Rapidrop Global Ltd

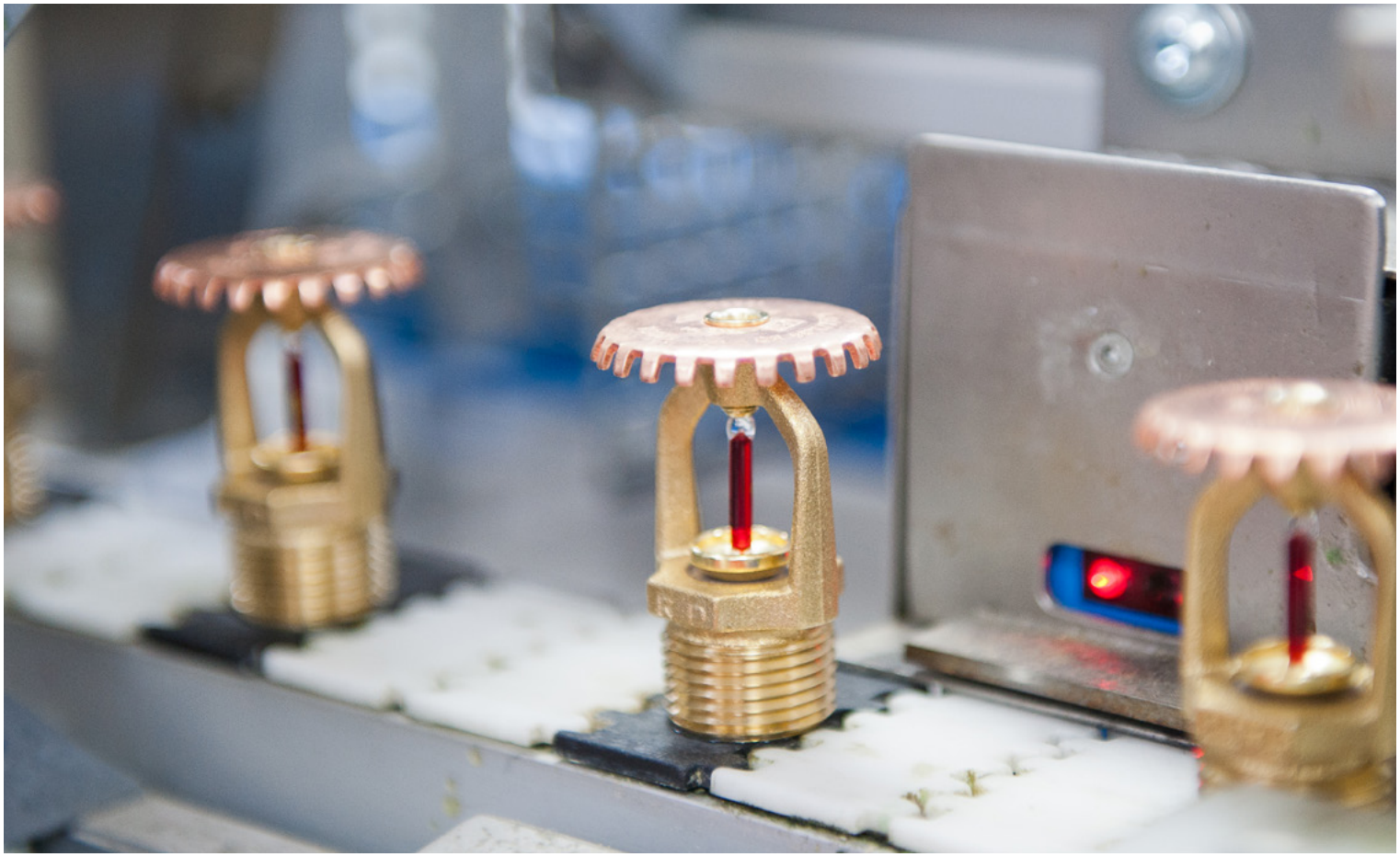
British Manufacturer of Fire Detection & Suppression Equipment

Fire Sprinkler Applications

Rapidrop Global Ltd

Rapidrop Global Limited is one of the leading UK manufacturers of fire sprinkler system products serving the needs of the fire detection and suppression industry. With a comprehensive product range Rapidrop has established a world-class reputation for quality and service.

As part of Rapidrop's commitment to fire safety and protecting lives, Rapidrop invests in research and development conducted at its own state of the art test facilities, one of its kind in the UK. Dedicated to innovation, and reinforcing its position in the market place Rapidrop is focused on bringing new products to the market that makes our customers lives easier, safer and better.



Worldwide Sales & Distribution

Rapidrop have worldwide sales supported by a global sales and distribution network with offices and warehouses in the UK, Europe, Africa and the Middle East.

Rapidrop's global reach provides a wealth of knowledge and experience in a range of international environments enabling us to provide tailored solutions and meet project requirements on time and on budget.

Assessed to
ISO 9001-2008
Cert/LPCB ref. 556

MEMBERS OF

International Listings

Rapidrop has established a world-class reputation for quality and innovation delivering solutions in fire protection, safety systems and control solutions. The Rapidrop range includes products which have internationally recognised approvals and listings from FM/UL/VDS and LPCB.

FM

FM Global is a mutual insurance company, that specialises in loss prevention services primarily to large corporations throughout the world in the Highly Protected Risk (HPR) property insurance market sector. The company employs a non-traditional business model whereby risk and premiums are determined by engineering analysis as opposed to historically based actuarial calculations. This approach is centered on the belief that property losses can be prevented or mitigated.

UL

UL is a global independent safety science company with more than a century of expertise innovating safety solutions. UL certifies, validates, tests, verifies, inspects, audits, advises and educates. We provide the knowledge and expertise to help navigate growing complexities across the supply chain from compliance and regulatory issues to trade challenges and market access.

LPCB®

www.redbooklive.com

LPCB (Loss Prevention Certification Board)

The LPCB has been working with industry and government for more than 100 years to set the standards needed to ensure that fire and security products and services perform effectively. LPCB offers third-party approval confirming that products and services have met and will continue to meet these standards. This benefits both specifiers and manufacturers:

Specifiers selecting LPCB approved products reduce fire safety and security risks and demonstrate due diligence (the use of approved products is encouraged by insurers). They also avoid wasting money on purchasing inappropriate equipment, and save time spent on searching for and assessing products and services.

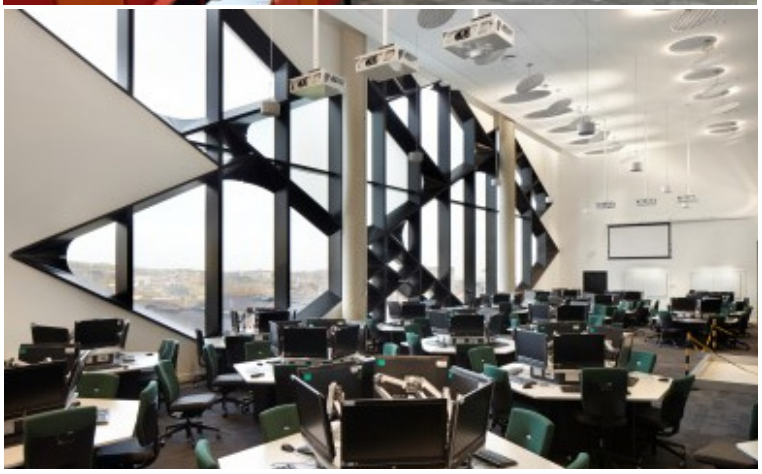
Manufacturers gaining LPCB approval can increase the value and sales of their products, because LPCB approved products are specified world wide and recognised for their ability to conform every time. In addition, third-party approval demonstrates due diligence and reduces liability for manufacturer - and their insurers and customers.

Standards

There are two main standards for sprinkler systems within the United Kingdom:
A Commercial and Industrial standard (BS EN 12845: 2004) as applied to buildings such as Shopping Complexes, Warehousing, Hospitals and Schools.
A residential standard (BS9251: 2015) as applied to Residential Care premises, certain HMO's and domestic dwellings

Sprinkler systems are widely referenced in the guidance to the Building Regulations, Scottish Building Standards and Health Technical Memorandum. (The guidance in Health Technical Memorandum satisfies all the requirements of Part B – 'Fire Safety' of the Building Regulations 2000).



Sprinklers in Schools

Key facts

- In 2006 there were over 1800 fires in schools and educational establishments.
- Around 70% of these fires were started deliberately.
- Every week a school is lost to fire
- There's a 1 in 8 chance of a secondary school having a fire in any given year.
- Direct losses are approaching £100 million per year!

Article from
Bafsa BIM #1

Sprinklers in Schools

On average, each year in the UK there are around 2,000 fires in schools and educational establishments.

Research conducted by the Fire Protection Association (FPA) on behalf of UK insurers reveals 119 fires in schoold between 2009 and 2014 at a cost in excess of £150 million and £1.3 million per incident. However, when uninsured and social costs are taken into account e.g. loss of coursework, teaching aids, community facilities etc, the true cost is far higher.

Fires in schools

- Damage buildings causing massive economic and social impact on the local authority and community
- Remove a place of learning and as a result children may spend formative years in temporary and poor schooling facilities
- Destroy years of pupils' work and sources of reference.
- Destroys potential unrepeatable exam work and potentially destroying children's futures

But above all, the disruption and damage to children's education is immense and something that cannot, if ever, be easily replaced.

