Future developments in the IEE Wiring Regulations (BS 7671:2008)

A brief overview

by Geoff Cronshaw

This is the second of two articles concerning current areas of development in the CENELEC Harmonization Documents which BS 7671 is based on. In the article in the previous edition of Wiring Matters we covered Sections 710, 444 and 534.

Other areas currently under development include:

- Section 719 - Lighting installations for advertising signs
- Section 729 - Operating or maintenance gangways

The particular requirements for each Section of Part 7 (Special installations or locations) supplement or modify the general requirements contained in Parts 1 to 6 inclusive.

Section 719
Section 719, which is still at an early stage of development, applies to lighting installations for advertising signs with a rated output voltage not exceeding 1 000 V, which are illuminated by hot-cathode-fluorescent-lamps, luminous-discharge tubes (neon-tubes), inductive discharge lamps, light emitting diodes (LED) and/or LED modules.

The Section specifies the requirements for the installation and testing of all kinds and sizes of illuminated signs with a no-load rated output-voltage up to 1000 V, including the electrical components and wiring. Installations used for signs, light-artworks and decorative purposes are covered, which may be either fixed or portable, supplied from a low-voltage or extra-low-voltage source by means of a transformer, inverter, converter ballast or similar equipment.

Section 729
Section 729, which is expected to be published as a Harmonized Document in the near future, applies to restricted areas. These are areas such as switchrooms with switchgear and controlgear assemblies with a need for operating or maintenance gangways for authorised persons. This is a completely new section. The current requirements for accessibility of electrical equipment in BS 7671:2008 are contained in Fundamental Principles in Chapter 13.

Regulation 132.12 states: 
Electrical equipment shall be arranged so as to afford as may be necessary:
(i) sufficient space for the initial installation and later replacement of individual items of electrical equipment
(ii) accessibility for operation, inspection, testing, fault detection, maintenance and repair.

Provided at all electrical equipment on which or near which work is being done in circumstances which may give rise to danger. Regulation 14 is concerned with work on or near any live uninsulated conductors.

Section 719 - Lighting installations for advertising signs

The current draft of Section 719 includes detailed requirements relating to lighting installations for advertising signs. The draft at present appears to be on the borderline between installation rules and product requirements. This is possibly because these types of products have to be erected and built on site. The current draft of Section 719 includes requirements for protection against electric shock, protection against thermal effects, protection against fire, external influences, identification, wiring systems, voltage drop, electrical connections, equipment - including light sources and testing and inspection.

For example, please see below an extract of clause 719.4 and 719.512.2:

719.41 Protection against electric shock

719.41.A Provisions for basic protection (protection against direct contact)

719.41.A.2 Barriers or enclosures

719.41.A.2.1 Additional mechanical protection shall consist of an enclosure or other means of protection conforming to the following:

a) It shall provide a degree of protection corresponding to at least IP 2X as specified in EN 60529, Table 1.

b) If it is constructed from metal parts, these shall be earthed in accordance with clause 8, EN 50107-1.

c) If it is constructed from other materials, these shall be certified by the supplier as suitable for use in the environment existing close to a tube electrode, LED-modules or any type of lamps. The installer shall obtain from the supplier a guarantee for the materials covering the expected lifetime of the installation.

719.512.2 External influences

719.512.2.X Drain holes

In sign enclosures intended for external use, arrangements shall be made to allow moisture to drain away. Drain holes or similar apertures used for this purpose shall be sufficiently large, at least 7 mm in diameter, to ensure that they do not get blocked with dirt or debris between maintenance.
visits and to maintain the degree of protection.

As mentioned previously, Section 719 is still at an early stage of development in CENELEC and will require further work by the CENELEC team involved before it is published as a Harmonized Document which is probably two years away.

Section 729 – Operating or maintenance gangways

The scope of this draft Section 729 applies to basic protection and other aspects in restricted access areas with switchgear and controlgear assemblies, including requirements for operating or maintenance gangways.

