What exactly does ‘passive’ fire protection mean to you?

By: Wilf Butcher, CEO, Association for Specialist Fire Protection (ASFP)

The dictionary will tell you that the word ‘passive’ can be used to define something as _submissive, inactive, lethargic_ and several other somewhat derogatory terms that one would not wish to associate with the important need to protect a building against the hazards of fire.

Chambers Twentieth Century Dictionary defines the term ‘Passive Resistance’ as _deliberate refusal_, which is perhaps nearer the truth in justifying the term ‘Passive Fire Resistance’ to mean a _deliberate refusal to allow the passage of smoke and fire._

All very philosophical but the fact still remains; if you ask people in the street to explain the term ‘Passive Fire Protection’ in all probability they will not be able to give you a confident answer. But does this matter? Do they need to?

The fire protection solution for any building, no matter what its design or intended use, has always been holistic in nature and whilst the combination of systems used will vary, all will play an essential role in securing the stability and integrity of the building in the unfortunate event of a fire.

The protection of a building and its occupants from the effects of smoke and fire are wide ranging. They start with the conceptual design of the building, move on to appropriate defence mechanisms i.e. fire and smoke detection and alarm, fire extinguishing systems to quash the fire, structural fire protection, reaction to fire systems and compartmentation to contain the spread of fire. Add to this emergency lighting, signage, a well planned and rehearsed evacuation procedure, as well as the fire and rescue services to extinguish the fire and it is easy to appreciate that the whole procedure is a complex and interdependent process.

It must also be remembered, but sadly is all too often overlooked or disregarded, that the level of success in the control and containment of a fire goes way beyond whether the structure of the building is still standing after a fire has been extinguished. Frankly, the fact that the building may not have collapsed after the fire is extinguished is meaningless to the occupier or employee of a business, if the aftermath of the fire results in there being no business to progress. Either the cost of reinstating the building into a condition of occupancy, or the timescale to enable this to happen, is not viable.

It should be further realised that building regulations in the form of Approved Document B are only concerned with safety of life, both of the occupant and the fire fighter; they are not concerned with protecting the viability of the building, or its effects on the local economy or environment. This is a responsibility born by the insurance company.

For the majority of building types, be they steel, concrete or wooden framed, fire containment is critical to the fire performance of the building’s design and yet is probably the least understood. More often than not built-in fire protection, as its name would imply, is either hidden from view (for example above a suspended ceiling) or simply appears to be part of the fabric of the building.
If one asks a lay person to describe the purpose of a fire extinguisher, fire alarm or sprinkler system, there is a reasonable chance that the answer will display an understanding of their function. In the case of fire stopping, or containment, this is less likely to be the case. After all, from most people’s perspective, a hole in the wall just a maintenance issue and not a potential smoke or fire hazard!

Perhaps this is one of the reasons why, when a building fire is reported through the press or as a news item on television or radio, it is very common to hear statements along the lines of 'The fire spread quickly through the building' or 'The fire spread quickly into the roof structure'.

Next time you hear or read such statements, ask yourself the question, does this mean the compartmentation measures were inadequate, or none existent?'

But is it just the lay person that doesn't appreciate the importance of built-in fire protection? What level of understanding does today's designer, builder or enforcer have?

As in nature, the inter-relationship between fire protection systems has evolved over time. Every now and then, however, an attempt is made to undermine the status quo with claims that one element of the process can be traded off against another; usually argued on the grounds of cost benefit.

Over recent months a number of press articles would lead the reader to believe that built-in passive fire protection systems are an unnecessary cost that can be ‘factored out’ of a building’s design by ‘revolutionary new’ ideas in computer modelling.

The concern here is not one of whether computer modelling should be questioned. On the contrary, such an approach is now well established and there are many examples where it has been able to demonstrate its viability in contributing to the fire design needs of a given building. The danger comes in the potential misinterpretation of such statements when presented outside of the fire industry academic press.

The argument is a simple one. Is it always necessary, in the traditional sense, to apply structural fire protection to a given structural frame, or with the right kind of computer modelling, is it possible to engineer out the types of thermal movement created by the high temperatures generated in a fire, which may lead to the collapse of a building.

For a number of building designs, particularly those of a more iconic nature, such a carefully considered fire engineered approach has a basis in foundation. For the vast majority of more traditional building types, however, this may not be the case.

According to data issued in May 2008 by Communities and Local Government there were some 32,900 fires recorded in buildings other than dwellings in the year 2006. Of these, some eight three percent were effectively contained within the room of origin. However, one only has to consider some of the more recent fires, such as those in the blocks of flats at Hounslow and Southall or the pier at Weston-super-Mare. to realise that this is not always the case.

In the drive to minimise cost in the construction of a building (particularly in today's very tough economic climate) there is a temptation to minimise essential fire protection measures. This is of major concern.

It may be argued that in spite of the number of fires quoted above, statistically, the likelihood of a fire remains low. However, it must be appreciated that the true worth of any fire protection system can only be determined after a fire. If
such measures fall short of requirement in the practical, as opposed to the theoretical sense, then there is no way to rectify the matter.

To put this in context it is understood that statistically, over 80% of businesses that suffer a major fire are out of business within twelve to eighteen months of the event, contributing to an annual cost of fire within the UK which now exceeds £7 billion a year.

Built-in passive fire protection may be an enigma to some, seen as an unnecessary requirement by a few, or simply assumed to be there by the many! Whatever your view may be, if you are responsible for the design, construction, or ownership of a building, you need to be aware of and ensure that its built-in fire protection measures are fit for purpose and installed and maintained by third party certificated professionals.

If you are a fire fighter, you need to be assured that such built-in fire protection measures are in place in order to protect you during a fire and to minimise its spread until you gain control. If you find this not to be the case then it is important that you publicly express this view, in just the same way that you might argue the case for other fire protection systems, such as the inclusion of sprinkler systems.

In conclusion, ‘passive’ fire protection is anything but submissive, inactive or lethargic! In fact it is an essential element of the fire protection measures that form the fabric of any building; acting as the all important back bone to a buildings overall fire protection strategy.

The danger comes when it is ignored!

- ends -