A new design code for schools, BB 100, was published in March 2007. This guidance is the national standard for all new schools.

Cost of Sprinklers

The then Department for Education and Skills, in acknowledgment of such growing concerns, commissioned a report into the costs of sprinklers in schools and this was published in 2007. The date shows that the additional capital costs of installing sprinklers in new build schools ranges from just 1.4% to 4.48% of construction costs.

However, if sprinklers are considered at the design stage, it may be possible that the cost of compliance with building regulations can be offset by 'trade-offs' in the reduction of passive fire protection and other fire safety measures that would ordinarily be required by the building control authority. These may include:

- Longer travel distances
- Increased compartment sizes
- Reduced fire resistance in elements of structure
- Reduced requirement for automatic fire detection and manual call points
- Reduction in the number of self-closing fire doors
- Reduction in other fire fighting equipment

Experience has already shown that, in addition to the opportunities indicated above, the ability to allow for more open-plan and innovative designs in schools combined with allowing easier access for those with disabilities has proved sufficiently persuasive for sprinklers to be included in building design.

Installation and Design Guides

Guidance on the installation of sprinkler systems can be found in LPC Rules for Automatic Sprinkler Installations incorporating BS EN 12845: 2009 and the LPC Technical Bulletin 221: 2005: 1 Sprinkler protection of schools.

Selsey Academy suffered extensive damage to its buildings and their contents during a blaze on 21 August 2016 and destroyed three-quarters of the school.

Sprinklers in Healthcare

Benefits of sprinklers in Healthcare premises

- Early attack of a developing fire
- Reduction in smoke logging
- Extended evacuation times required for moving patients
- Larger compartment sizes thus reducing the number of fire doors
- Reduction in fire rating of walls and doors
- Reduced disruption for patients
- Minimise need to move - especially vulnerable patients from theatre/ITU etc

Article from
Bafsa BIM #17

Sprinklers in Healthcare

Introduction

There are a large number of healthcare premises in the UK which are affected by around 50 fires a week and account for approximately 2.4% of all recorded fires in the UK. It should be noted that around 23% of these fires are deliberate.

Most of these premises employ a phased horizontal evacuation should a fire occur, moving patients to an unaffected fire compartment. This invariably requires an extended evacuation time which is more easily achieved where there is a fire suppression system.

A major concern in hospitals in particular is the impact of a fire on patients who cannot easily be evacuated - particularly those undergoing surgical procedures or in intensive or critical care units.

In sprinklered premises, unless a fire actually occurs inside the area in question, evacuation may be deferred unless smoke, heat or flames actually enter the treatment area(s).

Automatic sprinkler systems are now widely accepted as providing a highly efficient and effective means for protecting life and property.

Sprinklers are now installed in an increasingly wide range of properties and occupancies and have an outstanding record of successful operation for over a century, and are recommended by all UK Fire Services.

Applications of Sprinkler Systems

There are many fire safety objectives for different buildings. The most commonly identified objectives are:

- Life safety (protecting means of escape)
- Prevention of fire spread (from building to building)
- Asset protection and business continuity
- Protection of the environment
- Safety of firefighters

Historically speaking, sprinklers have been installed in buildings for more than 150 years and were originally developed as a means of reducing fire losses to premises and their contents. Over recent years there has been a growing recognition of their use as a means of contributing to life safety which is recognized in current guidance to the Building Regulations and Scottish Building Standards.

Health Services' Technical Memoranda 05-02 & HTM 88, SHTM 82

These are some of the areas where sprinklers can be used as a compensation to allow improvement of the normal standards

- Fire resistance of the compartment walls
- Compartment Size
- Glazing in sub-compartment walls
- Fire hazard rooms and areas
- Permitted unprotected area external wall
- Distance to the relevant boundary may be halved
- Number and location of fire-fighting shafts
- Mechanical smoke extraction in basements

However there are only a few circumstances where they are generally mandated. Sprinkler protection is however specified in many local building acts for tall or large buildings. (for more details see BIF 12: Sprinklers and the Building Regulations).

Where sprinklers are mandated or their use is suggested as an option, the circumstances may be:

- To facilitate fire service activities in buildings where external rescue or fire fighting operations are difficult to achieve (e.g. tall buildings that exceed the reach of fire appliances rescue apparatus).
- To reduce the fire hazard in buildings where the occupancy characteristics and the risk to life from fire is considered excessive.
- As a means of alternative compliance where all or part of a fire safety objective cannot be met e.g. where an-open plan layout precludes a protected escape route or evacuation strategies require extended time scales.
- To allow flexibility of design of a building e.g., where an architect wishes to provide a larger open plan area, there is substantial precedent for the convention that the presence of a sprinkler system allows compartment sizes and travel distances to be increased.

Sprinklers in Healthcare

Sprinkler System Operation

Sprinkler systems offer a way of automatically applying water quickly and directly to the seat of a fire. All parts of the protected building are covered by a pipework grid with sprinkler heads fitted at regular intervals. Water is fed to the sprinkler heads from a dedicated water supply, either from a dedicated tank/s and pumps or from the service (towns') main. (See BIF No 13)

Sprinkler heads open independently when their operating temperature is reached and water is sprayed on to the fire. The hot gases from a fire activate the thermal element in the head operate.

Only the sprinklers in the direct vicinity of the fire open, the others remain closed. This limits the water damage to areas where there is a fire and reduces the amount of water used.

Sprinkler heads are generally located near the ceiling and spaced so that there is always a sufficient flow of water to combat fire in the likely area of operation. The flow is carefully calculated so that each head delivers enough water to control a fire, taking into account the size and construction of the building, its use and nature of the contents stored in it. As the water from the sprinkler heads in applied in small droplets, in a finely divided stream, there is no danger of electrical conductions via the sprinkler water. It is equally safe to use sprinklers in kitchens or where hot oil is being used as boil over will not follow sprinkler activation.

In most premises, if a sprinkler opens and water flows through the control valve it also actuates a mechanical alarm outside the building. This feature provides a local alarm without the need for electrical connections. At the same time, most modern systems, even in dwellings, are usually fitted with a flow switch which can be connected to the building's fire control panel and provide a local and remote alarm – this will provide a signal to call fire and rescue service. The sprinkler flow alarm signal can be 'piggy-backed' on any fire or security detection system using a RedCare or similar connection to an alarm receiving station.

Types of Systems

There are several types of installation but the one most commonly used in healthcare premises is the wet type, where the installation is permanently filled with water.

Environmental Issues

There are a good number of environmental reasons for reducing the size and frequency of fires. Any reduction will minimise the volume of toxic gases released to the atmosphere. Even in a minor fire, the products of combustion, including

CO_2 will pollute the atmosphere and contaminate the fire fighting water. This contaminated water is very difficult to contain and often finds its way into water courses and drainage systems.

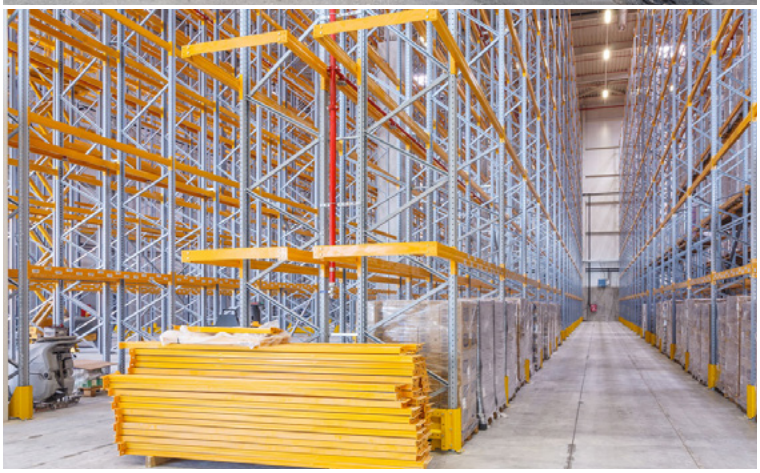
The use of a sprinkler system reduces dramatically the size of the fire by attacking the fire in its early stages therefore reducing smoke production and the amount of water required to control the fire.

Many fires are actually extinguished by sprinkler systems leaving little for the fire and rescue service to do on their arrival.

