Risk Topic:
Arson

Arson, or wilful fire-raising, accounted for almost half of fires attended by Fire and Rescue Services between March 2021 and March 2022, making it the leading single cause of fire in England. Out of 152,608 fires 69,776 cases were deliberate, which is 45.7% of the total and 9.5% increase on the previous year[1].

This document summarises the risks and controls you should consider to protect against arson.

Interactive PDF

Introduction

In this risk topic, we explore arson to give you a better understanding of what the risks are and the measures you can take in and around your buildings to reduce those risks.

Arson, or wilful fire-raising as it is known in Scotland, is the act of deliberately starting a fire to cause damage to property. We can't predict the different motivations for a person or group to deliberately start a fire, but fires lit deliberately can cause much greater property damage.

There are various reasons for this, including the fire being[2]:

- Lit using multiple points of ignition.
- Lit at vulnerable points in the building.
- Assisted using flammable liquids or other accelerants.
- Started at a time when there will be a delay in fire discovery (such as when the premises are unattended or only partially occupied) assisted by fire protection measures being compromised (for example, fire doors being wedged open to help a fire develop and spread throughout the property).
- By the sabotage of automatic fire protection measures (such as by isolating a sprinkler system or automatic fire detection installation).
- An attempt to destroy evidence of another crime.

Arson can have a significant impact on lives and local communities. In the worst case, this can involve loss of life. There can also be longer-term mental health impacts and the potential economic loss to people and businesses. This is why we're keen to share our knowledge of how to prevent or control arson, by helping you consider potential threats and implement suitable risk controls.

Risk Assessment

A risk assessment is essential to develop an effective plan against arson, as it helps ensure all aspects of risk are considered and operations are maintained[3].

Many arson incidents are purely opportunistic, meaning there was a ready supply of combustible materials against the building which the arsonist used. So the location and occupancy type of your organisation may impact how attractive you are to potential arsonists. The threat from past and present employees who wish to cause damage is rarer.

To minimise the risk of arson, focus on your premises, location, specific risks, and the controls needed.

Some simple and cost-effective measures to lower your risk

- Review and upgrade internal and external security, making it harder for intruders to gain access.
- Ensure the site is well lit, particularly in areas that can be viewed by passers-by or neighbours, and regularly review lighting effectiveness.
- Consider installing CCTV in high-risk locations.
- Ensure external rubbish is cleared regularly and do not allow the storage of combustible items close to the building (for example, pallets and plastic furniture).

- Where possible, secure waste bins and skips at least 10 metres from buildings. This reduces the risk of fire spreading and removes potential access points to low roofs too.
- Avoid installing litter bins on walls.
- Where practical, relocate sheds and temporary buildings at least 8 metres away from buildings.
- Ensure flammable liquids and gases are securely stored away from buildings. Ensure canisters that might explode are stored in secured steel cages to prevent rocketing should they ignite[4].
- Conduct routine inspections of high-risk sites.
- Regardless of occupation level, procedures and maintenance schedules should be kept up-to-date, with an effective incident reporting procedure in place.
- Avoid parking vehicles close to buildings, especially outside normal operating hours.
- Secure all doors and windows and set alarms at the end of each day, an end-of-day routine with a comprehensive check of internal and external security, waste control measures and securing the premises is highly recommended.
- Don't allow visitors to remain on site after close of business, check quiet areas such as toilets and storerooms before closing to ensure no-one is missed.
- Invest in arson training as part of employee induction and ongoing safety training, also encourage staff to report suspicious activity.
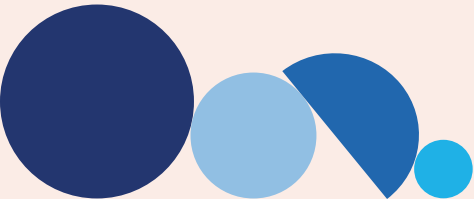
Control Measures

🔥 External Combustible Materials

Usually, this type of risk can be minimised through storing materials away from the building. Aim for clearance of 8-10 metres around the building, along with 2 metres clearance from perimeter fencing. Where this isn't possible, consider the following additional measures:

- Storing combustible materials inside when closed for business.
- Keeping yard areas free of trade and other combustible waste.
- Building a secure storage compound outside to store combustible materials and waste.
- Using a secure container (such as a shipping container) to store combustible items (like wooden pallets) externally.

