

British Automatic Fire Sprinkler Association

bafsa

Sheffield Low Rise Sprinkler Installation

A report into a major
retrofit project



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Sheffield City Council
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Morgan Sindall Group PLC
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Residents of the Gleadless Valley, Westfield Centre, Stannington and Netherthorpe properties

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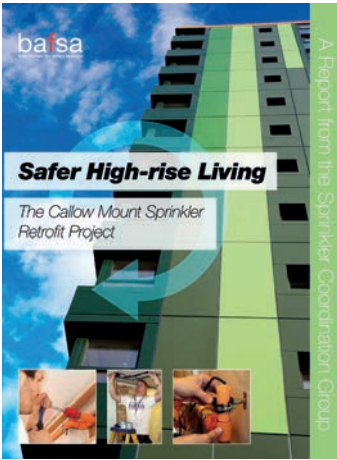
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Introduction



BAFSA Report: Safer High Rise Living (2012)

Following official suggestions in a report into a multi fatality fire in a high rise housing block in Southwark in 2009 that retrofitting sprinklers would not be cost-effective or practicable, BAFSA developed a proposal to determine the costs and practicability of retrofitting sprinklers into this type of premises. Sheffield City Council and South Yorkshire Fire and Rescue Service identified a suitable high rise block at Callow Mount and the installation was completed in September 2011. As a result of the outcome of that project a number of housing authorities and housing associations have installed sprinklers in an increasing number of high and low rise social housing properties.

Following the completion of the Callow Mount project, Sheffield City Council identified a serious fire risk potential in a specific type of property in their portfolio. These 'ranch style' properties are sited in four locations around Sheffield; Gleadless Valley, Westfield Centre, Stannington and Netherthorpe. There are 23 blocks in these locations with a total of 540 individual properties.

The 'ranch style' flats are split into two distinct types depending on their topographical location. In Stannington and Gleadless Valley they are of a sloping design, the ground floor dwelling only extends half way into the block making the dwelling twice as wide as the properties on the two upper floors. Built into the slope at the back of the block is a service corridor that houses the mains water and heating distribution pipework and boiler houses. The pipework then enters a service shaft that rises up through each floor and terminates in a vented cowl above the pitched roof of the second floor property.

The properties at Netherthorpe and Westfield are on a level site with flats on each floor having a standard layout. This design does not have the rear service corridor so the services are routed under the stair tower at one end of the property. Services are then routed on the flat roof top in boxing and dropped down into each flat.



Front and rear views of typical property

Fire Risk Assessment

A programme of fire risk assessments carried out on the Sheffield City Council housing portfolio identified specific issues relating to the 'ranch style' properties. The fire risk assessment reports required that "all Significant Findings must be addressed to comply with the requirements of the Regulatory Reform (Fire Safety Order) 2005 and to avoid the possibility of action being taken by the Enforcing Authority". The report on each block contained the following conclusions:

Risk/Hazard/Observation

Due to the construction, type and layout of these flats and the occupancy profile, extensive work would have to be carried out in order to:

- A. Gain suitable compartmentation to facilitate a stay put policy
- B. Facilitate means of escape from the "inner room" bedrooms
- C. Prevent the spread of fire throughout the timber construction of the block

Action

After extensive cost analysis and weighing up the cost of passive fire safety work v. suppression, the decision has been made to install suppression systems into these properties.

Significant Findings

Cost Benefit Analysis of alternative retrofit fire safety measures

As indicated in the 'Action' section of the fire risk assessment, an analysis of the cost and complexity of upgrading the passive fire protection in these blocks and the alternative solution of installing a suppression system was undertaken by the Council.

Upgrade of passive fire protection

The main reason for not upgrading the passive fire safety measures was the layout and design which meant that the necessary work was considered impractical. The vast majority of the properties contained inner rooms with the means of escape passing through or via the kitchen which was located at the front of the property adjacent to the external walkway forming the only means of egress. These walkways which formed the roof of the lower properties were of felt covered timber construction and were immediately over the lower property's kitchen area. In addition to the direct costs of this work it was not considered feasible to carry out any upgrade without significant disruption which inevitably would mean that residents would need to be relocated to temporary accommodation to enable the work to be carried out.

