ELECTRICITY

RULES RELATING TO THE SAFETY OF ELECTRICAL EQUIPMENT ON THE STANDS AT FAIRS AND EVENTS

4.1 INTRODUCTION

The present rules and regulations have been established for the following reasons:

- To provide guidelines for exhibitors and their electrical fitters
- To ensure the quality and safety of electrical equipment at the stands
- To prevent electrocution and fire risk

They are by no means intended to replace the regulatory provisions governing electrical installations.

Terminology

1. In all cases, the term **electrical cabinet** is taken to mean the permanent infrastructure in place in and around the exhibition halls, intended for the provision of electrical power, by way of cables drawn all the way to the stands by BRUSSELS EXPO.

2. **Distribution boards** on the other hand refer to the temporary “boxes” put in place by BRUSSELS EXPO or by the exhibitor at his stand.

4.2 GENERAL PROVISIONS

- Electrical installations shall be inspected by a SECT before use, in accordance with RGIE regulations (**General Regulations for Electrical Installations**) in terms of:

  1. direct contact risk (art. 30 to 40, 48 and 49)
  2. indirect contact risk (art. 68 to 95)
  3. fire risk inherent to electrical equipment (art. 104)

- The electrical installation is to be put in place in accordance with best practices (art. 5), by qualified and skilled electricians (cf. NBN EN 50110 1998).
• Connections, the placement of distribution boards and the supply of electrical power to the stands are exclusively handled by BRUSSELS EXPO staff or staff authorised by BRUSSELS EXPO to this end.

• The electrical cabinets inside the exhibition halls must remain accessible at all times. In front of each electrical cabinet, a clear space of a minimum of 1m20 (depth) must be left, free from obstacles, to allow for swift and safe intervention at all times. However, the placing of an awning, a curtain or a (double) door in front of these cabinets is permitted. Please note that the clear width (open during the day) must be greater than 10 cm on either side of the cabinet.

  Example: the cabinet measures 1m in width by 2m in height. The clear width left by the door or the awning should have a minimum size of 1m20 in width and 2m10 in height.

4.3 EXHIBITOR’S DISTRIBUTION BOARD

4.3.1 The distribution board

• The casing should preferably be made of an insulating material. If the casing is made of metal, it must be earthed by means of a PE connection (to be performed by the person fitting the distribution board).

• The distribution board must be accessible at all times and may not be located on the floor. Preferably, it should be located at a height of 1.50 m (and equipped with legs or supports).

  In no event may distribution boards be fitted inside spaces that are key-locked!

• The level of protection for the entire box must be at least IP 4X.

• Unused cable inlets to the distribution panel must be sealed.

4.3.2 The power cable and the general circuit-breaker

• The connection, handled by BRUSSELS EXPO, from the general distribution board to the stand must be made by means of a flexible cable with a minimum diameter of 5 x 6 mm², with a suitable plug.

• When a stand is first set up, an automatic type “A” differential circuit breaker with a maximum capacity of 30mA or less must be installed. This breaker must have cut-off power at least equal to the nominal power made available and come with suitable amperage.
4.3.3 Protection of electrical circuits

Each outgoing circuit (starting out from the distribution board), must be protected by thermal fuses or automatic circuit-breakers in observance of the following criteria:

**A) FUSES AND CALIBRATION SOCKETS**

<table>
<thead>
<tr>
<th>Sections to be protected</th>
<th>In</th>
<th>Standard colour code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 mm²</td>
<td>10 A</td>
<td>Orange</td>
</tr>
<tr>
<td>2.5 mm²</td>
<td>16 A</td>
<td>Grey</td>
</tr>
<tr>
<td>4 mm²</td>
<td>20 A</td>
<td>Blue</td>
</tr>
<tr>
<td>6 mm²</td>
<td>32 A</td>
<td>Brown</td>
</tr>
<tr>
<td>10 mm²</td>
<td>50 A</td>
<td>Green</td>
</tr>
</tbody>
</table>

• Placing a unipolar safety device on the neutral lead, on a triphase neutral distributed circuit or as a general protective device in the distribution board is prohibited.

• The II circuits (F + N) must be protected on both leads, even if the second is neutral. The terms and conditions set out under Article 128 of the RGIE regulations may be applied provided this is performed in the presence of a skilled worker holding a BA4 or BA5 qualification.
• The use of unipolar breakers is permitted in the lighting circuits as long as the “In” is not greater than 16A. This switch must break the phase conductor.

• Unipolar breakers may not be used to control electrical outlets.

4.3.4 The earth bus

• The distribution board must be equipped with an earth bus to which all PE conductors for the connector cable, all outgoing leads and all possible equipotential links are connected.

4.4 CHOICE OF ELECTRICAL CABLES

• This matter is governed by art. 198, 199 and 209 of the RGIE regulations.

• The protection lead must be yellow/green (earth connection). Neither of these two colours or any combination thereof may be used for the active conductors.

• Blue is reserved for the neutral wire in circuits where there is one.

• XVB cables may be used provided they are secured into place across their entire length.

• The use of VGV, VVB and XFVB cables is not allowed in assemblies that are not secured into place.

• Cables must be secured into place using appropriate cable clamps.

• The use of non-standard cables, such as VTLmb (side by side) for instance is prohibited.

• For connections to stands, BRUSSELS EXPO exclusively uses VTMB (HO5VV-F) or CTMB (HO7-R-NF) cables (double-insulated flexible cables with a minimum supply voltage of 500 V or similar)

• Minimum diameter required for electrical leads:
  - 1.5 mm² for lighting fixtures
  - 2.5 mm² for mains sockets
• Depending on their location, leads must be appropriately protected from any mechanical damage (for instance, cables laid on the floor must be protected by skirting boards).