Waste skips and bins also provide opportunity for fire to spread to buildings. Here's some risk control measures to consider:

- Strong static waste skips/bins at least 10 metres from the building but 2 metres inside perimeter fencing.
- Ensuring skips have metal lids and are locked shut out of business hours.
- Transportable bins that can be wheeled inside the premises when closed or replaced with metal bins with lids that can be closed and locked out of business hours.
- Securing transportable bins by locking them to a metal stand as far from the premises as possible to prevent them being wheeled close to the building before being set alight.

🌱 Vegetation

Overgrown weeds and vegetation close to buildings can provide another source of ignition for an arsonist. In dry, hot weather they can be set alight. They can also help arsonists hide from passers-by while starting a fire. By keeping vegetation no more than 1 metre high, you'll help prevent this.

Please note that the use of heat-based weed burners is classed as hot work so a Hot Work Permit will be required. Those that involve naked flames are particularly high risk and must not be used in close proximity to buildings, especially those with combustible construction.

Temporary Buildings

Temporary buildings, such as portacabins, should be kept as far from the main buildings as possible (preferably 10 metres) especially if they are constructed from combustible materials.

If the temporary building has any voids beneath the floor, these should be securely boarded over to prevent combustible waste piling up under the building.

Perimeter Security

The security of a site starts at its perimeter. If possible, use security fencing to keep intruders out. Ideally a fence and its gates should be 2.4 metres high and of steel palisade or weldmesh construction. In areas of high arson risk, you may also need anti-climb protection on top of fencing[5].

Where it's not possible to fence off the full perimeter, work out if certain areas could benefit from other measures. For example, flat roof areas can have anti-climb products on edges and downpipes. External staircases may need additional security so only authorised individuals can access them.

Building Security

When you're assessing physical security, it's worth considering the following measures:

- All access doors to be fitted with suitable locking devices that are secured out of working hours[6].
- Door frames are securely attached to surrounding brickwork/steel frame.
- Accessible windows secured with key-operated window locks that are secured out of working hours.
- Louvre windowpanes are securely attached to their frames, making it impossible to remove the panes of glass.
- Additional window security (grilles, bars, shutters) is in good condition and secured out of working hours.
- Letterboxes open onto non-combustible surfaces and mail is regularly collected and consider anti-arson letterboxes in high-risk areas[7].
- Outbuildings/external storage containers secured out of working hours.

The level of security should reflect the level of arson exposure. Higher-risk buildings should have higher levels of physical security, for example, roller shutters installed to protect door and window openings.

Electronic Security

Installing electronic security systems[8] can boost your security and reduce risk of arson. Intruder alarm systems should be linked to a remote monitoring centre to ensure an automatic response from police and keyholders if the alarm is triggered. It's usually possible to link automatic fire detection systems to remote monitoring too, which ensures a prompt response from the Fire Brigade if the alarm is activated outside working hours[9].

In unoccupied buildings where services have been cut, you can hire temporary intruder alarm systems that use GSM (mobile phone network) technology to transmit alarm activations. Smoke detectors can usually be wired into these systems enabling early response to fires.

CCTV can act as a visual deterrent, especially when cameras are located high up on external parts of the building[10]. To maximise its effectiveness, make sure the areas covered are well lit which is a deterrent in itself. Ideally, CCTV should be remotely monitored so intruders can be detected promptly before damage can be caused. Speaker systems that broadcast voice commands at the site are often enough to deter would-be arsonists. If it's not possible to remotely monitor the CCTV, then make sure footage is backed up onto a hard drive, so you have the evidence you need to prosecute intruders.

Access Control

Uncontrolled access to your premises may mean unwanted visitors gain entry to parts of the site. Ideally, visitors should be allowed in via a single entrance with suitable access controls in place to stop people wandering unchecked through the building.