Installation of suppression systems

Using the experience of the Callow Mount Project, Sheffield City Council recognised that it was feasible to retrofit a suppression system into the blocks with minimum disruption which would permit residents to remain in their homes throughout the installation.

A fire suppression feasibility study was conducted to ascertain the most appropriate and cost effective solution. This considered both residential fire sprinklers and water



Felt covered timber walkway on top floor

mist suppression systems. Yorkshire Water were consulted on both options and provided guidance on the current and future provision of water supplies and their requirements for both types of system.

The study utilised the appropriate technical standards, these being: BS9251: 2005 Sprinkler systems for residential and domestic occupancies¹ – Code of Practice and DD8458-1:2010 ‘Fixed fire protection systems- Residential and domestic water mist systems Part 1: Code of practice for design and installation’².

The study concluded that while the 50mm incoming water main was of adequate size to serve a mains-fed sprinkler system, the size of the distribution mains would need to be increased as would the supply to individual properties to meet BS 9251’s requirements to provide a supply of 60 l/m though any single sprinkler or 42 l/min through each of two sprinklers operating simultaneously in a single large room with a minimum operating pressure at any sprinkler of not less than 0.5 bar.

The feasibility study identified that a water mist system would require lower flow rates of 35l/min, which had the potential to reduce any water damage resulting from actuation. However, as these systems operate at a higher pressure it would not have been possible to utilise a direct mains connection without the provision of an automatic fire pump boosting the pressure to the required level. Yorkshire Water advised that they would only consider the use of a booster pump where the pressure differential between existing or future distribution pressure and the pressure of the water mist system was acceptable. If this was not possible, then the system would require the provision of a dedicated water storage tank for each system.

This was seen as a critical issue in view of the data on water pressures and flow provided by Yorkshire Water, particularly when compared with a sprinkler system. In addition, if tanks were to be used, DD 8458-1:2010 required the pipework for the mist system to be independent from the domestic supply. These requirements would add to the initial cost and would substantially increase the costs of service and maintenance associated with these components. Concern was also expressed relating to the space available within premises to locate pumps and tanks.

The main benefits of sprinkler system were seen as the ability to use direct mains connection without the need for break tanks and booster pumps, although it would require the replacement of the rising main in each of the service shafts.

In conclusion, the report recommended that sprinkler systems would be the most appropriate solution based on the time taken to install together with installation and maintenance costs.

Initial Pre Contract process

The Sheffield City Council Board approved funding for the fire safety improvements of the properties. The sum was increased in February 2012 to £808,000 (excluding consultancy fees) and approved.

Competitive bids were sought through a restricted competitive tendering process on a ‘design and build’ basis. Nine expressions of interest were received which were evaluated by a team of five including a leaseholder and tenant representative. Only two of these submissions achieved 50% of the available score. The evaluation team agreed that in view of the poor responses it was not possible to select the necessary minimum of three companies from which to invite a tender submission as only two had provided a satisfactory response.

In analysing the responses the Council identified a number of issues:

- The majority of sprinkler companies specialising in residential and domestic sprinkler systems were relatively small and found the local authority tendering and pre-qualification processes complex. Most were also excluded because their turnover was too small to meet the financial requirements.
- The submissions raised concerns over the ability of the sprinkler industry to manage a complex contract of this scale and to the ability to provide the necessary supporting trades to make good on completion of the installation (‘after trades’).

