

**TROUBLE IN STORE.
THE CHALLENGE OF WAREHOUSE FIRE SAFETY**

Following the recent disastrous fire at a vegetable packing warehouse in Warwickshire, the Local Government Association is calling on the government for a fundamental overhaul of the Building Regulations. So, what are the issues? Peter Stephenson, Principal Fire Safety Engineer at Kingfell Consulting, gives the expert's perspective.

Think of a warehouse, and what springs to mind? Probably, one of those massive, modern, high-tech logistics and distribution centres you see alongside every motorway. But this image is not really a true reflection of Britain's stock of warehouses. Many are smaller, much older premises, often located in tightly-compact industrial sites and sometime cheek-by-jowl to densely populated residential areas.

In fact, nowadays, it is not always easy to say whether a building ought to be described as a warehouse or a retail premises. Interestingly, the Cambridge Advanced Dictionary defines a warehouse as being: "a large building for storing items before they are sold, used or sent out to shops, or a large shop selling a large number of items at a cheap rate". Surely, this covers a number of supermarket chains and some of the DIY superstores that today have more in common with a warehouse than a retail outlet. I raise this point not to argue semantics, but to illustrate the complexity of the situation, and to highlight the need not to be hidebound by misconceptions when reviewing fire safety in buildings that, to all intents and purposes, need to be considered as warehouses.

UNIQUE CHALLENGES.

Many warehouses were constructed to comply with much earlier editions of the Building Regulations; indeed, a significant number pre-date the Building Regulations that came into force in 1965, and were constructed during the time of

building bylaws, which varied across the country. This means that we have an unspecified number of warehouses in this country that can be characterised as:

- Being built to lower construction standards than those prevailing today.
- Incorporate building materials that are no longer acceptable, such as asbestos and cladding and lining materials with unacceptable spread of flame or other fire performance characteristics.
- Being built to passive and active fire safety standards, in terms of the overall degree of fire protection, compartmentalisation, fire stopping, fire detection and fire suppressions that would be unacceptable in warehouses built today.
- Now being used for purposes other than those originally intended.
- Containing substantially different fire loadings than was originally taken into account.

Added to these considerations are a number of factors of day-to-day warehouse operation that have a major bearing on warehouse fire safety.

PILING IT HIGH.

For economic and business efficiency reasons, the current generation of warehouses is highly automated. They are characterised by the “maximum stock in minimum area” ethos, with high-level racking and narrow gangways designed to allow access by fork-lift trucks and side loaders with little room to spare. These challenges are compounded by the change in retailing whereby stores now work on the “just in time stockholding” approach; maintaining minimal stock levels and relying on suppliers – or their own distribution centres – to provide fast, if not near instant, turnaround of orders.

This can so easily result in seasonal or fast-turnaround merchandise being stored in every conceivable space without sufficiently considering the impact on the safe evacuation of employees in a fire, or the safety of the emergency services tackling the blaze. The sometimes lack of stability of the increased stockholding can have a major impact in the event of a fire, further adding to the risk of blocked evacuation routes or injury to employees and firefighters.

It is also by no means unusual for warehouses to allow storage to spill over into adjoining areas during periods of peak demand, utilising forecourts, yards and loading bays, even temporary marques. But, it is not just the increased density of goods that needs to be considered. Careful attention also needs to be paid to the

fire load characteristics of what is inside the building, and any potential pollution or toxic risks that these goods might have. Highly flammable plastic shrink wrapping, for example, is now commonplace, as is the mass storage of highly combustible cardboard and plastic packaging materials, including plastic pallets.

These factors raise the whole question of fire risk assessments in warehouses. While the need for them is, hopefully, widely understood, and conducting them is obligatory under the Regulatory Reform (Fire Safety) Order 2005, is the importance of treating them as an on-going activity sufficiently appreciated by warehouse managers? There is a strong case for advocating that fire strategies for warehouses need to be particularly robust and reliable; even for suggesting that warehouse fire risk assessments should be the management's constant concern. Certainly, there is a strong argument in favour of the "responsible person", as required by the Fire Safety Order, taking a daily interest in any activities that may adversely impact on fire safety.

In this respect, company directors would do well to take notice of the Corporate Manslaughter and Corporate Homicide Act 2007. Under this new piece of legislation, from April 2008 organisations can face prosecution where there has been a gross failing throughout the organisation in the management of health and safety, with fatal consequences. So, for example, accepting a blocked evacuation route on the basis that it will only be there until the next vehicle is loaded may prove to have a ruinous outcome or consequences that may include imprisonment.

THE EMPTY RISK.

Significantly, one of the fires that was recently in the news was in an empty warehouse. Of course, being unused or unoccupied does not remove the building owner's responsibilities under the Fire Safety Order. These still apply even if the building is properly decommissioned and mothballed. They also apply immediately; having "acquired the premises only a few months ago" is no defence.

Under the Order, the responsibilities of building owners and the management of companies responsible for the building do not end when the doors are finally shut; their liability extends to the safety of firefighters who may be called upon to tackle a blaze in the empty building. So, very careful thought has to be given to suspending the installation of fire safety equipment, shutting down fire detection and firefighting installations, or cancelling maintenance regimes. No doubt, the implications of failing to complete the installation of fire doors that, it is suggested, would have held back the blaze in Warwickshire for at least four hours, and the failure to complete the building's sprinkler system are currently being considered by those undertaking the investigation into the fire where the four firefighters tragically met their death.

Empty premises are also particularly prone to vandalism and arson, so effective security needs to be implemented to make sure that essential fire safety equipment has not been wrecked, damaged, or even stolen.

NEIGHBOURHOOD IMPACT.

Warehouse fires are, thankfully, relatively rare. However, unless the owners and managers have implemented “prompt detection, rapid response” fire safety measures, when a fire does occur it can easily escalate into a major, news-grabbing life and asset threatening conflagration.

A fire in the older style of warehouse can also easily spread to adjoining premises, due to the poorer fire performance of the materials used for its construction or the close proximity of neighbouring buildings. So, there is a strong case for cooperating with the management of nearby industrial units to exchange information on potential fire risks, preventative measures and fire risk assessments. Adopting an integrated approach with neighbouring sites, and sharing that information with the local emergency services may well pay huge dividends should the worse ever happen.

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