# Guidance for sprinkler protected risks

This document outlines our general requirements for sprinkler protection.

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**Introduction**

The history of fire sprinklers in the UK started almost two centuries ago at the Theatre Royal, Dury Lane. They are now widely recognised as the most effective way to ensure that fires are suppressed or even extinguished before the fire service arrive. They save lives and reduce injuries, protect firefighters, and reduce the amount of fire damage to both the property and the environment.

Sprinkler systems are very reliable, there's evidence that 94% of the time sprinkler systems operate. Furthermore, it is evident that when they do operate, they extinguish or contain the fire on 99% of occasions and are therefore very effective too.

This document outlines our general requirements for sprinkler protection in relation to new installations, fit out works and alterations applicable for the majority of circumstances. It cannot cover every eventuality. Any specific queries in relation to the guidance contained within this document should be directed to your insurance broker or Allianz Fire Protection Loss Control Engineer.

**Default level of sprinkler protection**

Only sprinkler protection designed, installed and maintained in accordance with LPC Rules for Automatic Sprinkler Installations (incorporating BS EN 12845) protecting the whole building (except permitted or necessary exceptions adequately fire separated) will receive full recognition from Allianz Insurance.

Protection installed to any other standard will be graded accordingly by comparison with the level of protection afforded by the above standard.

Only products listed by the Loss Prevention Certification Board in their 'List of approved Fire and Security Products and Services' may be used unless prior agreement in writing is obtained from Allianz.

### Installation/maintenance contractors

Sprinkler systems need to be installed and maintained in accordance with LPC Rules for Automatic Sprinkler Installations (incorporating BS EN 12845) by a contractor with suitable third party approval.

It is simple to find approved contractors on RedBook Live or IFC Certification.

### Weekly Sprinkler Installation Testing

Sprinkler installations need to be tested weekly by competent person(s) in accordance with a suitable risk assessment/safe system of work. The results of the tests need to be recorded in a suitable Sprinkler test card(s).

Allianz sprinkler test cards are available here (and can be used electronically or printed off).

An installation card is to be completed for each control valve set. A pump card is to be completed for each separate fire pump or each stage of each separate fire pump (in the case of multi-stage pumps).

### Impairments

An impairment occurs when a fire protection or detection system is taken out of service, either wholly or in part, planned or unplanned.

The presence of such systems form an essential part of the insurers assessment of risk and it is essential that Allianz be informed of impairments expected to exceed 10 continuous hours in duration.

The Allianz impairment form can be found here. This should be submitted to Allianz Insurance via the insurance broker at least 48 hours in advance of a planned impairment and as soon as possible for an emergency impairment.

Sprinkler systems need to be installed and maintained in accordance with LPC Rules for Automatic Sprinkler Installations.

### General precautions during impairments

An impairment supervisor should be designated responsibility for the following:

- Ensuring that work is completed promptly and during daylight working hours so far as possible, so that the sprinkler system remains inoperative for as short a time as possible. As much of the installation as practicable should be retained in an operable condition by blanking-off pipework feeding the area where work is taking place.

- Before the sprinkler installation water supply is isolated a thorough examination of every part of the premises must be made to ascertain that there is no indication of fire. The impairment supervisor is responsible for authorising isolation of the supply and ensuring that it is reinstated on completion of any work required.

- Smoking must be strictly prohibited during the progress of the work.

- When an sprinkler installation is rendered inoperative during working hours managers, supervisors or heads of department must be notified, so that, in case of fire, the best possible use may be made of portable Fire Extinguishing Appliances.

- A sufficient supply of portable Fire Extinguishing Appliances must be held in special readiness for immediate use with an appropriate number of trained personnel available to handle them.

- Hot Work/welding of sprinkler pipework is to be avoided. Where such work is unavoidable a Hot Work Permit safe system of work (approved by Allianz Insurance plc) must be implemented. All other hot work processes are to be avoided during sprinkler shut down periods.