1. Since this project started both the sprinkler and water mist standards have been revised and reissued by the following: BS 9251:2014 Fire sprinkler systems for domestic and residential occupancies. Code of Practice
2. BS 8458:2015 Fixed fire protection systems. Residential and domestic watermist systems. Code of practice for design and installation

Following meetings with consultants and BAFSA to establish reasons for the poor quality of response it was agreed to repeat the Expression of Interest exercise and this time to utilise the Official Journal of the European Union (OJEU) procurement process. This resulted in eight responses from which three companies were invited to tender following evaluation. However, two companies withdrew from the process with the only remaining company submitting a tender which was approximately three times the estimated contract value. This was rejected as insufficient bids had been received to meet the council standing orders and the information available suggested this would not provide value for money.

Council officers met again with BAFSA representatives to seek a better understanding of sprinkler industry capacity and experience to undertake major domestic retrofit projects. A key lesson from this process was that BAFSA members had not understood or been fully able to evaluate the work required to design and install sprinklers in occupied dwellings mainly due to:

- BAFSA members who typically work as sub contractors needing to understand all relevant information which is normally dealt with by the main contractor.
- A perceived risk in working in occupied dwellings and the financial consequences of this due to it being outside of the experience of BAFSA members.

The authority identified a perceived reluctance for sprinkler contractors to engage with main contractors or to undertake the general management of the contract, customer care and liaison required. There was also concern over their ability to manage 'after trades' work such as pipework boxing, decoration and making good.

BAFSA advised the Council that there was limited capacity in the industry to service contracts of this size. BAFSA feedback suggested that there are two 'large' companies by whom the contract might be considered too small, forty or so small companies, many of whom would not meet the PQQ requirements. This left six or seven medium size companies who were capable of satisfying the PQQ process and servicing a contract of this size.

In order to address these issues and the financial risks they posed to their members, BAFSA agreed to re-evaluate the scheme and provided a revised cost estimate of £810,000 for the design and installation of the sprinkler system excluding all builders work. The original costings had been based on the single bedroom flat layout associated with Callow Mount. The 'ranch style' flats were a combination of 1, 2 and 3 bedroom flats requiring between 8 and 15 sprinkler heads compared with the five required in Callow Mount. Some of the increased cost was due to the requirement for new distribution mains in some blocks and in part due to a misunderstanding by Sheffield City Council who specified recessed sprinkler heads rather than the concealed sprinkler heads they actually required.

To provide an indicative cost of the specific exclusions in the BAFSA estimate the Council estimated that the cost of builders work would be £341,450. They also allowed a 4% contingency fund of £48550. Thus the estimated funding sought was revised to £1.2 million, the Board subsequently approved funding for the works of £1.3 million excluding consultants fees.

Following the agreement to the revised funding a third procurement process attracted eight responses to a tender for Expressions of Interest (EOI) from which there were six acceptable responses all of whom were invited to tender. Three tenders were received, one of which was noncompliant and was withdrawn.

Final Contract process and outcome

Sheffield City Council with assistance from BAFSA drew up a performance and installation specification based on BS 9251:2005 which also required the installation to be undertaken by a company with Third Party Certification. The contract also contained requirements for the additional works required for boxing, electrical connections and finishing together with an outline of the management requirements.

The Council determined that the most cost effective way of delivering the contract was to employ a main contractor with experience in managing major refurbishment programmes of social housing with the sprinkler installation being sub-contracted to a specialist sprinkler company.

Whilst Armstrong Priestley had considered bidding for the work as the main contractor they recognised that using Morgan Sindall's experience in managing large scale refurbishment projects was beneficial particularly with regards to tenant liaison. The structure of the contract meant that responsibility for financial control and Construction (Design and Management) Regulations 2007 (CDM) requirements were less onerous for the sprinkler installer. Morgan Sindall also had teams able to carry out the tenant liaison, electrical, carpentry and decoration.

The JCT Design and Build Contract used was seen as being a perfect match to the project allowing the specialist to design the most suitable and efficient system possible. This ensured the client had a full understanding and clear performance specification which detailed what was required.