Fires & Casualties in Healthcare Premises

Year	Fires	Fatal	Non Fatal
2000	**3244**	**4**	**115**
2001	**3348**	**5**	**148**
2002	**2281**	**2**	**108**
2003	**2669**	**4**	**101**
2004	**2491**	**4**	**115**
2005	**2552**	**4**	**130**
2006	**2221**	**5**	**110**

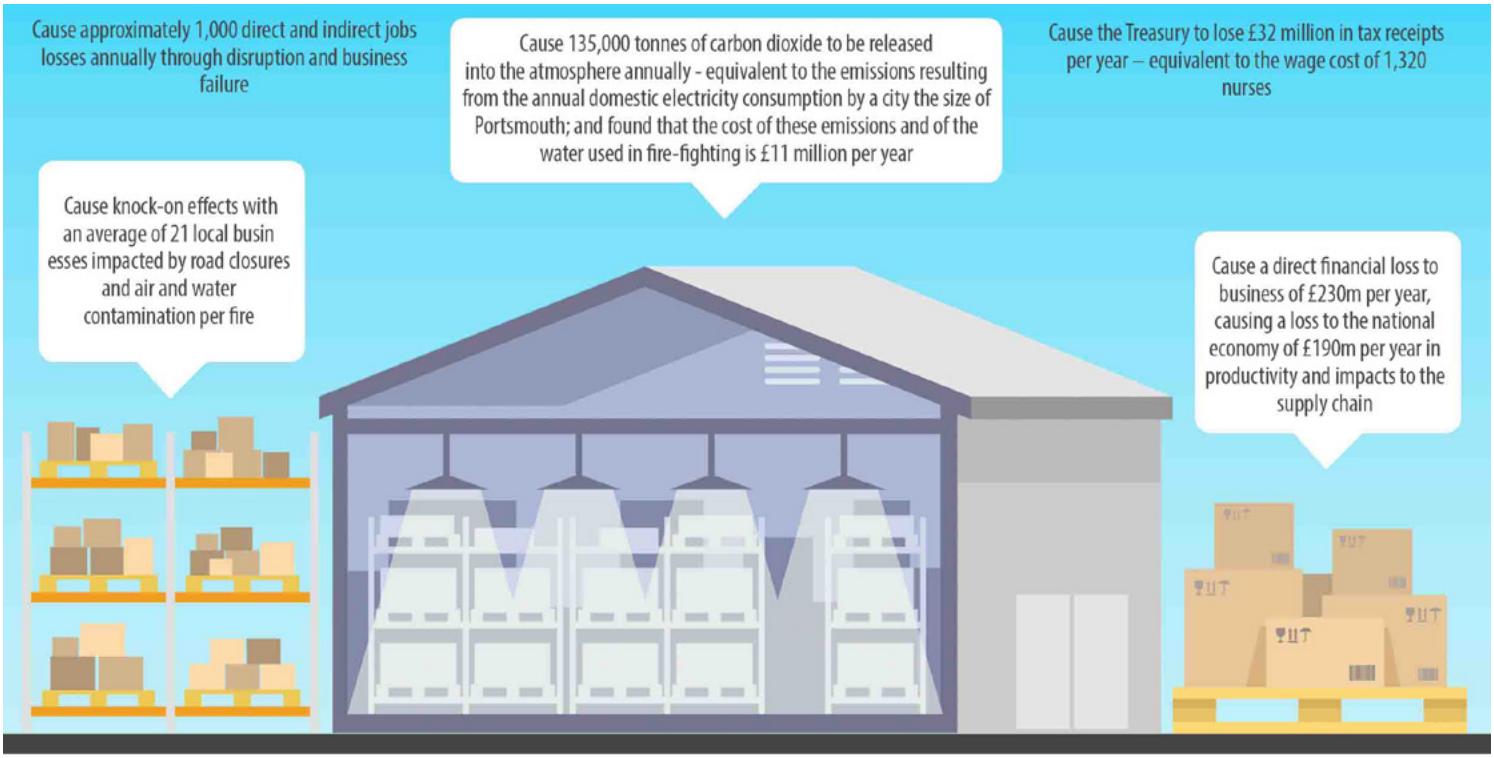
UK Fire Statistics (ODPM/CLG)



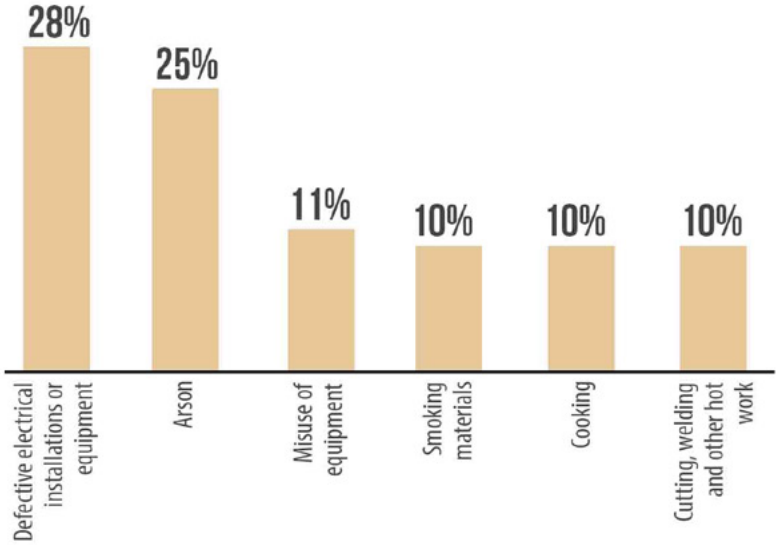
Sprinklers in Warehouses

Article from
Bafsa BIM #5

Sprinklers in Warehouses



THE CAUSE OF WAREHOUSES FIRES



Nearly 30% of these fires occur between midnight and 0600 International statistics show that 97-99% of fires in sprinkler-protected buildings are controlled or extinguished by the systems. Why this success? The success is in part due to the simplicity of the sprinkler system: there are no computers or wiring – so no false alarms.

BENEFITS OF SPRINKLERED WAREHOUSES

- Cost Benefits of Sprinkler Protection
- Environmental issues
- Safety of fire fighters
- High Fire Risk Storage

Sprinklers in Warehouses

Introduction

Fires in warehouses and large single storey buildings are more frequent than is generally thought. Recent research has shown that there are 621 fires in warehouses in England and Wales each year. This means that one in five warehouses in England and Wales will have a fire, requiring the attendance of firefighters, over the course of its lifetime. In Scotland 39 warehouses were affected by fire during 2013-2014.

While there may be fewer fires in warehousing than in manufacturing , the impact on business in financial terms can be disproportionately higher through loss of property, stock and the costs of business interruption. All of these fires have economic, social and environmental costs for the locale, the country, as well industry. A 2014 Cebr study, commissioned by the Business Sprinkler Alliance, looked at the financial and economic impacts of fires in unsprinklered warehouses in England and Wales and found that they:

- Cause a direct financial loss to business of £230m per year, causing a loss to the national economy of £190m per year in productivity and impacts to the supply chain
- Cause approximately 1,000 direct and indirect jobs losses annually through disruption and business failure
- Cause the Treasury to lose £32 million in tax receipts per year – equivalent to the wage cost of 1,320 nurses
- Cause 135,000 tonnes of carbon dioxide to be released into the atmosphere annually - equivalent to the emissions resulting from the annual domestic electricity consumption by a city the size of Portsmouth; and found that the cost of these emissions and of the water used in fire-fighting is £11 million per year
- Cause knock-on effects with an average of 21 local businesses impacted by road closures and air and water contamination per fire

The Cause of Fire

The single, largest cause of fires in warehouses is defective electrical installations or equipment accounting for 28% of fires while another 25% of fires were started deliberately. Other causes include typically:

- Misuse of equipment 11%
- Smoking materials 10%
- Cooking 10%
- Cutting, welding and other hot work 10%

Nearly 30% of these fires occur between midnight and 0600 when there are few staff available to provide any sort of effective response.

Take Steps to Make Your Warehouses Fire Safe

Experience has shown that the most cost effective approach to protect property from fire is to fit an automatic sprinkler system. This will provides reliable detection, alarm (local and remote) and fire suppression at all hours of the day and night, 365 days a year.

International statistics show that 97-99% of fires in sprinkler-protected buildings are controlled or extinguished by the systems.

Why this success?

The success is in part due to the simplicity of the sprinkler system: there are no computers or wiring – so no false alarms. The cost of maintenance is extremely low – running to less than £1000 per year for the average system.

Sprinkler systems have a very long service life, 50 years is common and many systems in use today were originally installed in the 1920s. This is due to strict adherence to standards for components, design and installation.

Systems in the UK are most often installed to BS EN12845: 2015, an exacting standard which has evolved over the years.

Systems may also be installed to NFPA or FM Global standards when requested by the client or insurer. When systems are installed by Third Party Certificated companies, the client will be provided with a Certificate of Conformity under one of the industry's third party certification schemes.

Due to the strict standards in place for sprinkler components, design, installation and the third party certification, the fire insurance industry will normally offer significant premium discounts and or lower policy excesses for premises protected by automatic fire sprinklers.

Where there is an insurance interest, the requirements of BS EN 12845 are often augmented by the need to comply with the Technical Bulletins of the LPC Rules for Automatic Sprinkler Systems or the alternative standards mentioned above.

Sprinklers in Warehouses

How do they work?

It is essential that the supply of water needed by automatic fire sprinkler systems is reliable and guaranteed. This means that water should be supplied directly from a suitably sized service main or other approved sources of water. This could be a river, canal or water storage tank.

However, due to the size, height and fire load in today's warehouses it is likely that in most cases the public water supply will be not be able to provide the necessary pressure and flow rates for the system and therefore it is common for pumps and tanks to be required for reliability.

Sprinkler heads are strategically positioned at roof level, and if appropriate, within storage racking. These heads are connected to the water supply via a network of hydraulically balanced supply pipes, which are distributed throughout the warehouse. Once the sprinkler installation has been activated, the fire is usually brought under control quickly. The system can also operate local alarms to aid evacuation and through an Alarm Receiving Centre alert the fire and rescue service to the fact that there is a fire on the premises.