In some circumstances it may also be necessary to assign a Fire Watch for the area for the duration of the impairment. This can consist of a person conducting continuous tours of the area, or trained employees continuously working in the affected area. Procedures to be followed on discovery of a fire must be communicated to all employees.

### Alterations to sprinkler protection

Under normal circumstances the presence of sprinkler protection will form an essential part of the insurers assessment of risk at inception or renewal. It is therefore essential that Allianz Insurance are notified of any significant alterations affecting the sprinkler protection provided. For example fit out works, refurbishment, building extension, building layout alterations, new machinery or racking.

Consultation with insurers in relation to the property protection impact of such works is necessary, in addition to any consultation with life safety Authorities Having Jurisdiction.

Details of any proposed significant changes to sprinkler protection should be notified via the insurance broker. It is not necessary to notify Allianz Insurance of very minor alterations:

- Alterations to protection requiring no design work.
- Alterations to second fix pipework only, i.e. arm pipes and flexible connectors requiring no alterations to first fix pipework and no change in the number of sprinkler heads.
- Extensions/alterations to protection requiring design work but no hydraulic calculations, involving less than 10 heads fed from a single connection taken upstream of any existing design point.

In all cases, alterations are to be undertaken by a sprinkler contractor with suitable third party approval with design and installation in accordance with LPC Rules for Automatic Sprinkler Installations (incorporating BS EN 12845).

### Sprinkler protection design approval

Design drawings for modifications to existing sprinkler installations (except those mentioned in the previous chapter) are to be submitted to Allianz Insurance for approval via the insurance broker at least two weeks before work is due to commence.

Allianz Insurance will endeavour to review and issue comment or approval within seven days of receipt of all relevant information.

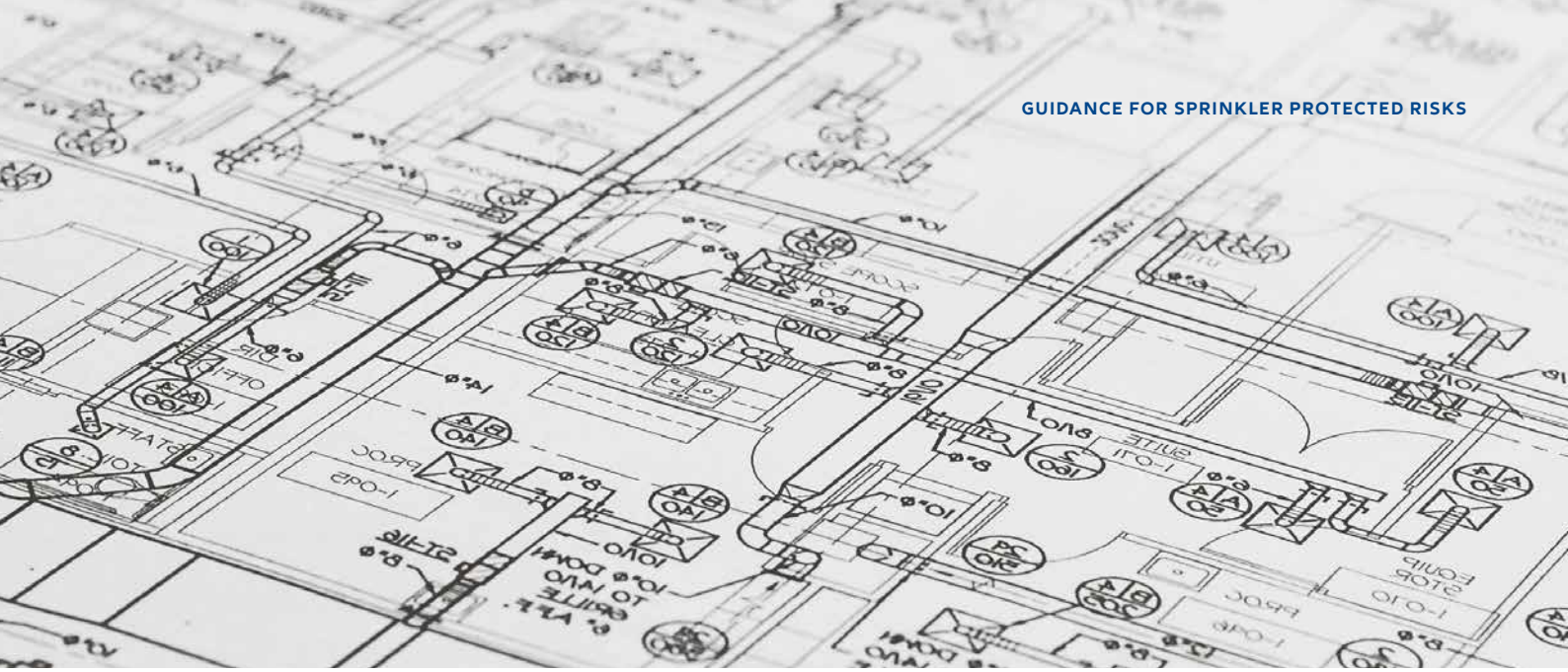
The submitted drawings should be 'Approval Issue'. Partial, preliminary, provisional or subject to survey designs will not be accepted. The drawings must include sufficient basic information for assessment (e.g. locations for pipe supports, dimensions, sections, detail drawings, ceiling finishes, area occupancies etc.) and must be accompanied by appropriate hydraulic calculations.