Those involved in the project team, the operational and commercial staff are considered to have worked well together and achieved the excellent results only by realising the residents are right at the heart of the project and ensuring this focus was maintained throughout the programme. In summary, the Council consider the relationship for them as client with the Primary Contractor was one based on mutual trust and understanding of the aims and objectives of the project.



Isolation valve, gauge and flow switch in individual property

Design and preplanning phase

Armstrong Priestley considered that the design was reasonably straight forward but attention needed to be given to the different size, layout and the type and location of furniture in individual flats.

Each block had a mix of one two and three bedroom configurations each type requiring a slightly different design, the larger flats requiring more heads. This resulted in 8 different designs dependant on flat layout using between 8 and 15 sprinkler heads including concealed sidewall heads. The pressure and flow requirements were calculated for each of the configurations. Where minor alterations were required in individual flats due to fitted wardrobes or other obstacles the design was hydraulically calculated to allow for changes.



Preformed "Pendoc" boxing was used to cover the pipework inside the flats rather than locally constructed boxing used in other projects. This provided a far superior finish coupled with high quality caulking to stop gaps appearing following installation

The systems were designed to BS 9251:2005. Yorkshire Water carried out water flow and pressure tests which indicated that it was appropriate to use direct towns' mains connections to the sprinkler systems. However, on six of the twenty three sites it was necessary to provide a new service main as there was no easy way to connect the individual flats to the existing main riser. Morgan Sindall liaised with the water company and this work was identified in the pre-contract tender and paid for by them.

The connection to the mains supply was via a main stop valve per block with pressure and flow test point. Hydraulic calculations were then made from the main stop valve to all individual flats. Each flat has an isolation valve, test point and flow switch for the alarm and sounder operated by the flow switch with mains connection.

Timetabling and programming

MS utilised a sequential programme of works with targets for the completion of a number of properties on a weekly basis. The sequential programme contained the following key elements:

- Liaison and communication with residents
- Preparatory building works
- Sprinkler system installation
- Electrical interface work
- Boxing and redecoration
- Follow up visit, handover, review of customer experience

Communication with residents

Residents were initially advised of the intention to install sprinklers in their properties in early in 2014

In May 2014 the Council wrote to all residents again to update them on progress with the contract. This letter advised that the contract had been awarded to Morgan Sindall as the main contractor with the sprinkler design and installation being sub-contracted to Armstrong Priestley.



Lounge



Residents at 'Meet the Builder' Event

It confirmed that the work was being carried out following a routine fire risk assessment by the authority and had identified areas of essential work which would improve safety in the unlikely event of fire. It detailed that the work to be carried out would be the installation of a fire sprinkler system in each property and fire stopping of service pipes, cables and ducts passing through compartment walls and service risers. The work was not expected to take more than two days in any one property and disruption would be kept to a minimum. A description of the installation and associated works was provided and an explanation that fitting the system was an innovative solution to address the particular fire risks identified in the design and construction of this type of property.

The letter also included a table of proposed start and finish dates for each of the six areas within an overall timeframe of twelve months commencing in November 2014.

Guidance was also provided on how tenants could assist by providing access to their homes and how Morgan Sindall would be contacting them to provide support once the project commenced. The process would be instigated by a letter from Morgan Sindall providing more detailed information inviting tenants to make an appointment for a home visit from a Customer Liaison Officer.

The letter included an invitation to a 'Meet the Builder' event where they would have an opportunity to ask questions and raise concerns with members of the Investment team responsible for delivering the project, representatives of South Yorkshire Fire and Rescue as well as Morgan Sindall and Armstrong Priestley. The make-up of this consultation team is seen as being critical to the success and effective completion of the project.

At the same time as the letter to tenants, leaseholders in the affected properties received a letter in accordance with Section 20 of the Housing Act 2004³ providing similar information and advising that the work would be carried out at their cost. The cost of the installation to leaseholders was £1200 which was partially subsidised by the authority.

