Best Practice for BS7671 18th Edition

IET Wiring Regulations 18th Edition and what they mean to you.

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IET Wiring Regulations 18th Edition and what they mean to you –

Foreword

This document is being produced in order to bring all of the knowledge that we have, in relation to the use of metal fixings for cables, within one document.

It is to help you, the Specifier, in translating and complying with what we consider to be the most important amendment to the upcoming 18th Edition of the IET Wiring Regulations 2018 – the introduction of metal fixings in *ALL* areas.

In the following pages, we cover –

- The reasons why the changes to the regulations are necessary
- What is meant when we say a "metal fixing"
- How the change in regulations affects you and your procurement
- A brief look at how the change in regulations affects the installer

1. THE HISTORY -

There has been a problem within the British electrical system for many years – the over reliance of plastic as a method of cable retention.

Fixings, Plastic wallplugs, Conduit and Trunking have been used to hold and retain cables for decades, it's cheap, strong and commonplace.

In a fire situation, however, this plastic melts and the cables within fall into the space below. - creating a spaghetti like mass that Firefighters and occupants of the building are forced to navigate through, making an already dangerous situation much, much worse.

For the last several years, after experiencing the aftermath of such a situation, we have been pushing for changes to the Electrical Regulations so that lives may be saved in the future.

- **2nd February 2005 – Harrow Court**
  A fire at the eighteen-storey Harrow Court residential tower block in Stevenage, Hertfordshire claimed the lives of two firefighters and a member of the public - one of the firefighters had become entangled in fallen wiring in one of the block's communal areas.

- **2nd November 2007 – Atherstone-on-Stour**
  Four firefighters died - Witnesses stated that there were hanging cables which the firefighters became tangled in.

- **6th April 2010 – Shirley Towers**
  Two firefighters died whilst fighting a fire within a high-rise building in Southampton, both were trapped in fallen cables.

Harrow Court was a turning point - At the inquest that followed, the coroner, Mr. Edward Thomas, recommended that all plastic conduit and trunking should be removed and that the cables within should instead be fixed to the wall using metal fixings[1].

Eight years later, at the Shirley Towers inquest, the coroner, Mr. Wiseman made a further recommendation to have *"…Building Regulations amended to ensure all cables, not just fire alarm cables, are supported by fire-resistant cable supports"*.

Mr. Wiseman recommended an amendment to the electrical regulations - what would become known as BS 7671 (2008) - to achieve this. He sent these recommendations in a letter to the then Secretary of State for Communities and Local government, Eric Pickles MP.

[1] "The supports to fire alarm cables must conform with (as a minimum) BS5839 - part 1 2002: clause 26.2(F [3]

This culminated in the publication of Amendment 3 to the 17th Edition of the Wiring Regulations Edition (BS7671:2015) which stated that after 1st July 2015;

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

In other words, by using fire-resistant metal supports for trunking and conduit.

Unfortunately, this information led to more questions than answers, starting with "What constitutes an escape route" and getting more complex from there - so for the last few years we have been pushing for a change in the regulations.

Thankfully, our efforts have been rewarded. In the upcoming 2018 regulations there is now a need for –

*"Metal Fixings in **ALL** Areas"*

This now means that at the core of the 18th edition due in 2018 is the idea that, *ALL* low voltage cables, including data and telephone cables, must be fixed and secured with metal fixings.

We realise how complicated that must seem, so we have created this document to provide advice to you, to answer some of the question you might have and to help you to comply with these new regulations.

It should be noted that whilst this document is written by the manufacturers of FireFly Fixings, it is in no way intended to be advertising material for our products. It is instead, an advisory to the questions we are being asked, both by our suppliers, our wholesalers and electricians themselves due to the lack of coherent information available.

Many other metal fixings are available, we'd obviously like it if you used ours, but we're mostly just hoping that with your help and the upcoming changes to the regulations, no person, firefighter or otherwise should have to die due to entanglement in fallen cabling.

2. THE FIXINGS -

What is a Metal Fixing and how do we prove it will support the cables?