Water Damage

Concerns are sometimes expressed that the water damage caused by fire sprinklers will be worse than the fire. This is untrue. Only the sprinklers closest to the seat of the fire will operate and in many cases only one or two sprinklers will actually activate. Another common myth is that all sprinkler heads operate simultaneously, this simply does not happen. The water discharged by these few sprinklers is invariably less than the water which would have been used by the fire brigade.

The FPA have said that in most situations sprinklers will only discharge 10-15% of the amount of water needed by the fire brigade to extinguish the fire. More than 100 million sprinklers are installed each year worldwide and every single head is pressure tested prior to leaving the factory. US, Australian and UK research suggests that less than one correctly installed sprinkler in five million will fail by discharging water other than in a fire.

The Legislation

The Westminster government's policy towards fires in workplaces is shaped by two key pieces of legislation:

- The Building Act 1984 – this provides the framework in England & Wales to respond to the challenges posed by fires in commercial premises and dwellings. The framework includes powers to make building regulations that require the implementation if fire safety measures for all new, extended and altered buildings. Approved Document B of the Building Regulations 2000 (as amended) addresses fire safety within buildings and provides practical guidance on ways to comply with the building regulations.
- The Regulatory Reform (Fire Safety) Order 2005) for England and Wales includes fire safety requirements, which involve compliance measures from the business occupying commercial premises.
- The Order states that the onus is on the employer (in a workplace) or owner to ensure that the necessary fire precautions are taken to provide for the safety of the people using the premises and those in the immediate vicinity.

In Scotland, The Building (Scotland) Act 2003 gives Scottish Ministers the power to make building regulations to:

- Secure the health, safety, welfare and convenience of persons in or about buildings and of others who may be affected by buildings or matters connected with buildings
- Further the conservation of fuel and power and
- Further the achievement of sustainable development.
- The Fire (Scotland) Act 2005, as amended, introduced changes to fire safety law in Scotland and repealed previous fire safety legislation. Sections 53, 54 and 56 of the Act 2005 place a duty on employers, employees, managers, owners and others in relation to fire safety.

A lorry fire is contained to outside Sainsburys warehouse as fire sprinklers prevents fire spreading inside

Sprinklers in Warehouses

Cost Benefits of Sprinkler Protection

The installation of sprinklers must be considered at the start of any building project. Why? Because by doing so, developer and business owners can gain a significant return on investment. Sprinklers allow a developer or business owner to:

- Enhance the project design with more open space, extended fire escape travel distance
- Increase the design density of the overall development
- Reduce building costs due to a reduction in passive fire protection elements and ratings
- Increase revenue and profit due to a greater number of units developed
- Increase the sustainability credentials of the building
- Make the project more marketable as it offers a unique selling point to the customer
- Reduce the cost of the sprinkler systems themselves if considered early
- Allow the units to be more insurable with premium reductions in most cases

Safety of fire fighters

Recent cases have pointed out the dangers to which fire fighters are exposed – especially in very large single story buildings. Sprinklers control or extinguish fires before the fire service arrives. They therefore reduce risks to firefighters and benefit the fire and rescue services.

Environmental issues

There are a number of other reasons for reducing fire incidents and losses attributable to fires in unsprinklered warehouses. With the ever-increasing awareness of the impact on the environment of the products of combustion and of contaminated fire fighting water, a reduction of any kind would be beneficial. Products of combustion can travel extensively in the water used for fire fighting, and the contaminants in smoke may be deposited several miles downwind. Likewise, water used may enter domestic or agricultural water supplies and the effects experienced over a wide area.

In 2011, a study by Bureau Veritas Assessing the role for fire sprinklers (commissioned by the Business Sprinkler Alliance) showed the reduction in water wastage and carbon emissions if sprinklers are installed in single-storey commercial and industrial premises. Key findings from the study include the following:

- Between 25 million and 18 billion litres of water are used to fight all unsprinklered commercial and industrial fires nationally per year
- Only 4.3 million litres of water would be used per year to fight these same fires if the buildings were protected by fire sprinklers
- If fire sprinklers were to be commonly installed, the quantity of water used to fight fires would be approximately 0.02% to 17% of the quantity that is currently needed
- Sprinklered fires are estimated to release between 7.8% and 21.6% fewer carbon emissions compared with an unsprinklered fire in a similar building.

High Fire Risk Storage

One of the issues which most concern the fire and rescue service is the storage of high-risk materials – especially those involving flammables, toxic chemicals or substances, which can produce serious environmental damage. Modern warehouse/logistics management often demands quick turnaround of consignments and it is possible that the warehouse managers may not be aware of exactly what is being stored.

The presence of sprinklers ensures that the growth of any fire will be contained prior to the arrival of the fire service and allow safer access for crews to extinguish any residual burning.

Sprinklers in Warehouses

Case Studies

Sprinkler save at major Kilsby distribution depot
31st October 2012

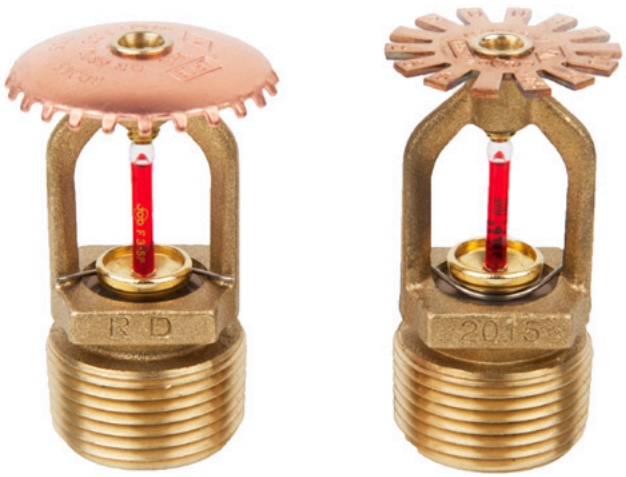
Kilsby in Northamptonshire is the site of a major transport hub for UK distributers. At just after 0500 on 31st October 2012 the sprinkler system at the Tesco grocery distribution depot was called into action when a fire occurred in the aerosol compound.
This compound, situated in the 36,000m², 15m high facility, contains highly volatile products such as aerosols and is a lower tier COMAH site.
Two heads activated on the fast response 'in-line' sprinkler system covering the compound and controlled the fire within seconds with minimal damage. The system is fed by a pump from a stored water facility.
None of the 300 occupants of the building were injured in the incident while stock in the distribution centre, believed to value several millions of pounds, was unaffected by the fire.
Northamptonshire Fire and Rescue Service required only a minimal attendance at this incident.

Loading bay sprinkler save in St Helens
25th April 2014

At 23:34 hours on Friday 25th April a serious fire occurred at a very large (50,000m²) distribution warehouse in St Helens.
A 26 Tonne refrigerated HGV was parked under a covered loading bay when ignition occurred within the truck. Merseyside FRS mobilised two appliances with 9 crew members to deal with the incident.
The fire caused 50% damage to the vehicle and 5% damage to the canopy but the situation would have been much worse had it not been for the operation of the sprinkler system, which, in addition to protecting the main building, also covered the loading bay areas.
The system suppressed the fire to such an extent that crews were able to bring the incident under control and the warehouse was fully operational within two hours of the start of the fire. It is reported that 21 heads needed replacement on the Ordinary Hazard, tank-fed sprinkler installation. None of the 50 occupants were reported as being hurt as a result of the fire.

Sprinkler save at Strathclyde warehouse
28th July 2014

Scottish FRS report a successful sprinkler activation which occurred on the 28th July 2014 at a warehouse on the Olympic Business Park, Dundonald in Strathclyde.
At 06:42 a call was received from on-site security personnel to a fire in clothing on high racks at the single storey distribution warehouse. 3 pumping appliances and an MIU were mobilised to the incident.
It is reported that one upright sprinkler head on the tank fed wet pipe system activated to extinguish the fire, with total firefighting action being limited to 20 minutes and about 60m² of the premises being affected.
There were no reports of injury or structural damage to the 4,700m² warehouse which is constructed of steel framing with brick supporting walls.
Subsequent information received indicates the potential financial implications for the warehouse operators in that the stock is valued at £10million while only about £48k worth of stock was affected in the incident. It is also understood that the operators have had difficulty insuring the premises due to the high value of stock contained and that there was potential for 250 jobs to be lost.



Sprinklers in Hotels

Key facts

- Automatic Fire Sprinkler Systems
- Deliver water directly to the seat of a fire
- Are relatively inexpensive to install
- Prevent deaths and injury
- Allow design flexibility- for example in provision of travel distances to fire escapes.
- May attract insurance discounts
- Make innovative design concepts a reality
- Minimise water damage

Article from
Bafsa BIM #7

Sprinklers in Hotels

Automatic fire sprinkler systems have been used effectively for the protection of property such as mills, factories, warehouses and department stores for well over 130 years.

However, over recent years there has been a growing recognition of their effectiveness in improving levels of life safety in other types of buildings.

Recently reported figures from the Fire Protection Association (FPA) suggest that direct losses from fires in hotels/boarding houses were approaching £4 million which equated to nearly 2.0% of the total cost of all UK fires.

Organisations such as hotel chains have recognised the life safety and property protection benefits of comprehensive sprinkler protection.