Access control measures that can be installed[11]

- **Combination code door locks** – easy to fit and low cost.
- **Electronic code door locks** – like combination locks[12].
- **Door entry systems** – these can be audio only or video monitored. They can include an electronic lock on the door that can be remotely unlocked to allow people to enter without staff needing to be on site. Alternatively, key fobs can restrict access depending on level of authority, this does not include 'smart locks' that are controlled via wireless devices.
- **Security guarding** – having a person present to control access to the building[13].
- **Visitor badges** – staff can politely challenge any visitors without badges to ascertain if they are authorised to be there.
- **Biometric systems** – fingerprint or iris verification system[14].

It's also important to make staff are aware of the potential for 'tail-gating' when using access-controlled doors. This is a common way that unauthorised individuals gain entry.

Fire Protection Equipment

This is not a replacement for risk reduction measures. It's essential to implement measures, such as minimising the source of combustible materials, controlling access to the building, and having intruder detection in place.

But if all the controls ultimately fail, then a comprehensive fire detection system with remote signalling will help ensure a prompt response from the fire service.

If your building benefits from a fixed fire protection system, such as a sprinkler system, this is designed to control a fire until the fire service arrives to extinguish it. It's important to ensure that your sprinkler system is adequately designed, installed, and maintained to ensure it works when you need it most.

It's important to be aware that fire detection and firefighting systems will be vulnerable to sabotage by potential arsonists, so you should restrict access to control equipment, especially sprinkler systems.

Sprinkler systems have an excellent track record in controlling fires but are not normally designed to control an external fire set by an arsonist using pallets or bins unless there are external sprinkler heads under a canopy. This is why it's crucial that external waste is controlled to manage this risk[15].
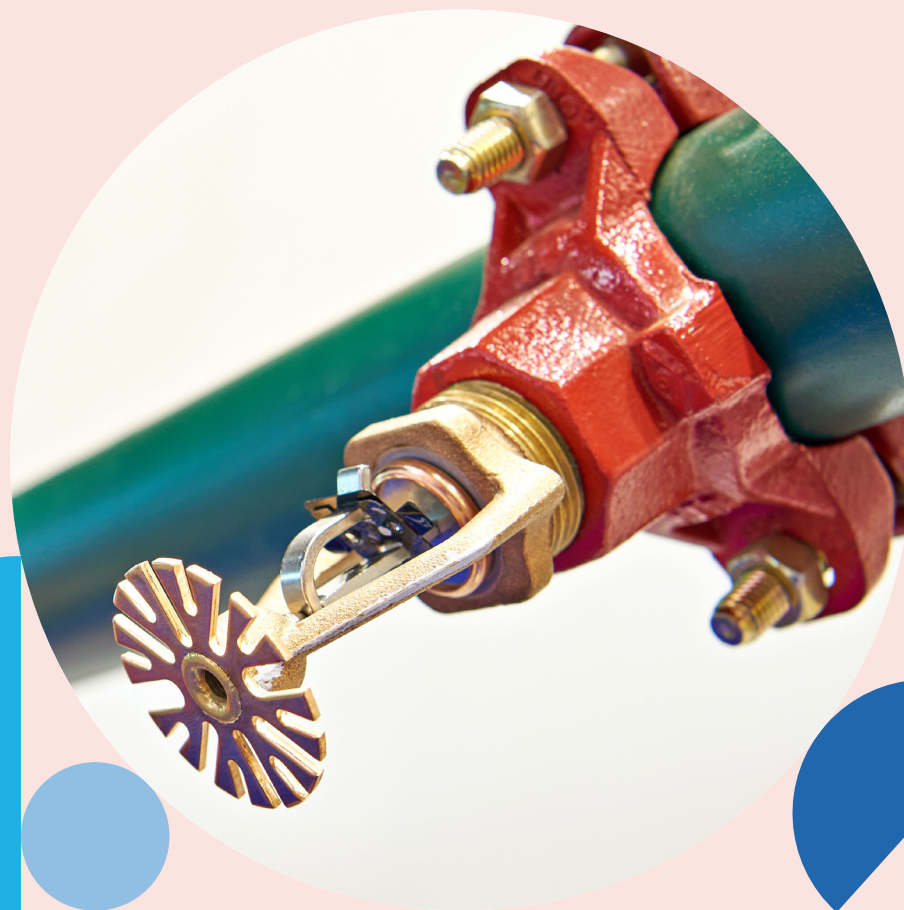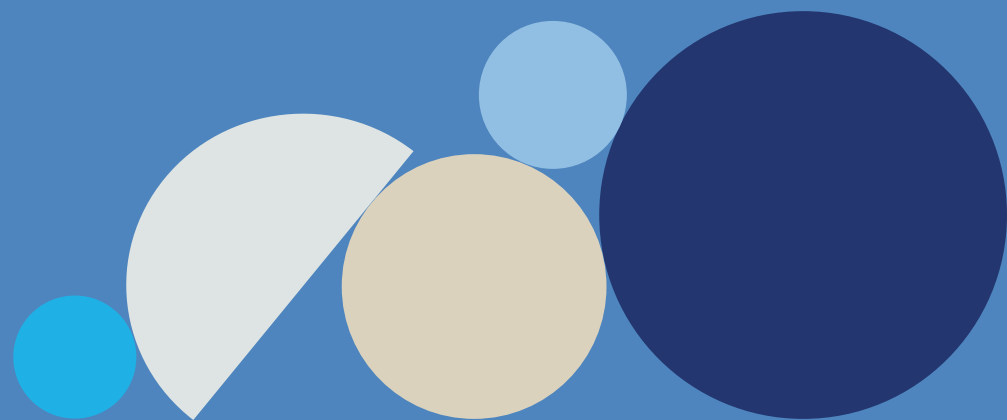
Conclusion

