



The Fibreoptic Industry Association

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## SUPPORTING CABLES AND CABLE MANAGEMENT SYSTEMS

### THE CHANGE BETWEEN THE 17<sup>TH</sup> AND 18<sup>TH</sup> EDITIONS

#### BS 7671: Requirements for Electrical Installations

#### IET WIRING REGULATIONS

### THE 17<sup>TH</sup> EDITION OF BS 7671

FIA members may remember the presentation made at the FIA Summer Seminar and Networking Event in 2015 by Rob Cardigan in which he drew attention to the content of the 3<sup>rd</sup> Amendment of the 17<sup>th</sup> Edition of BS 7671 which stated as follows:

#### **521.11 Wiring systems in escape routes**

##### **521.11.201**

*Wiring systems in escape routes shall be supported such that they will not be liable to premature collapse in the event of fire. The requirements of Regulation 422.2.1 shall also apply, irrespective of the classification of the conditions for evacuation in an emergency.*

*NOTE 1: Non-metallic cable trunking or other non-metallic means of support can fail when subject to either direct flame or hot products of combustion. This may lead to wiring systems hanging across access or egress routes such that they hinder evacuation and firefighting activities.*

*NOTE 2: This precludes the use of non-metallic cable clips, cable ties or cable trunking as the sole means of support. For example, where non-metallic cable trunking is used, a suitable fire-resistant means of support/retention must be provided to prevent cables falling out in the event of fire*

There was considerable discussion at the seminar regarding the meaning of this text – not least about how was an escape route defined and whether 521.11.201 applied to all wiring systems installed in escape routes.

### THE 18<sup>TH</sup> EDITION OF BS 7671

The 18<sup>th</sup> edition has now been published and applies from 1<sup>st</sup> January 2019. Changes have been made and the most obvious impact is the widening of the application to all locations in buildings as follows:

#### **521.10 Installation of cables**

##### **521.10.202**

*Wiring systems shall be supported such that they will not be liable to premature collapse in the event of a fire.*

*NOTE 1: Wiring systems hanging across access or egress routes may hinder evacuation and firefighting activities.*

*NOTE 2: Cables installed in or on steel cable containment systems are deemed to meet the requirements of this regulation.*

*NOTE 3: This regulation precludes, for example, the use of non-metallic cable clips or cable ties as the sole means of support where cables are clipped direct to exposed surfaces or suspended under cable tray, and the use of non-metallic cable trunking as the sole means of support of the cables therein.*

*NOTE 4: Suitably spaced steel or copper clips, saddles or ties are examples that will meet the requirements of this regulation.*

However, while this may seem a draconian change we need to examine it in a little more detail.

The first thing to notice is that the text refers to “wiring systems” which are defined as “assemblies made up of cable ... and parts which secure and, if necessary, enclose the cable”.

So it is not just the cable that has to be supported, but the containment in which is installed. Therefore, if the cables are correctly installed on non-combustible (i.e. typically metallic) cable management systems such as tray, basket,

brackets (or hooks) and ladders or in trunking or conduit, then the requirement applies to the fixings of those means of support.

The requirement only applies specifically to cables when as explained in NOTE 3 where “cables are clipped direct to exposed surfaces or suspended under cable tray”. The NOTE also indicates that non-metallic cable management systems would only be suitable if they were supported by fixings that retained the cables in the case of fire.

Before proceeding further it is worth highlighting the text of BS EN 50174-1 which states:

“The location and construction of pathways and pathway systems shall avoid the pathway systems and their contents becoming an obstacle in the event of fire during the periods of evacuation and fire-fighting activity.”

This simpler requirement covers the intent of 521.10.202 in a way that avoids confusion over two key aspects:

- the word “premature” which NOTE 1 in BS 7671:2018 attempts to clarify as meaning where the wiring system would “*hinder evacuation and firefighting activities*”.
- whether the requirement applies to all wiring systems, irrelevant of their location and orientation in which they are installed which NOTE 1 in BS 7671:2018 attempts to clarify as meaning “*hanging across access or egress routes*”.

## **CONCLUSIONS**

The requirements of BS 7671:2018, 521.10.202 applies where cables, or cable management systems containing cables are routed:

1. along the sides of rooms or corridors and are routed across the top of doors and windows;
2. across open areas of rooms or corridors.

In these circumstances the cables and any cable management systems supporting them are required to be installed in such a way as to prevent them, following the initiation of a fire, becoming an obstacle during the periods do evacuation or firefighting.

This means that fixing of cables or cable management systems over, and at both sides of the above-mentioned routes shall not fail during the early periods of fire in such a way that they would become an obstacle.

Because of this it is possible that:

- NOTE 2 is misleading because it is not just the material from which the cable management system is constructed but how it is fixed to the building structure;
- NOTE 4 provides examples of steel or copper clips, saddles or ties but once again it is not just the material from which the clips etc. are constructed but how they are fixed to the building structure.

**FIA** members who do suspend cables across the above-mentioned routes without any other means of support than clips, ties or even glue (see below) do have a formal responsibility under BS 7671:2018, 521.10.202.

However, it should be remembered that most cables installed by **FIA** members are placed in or on cable management systems installed by others. If the cables are installed properly (i.e. not suspended under cable tray as mentioned in NOTE 3) then it is the fixing of those cable management systems that are addressed by BS 7671:2018, 521.10.202.

Finally, we have to fully consider the meaning of the word “*hinder*” and specifically what cable tensile load is considered to be a hindrance. Companies selling very small cables that are specifically intended to be glued directly on walls at ceiling height have contacted [standards@fia](mailto:standards@fia) to discuss the meaning of the word “*hinder*” and in all cases they have been directed to the relevant firefighting authorities for a “ruling”. Those authorities have been very cooperative in determining, and describing, under what conditions “*hindering*” will occur.

End of report

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3<sup>rd</sup> December 2018