The larger hotel chains, notably from the USA, have long since been aware of the benefits of installing sprinkler systems in their hotels worldwide, mainly as a result of high profile fires.

On New Years Day 1986, a fire devastated the twenty-two storey Du Pont Plaza Hotel in Puerto Rico leaving ninety seven dead and property loss of millions of dollars.

The only piece of luck in the tragedy was that the fire broke out in mid afternoon. If the fire had occurred at night when guests were asleep, the death toll could have been a lot higher.

Another high profile fire which, at the time, was dubbed the worst hotel fire in recent American history was at the MGM Grand Hotel in Las Vegas where in 1980, 85 guests were killed. Many of the dead were killed by smoke inhalation far away from the seat of the fire.

How different these examples were to a more recent blaze in the Westin Hotel, Boston when not a single life was lost and all guests were safely evacuated from a thirty-eight storey hotel fitted with an automatic sprinkler system.

In the UK more and more sprinkler systems are being installed into hotels either during construction or as part of a refurbishment programme.

Why This Success?

The success in part is due to the simplicity of the sprinkler system: there are no computers or wiring – so no false alarms. The cost of maintenance is extremely low – running to less than £500 per year for the average system. Sprinkler systems have a very long service life, 50 years is common and many systems today were originally installed in the 1920's. This is due to strict adherence to standards for components, design and installation.

Systems in the UK are installed to BS EN 12845, an exacting standard which has evolved over the years and when installed by a BAFSA member company, the client will be provided with a Certificate of Conformity under the third party certification scheme LPS 1048. Due to the strict standards for fire sprinklers and the third party certification, the fire insurance industry will offer significant premium discounts and/or lower policy excesses for premises protected by automatic fire sprinklers.

Retrofitting of Hotel Sprinkler Systems

To develop the design for a hotel, the sprinkler specialist will be required to undertake a comprehensive survey of the building, assessing/ designing the various risk area classification and relating these to appropriate sprinkler head selection, head spacing, water flow rate and discharge density. Together with investigating the available mains water supply to establish any need for sprinkler pumps and water storage.

Culminating in a comprehensive set of design/ installation drawings indicating pipework routing design, pipework sizing including pump and tank selection and associated electrical/alarm wiring and associated builderswork detail.

An important feature of the survey is that the sprinkler specialist liases with the hotel property manager and other project team members, including the architect to develop the appropriate pipework routing, builderswork details and plant/ housing location. Together with programming the works to dovetail with the operation of the hotel and the time allocated for the works.

CPVC Pipework

With the introduction of LPCB approved CPVC plastic pipework, many retrofit hotel sprinkler systems are made easier to install because of the clean and lightweight nature of the product.

CPVC is easy to handle and can be installed without the need for noisy plant such as pipe threading machines etc. Often rooms need to be taken out of service for a day or so.

Sprinklers in Hotels

How Do They Work

It is essential that water supplies, the basis of automatic sprinkler systems, are reliable and guaranteed. This means that water should be supplied from the service main or other dedicated sources of water as specified in BS EN 12845.

An important consideration which should be investigated during the early design process is the space availability for pumps and tanks should they be required.

The sprinkler heads will be strategically positioned in hotel bedrooms, corridors, back of house areas etc. These heads are connected to the water supply via a network of hydraulically balanced supply pipes which are distributed throughout the hotel utilising the most unobtrusive route possible. In certain circumstances pipework can be concealed by decorative features.

Each sprinkler head is its own heat detector and operates at a predetermined temperature normally 68°C. Once this temperature has been reached, the sprinkler head operates and a fine spray of water is discharged on to the fire.

A common myth about automatic sprinklers is that all the heads operate simultaneously; this is completely untrue. Only the sprinkler heads closest to the fire will operate, thus minimising the water damage. It is estimated by the FPA, that 80% of fires are controlled with 10 sprinkler heads or fewer.

Once the sprinkler installation has been activated, the fire is almost immediately brought under control or extinguished.. The system can also operate local alarms to aid evacuation and alert the fire brigade to the fact that there is a fire on the premises.

Water Damage

Concerns are occasionally expressed that sprinklers can cause water damage which could be worse than the fire, this is, of course untrue. As only the sprinklers closest to the seat of the fire will operate - and in many cases only one or two sprinklers will actually activate. The water discharged by these few sprinklers is substantially less than the water used by the fire brigade. The FPA have said that in virtually all situations sprinklers will only discharge 10-15% of the amount of water needed by the fire brigade.

Over 70 million sprinklers are installed each year worldwide and every single sprinkler is pressure tested prior to leaving the factory. US, Australian and UK research suggests that fewer than 1 sprinkler in 5 million will fail by discharging water other than in a fire situation.

Value of Sprinkler Protection

The FPA the UK's national fire safety organisation has said: "Sprinklers are even better than basic fire detection systems as they offer a simple, effective and relatively cheap method of detecting a fire, raising the alarm and starting to control it automatically. This allows hotel staff to concentrate on their primary task of ensuring that their guests are assisted to a place of safety without delay."

Many large hotels already have sprinklers systems installed. Although most of these systems are in newly-built hotels, retrofitting need not cause significant business interruption in some types of premises. For example, ski hotels with seasonal trade may be able to install sprinklers in the closed season.

Sprinklers in Care Homes

Article from
Bafsa BIM #14

Sprinklers in Care Homes

Introduction

Within the UK and many of the developed countries worldwide there is increasing longevity of life. Many more people are living longer due to improvements in health, diet and preventative health care.

During the 20th Century the average life expectancy in the UK increased by thirty years. However, the risk of dying in a fire for people aged eighty and over is more than four times the national average. People aged between sixty five and seventy-nine also have a higher than average chance of dying in a fire.

While these figures are generally considered to be the average for persons living at home, there are an increasing number of persons dying while in care homes.

The number of people living longer is expected to continue to rise. And this is likely to result in a corresponding rise in the risk to these people from fire. Is it unreasonable for a person in the latter years of their life to expect to be looked after in a caring, safe environment, particularly when the care is being delivered at a relatively expensive cost?

Government figures for England in 2013-2014 show that Fire and Rescue Services carried out 8000 safety audits during the twelve-month period in care homes in England. This figure is less than a third of the total number in England, of those audited only 67% were satisfactory.

In January 2004 a fire occurred in the early hours in a care home in Uddingston, North Lanarkshire Scotland. The outcome was fourteen elderly people died, fourteen people whose relatives had entrusted the safety of their mothers, fathers, sisters, brothers, aunts and uncles to the care home. This was not some old fashioned, crumbling care home; this was a modern purpose built home, less than ten years old and yet fourteen elderly people died needlessly in it.

That was eleven years ago, what has changed? There is now a requirement to have automatic fire sprinklers fitted to all new built care homes in Scotland. Similarly since 2014 there has been a requirement to fit automatic fire sprinklers to all new built care homes in Wales. Sadly this has not been the case in England. While this is a significant step forward for Wales and Scotland, there still remain large numbers of existing care homes where automatic fire sprinklers do not have to be fitted in both these countries. Therefore the risk remains as high as it was in 2004 for the residents of these care homes.

During 2014 and 2015 many more residents died in care home fires including thirty-two residents in a Quebec Care Home and eight in a Spanish care home. In March 2015, London Fire Brigade reported that there had been four fire deaths and thirty injured in 530 fires in care homes in London during 2014. They appealed to operators and developers to fit automatic fire sprinklers to reduce the number of deaths and injuries.

What are Automatic Fire Sprinklers?

Automatic fire sprinklers have been in use since the late 1800s, their main use up until the 1960s was in commercial and industrial buildings. However more recently they have become a common safety feature in many hotels, hospitals, care homes, houses and schools.

The automatic fire sprinkler system provides protection for a building by a series of pipes and sprinkler heads throughout all the rooms, corridors, cupboards, service areas and roof spaces in a care home.

The system is fed from the towns water mains, this may be via a pump and if required a tank supply dependent on the pressure and flow of the water main.

How Do Automatic Fire Sprinklers Work and what do they do?

The sprinkler head operates as a heat detector and will actuate when the pre-determined temperature is reached.

When the head operates, a fine water spray is discharged onto the fire and controls or extinguishes the fire.

Automatic fire sprinkler systems help control the intensity and size of a fire, suppress it and in some cases extinguish it.

It can provide vulnerable occupants with additional time to escape or be evacuated following the outbreak of a fire.

In most cases only one sprinkler head will operate, occasionally more than one sprinkler head will be required to control the fire. However, sprinkler heads only operate when there is fire to be extinguished or controlled, they do not all go off simultaneously. Therefore the damage caused by a sprinkler head actuating is kept to the very minimum and certainly much less than that required by the fire service to extinguish a fire.

Sprinklers in Care Homes

Why Fit Automatic Fire Sprinklers in Care Homes?

By fitting automatic fire sprinklers in care homes, you are giving the residents and staff an increased time to escape or be evacuated from the home. Many residents of care homes may have mobility and awareness problems. Their understanding of the situation they are faced with may also be impaired.

This is particularly the case when fires occur at night and many residents may be under the influence of medication.

The evacuation of individual residents particularly at night due to their condition can take significantly longer than during waking hours. This at a time when staff numbers are often very limited increasing the risk to residents prior to the arrival of the fire and rescue service. This risk is significantly reduced in care home premises fitted with sprinklers where only limited evacuation may be necessary.