The project has undergone the full section 20 process from consulting at project inception, feasibility all the way through the procurement, contract award and delivery. There were a number of leaseholders and tenants that had initially not allowed access or refused access to carry out the works. This required Sheffield City Council to review the legal process and were satisfied that where needed then appropriate legal action to gain access and carry out this work could be taken as the work is a statutory requirement under the Regulatory Reform (Fire Safety) Order 2005 and is also supported by the tenancy conditions.

The 'Meet the Builder' meetings were arranged for each area approximately two months before the planned commencement of the installation programme. For the early meetings a representative of the tenants from Callow Mount was included to provide first-hand experience of the installation of sprinklers. They were also able to counter some of the concerns about the intrusive nature of the work. The first meeting was well attended and there was significant resistance to the need for the work to be carried out, the benefits of sprinklers along with concerns over the usual 'myths and legends' relating to false activation and water damage. For later meetings, tenants from the early blocks were able to demonstrate customer satisfaction.

Morgan Sindall have extensive experience in carrying out refurbishment and upgrades in social housing involving large numbers of properties and place great emphasis on good quality ongoing communication with residents prior to, during and on conclusion of the work.

Following the consultation event residents received a letter advising of the planned date of installation. This letter, as were all subsequent letters was hand delivered by the Morgan Sindall Liaison team. Residents were provided with a telephone number to contact in the event of questions or if the date was inconvenient. A further letter was sent within a few days providing details of the design and diagram of the proposed work with an offer to visit and provide further information if required.

A final reminder letter was put through doors 7 days before the planned installation date and during this period Morgan Sindall liaison officers walked around the site making their presence known and talking to residents. On some but not all sites it was possible to use unoccupied flats to provide a site office and/or a show flat which enabled staff to answer questions and for residents to see an installation prior to the work commencing on their own property. Experience suggests that this is most beneficial in overcoming concerns but for logistical reasons may not always be possible.

3. This section of the Housing Act permits Local Housing Authorities to take "the most appropriate enforcement action" to deal with a Category 1 hazard.



Tenant liaison

Prior to the commencement of the installation, specific information was provided for the tenant and confirmed on the Tenant Induction Form which required the following actions to be confirmed and was signed by the tenant and a Morgan Sindall representative:

- Route for the system discussed with the tenant
- Position of sprinkler heads discussed
- Explain electrical pull switches require removal/relocation prior to installation
- Access arrangements discussed with the tenant
- Any special needs prior to installation
- Discuss with tenant arrangements for moving cabinets/wardrobes or any other items in line with route of installation
- Time scale of installation discussed with tenant
- Photos taken

The liaison officer visited each resident the day before the work was due to start and offered any assistance such as the moving of furniture and other support required. This also allowed staff to identify any particularly vulnerable people, to provide a 24/7 welfare contact and if necessary meet them prior to work commencing the next day. A member of the liaison staff would stay with a resident during the installation if required.

At the end of each day liaison staff visited residents to ensure they were happy and if there was any over-run then to put in place interim arrangements.

Subject to successful commissioning, completion certificates were issued for each flat containing the following information:

- Pressure Test
- Installation Inspection
- NICEIC Test
- Tenant Induction pack

Armstrong Priestley provided Operation and Maintenance (O & M) Manuals to Morgan Sindall and the handover form was signed off by representatives of Morgan Sindall and Sheffield City Council.

A 'Do's and Don'ts' list was provided for the residents was provided via the tenant liaison team outlining the working of the system with contact numbers for Sheffield City Council for further information

There is an initial 12 months warranty period from Armstrong Priestley for the sprinkler system. Following that there is a 12 monthly check and inspection of heads and flow test to check alarm operation. This can be undertaken by the sprinkler contractor but in this

project, Sheffield City Council will carry out the work as part of the annual maintenance programme for other services such as plumbing and heating.

Installation programming and monitoring

Morgan Sindall used a rolling programme of letters followed by visits and liaison during installation, moving furniture and dealing with any other issues raised with contractors and managed a comprehensive appointments system they have used on previous contracts doing 'Decent Homes' work.

