

David Sugden, Chairman of the Passive Fire Protection Federation, writes of the dangers of taking fire safety for granted simply because it is a legal requirement

## **Built-in fire protection could save your life and business. Know what to look for.**

Because good legislation for fire safety exists we tend to believe that it is complied with. If the law states that a building must meet the current standards, we think it will have all the necessary fire safety measures in place. We might not know what those measures are, but we can be confident the approved building inspectors will make sure all is well. Unfortunately, this is not necessarily true.

In a recent, shocking, article in the London Evening Standard, Andrew Gilligan wrote about the Pacific Wharf luxury apartment building in Rotherhithe. The new building had problems with the roof. It was leaking and although it had supposedly been put right, the problem did not go away. When the matter was investigated properly it was discovered that not only was the roof badly constructed but the whole building was a potential fire death-trap. Many of the built-in fire protection measures required by law were either missing or incomplete in this apartment block. Individual flats were not separated by correctly constructed connecting party walls, but by simple plasterboard because the flats were fitted out as separate 'pods', with no provision for joined-up fire safety. The steel columns forming the main supports of the building were not coated with fire-protective materials, so in the event of a fire they could collapse, bringing down the whole building. Shafts ran from one apartment to another. In a fire these would act as chimneys, passing smoke throughout the building, accelerating the spread of fire and killing people who are nowhere near the source. This building had no compartmentation, so if even a small fire had broken out it could spread rapidly to any other part.

And yet Pacific Wharf had reportedly been inspected and passed by the National House Building Council (NHBC). In theory any defects in construction should have been picked up by an Approved Inspector (in this case the NHBC) or Local Building Control. That fire protection was so blatantly omitted in an upmarket block of apartments raises

questions about this specific case, and others. We rely on builders to obey the regulations, and authorities to make sure they do. But contractors get work on lowest price tenders and if they can cut corners then sadly, some will. Building Inspectors are subject to time, staffing and commercial pressures too and can be deceived by the determined fraudster. Blind trust in the law to protect us from fire is probably misplaced. We need to know what to look for in built-in fire protection.

### **So what is compartmentation and why is it so important?**

Awareness of fire protection tends to stop at smoke alarms and sprinklers in a public building. Communities and Local Government's current, hard-hitting advertising campaign 'Pull your finger out' rightly brings home to everyone the importance of early warning of fire in the home. But for smoke alarms to be useful the occupants must not only be alerted to the fire but be able to leave the building safely. And for sprinklers to work the water must be able to flow freely, so the structure of the building has to remain intact. Of course smoke alarms and sprinklers are very useful tools and have saved many lives, but being alerted to fire and then being unable to get out of the building safely is a horrific prospect. The building itself must be constructed to withstand fire, which is where compartmentation comes in.

Simply, compartmentation means dividing a building into compartments that can be closed to stop the spread of flames and smoke. Confining a fire to its point of origin is the first objective of any fire safety measure. Compartments are areas made up of fire separating elements such as fire-doors, fire-resistant glass and fire resistant panels. Rooms, corridors and staircases can be closed off and safe areas for evacuation preserved for vital protection. In tall buildings the compartmentation can be vertical as well as horizontal - for example lift shafts, stairwells, ventilation and heating ducts can all be compartmentalised. In designated fire-fighting shafts and fire-fighting lifts protection should last for up to two hours. If there is no compartmentation, or if the original structure has been compromised by alteration or poor maintenance, it is possible for fire to spread quickly and break out in seemingly unrelated areas.

It isn't just new buildings which benefit from compartmentation. Most buildings will have a certain amount of fire protection built-in. In fact, older buildings with smaller

rooms and fewer open plan areas are well designed when it comes to limiting the spread of smoke and flames, but it is important to be aware of alterations and additions which can compromise safety. Always make sure that holes are stopped with suitable fire protective materials when new pipe-work or cabling is run. Doors, even those not certified fire-doors, will if closed often help to contain fire, at least until the occupants can get out of the building. Maintaining compartmentation can be as simple as getting into the habit of shutting doors.

It's easy to see, and understand what sprinklers and smoke alarms do. But it's compartmentation which saves lives and buildings. Obviously, it's vital to preserve life, but it is also important to minimise damage to property. Compartmentation allows occupants to leave a burning building, and allows firefighters to get in, tackle the fire, and leave safely. Once compartmentation is built in it needs little maintenance - no batteries to be checked, no water supply to maintain, no foam to replace, no chemicals to top up. All that's necessary is to make sure any gaps are plugged if any of the elements of the compartment have been pierced by, for example, new plumbing or electric cabling. Holes in a compartment, in the walls or ceilings to allow pipes or wires through must always be made good. Gaps should be closed and sealed so that if fire should start smoke and fumes do not spread beyond the source. Although it is usually required that contractors make good any penetration of a compartment, in practice it is easily overlooked. If the owner or occupier doesn't know what to look for the chances are the first sign fire-stopping is missing will be smoke pouring through the building.

And remember to close the doors - a certified fire-door can delay the spread of fire for up to two hours, but if it's open it's just another hole in the wall. It is tempting in a residential situation or a busy traffic area to either prop open or even remove automatic closers from fire doors, but then instead of a protective barrier against fire there is a draught to fan the flames.

Since the law changed in 2006 the fire service doesn't inspect public buildings to advise on fire safety. Fire certificates are no longer applicable. The onus is now on the owner or operator of these buildings to perform risk assessments and produce a fire safety plan. This could mean that risk assessments are being produced by people who

have no idea about passive fire protection, or of what to look for in terms of built-in fire safety. And responsibility comes at a price. Penalties for non-compliance include heavy fines and prison sentences - in October 2008 a London property owner was sentenced to four months in prison and his company fined £21,000 for breaches of the Regulatory Reform Order.

The average person will probably have no idea about compartmentation, or any other passive fire protection, but will probably assume current building regulations must be protection enough. Technically, that should be the case - current regulations are stringent and if followed will meet a high safety standard. But consider this. A 2007 survey carried out by the Home Builders Federation, which represents the builders of more than 80% of new homes, reported that a staggering 39% of occupiers found there were more snags than they had expected. One in five was dissatisfied with the condition of the home when they moved in and 18% regarded the finish as poor. And that is just what can be seen. It is naïve to think that a builder who skimps on the finish had nevertheless complied with all the relevant building regulations on what can't be seen. In the Pacific Wharf building a leaking roof, balconies without adequate support and problems with windows and doors led to the shocking discoveries regarding the lack of fire protection. If the quality of the finish hadn't been as bad as it was, leading to a thorough inspection, a major fire disaster could have been the first indication of unseen problems. It is easy to think that because there is legislation, everyone complies with it, but it is obvious from the Pacific Wharf case this cannot be taken for granted.

The Passive Fire Protection Federation (PFPF) advocates the use of Third Party Certification to ensure that at least in public buildings and apartment blocks (which account for around 50% of new homes) the installation of passive fire protection measures will be done properly. The PFPF website ([www.PFPF.org](http://www.PFPF.org)) has a diagram available to download, on what to look for and advice from experts on all aspects of built-in fire protection, in new and existing buildings. Members and associates of the Federation cover all aspects of fire protection and advocate a co-ordinated approach to fire safety. There are also free guides to Third Party certification and Fire-doorset testing.

Well designed compartmentation, inspected and maintained, saves lives and saves buildings. Be aware of what it is, and how to find out whether your building has it.

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