The sprinkler system will extinguish or control the fire in its early stages, therefore increasing the residents and staff chances of survival.

The sprinkler system will minimise the fire damage to the care home, therefore allowing the home to get back to normal operations as quickly as possible.

By fitting automatic fire sprinklers to a care home you are also minimising the risk to the Firefighters who come to tackle the fire, sprinklers don't just save the lives of residents and staff they save the lives of Firefighters.

Many insurance companies will provide discounts on insurance premiums if you fit an approved automatic fire sprinkler system in a care home.

Are there any Standards for Fitting automatic Fire Sprinklers?

For care homes an automatic life safety fire sprinkler system should be designed and installed in accordance with the recommendations contained in BS 9251:2014.

In Scotland and Wales where the fitting of automatic fire sprinklers is mandatory in all new built care homes, care should be taken to comply with the legislative requirements together with the British Standard.

By using a BAFSA Member for the installation of your system, you are ensuring that the system is third party certificated, as this is a requirement for all BAFSA Members.

Like all fire protection systems sprinklers require an ongoing maintenance programme to ensure compliance with the Regulatory Reform (Fire Safety Order) 2005 or Fire Safety (Scotland) Regulations 2006. BAFSA recommend that any maintenance work is carried out by companies holding third part certification for such work.

Retrofitting of Existing Care Homes

Automatic fire sprinklers can be easily and readily retrofitted into existing care homes. In many cases the fitting of sprinklers will provide an economic and safe method of overcoming many existing design or building faults.

Installation of systems in existing care homes can be carried out with the minimum of disruption and at a reasonable cost. In many cases this can be a cost effective long-term way of complying with a risk assessment of the premises.

Costs of Installing Automatic Fire Sprinklers

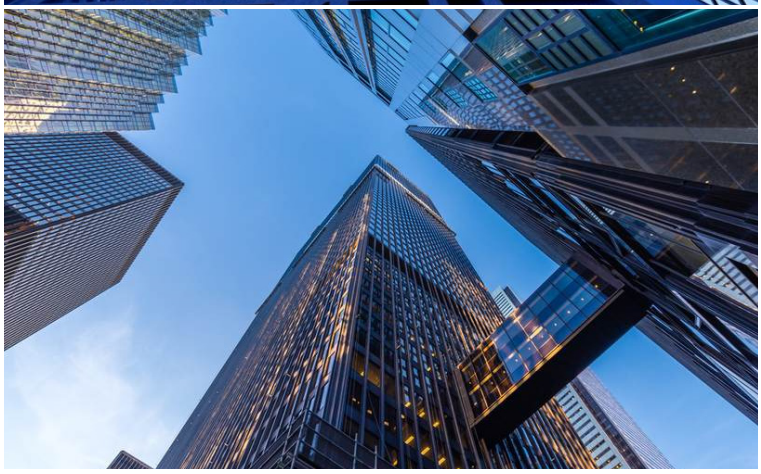
It is likely that an automatic fire sprinkler system that is installed, as part of a new build care home project will come in at 2%-3% of the project cost. A retrofit system in an existing care home is likely to be closer to 3%-4% of the project cost.

By installing an automatic fire sprinkler system there may be other savings in the project, subject to the agreement of the local Building Control and Fire and Rescue Service. Again there may also be savings on the insurance premiums from the insurers.

Fire sprinkler systems last for many years, however they do require to be maintained and serviced on an annual basis.

The total cost for the system should be considered over a period of thirty to fifty years, which with annual maintenance should be easily achievable. With this lifespan the system provides a very economic active safety system for the care home which more and more clients are looking for when choosing a property for their loved ones.






Wet & Dry Riser

Article from
Bafsa BIM #21

Wet & Dry Riser

What are wet and dry rising mains?

A rising main is a system of pipework and valves, often found in high-rise buildings, which allows fire fighting water to be easily delivered to all floors. It consists of a vertical pipe with an inlet at ground level on an outside face of the building allowing fire and rescue service personnel to pressurise the main from their appliances. and outlets (known as landing valves) usually fitted in cabinets on each floor that act as outlets, enabling the fire service to connect their fire hoses into the water supply.

Rising mains in buildings can be either filled with water (Wet Riser) or left dry (Dry Riser). Where mains are supplied from rooftop tanks and pumps in very tall buildings, the mains are referred to as 'Falling Mains' or sometimes 'Downcomers'.

The installation of risers removes the need for fire fighters to have to drag charged fire hoses all the way up through tall buildings which could delay fire-fighting operations or create a hazard during evacuation.

The current British Standard used for design, installation, testing and maintenance of Wet and Dry Risers is: BS9990:2015 Non-automatic fire-fighting systems in buildings Code of practice.

Do wet or dry risers have to be installed?

Approved Document B (Fire Safety) of the Building Regulations (England & Wales) requires that any building more than 18m high, measured from the fire brigade access level to the top floor, or which has floors more than 10m below ground must be provided with 'fire fighting shafts' and a fire fighting rising main.

If the building has a floor level higher than 18m but less than 50m or has floors more than 10m below ground, the fire main can be either a Dry or a Wet riser. When a building is more than 50m high the rising main has to be a Wet riser.

In Scotland, the Technical Handbooks of Scottish Building Standards contain similar requirements.

Fire fighting shafts

Fire fighting shafts are required in buildings with a floor over 18m above or 10m below the emergency service access level. These shafts provide the fire brigade with a safe area from which to fight a fire in the building. The shafts usually have stairs and a protected well ventilated lobby and may be provided with a fire fighting lift. Fire fighting shafts must also be provided in some buildings with a storey of 900m² or more in area, where the floor is at a height of more than 7.5m above fire service vehicle access level, for example shops, commercial, storage and non-residential buildings.

Fire fighting shafts in buildings with a sprinkler system

The installation of sprinklers allows the distance between fire fighting shafts to be increased from 45 metres to 60 metres. This is due to the fact that sprinklers prevent fire growth and therefore allow more time for fire-fighters to attack a fire. This effectively translates into increased allowable travel distances.

Dry rising mains

The pipes in dry risers are empty and are only filled with water by the fire brigade when they arrive. The fire brigade use hoses to connect the pump outlet on their appliance to the dry riser inlet.

Water is then drawing from the nearest fire hydrant (fed by the water suppliers service main²) and this is pressurised by the fire pump on the fire tender to provide water at the correct flow and pressure for fire fighting operations at the relevant floor level.

Falling mains

Some fire mains are described as 'falling' mains where they are installed for fire fighting below ground level or where a fire water supply is provided at high level.

Fire service inlets

The water feed from the fire service pump into the Dry Riser is routed through an inlet (more correctly described as an inlet breeching connection) which is installed at the fire brigade access level, usually on an external wall. The breeching connections are usually contained in a red glass fronted box with the wording 'Dry Rise Inlet'.

These should be kept locked shut, though in an emergency the glass panel can be broken to gain access to the hose connections. This inlet should be positioned as close as possible to the rising main in order to reduce pressure losses.

The inlet breeching unit for a 100mm diameter dry riser has two 65mm male instantaneous hose connections which must comply with BS 336 Specification for fire hose couplings and ancillary equipment 1989. For larger diameter dry risers a breeching inlet with four hose connections will usually be needed.

When selecting a location for the inlet breeching valve the first consideration must be the safety of firefighters.

Wet & Dry Riser

Some of the more important things to consider are ease of location for attending crews, proximity to fire appliance parking and exposure of fire-fighters to fire, falling debris, and collapsing walls. To this end an access road, suitable for a fire appliances must be provided. This should allow positioning of the fire appliance to within 18m and preferably within sight of the inlet box.

Inlet boxes and breeching inlets should be manufactured to comply with BS 5041. The lower edge of the inlet box must be located between 400mm and 600mm above the ground. The inlet is fitted with a drain valve to drain water from the dry fire main at the end of operations.

Landing valves

Landing valve are invariably constructed of gunmetal with a flanged inlet and should be designed to BS 5041 Part 1 Fire hydrant systems equipment. Specification for landing valves for wet risers 1987. The valves should be fitted with a wheeled valve connected directly to one (or in the case of larger risers, two) 65 mm instantaneous female coupling to BS 336, with removable blank cap and retaining chain. They are installed at each floor level, including the ground floor. The landing valve should preferably be located inside an easily recognisable red metal box with a glass panel, labelled Dry Riser. The boxes are locked and have a glass panel that can be broken to gain access to connect the fire hose. The most commonly installed landing valves are either horizontal instantaneous hose connection or 'bib nosed' with a downwards angle each with a 65mm instantaneous hose connection.

On Dry Rising mains a landing valve may be installed, at roof level for periodic testing, if required by the authority having jurisdiction.

Landing valve location

Usually there is only a single landing valve at each floor level, but occasionally two may be provided if required by building control department on the advice of the fire and rescue service. Landing valves should preferably be located in wellventilated and fire resistant lobbies within the fire fighting shafts. Alternatively the fire brigade may accept other locations such as within a stairwell.

On dry mains, landing valves should be provided at roof level for test purposes if practicable. BS9990: Non-automatic fire-fighting systems in buildings Code of practice requires that the landing valve must be installed with its lowest point at 750 mm above floor level.

