



Converted offices risk review

Adair Lewis scrutinises large loss fire statistics on converted offices, examines specific risks and suggests ways of addressing them

WITH THE improving financial climate, the sight of scaffolding in towns and cities around buildings that are being refurbished or converted into offices is becoming much more common. The seemingly insatiable demand for office space and modern requirements for ceilings and floor voids to accommodate large volumes of data cabling has resulted in the conversion and alteration of very large numbers of buildings.

The fires that form the subject of this report were not necessarily construction sites at the times that the fires occurred, but a large proportion of the incidents were probably related to the period of construction and thus may be heavily influenced by the fire prevention and protection recommendations in the *Joint Code of Practice on the Protection From Fire of Construction Sites and Buildings Undergoing Renovation*. It is a compliment to that publication that this report analyses just 20 large loss incidents, which occurred in the 16-year period between January 2009 and December 2014.

In the FPA database, converted offices form part of the 'non residential miscellaneous' sector, which also includes purpose built offices, call centres, TV studios, laboratories, research centres and other unspecified non-residential properties. Fires in converted offices account for 0.6% of all fires on the database.

Some 50% of the large loss fires in converted offices are started deliberately, but the figure may be significantly more than this, since 25% are recorded as being of unknown origin. The incidence of arson is reflected in the fact that 35% of the fires occur between the midnight and 05:59 hours. Fewest fires (5%) occurred during the afternoon.

The biggest problem encountered by the fire and rescue service when responding is access to the premises. This is no doubt due to poorly managed parking either on site or in the nearby streets. In one case, acetylene cylinders involved in hot work provided a hazard to firefighters.

Fires in converted offices cost on average £359,813 per incident – considerably less than the average of £918,341 for fires in the non residential miscellaneous sector as a whole. It is interesting to note, however, that when calculated on the basis of cost per square metre, converted office fires cost £937m², whereas incidents in the sector as a whole cost less at £897m². This appears to result from the cost of the contents of converted offices where damage to IT systems, databases and the like account for the increased losses.

What are the trends? Figures compiled two years ago showed the proportion of deliberate fires to be greater at 64.3%, but the average cost per fire was then less at £288,836, compared to the greater figure of £1,078,657 in the sector as a whole.

Fire hazards

It is often thought that there are not many potential sources of ignition in converted offices, but in practice there are a number of significant hazards including:

- deliberate fire raising
- poorly parked vehicles obstructing access routes for firefighting vehicles
- cooking and the preparation of food and beverages
- office electrical equipment
- lighting, projectors and audio equipment
- poorly maintained electrical equipment and installations
- excessive/poorly managed electrical extension leads and adaptors
- space heaters, fans and boilers
- breaches of the fire compartmentation of the building
- introduction of potential ignition sources and combustible decorations at times of festivals and social functions
- large quantities of stored records

Sector Main category: Non residential miscellaneous
Sub Category: Converted offices

Period: Jan 2009 to Dec 2014

During this period, large loss, non residential miscellaneous fires accounted for 11.1% of all large loss fires. During the period of this survey, there were 418 large loss fires in the non residential miscellaneous sector, 20 of which involved converted office buildings. Fires in converted offices accounted for 0.6% of all large loss fires and 4.8% of all non residential miscellaneous fires.

| Cause | Accidental | Deliberate | Unknown / unassigned |
|-------------------------------|------------|------------|----------------------|
| Non residential miscellaneous | 41.2% | 28.8% | 29.8% |
| Converted offices | 25.0% | 50.0% | 25.0% |

| Time of day | 00:00 - 05:59 | 06:00 - 11:59 | 12:00 - 17:59 | 18:00 - 23:59 | Unknown |
|-------------------------------|---------------|---------------|---------------|---------------|---------|
| Non residential miscellaneous | 28.7% | 11.8% | 16.1% | 27.7% | 15.5% |
| Converted offices | 35.0% | 20.0% | 5.0% | 20.0% | 20.0% |

| Impedances | Total | Access | Acetylene | Inadequate water | Resources |
|-------------------------------|-------|--------|-----------|------------------|-----------|
| Non residential miscellaneous | 87 | 35.6% | 37.9% | 19.5% | 6.9% |
| Converted offices | 5 | 83.3% | 16.7% | 0.0% | 0.0% |

Addressing the problems

Give careful consideration to the likelihood of deliberate fire setting at the time of the fire risk assessment and implement suitable security measures to reduce the possibility of such an event. Measures may include providing locks complying with BS 3621, installing security lighting, shutters on low windows and introducing a high quality CCTV system. Physical barriers may be required to deny intruders access to the roof.

Review the fire risk assessment whenever there are significant changes to the potential sources of ignition and combustible materials present, and the number of people in the building.

Consult with staff who have a disability to produce personal emergency evacuation plans (PEEPs). In large offices, provide carefully designed refuge points and highlight the actions that should be taken to assist disabled staff to evacuate the premises in the emergency plans. Also ensure that escape routes are kept free of obstructions and are adequately signed.

Fire doors should be identified by suitable signs and are normally kept shut. Where fire doors are designed to close automatically on actuation of the fire detection and alarm system, test this function weekly.

Cooking should only be undertaken in a fire compartment designed to provide at least 30 minutes' fire resistance between the cooking area and other parts of the building. This kitchen should be properly designed and equipped for the purpose. Toasters should not be provided in unenclosed tea points.

Arrange for portable electrical equipment to be inspected and tested periodically, at least in accordance with HS(G) 107 and/or the IET Code of Practice for in-service inspection and testing of electrical equipment. The period between tests should be determined by risk assessment.

Wherever possible eliminate hot work, including the use of hot air guns for the stripping of paint work during redecoration. Control hot work by the use of a hot work permit system, in accordance with RISCAuthority Recommendation RC7.

Minimise the spread of fire by effective fire compartmentation within the building. Maintain the compartmentation by ensuring that contractors provide suitable fire stopping around pipes and services that pass through compartment walls, floors and ceilings. Maintain the effectiveness of cavity barriers in ceiling and roof voids.

The storage of combustible waste materials within the premises should be kept to a minimum. Waste bins outside of the building should be constructed of metal and wherever possible be located at least 10m from the premises. Also provide defined areas for parking cars to help ensure that street hydrants and the approach for fire and rescue service vehicles are not obstructed.

Protect the building with an automatic fire detection and alarm system. The installation should be to a recognised category of installation in accordance with BS 5839-1, as determined by a risk assessment and in consultation with the insurer. Also, you should engage an off-site alarm receiving centre and operate in accordance with a Category II facility as defined in BS 5979 to monitor the automatic fire detection and alarm system, and contact a key holder in the event of an incident outside of office hours.

Give serious consideration to the installation of an automatic fire suppression system, such as water sprinklers, when the facility is at the design stage. Sprinkler systems should be designed, installed, commissioned and maintained in accordance with the LPC Sprinkler Rules incorporating BS EN 12845. Also provide a suitable number of appropriate portable fire extinguishers.

To ensure the resilience of the facility, have an effective emergency plan in place. One way of approaching this is to complete the ROBUST business continuity and incident management planning software, available free from <https://robust.riscauthority.co.uk/> ■

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These statistics are based on information supplied by loss adjusters to the FPA on a voluntary basis and not all insurers conducting business in the UK contribute to this dataset. They represent only sums paid out where the total loss is in excess of £100k and are deficient of losses under £100k, deductibles, underinsurance, uninsured, self-insured and captively insured components, which may be significant. In a year, total losses captured typically account for 50% of the ABI declared annual fire loss figure – which is similarly deficient of the same components (except the £100k threshold).