The original programme commenced in November 2014 with completion scheduled for November 2015.

Morgan Sindall produced a monthly summary document providing the following information:

- Actual v Planned completion
- Actual v Planned cumulative totals (Numbers of properties and %)
- Average No of working days information on the number of properties completed for each of the 23 blocks

It also recorded the financial information relating to actual against planned expenditure

The installation process for system, boxing and finishing

In order to minimise the access requirements it was decided that the work on the risers for the block would be carried out at the same time as installation of the sprinkler system in the individual properties.

This approach meant that as individual properties were being completed they could not be pressure tested until work on the whole block was completed. This created a requirement for a high degree of control to ensure all connections were properly made before the system for entire block was charged and commissioned.

The installation used CPVC pipework which permitted speedy and clean installation without the need for hot work. The amount of drilling required was minimised and where it was necessary, dust extraction was utilised as drilling proceeded.

Once the pipework was in place the sprinkler heads were connected without their cover plates and the control valves installed. The preformed 'Pendoc' boxing was cut to size by tradesman and installed over the pipework following which the cover plates were fitted to the sprinkler heads. The final element was to complete the electrical connections to the flow switch and alarm sounders.

During the initial phase of the project, installation took two full days. This subsequently was reduced to one day but snagging, pressure and flow tests and commissioning was normally carried out at a later date.

There were occasions when the flats planned for installation were not available, this was partly addressed by having a back-up bank of properties and a high level of management liaison to keep control of the appointments system and where necessary deal with difficult tenants.

It was evident that resistance was reduced once some installations were completed, as residents used word of mouth and social media such as Twitter and Facebook to spread positive comments about their experience.

Those managing the project recognised that the speed of installation benefited from establishing a structured and co-ordinated approach, which reduced the time required in



Installation of CPVC pipework

each property. The pipework fitters were very familiar with CPVC pipe, the joiners were using preformed Pendoc coving which reduced time of installation as no boxing needed to be constructed. In addition to the technical skills it was important to select a workforce who were able to communicate with residents, have a patient attitude and pleasant personality and to remember they are working in people's homes not on a building site.



Sprinkler installation prior to fitting cover plate



Preparation and fitting Pendoc boxing



Cover plate fitted to sprinkler head



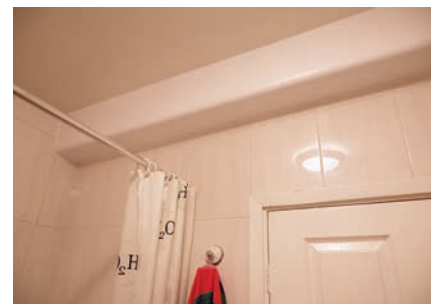
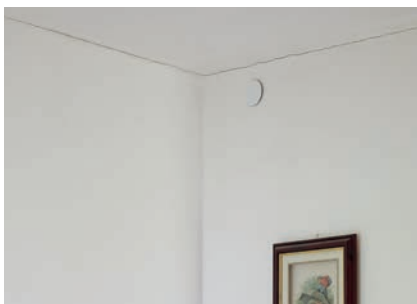
Electrical connections to alarm and sounder



Completed installations



Completed installations



Residents' feedback

The majority of residents acknowledged that the Council had kept them informed about the intention to install sprinklers and the way the work would be carried out. Those who attended the liaison meetings felt they were very effective in providing further information about these plans and to allay any fears residents may have about the proposed installation and how sprinklers work.

Feedback from the occupants in some of the blocks scheduled later in the programme suggested that there was a significant period of time between the initial letter and the date set for the meeting. Some residents felt this was too long as some had forgotten and may have contributed in part to the lower numbers who attended the later meetings.

