

Education risk review report

Business Sector Risk Review Reports are created for each and every occupancy category held within the FPA/ RISCAuthority Large Loss Fire database where sufficient records exist for meaningful analysis and are updated annually. They are designed to highlight the loss history in each business sector to help inform insurance and risk control choices, and provide brief bespoke best-practice guidance.

This data is best appreciated in association with local information on F&RS response, AFA policy, and firefighting water availability data which is available to RISCAuthority members via the website (www.RISCAuthority.co.uk). The data presented here spans the two years January 2012 to December 2013; the complete database and analytical tools may be accessed by members via the RISCAuthority website.

College/University

Sub category



Education fires account for **3.6%** of all large loss fires.

Fires involving **College/University** account for **1%** of all large loss fires and **28.7%** of all **Education** fires.

Causation	Accidental	Deliberate	Unknown
Education	45%	32%	22%
College/University	54%	21%	25%

Time of fire	Midnight - 6am	6am - midday	Midday - 6pm	6pm - midnight
Education	25%	18%	29%	28%
College/University	16%	12%	28%	44%

Impedances	Access	Acetylene	Inadequate water supply	Resources
Education	64%		27%	9%
College/University	100%			

11 Education fires of **101** had impedances, **0** of these had more than one impedance.

1 College/University fires of **29** had impedances, **0** of these had more than one impedance.

Cost of fire

Education fires account for **6%** of all large loss financial loss, with a mean average cost of **£1,255,998** per fire.

College/University fires account for **29%** of all **Education** loss, with a mean average cost of **£1,289,369** per fire.

Insurance component	Material damage	Business interruption	Contents	Resources	Machine and plant	Stock	Other
Education	70%	13%	12%	0%	0%	0%	6%
College/University	61%	8%	16%	0%	0%		15%

These statistics are based upon 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, under-insurance, 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).

FPA BUSINESS SECTOR RISK REVIEW REPORT FOR COLLEGE/UNIVERSITY PREMISES

Fire safety legislation

In common with many businesses, a fire risk assessment should be undertaken for college and university premises in compliance with the Regulatory Reform (Fire Safety) Regulations 2005 (or equivalent legislation in Scotland and Northern Ireland). In some parts of the campuses (for example in science and engineering faculties) an assessment may also need to be undertaken in accordance with the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR).

Fire hazards

In addition to the potential ignition sources present in commercial undertakings, there are often additional hazards specific to the teaching and recreational activities that are undertaken. These include:

- Open flames used in laboratories.
- Welding and cutting equipment in engineering workshops.
- Hot work and the use of hand tools by maintenance staff and contractors.
- Heating processes, using ovens, furnaces and kilns.
- Explosions occurring as a result of the release of flammable vapours.
- Accidental release of flammable gas as a result of the use of compressed gas cylinders.
- Electrical hazards from poorly maintained electrical equipment and installations.
- Chemical reactions during laboratory processes which may lead to unplanned self heating and ignition.
- Cooking activities in refectories and student halls of residence.
- Deliberate fire setting.

Risk control recommendations

The following risk mitigation measures should be considered to eliminate or reduce the risk of fire in colleges and universities:

- Train students to be vigilant when carrying out laboratory work that involves the use of open flames. Staff should be trained in the selection and use of the firefighting equipment that is provided.
- Eliminate hot work by students, maintenance staff and contractors wherever possible. When such work is necessary, a hot work permit system should be used by maintenance staff and contractors. Necessary hot work by students must be closely supervised.
- Eliminate the use of acetylene as far as is practicable. Use other forms of welding and cutting wherever possible and minimise the use of laboratory equipment that routinely requires the use of acetylene. Minimise the number of acetylene cylinders held on the site.
- Train staff using ovens, kilns and similar facilities in their correct use and to work within the parameters set out in the college/university operating procedures.
- Only introduce into the teaching areas the volumes of flammable liquids that are necessary for the work period. Bulk supplies of flammable liquids should be stored securely in a purpose designed facility, preferably

outside of the building. Staff should be trained in the actions to take in the event of a spillage of flammable liquid.

- Store all gas cylinders in prominently signed facilities designed for this purpose.
- Engage competent engineers to maintain demonstration and teaching equipment in accordance with the manufacturers' instructions.
- Engage a competent electrician to inspect the installed electrical wiring in accordance with the requirements of BS 7671 at periods as determined by a fire risk assessment, with the results being recorded.
- Carry out in-service inspection and testing of portable electrical equipment ('PAT testing') at periods in accordance with HS(G)107 and the IET *Code of practice for in-service inspection and testing of electrical equipment*, or more frequently as determined by a fire risk assessment.
- Provide clear guidance to students in halls of residence as to forms of cooking that are permitted, and ensure that appropriate facilities are provided and inspected regularly, and are PAT tested where appropriate.
- Ensure that appropriate passive fire protection measures are in place to minimise the risk of fire spreading between compartments within the building, from the building to adjacent premises, or vice versa. In particular, laboratories, engineering and kitchen facilities should be located in separate fire compartments.
- Protect the premises by installing an automatic fire detection and alarm system, designed to an appropriate category as defined in BS 5839-1, which is monitored by an alarm receiving centre when the premises is unoccupied.
- Consider installing an automatic sprinkler system designed in accordance with BS EN 12845 to control a fire until the arrival of the fire and rescue service. Suitable fixed fire suppression systems should also be installed to protect deep fat fryers, grills and similar equipment in refectory kitchens.
- Consider installing suitable fixed fire suppression systems in large IT facilities.
- Liaise with the local fire and rescue service where appropriate to ensure that water supplies in the area are adequate for the sprinkler installation and for firefighting purposes.
- Ensure that access to the site is readily available to the fire and rescue service on their arrival and that staff are present during working hours to direct firefighters to the relevant area.
- Control parking to ensure that roads and turning circles on the campus are kept clear for fire service vehicles.
- Give careful consideration to the likelihood of arson and the implementation of suitable security measures to reduce the likelihood of deliberate fire raising at the time of the fire risk assessment.
- Have an effective emergency plan in place to ensure the resilience of the university or college functions. 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/>