If the chosen sprinkler contractor requires supervision for the design work their drawings must be over-stamped by the supervising organisation or the submission must be accompanied by the supervisors design review.

Any deviations within the design to LPC Rules for Automatic Sprinkler Installations (incorporating BS EN 12845) must be notified on the drawings or on a GN10 schedule for consideration.

For larger and more complex projects an on-site meeting may be required with an Allianz Fire Protection Loss Control Engineer.

On completion of the works the sprinkler contractor is to issue an LPS 1048 Certificate of Conformity. Where an LPS 1048 Certificate of Conformity cannot be issued, a contractor's Completion Certificate is to be issued and held on record by the Building Management.



## Fit out and refurbishment

**General requirements**
In large multi-tenure buildings it is important to consider the effects of building work on unaffected parts of the building which may remain occupied.

Where possible works should be undertaken in compliance with the latest "Joint Code of Practice on the Protection from Fire of Construction Sites and Buildings Undergoing Renovation".

Hot works should be avoided where possible. Where hot working is unavoidable it must be controlled under a hot work permit system.

Work is to be organised to minimise the risk from fire. This may include some or all of the following precautions:

- The work area should be compartmentalised from the remainder of the building. Where the fabric of the building does not naturally provide fire separation consideration should be given to providing such separation on a temporary basis.
- Fire stopping works should be completed progressively as early as possible to ensure that the integrity and insulation of fire rated elements are maintained.
- Work on multiple floors at the same time should be avoided, particularly work on concurrent floors. If possible sprinkler protection should be maintained on at least alternate floors. Where work on multiple or concurrent floors at the same time is unavoidable additional precautions should be considered (e.g. a continuous fire watch).
- Fire detection systems should remain operational. Where an existing system is not present or the nature of the work being undertaken means that existing detection is unsuitable a suitable temporary alternative must be provided (unless a manual fire watch is in place).
  Temporary systems should link into the main building fire alarm system or signal to a permanently manned area where available.
- Where traditional compartmentation or detection options are impractical or compromised a permanent manned fire watch should be provided.
- Contractor welfare facilities inside the work area should be provided with fire alarm detection and sprinkler protection where possible.
- Storage of combustible materials within a work area without sprinkler protection should be limited to the amount required for that day's work. Materials should be delivered to site on a just in time basis. If a bulk storage area is provided on the site it should be a separate fire compartment ideally provided with suitable sprinkler protection.