By completing a risk assessment and implementing the measures we've outlined, you can significantly reduce the risk and impact of arson on your property. In turn, this helps to protect lives, livelihoods, and your business.

Key takeaways

- The risk from arson might be higher than you think, for example a cigarette deliberately discarded into a waste bin against the building. One simple act can have devastating consequences to a business and the community it is located in.

- Arsonists are often opportunists, so conducting an arson assessment that limits access to combustible materials is a large step towards minimising the risk. Beyond that, invest in perimeter security, staff training, and electronic security measures will further help reduce the risk.

- Finally, ensuring your fire detection and sprinkler system (if one is installed) are operational and have remote signalling will help limit the damage if an arson loss occurs.

Zurich Resilience Solutions

For further information about any of the topics mentioned in this guidance, please speak to your local Zurich contact, or email Zurich Resilience Solutions at zrs.property.uk@uk.zurich.com

References

1. https://www.gov.uk/government/statistics/fire-and-rescue-incident-statistics-england-year-ending-march-2022

2. RISC Authority document RC48 – Arson Prevention: The protection of premises from deliberate fire raising.

3. An arson risk assessment should form an integral part of the fire risk assessment conducted as part of the Regulatory Reform (Fire Safety) Act 2005 for England and equivalent legislation for Scotland and Ireland.

4. For further details on classification of aerosols and storage requirements, refer to documents NFPA 30B (code for the manufacture and storage of aerosol products), RISC Authority RC19 (recommendations for storage of aerosol products), and RISC Authority RC8 (recommendations for the storage use, and handling of common industrial gases in cylinders).

5. For further guidance on perimeter security system solutions, please refer to RISC Authority Site Security Briefing Note: External and Perimeter Security Systems.

6. Expectation of mortice deadlocks having a minimum of 5-lever or 6 pin-tumbler operating mechanisms and box steel striking plates of complimentary strength. Locks to adhere to BS3621, BS8621 or BS10621 for timber doors, and PAS3621, PAS8621 or PAS 10621 for plastic doors.

7. Letterboxes to meet standard BS EN 13724, with corrosion resistance meeting standard EN 1670.

8. Security systems to adhere to NFPA 731 standards.

9. Intruder alarms to adhere to BS EN 50131-1 (applying to all new systems and systems that have been significantly modified), or BS 4737 (for systems installed prior to the 1st of October 2005) – installed and maintained by a company which is acceptable to the local Police Authority, and which is registered with a UKAS accredited intruder alarm inspectorate.

10. Detector activated surveillance alarm systems to comply with BS8418 (British Standard for Detector Activated CCTV Systems).

11. It is important to check whether the locking system of your access control conforms to British standard. Try the Master Locksmith Association site for lock conformity information: https://www.locksmiths.co.uk/faq/what-are-bs3621-british-standard-locks/

12. Mechanically operated locks, latches and locking plates to be classified to BS EN 12209 and meet EN 1670 corrosion resistance standards suitable for the type of use.