• The metal casings of class 1 appliances (without double insulation) must be earthed.

• Earth and protection conductors must be an integral part of the power supply cables.

4.5 ELECTRICAL APPLIANCES

4.5.1 Mains plugs

• The use of "domino"-type connecting blocks is prohibited (multi-outlet plugs must be used).

• Plugs must comply with the NBN C61-112 standard and must be earthed and equipped with child safety protection.

• Switches and visible outlets must be equipped with mounting plates.

4.5.2 Connection of electrical cables

• The use of unprotected insulating screw joints is prohibited. Insulating screw joints may be used only in splice boxes with the exception of lighting fixtures, insofar as the insulating screw joint is completely insulated by an element provided in the lighting fixture.

• Splice and distribution boxes must be sealed (at cable inlets) using plugs or cable glands

4.5.3 Low-voltage lighting fixtures
• No combustible materials may be located within 50 cm of the beam produced by halogen spot lighting or low-voltage lighting fixtures (unless otherwise specified on the fixture).

• If spotlights on rails are used:
  - The rail may not be placed at a height of less than 2m20 from the floor
  - In the traffic/pedestrian areas, a clear height of at least 215 cm must be provided.
  - The ends of the rails must be blocked

• Very-low-voltage spot lights may not be placed on or in combustible materials.

• The use of auto-transformers (recovery transformers) as very-low-voltage power supplies is prohibited. A safety transformer must be used.

• All transformers used must comply with NBN standards or harmonised standard (NBN CN 60-742 or NBN CN 61 558).

• Transformers must be equipped with a primary and secondary safety device to protect against overload. The secondary safety is not compulsory on short-circuit resistant transformers.

• Transformers may not be mounted on support structures or used in a combustible environment (unless designed for this purpose).

4.5.4 Neon lighting (high-voltage discharge lamps)

• Transformers must comply with the NBN C 71-050 standard and/or carry the BNL label. Auto-transformers are prohibited. For convectors: NBN 61347-2-10.

• A "mortal danger" sign (triangle showing a bolt of lightning) must be affixed onto the transformer and onto the lighting unit.
If the lighting unit is powered by a separate circuit, it must be equipped with a bipolar breaker marked "NEON".

- Lamps and transformers must be mounted on non-combustible surfaces.
- Electrodes must be covered.
- The use of metallic structures or earth conductors as leads is positively prohibited.

**4.5.5 Very-low voltage lighting fixtures incorporating exposed leads**

- The use of very-low-voltage fixtures incorporating live parts or exposed leads may be permitted subject to the following requirements:
  - This type of lighting may be used only in an environment where the risk of flammability is low and at a minimum height of 2.5 m above the floor;
  - All combustible materials must be kept at least 0.5 m from leads and lighting fixtures;
  - The power transformer used must be a safety transformer that complies with NBN standards or harmonised standards;
  - The transformer must be equipped with a primary and secondary safety device to protect against overload;
  - The transformer's secondary voltage must be limited to 25 V and 12 V respectively for BB1 and BB2 situations (BB1 dry skin, BB2 wet skin);
  - Sockets for halogen lamps incorporating bare wires must be connected by pressure screws or other equivalent connections. Sliding rail or alligator clip connections shall not be allowed (due to the risk of sparking);
  - Bare wires (cables) must be designed to carry electric current. The use of cables with a fibre core is prohibited.
  - The diameter of the supply leads must be such that the maximum current it conducts during normal use does not produce a dangerous rise in the temperature of the leads.
4.5.6 Various electrical appliances, machines and other equipment

- With the exception of very-low-voltage appliances, the minimum degree of protection must be IP2X. Moreover, electrical equipment that is easily accessible to the public and not under the supervision of the stand officer in charge, must be provided with a protection level of at least IP4X (meaning that there is no risk of touching bare parts that are ‘live’ in any way). For outdoor equipment and installations, please see the next chapter!

4.5.7 Outdoor installations

- Electrical equipment located outside the building must have a minimum protective rating of IP54.

- Temporary decorative exterior lighting may be plugged into normal outlets as long as they are located out of reach of the public.

- The installation must be protected by a differential circuit breaker of max. 30mA.

4.6 MISCELLANEOUS PROVISIONS

4.6.1 Distribution boards inside the stands

- Opening or modifying distribution boards after they have been approved by the SECT is strictly prohibited.

4.6.2 Power-up

- Power-up is performed exclusive by BRUSSELS EXPO authorised staff.

4.6.3 Inspection visit prior to power-up

- Each stand is inspected by a SECT, designated by BRUSSELS EXPO. In their own interest, the stand holder, or a person appointed by the latter, is required to be present during the inspection by the SECT, for the purpose of designating all elements of the equipment and to hear in person any remarks put forward.
• If remarks are made, a note is left at the stand specifying all of the violations identified. Stand holders are under obligation to duly act upon these remarks and remedy any violations established. In concertation with BRUSSELS EXPO, the independent SECT subsequently conducts a second inspection at the stand to re-examine the violations established. Exhibitors are invoiced by BRUSSELS EXPO for this type of second inspection.

• Power-up is made to occur only after a blank inspection report has been filed.

4.6.4 Power-off

• Stand holders formally undertake to switch off the lights at their stand each evening and to unplug all electrical equipment. Only refrigerators, computers and other similar equipment may be left plugged in insofar as this is indispensable.

4.6.5 Quality of the power circuit

• Stand holders are to personally ensure that voltage stabilisers, no-break mechanisms or surge protectors are put in place for all applications requiring a "pure" electrical network, such as computer equipment for example. BRUSSELS EXPO cannot be held responsible for any power cuts of either the internal circuit or the public grid.

The use of (hydrogen) power generators is prohibited.