In a fire situation, any exposed or "surface mounted" cables, whether they are clipped to the wall or within plastic conduit/trunking - must stay in place. FP Cables, used for fire alarms and emergency lighting, the clips must hold the cables for the same period of time or lifespan as it takes the cable itself to melt – stopping the cable from falling to the floor and causing entanglement issues.

Regulations also state that these fixings should be tested to the same rigorous levels as the cables they support.

As such, a range of products have entered the marketplace to help this process –

The best fixings are all metal, fixed with a metal "concrete" screw which anchors into the wall, rather than the traditional plastic plug. This fixing should have enough strength to support the cables and hold them in place within a fire situation.

What Testing can we use to confirm this?

Whilst we can't comment on other fixings, we can say that all of Firefly's cable-retaining clips have been tested and passed by a company called Exova Warringtonfire, who are the leading fire test company in the UK, using the same rigorous testing as the cables used in fire alarm circuits. To achieve this, a special test was undertaken (the first of it's kind), which they referred to as an ***"Ad-hoc investigation to determine the fire performance of a cable retaining clip"***.

The test entailed heating the cable AND the clips to 970 degrees Celsius - whilst at temperature, they were repeatedly struck with a weighted metal hammer for two hours. Following this they were rapidly cooled with water, whilst continuing to be struck.

This test, originally designed to test FP-Plus-type cables (those used in Fire-Alarms systems), was designed to simulate the potential stresses that could be placed upon both cable (and now clip) during a fire situation.

Having passed, Firefly is the only clip for sale in the UK that has had this rigorous level of testing[2].

Whilst we are proud to be the first, we are glad that the regulations state that ALL metal fixings and cable retention clips should have to undergo this level of testing before they are allowed in the marketplace.

[2] Certification available upon request

3. QUESTIONS YOU MAY HAVE -

What about Plasterboard and Ceilings Spaces?

It is commonplace to use Plasterboard in a ceiling, safe in the knowledge that any cables that are above, whether they are retained or not, are given at least 30 minutes of protection in a fire situation. However, we have found that in situations where the heat is very high and water is being sprayed onto it (for example when there is a fire on the next storey of a tower block), we have absolutely no idea how long that sodden plasterboard will withhold the cables or at what point they could fall, once again causing entrapment issues.

Therefore, it should be - **METAL FIXINGS, IN ALL AREAS, ALL OF THE TIME.**

What about other areas? Cables tied to metal cable tray or with metal cable ties?

We have found that Metal Cable ties, whilst useful and certainly capable of doing the job to some degree, are also wasteful. If any cables need to be added, moved or worked on, the cable ties must be removed and then another needs to be fitted after the work is complete, this has proved to be both expensive and impracticable in most situations.

Instead we have found that in a cable tray situation, once again, the simplest solution is to use some form of metal fixing – many of which have been designed with the Installer in mind. The correct fixing should provide a simple and elegant solution when it comes time to adding, removing, or working on cables – they're not there to make the Installers life more complicated, but the most important thing is that they allow that extra degree of safety in a fire situation. Most of the fixing's we have seen are designed to sit on top of the metal cable tray, so that no cables can fall and, should the fixings for the cable tray fail and the entire thing fall to the floor - the cables are retained, thus creating only a single obstruction for someone to navigate, rather than a mass of fallen cables, reducing the risk of entanglement.

What does this all mean for me?

In short, it means that, in order to move quickly and comply with the upcoming 18th Edition Specifiers such as yourself must insist that *metal* fixings are used, wherever cables are used.

That means when installing or adapting all types of surface mounted cables, cables within trunking and conduit, for all cable tray or basket tray, within or behind plasterboard, above ceilings, within suspended ceilings - **METAL FIXINGS, IN ALL AREAS, ALL OF THE TIME.**

In all situations and regardless of where or how fixed - there should always be some form of metal fixing in order to prevent the cables from falling. We hope that this will lead to the saving of many lives, including possibly your own, from entanglement in a fire situation.

If in doubt, remember –

METAL FIXINGS, IN ALL AREAS, ALL OF THE TIME -

INSTALL, PROTECT, COMPLY

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