**General requirements for sprinkler protected buildings**

- Where possible general combustible fire load should be removed (furniture etc.) before any sprinkler protection is impaired. Sprinkler protection should be restored/commissioned as early as possible and on a phased floor by floor/area by area basis for larger projects, prior to the introduction of the general area fire loading (furniture etc).

- Ceiling rafts and acoustic panels are to be protected in accordance with LPC Rules for Automatic Sprinkler Installations (incorporating BS EN 12845).

- Where sprinkler protection is only provided at ceiling level and is not present in the void above there must be no openings in the suspended ceiling (horizontal or vertical) which would allow fire to be transmitted from the room below into the ceiling void in the incipient stages.

- Where a suspended ceiling is present it must be maintained at all times. Missing tiles can allow heat to bypass ceiling level sprinkler protection

- Hard piped connections to ceiling level sprinkler heads are preferred. Where it is necessary to use flexible connections they should be of the braided type. Only flexible connectors complying with LPS1261 may be used and their installation must comply with LPC Rules for Automatic Sprinkler Installations (incorporating BS EN 12845), the manufacturer's instructions and certification listing.

- The presence of a sprinkler installation can introduce an additional source of potential water damage. In an effort to minimise this risk:
  - **i** Protection must be properly designed and suitable for the environment in which it is installed. It must also be adequately maintained by a company with suitable third party approval.
  - **ii** Protection must be adequately protected from mechanical damage (eg. vehicle/fork lift truck impact).
  - **iii** Particular care must be taken to ensure that areas protected by wet sprinkler installations are maintained above 4°C at all times (adequate heating/frost protection measures).
  - **iv** Corrosion or deliberate acts may also lead to water damage.
  - **v** It is essential that the sprinkler equipment is linked to alarm systems to provide a warning if the installation activates. Signals must be attended by suitably trained personnel, who may be able to act to limit water damage in the event of a non-fire incident.

- Walk in refrigerated stores are not a permitted exception for sprinkler protection and must be internally sprinkler protected using dry pendent drops.

**Office Buildings**

In some larger buildings the potential for fire/smoke spread between floors via an atrium must be considered during sprinkler zone impairments. Often the office area sprinkler protection is part of a fire strategy to prevent early failure of the atrium glass (which is not normally fire rated). The atrium glass should be additionally protected on the accommodation side with a temporary fire rated barrier (minimum 1 hour fire resistance), before the sprinkler protection is impaired to allow work to commence.

Occupiable pods are not a permitted exception for sprinkler protection within LPC Sprinkler rules and will require internal sprinkler protection. Allianz will accept individual pods (in excess of 2.4m away from any others) taking up a floor area of $1m^2$ or less without internal sprinkler protection. Any larger pods, or an accumulation of pods with a floor area greater that $1m^2$ will require internal protection.

It may be possible to protect pods with open or louver type ceilings from the ceiling sprinkler protection above. Full details must be provided to Allianz Insurance if this is the intention.

Where an opening in a fire rated floor is made to install an accommodation staircase it should be protected by a fire rated hoarding or barrier, which should remain in place until the accommodation area sprinkler protection and any other protections required by the fire strategy are fully commissioned.

If there is a preference not to install sprinkler protection within IT server rooms/comms rooms/hub rooms then a suitable alternative fixed fire suppression system must be installed instead.

## Retail

In most modern shopping centres the shop frontages opening into the Malls are not fire rated. Sprinkler protection in the retail units is generally provided as part of a fire strategy to ensure that Mall areas remain tenable escape routes in the event of a fire. Therefore a suitable fire rated hoarding (normally with a fire rating of at least 60 minutes integrity) must be constructed across the unit frontage before unit sprinkler protection is impaired/fit out or refurbishment work starts.