13. Security patrols and or manned guarding undertaken by staff provided by companies licensed by the Security Industry Authority Approved Contractor Scheme (SIA- ACS) or the National Security Inspectorate (NSI).

14. For more information about the different types of systems and the pros and cons of biometric access, go to the National Cyber Security Centre's guidance page: https://www.ncsc.gov.uk/collection/biometrics/understanding-biometrics

15. Automatic sprinkler systems are to be installed in accordance with BS EN 12845 including LPC bulletins (United Kingdom) "LPC Rules for Automatic Sprinkler Installations Incorporating BS EN 12845". Sprinkler systems should be maintained and tested in accordance with LPC Technical Bulletin TB203 'Care and maintenance of automatic sprinkler systems, and FPA sprinkler testing and maintenance guidance.

Arson Checklist

Question		Answer	Comment
1.	Have you completed a site-specific arson risk assessment and confirmed that any action points have been completed?	☐ Yes ☐ No	
2.	Is your site perimeter security, including vehicle and pedestrian access points, adequately secured during the daytime and out of hours?	☐ Yes ☐ No	
3.	Have you assessed the ease of access onto low level roofs and taken steps to restrict access if required?	☐ Yes ☐ No	
4.	Do you have a procedure in place to ensure that site is effectively secured 1) during working hours 2) when the site has limited numbers of staff on-site and 3) for closing down the site?	☐ Yes ☐ No	
5.	Do you have security lighting in place with vegetation cut back to ensure there is good visibility?	☐ Yes ☐ No	
6.	Have you completed a review of your CCTV system in the last 3 years to ensure it remains fit for purpose?	☐ Yes ☐ No	
7.	Does your CCTV benefit from 24-hour remote monitoring by an accredited company?	☐ Yes ☐ No	
8.	Have you completed a review of your intruder alarm system in the last 3 years to ensure there are no gaps in the coverage?	☐ Yes ☐ No	
9.	Does your intruder alarm include remote monitoring to an approved Alarm Receiving Centre?	☐ Yes ☐ No	
10.	Do you have two keyholders, or a professional keyholding service, that can respond to an intruder alarm activation?	☐ Yes ☐ No	
11.	Do you have a full police response in the event of an intruder alarm activation?	☐ Yes ☐ No	

Arson Checklist (continued)

Question		Answer	Comment
12.	Are all moveable waste bins located in a secure compound or chained to posts 10 metres from buildings and 2 metres from perimeter fencing? If the answer is no, what additional controls are in place?	☐ Yes ☐ No	
13.	Do you have a policy in place to ensure any temporary skips, or skips brought on-site by contractors, are placed 10 metres from buildings?	☐ Yes ☐ No	
14.	Are smaller litter bins fixed in place, regularly emptied and fixed 5 metres from buildings?	☐ Yes ☐ No	
15.	Are pallets located at least 10 metres from buildings and 2 metres from perimeter fencing?	Yes No	
16.	Are any external combustible items, structures, or temporary buildings at least 8m from buildings and 2m from perimeter fencing?	☐ Yes ☐ No	
17.	Are flammable liquids/gas cylinders secured in purpose-built storage cages away from buildings and in steel cages with appropriate segregation of the different types?	☐ Yes ☐ No	
18.	Has all vegetation on site, especially near buildings, been maintained and kept to below 1m in height?	☐ Yes ☐ No	
19.	Is there a planned schedule of routine site inspections in place?	☐ Yes ☐ No	
20.	Do employees receive training in relation to arson risks such as maintaining good housekeeping and control of waste?	☐ Yes ☐ No	

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Zurich Resilience Solutions UK. Risk Support Services, 6th Floor, The Colmore Building, 20 Colmore Circus, Queensway, Birmingham B4 6AT

For further information about any of the topics mentioned in this document please speak to your local Zurich contact, or email Zurich Resilience Solutions at zrs.enquiries@uk.zurich.com or alternatively call this number +44 (0) 121 697 9131

For more information, please visit https://zrsmarketplace.zurich.com/uk

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Registered Office: The Zurich Centre, 3000 Parkway, Whiteley, Fareham, Hampshire PO15 7JZ

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