



# Transport buildings risk review

**Adair Lewis** gives advice on mitigating risks in buildings that make up just one part of a very diverse transport sector and account for 36% of large loss transport fires

**T**HE CATEGORY 'other transport buildings' begs the question 'other than what?'. The transport category in the large loss statistics is an extremely diverse sector dealing with road, rail, sea and air transport. Most importantly, the 'other' group does not include fires in bus and coach stations, which account for 36% of large loss fires in the transport sector (see *FRM December 2013/January 2014, pp36-37*). It also does not include fires in airport hangars, airport terminals, docks, underground stations and engine sheds, which together make up 27% of the transport total.

This review therefore considers the remaining large loss transport fires and, although the average loss for these fires is £327,000, this compares favourably with the average cost of £877,000 per fire for the transport sector as a whole.

The incidence of deliberate fire setting is perhaps surprisingly high at 28.6%, given that most of these buildings will be heavily populated throughout the working day. This reason appears to be confirmed by the statistics showing zero fires (whether deliberate or accidental) occurring between 06:00 and 12:00 – the period that would include the morning rush hour. In the afternoon, however, 40% of the large loss fires occur between 12:00 and 18:00, but it is not easy to determine whether these were accidental or deliberate. It would be expected that a large proportion of the remaining 60% of fires, which occur between 18:00 and 06:00, will however result from arson.

The fire and rescue service appears to have encountered only one incident involving difficulties in firefighting, which resulted from problems gaining access to the premises.

Further analysis reveals that 23.7% of the cost of the fires was attributable to business interruption.

## Fire hazards

As well as the potential ignition sources present in most businesses, there are a number of additional

hazards that may be connected with some premises associated with transport activities. Where workshops are present, these may include:

- hot surfaces of engines, exhaust pipes and catalytic converters
- sparks produced as a result of welding and cutting of metal using oxyacetylene oxygen/propane, electric arc welding and other hot work processes
- cylinders of acetylene stored on the premises
- bulk supplies of diesel fuel, petroleum and LPG on the premises
- fuelling of vehicles and draining of fuel tanks during maintenance or repair
- presence of workshop pits in which flammable vapours may accumulate

In all cases, fire hazards may include:

- deliberate fire raising
- lighting and space heating equipment
- electrical fire hazards from poorly maintained electrical equipment and installations
- breaches of the fire compartmentation of the building
- combustible materials and waste (including waste oil) stored outside
- poor access arrangements for firefighters and firefighting vehicles

## Addressing the problems

Ensure that measures identified in the fire risk assessment (and the DSEAR assessment, where appropriate) are implemented effectively and in a timely manner by competent persons.

At the time of the risk assessments, give careful consideration to the likelihood of deliberate fire setting and the implementation of suitable measures to maintain the security of the buildings, especially during hours of darkness.

Employ the VICERS (Ventilation, Ignition, Containment, Exchange and Separation) acronym when undertaking

**Sector Main Category: Transport****Sub Category: Other transport building**

Transport fires account for 1.2% of all large-loss fires.

Other transport building fires account for 0.2% of all large-loss fires and 38.9% of all Transport fires.

Causation	Accidental	Deliberate	Unknown	
Transport	58.8%	29.4%	11.8%	
Other transport building	57.1%	28.6%	14.3%	

  

Time of fire	Midnight - 6am	6am - Midday	Midday - 6pm	6pm - Midnight
Transport	33.3%	0.0%	33.3%	33.3%
Other transport building	20.0%	0.0%	40.0%	40.0%

  

Impedances	Access	Acetylene	Inadequate Water Supply	Resources
Transport	20.0%	60.0%	20.0%	0.0%
Other transport building	100.0%	0.0%	0.0%	0.0%

2 Transport fires of 18 had impedances, 0 of these had more than one impedance.

0 Other transport building fires of 7 had impedances, 0 of these had more than one impedance.

a DSEAR assessment. Further information is set out in RISC Authority Recommendations RC 55, 56 and 57.

Appropriate hazard zones in the DSEAR assessment need to be identified and staff trained in the implications of these in the context of the materials being handled and the operations being carried out.

Hot work should be eliminated wherever possible, but when hot work cannot be avoided, minimise the use of acetylene by using other forms of welding and cutting if practicable. Control the work by use of a hot work permit system.

Ensure that appropriate passive fire protection measures, including effective compartmentation, are in place to minimise the risk of fire spreading between compartments within the building, and from the building to adjacent premises.

Following any work that requires breaching of the fire compartmentation, ensure that suitable fire stopping is undertaken in accordance with the *FPA Design Guide for the Fire Protection of Buildings: Essential Principles* to maintain the designed fire rating of the structural elements concerned.

In large open plan areas, site overhead heaters so as to provide at least a 2m clearance from combustible materials. Heaters should not be positioned in such a way as they direct hot air towards nearby composite panel walls, whether these form internal or external elements of the structure.

Make sure that electrical installations are designed, installed and periodically tested by a competent electrician in accordance with the current edition of BS 7671 (the IET Wiring Regulations). Inspections should be carried out on a risk assessed basis as recommended in the Periodic Inspection Report.

Portable electrical equipment should be inspected and tested at least in accordance with HS(G) 107 and/or the IET Code of Practice for in-service inspection and testing of electrical equipment. A risk assessment should determine the periodicity of the programme of inspection and testing.

Electrical equipment provided in hazard zones identified in a DSEAR assessment (such as lighting in workshop pits) should be appropriate for the zone in which it is installed.

Protect the building by an automatic fire detection and alarm system designed to take into account the need for property protection. The system needs to be monitored either on-site or by an off-site alarm receiving centre certificated by an independent UKAS accredited third party certification body.

Record and periodically analyse false and unwanted fire alarm activations, and take action to minimise these events, for example by replacing conventional detector heads with those incorporating multiple sensing elements.

When a facility is at the design stage, give serious consideration to the installation of an automatic fire suppression system such as water sprinklers. Sprinkler systems should be designed, installed, commissioned and maintained in accordance with the LPC Sprinkler Rules.

In addition to an automatic sprinkler installation or other fixed fire suppression system, provide a suitable number of appropriate portable fire extinguishers that are immediately accessible in the case of a fire.

For both life safety and property protection purposes, give consideration in large buildings to the installation of smoke venting systems to prevent smoke logging. This may be a requirement of the fire and rescue service.

Liaise with the local fire and rescue service to ensure that water supplies are adequate for the sprinkler installation and for firefighting purposes.

Ensure that hydrants on site and access to rising or falling mains are prominently signed, regularly maintained and kept clear of obstructions such as parked vehicles.

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

**Adair Lewis is technical manager at the FPA**

*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).*