Air release valve

An air release valve must be fitted at the top of the Dry riser to expel air when filling the main and allow ingress when draining the system.

Security of riser equipment

As this equipment is susceptible to vandalism and theft installing them in lockable boxes is the preferred option. All risers can have brass or bronze components and as such are also a target for thieves.

Water charged dry mains

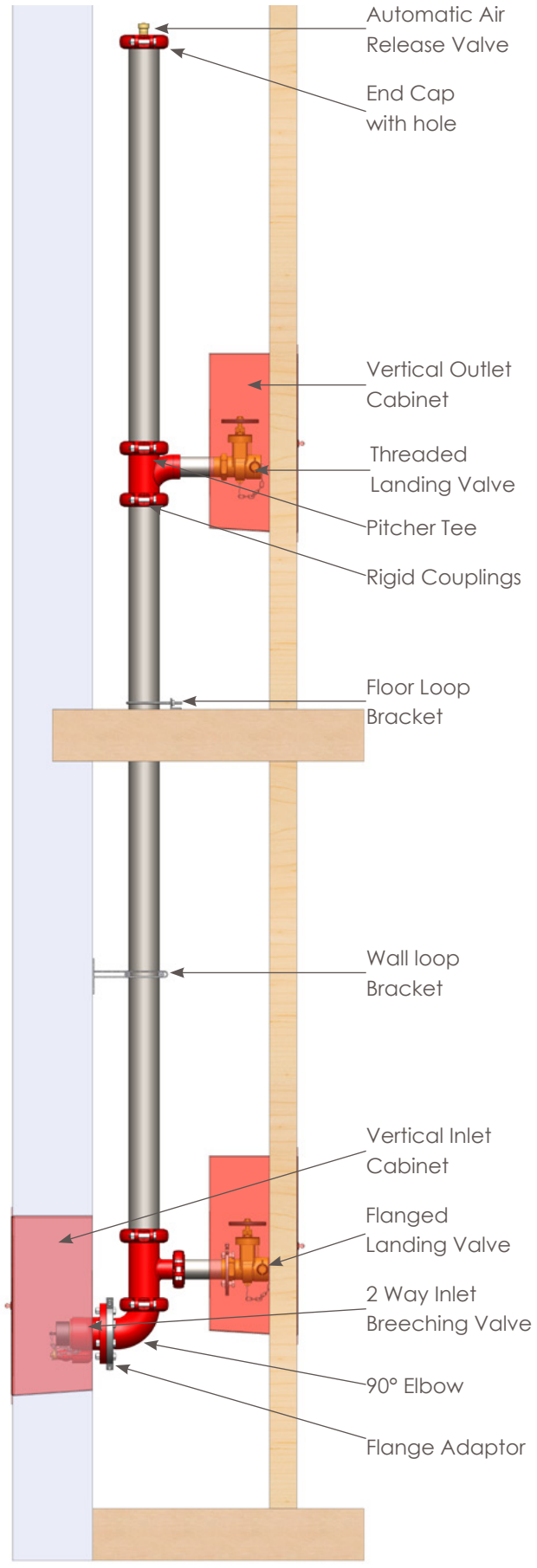
When dry mains have a very large volume they can be permanently charged with water by a small water tank of about 300 L capacity. This tank will have a permanent infill connection to a local water supply.

This arrangement means that the fire brigade can commence fire fighting operation almost immediately as they do not have to fill the riser pipe-work. An example of where water charged dry mains can be used is in long underground tunnels where the temperature is above 4 C° at all times.

Wet rising mains

The pipes in wet risers are full of water at all times and have pumps that deliver the water to the outlets, these pumps drawing water from storage tanks. The pumps operate when the pressure in the rising mains drops when a landing valve is opened. They do not depend on the fire brigade appliance or water from the local mains.

Wet & Dry Riser



Pumps for wet risers

The water pressure from a service main will be insufficient to serve a wet rising main so pumps and tanks will have to be installed.

Wet Risers must have two pumps and two tanks.

The pumps have to be capable of delivering 1 500 L/min which is enough to supply each of two fire service hoses with 750 L/min. The pump must provide enough pressure to give a continuous pressure of 8 bar at each of the two operating landing valves.

Pump arrangement for Wet risers can be either two electrically-driven units or one electric and one diesel engine driven units.

One pump is designated as the 'duty' pump, and the other acts as a standby should the duty pump fail or additional pumping capacity be required. The system has a small capacity 'jockey pump' which starts automatically to maintain system pressure and prevent intermittent starting and stopping of the main pumps.

Power supply for two electric pumps

Where two electrically-powered pumps are used, the preferred power source is two independent incoming electric supplies. If these are not available a single incoming electric supply can be used in conjunction with a separate supply which can be an on-site emergency generator. These two supplies are connected to an automatic changeover panel which ensures that both pumps have power in the event of any power failure.

Electric power supplies must be sufficient to allow the wet riser pumps to run for at least 3 hours.

Isolating valves

Isolating valves are installed at intervals not exceeding 10m on the rising mains so that sections can be isolated to enable repairs to be carried out. These valves should be secured in the open position by a chain and padlock or fitted with monitoring devices to indicate at the fire control panel or interconnected to the BMS or in some other staffed location such as a security control room if any valve is not fully open.

Water tanks for wet risers

An on-site supply of stored water must be capable of supplying enough water to provide two landing valves with not less than 750 L/min each for at least 45 minutes. The total water requirement for a wet riser would therefore normally be 67 500 L.

Wet & Dry Riser

BS9990 requires that the minimum volume of stored water for a wet riser is two interconnecting tanks each with a volume of 22 500 L each giving a total of 45 000 L. The other 22 500 L can be supplied automatically to the two tanks from the service main through ball valves fitted to each tank.
Another option is to install two tanks each with a capacity of 33 750 L so that there is no dependence on the towns main during a fire incident. This has the benefit of allowing the fire brigade to utilise the service main independently of the wet riser.

Emergency tank filling
All wet riser tanks must have a facility to allow the fire brigade to replenish their contents. This is done by installing an inlet breeching connection at a convenient and safe location for the fire brigade to pump water from the service main into the tank/s. Electrical high and low water level alarms are fitted to the tanks to allow them to monitor the water level.
This pipe must be at least 100mm diameter for tanks that are located no higher than 60m above ground level.

Combined water tanks
It is not usual that water tanks for domestic purposes are used for wet rising mains. It is acceptable to use a common tank but the domestic water connection must be positioned such that the minimum reserve of45,000 litres is always available for the wet rising main.
Note that the use of water from a sprinkler system's tank/s is unlikely to be acceptable if the sprinkler system is being provided to satisfy requirements under building regulations or the system is designated for life safety purposes.

Water pressure for wet risers
The water pressure required at the level of the highest landing valve is 8 bar.
For a building 60m high, the minimum pressure required at the water source is at least 15 bar or for a 100m high building it could be 20 bar.

Pressure regulating valves (PRV's)
PRV's are designed to ensure that the pressure in a fire hose does not exceed 12 bar when the hose jet is shut. In very high buildings the water pressures can be 25 bar or more which requires the installation of a pressure regulating valve to ensure the safety of fire-fighters and their equipment..
These PRV's are incorporated into the landing valve and regulate the high pressure in the rising main to a safe 8 bar at the hose connection.
In BS9990 there is an allowable tolerance for flow and pressure at the landing valve of (750 ±75) L/min at (8 ±0.5) bar.

Number of rising mains required
In the past, the number of rising mains was determined by reference to BS 5588-5. Fire precautions in the design, construction and use of buildings. Access and facilities for fire-fighting 2004. However this standard has been withdrawn and is superseded by BS 9999: Code of practice for fire safety in the design, management and use of buildings 2008. Note that the relevant information can be found in S.23 which refers to 'fire mains' rather than 'risers'.

Testing of wet and dry risers
BS9990: initial static pressure test of risers
The system should be completely charged with water to a pressure equal to its design operating pressure measured at the inlet for a period of at least 15 min During this period, an inspection of the system should be made to check whether there is any leakage of water at any of the joints or landing valves. If any leaks are identified, appropriate remedial action should be taken and the system should be retested.

BAFSA ADVISORY COMMENT:
While BS 9990 requires only that the system be pressure tested as above it is BAFSA's view of industry best practice that all Wet and Dry systems should initially be static pressure tested to at least one and half times the system's predicted maximum operating pressure for at least one hour.
All dry fire mains should be checked every six months to ensure that all valves are fully serviceable, and a wet pressure test should be carried out annually to ensure that there is no leakage.
Wet fire mains should be similarly checked and, in addition, the water storage tanks and booster pumps should be checked for operational serviceability.
Defects in equipment should be rectified as soon as possible by a competent person and if delay ensues, the fire service should be warned, and warning notices should be posted in the building at the appropriate

place. The fire service should be informed as soon as the equipment is serviceable again.
BS 5306 Part 0: 2011 Fire protection installations and equipment on premises - Guide for the selection of installed systems and other fire equipment provides useful information on the test and maintenance regime for risers.

