Company’s single- and three-phase centralized emergency lighting inverters are all rated for the minimum battery runtime of 30 minutes required by CSA Standard C22.2 No. 141. Extended runtimes defined by the NBCC are available, consult factory for UL and C-UL listings.

The table above provides examples of buildings within the Major Occupancy Classifications Groups A – F of the “NBCC 2010, Division B, Appendix A”, and below are excerpts from “Division B, Part 3”, which support our inverters’ compliance with the NBCC code.

**3.2.6 Additional Requirements for High Buildings**

**3.2.6.1. Application**

1) This Subsection applies to a building
   a) of Group A, D, E, or F major occupancy classification that is more than
      i) 36 m high, measured between grade and the floor level of the top story, or
      ii) 18 m high, measured between grade and the floor level of the top story, and in which the cumulative or total occupant load on or above any story above grade, other than the first story, divided by 1.8 times the width in meters of all exit stairs at that story, exceeds 300,
   b) containing a Group B major occupancy in which the floor level of the highest story of that major occupancy is more than 18 m above grade,
   c) containing a floor area or part of a floor area located above the third story designed or intended as a Group B, Division 2 or 3 occupancy, or
   d) containing a Group C major occupancy whose floor level is more than 18 m above grade.

**3.2.7 Lighting and Emergency Power Systems**

**3.2.7.4. Emergency Power for Lighting**

1) An emergency power supply shall be
   a) provided to maintain the emergency lighting required by this Subsection from a power source such as batteries or generators that will continue to supply power in the event that the regular power supply to the building is interrupted and
   b) so designed and installed that upon failure of the regular power it will assume the electrical load automatically for a period of
      i) 2 h for a building within the scope of Subsection 3.2.6.,
      ii) 1 h for a building of Group B major occupancy classification that is not within the scope of Subsection 3.2.6., and
      iii) 30 min for a building of any other occupancy.
   (See Appendix A.)
The NBCC also mandates conformance to the Canadian Standards Association (CSA) C22.2 No. 141 Standard for Emergency Lighting Equipment. The two paragraphs directly below highlight some of the requirements of this Standard, and its updates from No. 141-02 through 141-15.

CSA C22.2 No. 141-02, No. 141-10, and the most recent No. 141-15, define the requirements of Emergency Lighting Equipment, applicable to exit signs, unit equipment, emergency luminaires, and central power systems. In the event of a failure of the normal power supply, the equipment must provide a minimum of 30 minutes backup time or longer as specified in the “Lighting and Emergency Power Systems” section of the NBCC. (30 minutes, 1 hour or 2 hours, etc., per NBCC occupancy classification requirements.) To comply with CSA C22.2 No. 141-10, central power systems have to include the indicators visual/audio defined in section 4.4.4. Our lighting inverter’s “Intellistat” monitor meets and exceeds the requirements.

CSA C22.2 No. 141-15 (section 4.4.6) further defines Emergency Lighting Equipment with auto-testing/auto-diagnostic features as performing automatic testing in a period not exceeding 30 days, providing a visual diagnostic status, and performing a full duration battery discharge test at least once a year. In addition to the visual diagnostic status, the equipment must optionally have a means to connect to a supplemental central remote computerized monitoring system. Note: This section of the Standard relates well to the U.S. NFPA 101 “Life Safety Code”, 7.9.3.1.3 – Periodic Testing of Emergency Lighting Equipment. (See back cover of Egress Lighting Solutions brochure for illustration of our inverter’s automatic testing / reporting capability. Our inverter’s “Intellistat” monitor meets and exceeds the requirements defined in No. 141-15!)

**LIGHTING INVERTER COMPLIANCE**

<table>
<thead>
<tr>
<th></th>
<th>CSA C22.2 No. 141</th>
</tr>
</thead>
<tbody>
<tr>
<td>EON Model EL3 (10kW - 55kW)</td>
<td>141-02 Listed</td>
</tr>
<tr>
<td>eLITE Model ELE (16kW - 18kW)</td>
<td>141-15 Listed</td>
</tr>
<tr>
<td>UltraLITE Model ELU (1.5kW - 14kW)</td>
<td>✔</td>
</tr>
<tr>
<td>UltraLITE Model ELC (600W - 2kW)</td>
<td>✔</td>
</tr>
</tbody>
</table>

Models are rated for the minimum of 30 minutes, and conform to the above standards when supplied with longer runtimes. The Model ELC is listed to No. 141-02 at 20°C to 40°C and the other Models shown are Listed to No. 141-15 at 20°C to 35°C. All models in the chart above are Listed as Emergency Lighting Equipment with auto-testing/auto-diagnostic features. (30-day automatic test duration default settings: 60 seconds for 30 minute-rated models, 5 minutes for runtimes greater than 30 minutes) **Note:** The eLITE Model ELN is Listed to UL 924, UL 1778, and C-UL Listed to CSA Standard C22.2 No. 107.1-01.

**Centralized Emergency Lighting Inverter vs An Emergency Power Generator**

When an emergency power generator is either mandated or is an emergency power source option as allowed by code...additional standards and regulations apply. Pertinent codes and standards include NBCC Article 3.2.7.5, CSA Z32 and Standard C282. The building type and classification will determine use, runtime, fuel and potential on-site fuel storage requirements. Such installations may require more extensive fire proofing, structural, mechanical, and electrical design modifications as compared to a centralized emergency lighting inverter. It is also important to consult with the “authority having jurisdiction” (AHJ) as to local codes.

**Summary**

Controlled Power Company’s Centralized Emergency Lighting Inverters are agency listed to both U.S. and Canadian standards. All output main and optional branch circuit breakers are monitored to meet CSA Standards. Three-phase configurations are available from 208/120 VAC to 600/347 VAC. Single-phase configurations include a 3-wire 208/120 VAC system, as well as a 347 or 600 VAC input, and a 347/120 VAC output.

**Applicable U.S. Codes & Standards:**


1955 Stephenson Hwy., Troy MI 48083
www.controlledpwr.com • email: info@controlledpwr.com
Phone: (800) 521-4792 • Fax: (248) 528-0411