BCA
BRITISH CABLES ASSOCIATION

THE UK TRADE ASSOCIATION FOR MANUFACTURERS OF INSULATED METALLIC AND FIBRE OPTIC CABLES, WIRES AND THEIR ACCESSORIES

BS 6701:2016+A1:2017

BCA position paper

Background

The British Cable Association's (BCA) public release in March 2018, entitled **Construction Products Regulation (CPR) and cables – March 2018 - UK position,** set out to clarify the legal position in respect of the requirements for the reaction to fire of cables under Construction Products Regulation (CPR). It has been well received and understood and can be accessed at:

http://www.bcauk.org/application/files/4215/2292/1826/CPR_and_cables_-_UK_position_March_2018.pdf

The paper especially emphasised that well-established and respected British Standards, such as BS 7671 **Requirements for Electrical Installations - IET Wiring Regulations** are, in legal terms, classed as voluntary. Such British Standards may, of course, be taken into a legally-binding contract which thereby changes their status for that project.

The purpose of this follow-up paper is to examine similar aspects as they affect BS 6701 **Telecommunications equipment and telecommunications cabling – Specification for installation, operation and maintenance,** and in particular its Amendment No 1 (A1), published in December 2017. This amendment set out to identify installations that are in areas of higher fire risk, and to prescribe a minimum performance for cables in such circumstances. It introduced requirements to address this by reference to the classes of reaction to fire for cables under CPR.

Amendment No 1 to BS 6701 has brought about two points that raise concern and require attention. These are:

- ***The terms and definitions used in A1***. As they relate to higher fire risks, they are insufficiently robust, and have caused confusion.
- ***The requirements introduced in A1 for cables for higher fire risk installations, namely to class C_{ca}-s1b,d2,a2.*** There have been extensive reports that the class has been wrongly quoted as a mandatory requirement for all cables.

Technical experts are considering an Amendment No 2 (A2) to BS 6701, so that more robust wording can be agreed.

BS 6701 has 'supplementary' requirements in addition to those in BS 7671, and is intended for telecommunication systems.

The 18th edition of BS 7671 identifies fire performance requirements of cables encroaching on escape routes in paragraph 422.2.1. It requires them to meet BS EN 60332-3 and have 60% light transmittance when tested in accordance with BS EN 61034-2. This however, does not translate into Construction Product Regulation requirements for cables.

These requirements as they effect communications cables are defined in BS 6701:2016+A1:2017. (*Telecommunications equipment and telecommunications cabling – Specification for installation, operation and maintenance)*

BS 6701:2016+A1:2017 informs the reader that the standard translates the existing general requirements of BS 7671 into the terminology of the Construction Products Regulation. This means that in addition to meeting the requirements of **BS EN 60332-1-2** or **BS EN 60332-3,** whichever is appropriate, the cable also must be tested and meet an appropriate CPR class.

BS 6701:2016+A 1:2017 – an executive summary

- **No legal requirement** - as indicated in the BCA's Construction Products Regulation (CPR) and cables – March 2018 – UK position paper, there is, at present, no legal requirement in the UK for a specific class of cable to be installed in a particular installation. Designers and specifiers are free to select any class as long as their decision reflects the demands of any applicable regulations.

- **BS 6701: 2016 -** Specifies the requirement for the installation, operation, administration and maintenance of telecommunications equipment and cabling.

- **BS 6701:2016+A1**:**2017 -** was primarily introduced to include reference to the CPR (Reaction to Fire) and to give specific *reaction to fire 'class'* requirements for cables in 'normal' and in `high fire risk' situations such as 'escape routes'.

- **Installation cables** – a new and sometimes confusing term, '**Installation cables'** was introduced in **BS 6701:2016 +A1: 2017** to try to define the cable fire performance required for situations where there is a greater risk from flame propagation and smoke.

- **Confusion and misunderstanding** - It is evident that there is misunderstanding in the marketplace where a 'greater risk from flame propagation and smoke' exists as against 'normal' installations – and in turn which installations require the use of cables to meet CPR class $\mathbf{C_{ca}}$ **–s1b, d2,a2** or class $\mathbf{E_{ca}}$**.** Clarification is needed here. After any fire risk assessment, a higher CPR class could be determined.

- **Clarification -** A possible Amendment 2 (A2) to BS 6701 **which would help** clarify this issue could be to replace the term '***Installation cables'*** with a new term ***'Higher Fire Performance Telecommunications Cables'*.** This term would define telecommunications cables that are intended for installation and use in *escape routes* (pathways) and areas where the risk of flame propagation is high and immediate access for firefighting is severely restricted.

- **BS 7671: 2018** - when it comes into effect on the **1st January 2019** will require all cables to meet **BS EN 60332-1-2** (clause **422.3.4**) as a minimum level of performance. It will also specify '***Where the risk of flame propagation is high the cable shall meet the requirements of the appropriate part of BS EN 60332-3' (part 24 or 25).*** These are long established fire tests to assess the vertical flame spread on bunches of wires and cables.

- **BS 7671 clause 422.3.4 note 1** - provides an example of high flame propagation as ***'where cables are bunched or installed in long vertical runs'***

- **BS 7671 clause 422.3.4 note 2** states ***'Cables manufactured for the above applications also need to satisfy the requirements of the CPR in respect of their reaction to fire'.*** In addition to meeting the requirements of **BS EN 60332-1-2** or **BS EN 60332-3** (whichever is appropriate), the cable must also be tested and meet an appropriate CPR class.

- **BS 8492 –** communication cables installed in buildings using the guidance and recommendations of **BS 8492** on 'compartmentalisation to mitigate the spread of fire and flames'. Using that approach to fire safety and design within buildings can be considered as an improvement.

- **Fire Safety Engineering** - to determine whether a higher fire performance class of cable is required for a location or installation it would be prudent to carry out a fire risk assessment for example **BS 7974** ***Fire Safety Engineering*** or other authoritative fire assessment methodology. Note **PD 7974-6** also provides useful information.

- **BS 9999 2017** 'Fire safety in the design, management and use of buildings - code of practice' provides useful information and definitions on 'escape routes' Below are some clauses which relate to fire safety:
  - 10.3.1 - Housekeeping.
  - 10.3.2 - Equipment and fittings maintenance
  - 10.4.2 - Fire doors and escape route
  - 10.4.3 - Signs and signage
  - 13 - Internal subdivision and spatial/visual orientation
  - 15.4 - Artificial and emergency escape lighting
  - Table 8 - Provisions for emergency escape lighting
  - 15.9 - Mechanical ventilation and air conditioning systems
  - 16 - Horizontal means of escape
  - 16.6.2 - Corridors and escape routes

- **Responsibility** - it is important that all '**users**' of **BS 6701** understand their obligations for installing the appropriate communications cables in buildings under the regulations in force at the time. This includes ensuring the appropriate 'class' of cable for a particular location is installed. This is especially important where a risk of flame propagation exists in areas defined as 'escape routes'

  Note '**users**' of **BS 6701** and/or those with '**responsibility**' include system designers, suppliers, installers, inspectors (auditors), maintainers and building owners.

Concluding – the information and guidance given in this paper are **not meant as** specific recommendations for the use of any particular class of cable for an application but is made in good faith for the assistance for all those who are involved in the specifying and installation of communications cables.

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