



FIRE RESISTANT CABLES



Current Developments In The UK Market

Fire Resistant Cables - Current Developments in the UK Market

In the fire resistant cable market, new developments and the technologies to support them are generally introduced either to reduce product cost or to meet new performance requirements requested by product users. These new requirements often result in the issue of new test standards.

Major changes to standard test requirements do not occur often, but invariably result in development activity by manufacturers and the resulting introduction of new or revised products. The new requirements introduced by the revision of BS5839-1 “Fire detection and fire alarm systems for buildings – Code of practice for system design, installation, commissioning and maintenance” in 2002 are a good example of such an impetus.

However, four years later, the changes driven by BS5839-1:2002 have become well understood and accepted and a wide range of products meeting its requirements is now available on the market. Indeed, a review of the current LPCB “Red book” listing, restricted to products listed specifically against the BS5839-1:2002, shows the number of listed “standard” cables has more than doubled and the number of listed “enhanced” cables quadrupled in the last two years.

Increased choice may appear welcome, but it puts a greater responsibility on the user to ensure that the best product choice is made. Consideration must be given to issues such as correct approvals for the specific application, demonstration of consistent performance through product certification schemes such as BASEC, track record of trouble free installation and ongoing quality of supply and availability of accurate technical support.

BS5839-1:2002 is not the only British Standard influencing cable fire resistance test standards, and it is therefore necessary to review what is happening with other standards.



Fire alarm and emergency lighting cables

Both British and European standards now influence our UK market. Within the fire alarm and emergency lighting area it can be overlooked that different applications have different cable test requirements and that one test requirement does not cover all applications. Prior to 2002, when BS6387 was in sole use as the cable test standard, a Category CWZ listing would cover all fire alarm and emergency lighting applications. Currently the adoption of new and different test standards driven both by European harmonisation and a more critical examination of the particular application requirements by the BSI Committees responsible for installation Codes of practice, leads to a more diverse situation..

- BS5839-1:2002 "Fire detection and fire alarm systems for buildings – Code of practice for system design, installation, commissioning and maintenance" requires cables for critical signal paths to comply with product specifications BS EN 60702-1 (MICC types), BS 7629 (unarmoured types) or BS 7846 (armoured types) except that the fire resistance test requirements need not be applied. Additionally compliance with the European fire resistance test requirement of 30 min ("standard") or 120 min ("enhanced") to BS EN 50200 and the UK only fire resistance test requirement of BS 8434-1 ("standard") or BS 8434-2 ("enhanced") is required. This standard was amended in 2004 and certain cable related requirements were clarified. It is due for revision in 2007, but there is no current indication of major changes to its cable requirements.
- BS5839-8:1998 "Code of practice for the design, installation and servicing of voice alarm systems" still require cables to meet BS EN 60702-1 (MICC types) or BS7629 (unarmoured types) including the fire resistance tests. Although BS6387 Category BSWX is actually referenced in BS7629, this requirement is usually taken as the more onerous BS6387 Category CWZ. This cable requirement was confirmed by the December 2005 Amendment to the standard with the January 2006 Corrigendum. The standard is currently under revision with a view to a new edition in 2007. Cable requirements will be re-assessed during the revision with a potential greater alignment with the BS5839-1:2002 requirements.
- BS5266-1:2005 "Code of practice for the emergency lighting of premises" requires cables to meet the harmonised fire test requirement of 60 min to BS EN 50200. This revised cable requirement was introduced in the December 2005 edition when the scope of the code was widened to include cinemas and other premises used for entertainment.



Prysmian FP200Gold undergoing testing to 60 minute requirement of BS EN 50200

Emergency power supply cables

Whereas the fire alarm and emergency lighting market now has a stable and well understood set of cable requirements, the situation regarding requirements for power cables required to maintain circuit integrity under fire conditions and to be used in fire fighting, life safety and property protection systems is in a major state of change. Although the current version of Approved Document B of the Building Regulations states for “protected power circuits” that “A protected circuit for operation of equipment in the event of fire should consist of cable meeting the requirements for classification as CWZ in accordance with BS6387”, it has for some time been recognised that this test method, particularly in relation to limitations in cable size, voltage rating and multistage test protocol, may no longer reflect the level of performance required by current fire safety engineered building designs.

Greater emphasis on the integrity of electrical circuits needed to maintain safe working conditions of such essential equipment and systems has led to the development of much more onerous cable fire survival requirements. These requirements which are met through compliance with an integrated fire test with the application of radiation by direct flame impingement, direct impact and water jet onto the cable sample have been incorporated into BS7346-6:2005 “Components for smoke and heat control systems – specifications for cable systems”. Whilst BS7346-6 is limited such applications as smoke control, motor driven fire shutters and fire barriers and pressurization relief and smoke dampers, similar requirements are being considered by other BSI Committees for applications such as fire-fighting lifts. Indeed, work has recently started within BSI to publish the cable test method as a stand alone test standard in order to facilitate its use by a wider range of users.

The current revision of Approved Document B may bring some greater direction and clarity to the situation. However, it is certain that the continued regulatory and specification activity in this area will generate a regular introduction of new and improved products.



Prysmian FP600 undergoing testing to BS7346-6