Some of the concerns raised by residents who did not attend the liaison meetings included:

- A lack of understanding that the sprinklers were being installed to address significant fire safety issues identified in fire risk assessments carried out under the Regulatory Reform Fire Safety Order.
- Concerns over how sprinklers worked and some of the myths associated with them.
- Why it was necessary to fit sprinklers to their property but not their neighbours in other properties, albeit of different construction
- Some expressed the view that there has never been a fire in their block, why do we need this extra protection. The council explained that it had a duty of care to its tenants to address problems with means of escape from upper properties and the spread of fire to the communal walkways.

It was suggested for future projects that links to sprinkler organisations such as BAFSA/NFSN could be provided so that residents could seek further information. In addition to contact numbers, social media could be used to provide communication to and between residents.



Completed installation

There was widespread acknowledgement of the importance of the role of the Morgan Sindall tenant liaison officer in the days immediately prior to installation. In particular the explanation of where the pipe runs would go, the location of sprinkler heads and showing a sample of the boxing. Some residents felt it would have been helpful to have more information prior to this visit particularly if they had been unable to attend the liaison meeting.

A number of residents said they had a huge amount of scepticism when the first installations were going in but as the project moved forward their resistance lessened due mainly to the tenancy support provided by Morgan Sindall and the workmanship and cleanliness of the installation teams.

Another contributory factor was residents were able to see a finished example in a show flat or if this was not possible in a neighbour's house and also ask about the installation process. It was evident that residents were more confident where show houses were available.

The majority of tenants said that the installation was efficient and clean, all furniture returned to its correct place, no interior decor damaged and the attitude of the contractors was highly praised. There were also no complaints about the boxing in using the coving which received a special mention as being aesthetically pleasing. The comments reinforce the need to ensure installers are ultra clean and tidy and recognise the need for a high standard of customer care.

As with the above feedback from tenants, some leaseholders reported they had difficulty in finding out the information particularly if they did not attend the liaison meetings. The major concern for them was the understanding the cost of the system. One reported that they were not informed until the day before the installation was scheduled to commence. It is important to ensure that costs are defined for Leaseholders at an early stage.

In response to the question did residents feel safer they responded that they did feel safer with some leaseholders feeling it was an asset which added value to their property.

System Maintenance

Sprinkler installers should ensure that their clients are aware that such systems require maintenance in compliance with Section 7 of BS 9251:2014. This requires an annual inspection by a competent person. The inspection will determine whether all components are functioning as designed, check for leaks, determine whether any modifications have been undertaken and if so, that these are compliant with the standard and also whether there have been any changes or modifications to the building. In the latter case, an assessment should be made as to whether the system as designed and installed is still appropriate.

Where premises or parts of premises (such as common areas) are regulated by the Regulatory Reform (Fire Safety) Order 2005 or the equivalent devolved legislation, the annual maintenance requirement may also be a legal requirement in some circumstances or as part of the fire strategy for the building

Summary and conclusions

Sprinklers offer effective solution to fire protection of residents particularly where there are significant structural design or fire protection failings which cannot be addressed without significant expense. They are cost effective, more robust, as there is no need to decant tenants to temporary accommodation whilst the installation takes place.

It is evident from the initial tender processes that the bulk of the sprinkler installation industry was not able to undertake contracts of this nature or scale. While there are number of residential and domestic installers undertaking work for local authorities and housing associations, these are usually for individual premises or a small number of units. In addition to the lack of experience the Council tendering process excluded many of these companies who were unable to satisfy the capital turnover criteria.

The joint meetings with BAFSA also reinforced the view of Sheffield City Council that sprinkler contractors did not fully understand or were able to effectively deal with the tenant liaison activity required for the successful completion of a project of this scale.

There were also concerns over the ability of the sprinkler industry to deliver or manage the completion of associated building works including the boxing in and redecoration.

As a result of these concerns the Council determined that the best way of delivering the project was to award the contract to an established general works contractor with a record of large scale refurbishment work in social housing. The primary contractor would be required to sub contract the sprinkler installation to an established sprinkler contractor with third party approval.