Components for risers
Note that all components which are to be installed in any system which is to be connected to the service mains or any water company pipework comply with the Water Fittings Regulations 1999 or (Scottish) Water Byelaws 2014 and must be approved for its intended use by the Water Regulations Advisory Scheme. (WRAS). See: http://www.wras.co.uk/

Pipes for rising mains
Fire mains should have a nominal bore of 100 mm and the system should be designed to withstand a pressure of one and half times its predicted maximum operating pressure.
The most commonly used pipe for Wet and Dry risers is manufactured to BS EN 10255:2004 Non-alloy steel tubes suitable for welding and threading.
Fire mains pipework and fittings should be of suitable heavy quality steel to meet the pressure, robustness and durability requirements of the system, including galvanizing where necessary.
Pipes for Wet and Dry risers installed in locations where they are susceptible to corrosion must be galvanized.
Pipes for Dry risers are normally galvanized.

BAFSA ADVISORY COMMENT:
While BS 9990 requires only that pipe should be galvanised where necessary it is BAFSA's view of industry best practice that all DRY riser pipework and fittings should be galvanised to BS EN 10240:1998.

WET riser pipework and fittings should be galvanised where this is required by the specifier or AHJ or where circumstances such as atmospheric conditions or water quality dictate.

Pipe fittings for rising mains
Pipe fittings can be either screwed, grooved or flanged and are normally galvanized. The most common arrangement is that the straight sections of the rising main are joined with mechanical grooved couplings with a long radius tee at each floor level that connects to the landing valve with a flanged joint.

Invisible Sprinkler

Rapidrop's innovative custom colour and custom pattern cover plates will match any ceiling seamlessly. We have designed special attention to making our sprinklers virtually invisible while maintaining optimal water flow performance to protect your home. A wide range of customisable colours and patterns are available.

Types of Fire Sprinklers

STANDARD FINISHES

WOOD GRAIN FINISHES

CUSTOM FINISHES

Due to printing limitations the colours and patterns shown here may differ slightly from the actual covers

Types of Fire Sprinklers

RAL colours available on request

Concealed Pendent

Commercial - K5.6 - RD105

Residential - K4.9 - RD205

UL Listed
Concealed type
White and chrome plated finish
Special RAL colours available on request
RAL colour cover plates & wood ,grain finishes
Fusible Solder Link, No glass debris when activated
Protective cap with the ceiling label and tolerance
CE, LPCB, UL, FM approved and BS9251: 2015 Compliant

RAL colours available on request

Concealed Pendent

Residential - K3.0 - RD207 / K4.9 - RD208

Concealed lay flat 60mm cover plate
Smallest approved concealed on the market
Standard & Quick response
Standard coverage K80 (5.6) 1/2" NPT
Standard White, Black & Chrome
RAL colour cover plates & wood ,grain finishes
Fusible Solder Link, No glass debris when activated
Protective cap with the ceiling label and tolerance
UL Listed, BS9251: 2015 Compliant

RAL colours available on request

Flush Pendent

Commercial - K5.6 - RD101 / K5.6 - RD103

Residential - K4.2 - RD201

LPCB / CE Approved
Flush pendent life safety sprinkler
White, chrome plated & black finish
Special RAL colours available on request
Fusible Solder Link, No glass debris when activated
Protective cap with the ceiling label and tolerance

RAL colours available on request

Horizontal Sidewall

Residential - K4.2 - RD203

UL Listed
Flush pendent life safety sprinkler
White, chrome plated & black finish
Special RAL colours available on request
Fusible Solder Link, No glass debris when activated
Protective cap with the ceiling label and tolerance
CE, LPCB, UL, approved and BS9251: 2015 Compliant

Types of Fire Sprinklers

RAL colours available on request

Spray Pendent (SSP)
Commercial

K80
Brass, Chrome and paint finish
Special RAL colours available on request
CE, LPCB, UL, FM & VdS approved
Standard & Quick Response
3mm / 5mm Bulb
UK Manufactured

RAL colours available on request

Conventional Sprinklers (CUP)
Commercial

K80
Brass, Chrome and paint finish
Special RAL colours available on request
CE, LPCB, UL, FM & VdS approved
Standard & Quick Response
3mm / 5mm Bulb
UK Manufactured

RAL colours available on request

Upright (SSU)
Commercial

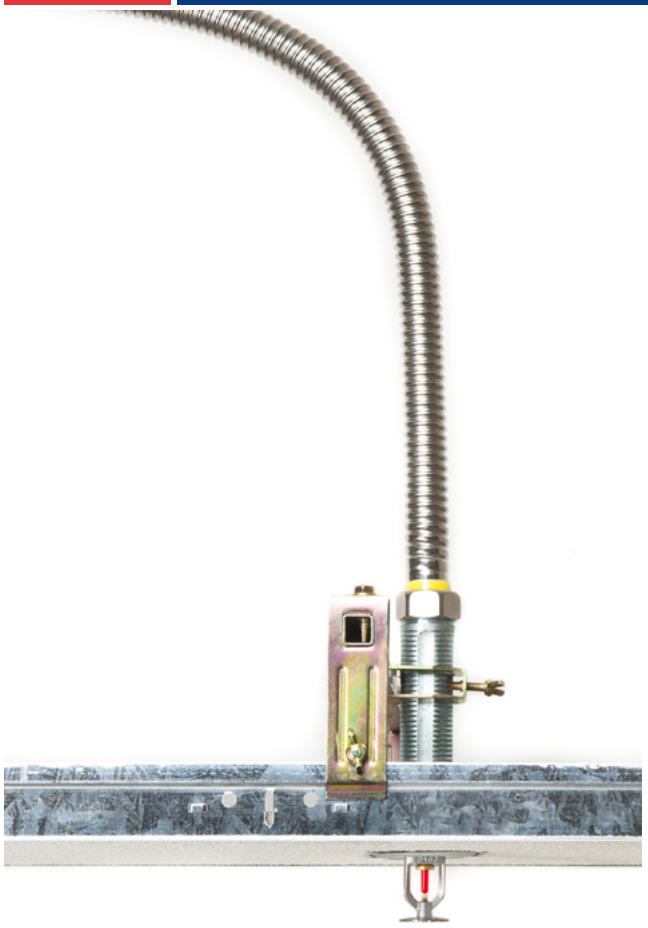
K80
Brass, Chrome and paint finish
Special RAL colours available on request
CE, LPCB, UL, FM & VdS approved
Standard & Quick Response
3mm / 5mm Bulb
UK Manufactured

RAL colours available on request

SSU SSP
Commercial

K115
Brass, Chrome and paint finish
Special RAL colours available on request
CE, LPCB, UL, FM & VdS approved
Standard & Quick Response
3mm / 5mm Bulb
UK Manufactured

Flexible Sprinkler Connection



Rapidrop SP Flexible Sprinkler Connection

The unique Rapidrop® system easily positions the sprinkler in the centre of the ceiling tile at the correct height and can be installed in 10 to 15 minutes. The concept is very simple and breathtakingly efficient.

Rapidrop® is a complete unit, a corrugated stainless steel flexible with nipple, reducer, bar and brackets, which are fitted to the ceiling tile support rails to locate and secure the sprinkler in the correct position. As well as considerably reduced installation time, the risk of mess (from the cutting and threading activity associated with the traditional armover method) in the clean area below the suspended ceiling is eliminated, allowing other activities to proceed more efficiently.

Residential Sprinkler System Equipment

Conforms to BS9251:2014

WRAS Approved Double Check Valve
Light weight compact double check valves for class 3 contamination risks
Residential and domestic alarm & test valve assembly
Lockable handle
1" or 1 ¼" full bore test valve
Maximum working pressure

Zone Assemblies

FM APPROVED

UL

Test and drain valves with sight glass, UL, FM
Single handle operation
Threaded or grooved options available

Zone assembly arrangement
Size range 65mm up to 150mm includes pre wired isolation valve and flow switch
50mm drain and test connection

Flexible Sprinkler Connection

Wet Alarm Valve

CE, LPCB, UL, FM
Available in sizes 80mm upto 200 mm
Flanged or grooved connections
Pre trimmed to FM or LPCB specification
Alarm gongs
Optional retard chamber

Cert/LPCB/ ref. 566d/01-04

Gate Valves

Handwheel operated non-rising stem AWWA C 509
OS&Y type flanged/grooved connection
300 psi/20 bar rated, UL,FM
Post indicator type, non-rising stem
300 psi/ 20 bar rated, UL,FM
Small bore threaded gate valves
Sizes Available 65 mm to 600 mm

Check Valves

Grooved swing check valve,
350 psi/24 bar rated, UL, FM
Flanged swing check valve,
350 psi/24 bar rated, UL
Size range 50mm upto 200mm
Double door swing check valves - 175 psi / 12 bar - UL
Size range from 100 mm to 300 mm
Flanged swing check valve - 300 psi / 20 bar - UL / FM
Size range 65 mm to 300 mm
Small bore threaded check valves

Butterfly Valves

UL, FM, BS5163
Grooved and Wafer type
Available in size from 65 mm to 200 mm
Working pressure 20 Bar
Gearbox operated with factory installed tamper switches

Rapidrop Global Ltd

Rapidrop: A Global company, British manufactured

British based manufacturer of fire sprinkler system products with international sales and distribution serving the needs of the fire detection and suppression industry worldwide.

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Approvals

The Rapidrop range includes products which have internationally recognised approvals and listings from FM/UL/VDS and LPCB.

FM APPROVED · UL · LPCB Assessed to ISO 9001:2008 Cert/LPCB ref. 556 · VdS · CE

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