Please note the following are draft requirements only at this stage and should not be worked to at present.

Where the gangway has unprotected live parts arranged on one side only Clause 729.410.3.7.1 states:

Where the gangway has unprotected live parts arranged on one side only, the minimum distances shall be:

a) width of gangway between the wall and live parts 1000 mm;
b) free passage in front of controls (handles, etc.) 700 mm;
c) height of live parts above the floor 2 500 mm.

Where the gangway has live parts on both sides Clause 729.410.3.7.2 states:

Where the gangway has live parts on both sides the minimum distances shall be:

a) width of gangway between live parts 1 300 mm;
b) minimum distance between the front of the handle and the live parts on the opposite side of the gangway 1 100 mm;
c) minimum free passage in front of controls (handles, isolation position of circuit-breakers, etc.) 900 mm;
d) height of live parts above the floor 2 500 mm.

Clause 729.513.2.3 also has requirements for Access of gangways.

Accessibility

Clause 729.513 requires that the width of gangways and access areas shall be adequate for work, operational access, emergency access, emergency evacuation and for the movement of equipment.

In restricted access areas where the protective measure of barriers or enclosures applies Clause 729.513.2.1 gives the following minimum distances:

a) width of gangways with barriers or enclosures between switch handles 600 mm and circuit-breakers in position "isolation" or switch handles and the wall
b) width of gangway between barriers or enclosures and other barriers or 700 mm enclosures, or barriers or enclosures and the wall
c) height of panelling above the floor 2 000 mm;
d) height of live parts above the floor 2 500 mm.

In restricted access areas where the protective measure of obstacles applies Clause 729.513.2.2 gives the following minimum distances:

a) width of gangway between obstacles and switch handles, or 700 mm obstacles and the wall, or switch handles and the wall
b) height of panelling above the floor 2 000 mm
c) height of live parts above the floor 2 500 mm

Annex A

Annex A contains a number of requirements for closed restricted access areas in order to permit easy evacuation. These include:

- the doors of any equipment inside the location shall close in the direction of the evacuation route.
- Gangways shall permit equipment doors or hinged panels to be opened to a minimum of 90°
- For doors which can be fixed in the open position or circuit-breakers or equipment which are withdrawn fully for maintenance (position: completely extracted) a minimum distance of 500 mm shall be provided between the door edge or circuit breaker/equipment edge and the opposite side of the gangway.
- Minimum passing width.

Annex C

Annex C contains additional information for closed restricted access areas such as requirements for ventilation, air conditioning, construction and lighting.

Important: The UK has a Special national condition relating to clause 729.410.3.7 which states:

In the UK where the gangway has unprotected live parts refer to UK Government guidance on the Electricity at Work Regulations 1989, Statutory Instrument 1989 number 635, guidance document HSR 25.

Therefore this UK special national condition will take preference over the requirements of clause 729.410.3.7 of the Harmonized document. The HSE guidance
document HS(R) 25 explains that the purpose of regulation 15 is to ensure that sufficient space, access and adequate illumination are provided while persons are working on, at or near electrical equipment in order that they may work safely.

HSR 25 also makes reference to Regulation 14 which is concerned with work on or near live conductors which an open switchboard would constitute.

Regulation 14 of the Electricity at work Regulations states that:

No person shall be engaged in any work activity on or near any live conductor (other than one suitably covered with insulating material so as to prevent danger) that danger may arise unless:

(a) it is unreasonable in all circumstances for it to be dead; and
(b) it is reasonable in all the circumstances for him to be at work on or near it while it is live; and
(c) suitable precautions (including where necessary the provision of suitable protective equipment) are taken to prevent injury.

The UK National Committee have established a Working Group to draft Section 729 for including in Amendment number 1 of BS 7671:2008 and therefore the requirements of the electricity at work regulations and guidance document HS(R) 25 will be taken into account.

Conclusion

A future amendment to the IEE Wiring Regulations (BS 7671:2008) incorporating Section 729 is expected in 2011.