In most shopping centres each retail unit is considered to be a separate sprinkler zone (larger units may have further zoning per floor or even their own control valve set). A zone isolation valve is provided for each sprinkler zone (or must be provided during any fit out or refurbishment if they are not already there). These valves must all be electronically monitored fully open. A fault signal is to be shown on the unit fire alarm panel and at the main centre fire alarm panel/sprinkler monitoring panel, if any zone isolation valve is not fully open.

A flow switch is also provided for each sprinkler zone (immediately downstream of the zone isolation valve).

This must provide a fire signal at the unit fire alarm panel and at the main centre fire alarm panel/sprinkler monitoring panel, if activated.

Regular flow switch testing is essential. Suitable facilities must be provided to allow regular flow switch testing with minimal disruption (e.g. a Zonecheck or similar device or a hard piped test line to drain). Such facilities must be provided during any fit out or refurbishment if they are not already installed.

Most UK shopping centres are provided with Ordinary Hazard Group 3 sprinkler protection. It is important that retailers limit their storage arrangements to the storage heights permitted by this level of sprinkler protection:

| **Storage method** | **Category of goods** (Please consult your Allianz Fire Protection Engineer for guidance) | | | |
|---|---|---|---|---|
| | **1** (eg. Ceramics) | **2** (eg. Leather goods) | **3** (eg. Clothing) | **4** (eg. Foam plastics) |
| Freestanding | 4.0 | 3.0 | 2.1 | 1.2 |
| Other (eg. shelving hanging garments etc.) | 3.5 | 2.6 | 1.7 | 1.2 |

*Minimum 500mm required from the top of any storage to the sprinkler heads above, throughout the protected compartment.*

### Industrial/warehousing

It is important that the occupant of a sprinkler protected building is aware of the limitations of the sprinkler protection provided in terms of fire load/storage arrangements.

Fires in racked storage can spread very quickly and are a particular challenge for sprinkler protection. In general it is essential that longitudinal flues between back to back racks of at least 150mm and transverse flues between pallet loads of at least 75mm are maintained. The flues must be fully aligned for the full height of the rack, to promote vertical rather than horizontal fire spread and allow water to penetrate the rack.

Adequate fully aligned flues and clearances are also essential when in-rack sprinkler protection is employed. Specific/alternative flue requirements may apply, depending on the particular sprinkler design. Please consult your Allianz Fire Protection Loss Control Engineer for further details if required.

In general solid or slatted shelving should not be added to racking in sprinkler protected buildings unless the sprinkler protection was specifically designed to accommodate it. Solid or slatted shelving may interfere with the flue requirements within LPC Rules for racked storage and should not be introduced post design.

### Car parks/parking and vehicle accessible areas within buildings

For insurance purposes only sprinkler protection designed, installed and maintained in accordance with LPC Rules for Automatic Sprinkler Installations (incorporating BS EN 12845) will receive full recognition from Allianz Insurance. This would currently require High Hazard Process Group 3 sprinkler protection within car parks/car parking areas of a building. Where fully effective sprinkler protection is required for underwriting purposes this level of sprinkler protection will be required.

Often the sprinkler protection in a building is being installed primarily to satisfy a life safety objective, rather than for property protection/ insurance purposes. In this instance Ordinary Hazard Group 2 protection may be considered appropriate by the relevant Authorities having jurisdiction.

In many mixed use Ordinary Hazard occupancy/residential buildings the provision of a high hazard water supply for the car park protection is not considered preferable (due to space limitations).

Allianz will consider car parking areas of a building provided with Ordinary Hazard sprinkler protection on their individual merits.

For new buildings/developments, enhanced protection from existing planned Ordinary Hazard water supply may be possible. Please consult with your Allianz Fire Protection Loss Control Engineer who may be able to suggest an acceptable engineered compromise solution.

Guidance on the premises and charging of electric vehicles | Allianz Insurance

For more information read our business risk support pages

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