The use of a lead contractor approach enabled the project to be managed by a company with extensive experience of managing large complex social housing refurbishment supported by a company with extensive experience and expertise in sprinkler installation. The combination of the strengths of both parties ensure the contract is delivered in a coordinated and efficient manner so that it is delivered on time and within budget.

Whilst such arrangements are likely to add to the contract value through additional management costs, it appears to be the most cost effective approach given the limited experience or number of sprinkler installation contracts of this scale and complexity.

This project highlighted the importance of effective ongoing communication with residents/tenants. Morgan Sindall were able to bring significant experience in this area. In spite of this it is evident that some residents felt more could have been done.

It was evident that where show flats could be provided or access to one of the early installations that the potential for resistance from residents was reduced.

The adoption of a co-ordinated sequential planning process was the key to the successful implementation.

“I am very pleased with the level of commitment and team work shown by the client team, Morgan Sindall and Armstrong Priestley and the partnership with South Yorkshire Fire. The work and desire to ensure that the systems are installed has proven to be a challenge from the start, overcoming customers real uncertainties, concerns and worries about the basic need of having a sprinkler system fitted. By making sure that we took time to plan a proper communication plan with presentations, Frequently Asked Question Sheets, Q&A sessions and ensured that tenants and leaseholders were the focus of our attention we have been able to successfully deliver the programme with a high level of customer satisfaction and proven that this type of work can be achieved”

The design and installation of the sprinkler system is relatively straightforward. It is important that in addition to the technical skills required it is important that all trades involved work in a co-ordinated fashion. They must also ensure a high level approach to customer care, demonstrating the ability to communicate with residents, have a patient attitude and pleasant personality and to remember they are working in people’s homes not a building site.

In discussions with Morgan Sindall they asked the length of the pipework supports could be reduced, this would permit the use of smaller profile ‘Pendoc’ boxing. This would create a less intrusive finish.

Successful Sprinkler Activation 9 January 2016

The sprinklers installed in one of these properties successfully dealt with a serious fire and allowed the elderly resident to escape without serious injury.

The fire started in a mobility scooter, parked outside the front of the top floor property due to an electrical fault. The fire in the scooter developed rapidly spreading to the front of the building causing the front windows to break and allowing the fire to spread inside the building.

The fire sprinkler system activated, extinguishing the fire and limiting damage to the front of the dwelling, when fire crews arrived the fire was all ready under control. Whilst there as serious damage to the external facia, the interior of the property was relatively undamaged by this very severe fire.

Note: Sprinkler systems are designed to activate in the early stages of a fire which start within a property. In this incident the sprinklers successfully controlled a fully developed fire entering the building and fully demonstrated their effectiveness.



The BAFSA publication *Safer High Rise Living* can be downloaded free of charge from: www.bafsa.org.uk/pdfs/publications/1/00000111.pdf

BAFSA Information Files (BIFs)

Currently totaling 31, they are available for reading, downloading and printing. These are technical documents specific to a subject, ie, care homes, schools, sprinkler fast facts etc. Of particular relevance to readers of this document are:

BIF 2	Dwellings
BIF 6	Frequently Asked Sprinkler Questions
BIF 9	Water Mist
BIF 10	Retrofitting Sprinklers Systems
BIF 13	Sprinklers and Water Supplies
BIF 16A	<i>Maintenance of Residential and Domestic Sprinkler Systems (To be published Mid 2016)</i>
BIF 19	Sprinkler Reliability
BIF 27	Sprinklers A Guide for Owners and Occupiers

All BIFs can be accessed at www.bafsa.org.uk/publications/bafsa-information-files.ph

Other publications from BAFSA

Sprinklers for Safety: uses and benefits of incorporating sprinklers in buildings and structures (a report by Arup Fire)

Sprinklers for Safer Living: the benefits of automatic fire suppression systems in residential care premises (a report by Arup Fire)