Further information

1. Regulatory Reform (Fire Safety) Order 2005, SI 2005 No 1541, TSO.
2. The Fire (Scotland) Act 2005, asp 5, TSO.
3. Fire Safety (Scotland) Regulations 2006, Scottish SI 2006 No 456, TSO.
4. Fire and Rescue Services (Northern Ireland) Order 2006, SI 2006 No 1254 (NI9), TSO.
5. Fire Safety Regulations (Northern Ireland) 2010, SI 2010 No 325 (NI), TSO
6. Dangerous Substances and Explosive Atmospheres Regulations (DSEAR), 2002, SI 2002 No 2776, TSO.
7. RC7 *Recommendations for hot work*, 2012, FPA.
8. RC8 *Recommendations for the storage, use and handling of common industrial gases in cylinders including LPG*, 2012, FPA.
9. RC20 *Recommendations for fire safety in the storage and use of highly flammable and flammable liquids: Part 1: General principles*, 2006, FPA.
10. RC49 *Recommendations for reducing business interruption, Part 1: Acetylene cylinders involved in fires*, 2007, FPA.
11. *Business resilience: A guide to protecting your business and its people*, 2005, FPA.
12. The ROBUST software (Resilient Business Software Toolkit) may be found at <https://robust.riscauthority.co.uk>
13. BS 5839-1: 2013: *Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises*, British Standards Institution.
14. LPC *Rules for automatic sprinkler installations incorporating BS EN 12845: (Fixed firefighting systems. Automatic sprinkler systems. Design, installation and maintenance, British Standards Institution)*, 2009, FPA.
15. HS(G) 107: *Maintaining portable and transportable electrical equipment*, 2004, Health and Safety Executive.
16. *Code of practice for in-service inspection and testing of electrical equipment (fourth edition)*, 2012, Institution of Engineering and Technology.
17. BB100: *Design for fire safety in schools*, 2007, RIBA Enterprises.
18. *Fire safety risk assessment: Educational premises*, 2006, Department for Communities and Local Government.

Case histories

1. Four hundred students were forced to leave a building when fire took hold of a university chemistry department. Eleven fire and rescue service crews were called to the building shortly before 13:00 and brought the blaze under control by 16:00. About 400 students and staff heard the alarms and left the building; no one was injured. The block was used for undergraduate teaching and some research into anti-cancer agents; there was a loss of course work and much of the expensive laboratory equipment. The loss of electricity resulting from the fire affected 144 student bedrooms as well as the chemistry department and alternative accommodation had to be found for a number of students until power could be reconnected. A smell of burning was noticed earlier in the day but was thought to be caused by contractors using tar whilst working on the roof of the building. Further investigation, however, revealed the blaze to have started in a fume cabinet.
2. The fire and rescue service sent four appliances to tackle a fire involving a car in a college workshop building. The vehicle was destroyed and firefighters spent some time cooling gas cylinders as a precautionary measure. The first call came at 2.04pm and the fire service had the blaze under control by 3.35pm. The college was evacuated and the students sent home; all evening classes were cancelled.
3. Around 300 people had to be evacuated from a university college building late one night after a fire gutted the roof and fourth floor offices. Working through the night, fire crews managed to preserve the clock tower of the listed building but the damage to the property ran to millions of pounds. The fire was discovered by a security guard as 70 psychology students were just seven minutes away from finishing their examinations. The cause of the blaze was not established for certain but was not treated as arson. Despite the vice chancellor's 'business as usual' message, a law exam for 120 students the next day had to be moved to another university building but a social science examination for 200 students was held as planned in the great hall, after the fire brigade declared it to be safe.
4. Hundreds of staff and students were evacuated from a university after a fire broke out in a seven-storey teaching block. The blaze started in a science laboratory shortly before 5pm after a PhD candidate's white coat caught alight during an experiment. Around 50 firefighters evacuated 360 people from the building, two of whom were treated by paramedics at the scene for smoke inhalation. About 10% of the laboratory, which was on the seventh floor and used by biotechnology researchers, was destroyed by the flames; an 'unknown number' of chemicals was spilled on the floor in the incident.