Use of sprinkler systems in schools and other Council buildings

Ref. No.	PL/CP/1
Category(Y/N)	
People	
Place	Yes
Corporate	
In Constitution	

Policy Details

What is this policy for?	Policy guidance on the decision-making process to ascertain if sprinkler systems should be installed in schools and other Council Buildings
Who does this policy affect?	Clients involved in the construction of new buildings, major refurbishments or extensions.
Keywords	Sprinkler policy guidance, fire safety
Author	Brian Cox PMD Capital and Performance Manager (No longer with the council) Please contact David Roe, Dorset Property service manager.
Dorset Council policy adopted from	Dorset County Council. This policy applies across the Dorset Council area.
Does this policy relate to any laws?	Policy is underpinned by Building Bulletin 100 design for fire safety in schools, guidance document.
Is this policy linked to any other Dorset Council policies?	Previous cabinet report dated 1st March 2006, this policy covered the installation of sprinkler systems in new residential care homes and buildings where vulnerable groups are accommodated.
Equality Impact Assessment (EqIA)	EQIA was not in place when the policy was agreed. An EQIA will be completed when the policy is reviewed for Dorset Council.
Other Impact Assessments	Financial implications.

Status and Approvals

Status	Live	Version	Original
Last review date	26 January 2011	Next review date	August 2021
Approved by (Director)	Director for Environment	Date approved	4 June 2008
Member/ Partnership Board Approval	Dorset County Council Cabinet	Date approved	4 June 2008

Agenda Item:

Cabinet

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Dorset County Council

Date of Meeting	4 June 2008
Officer	Director for Environment
Subject of Report	**Use of sprinkler systems in schools and other Council Buildings**
Executive Summary	This report explains the advantages of extending the present policy on the installation of sprinkler systems to all new schools and to consider their installation in other new County Council buildings. It also considers that a risk assessment be carried out on major refurbishment and extensions at schools and other County Council building projects.
Budget/Risk Implications	The change in policy, if approved, will increase the capital cost of new build projects. It is intended that this cost will be funded from within the capital estimates for the projects. The risk in not extending the policy on the use of sprinkler systems in schools and other new council buildings is that future funding from government will be under threat because major capital investment will not be comprehensively protected and although buildings are insured, excesses may increase.
Recommendations	It is recommended that:- (i) the County Council's policy be extended so that in addition to residential homes and buildings where vulnerable groups are accommodated, the County Council install sprinklers in all new schools (para 2.3). (ii) a risk assessment using the Department for Children, Schools and Families (DCSF) model is carried out on all major school extensions and all major refurbishments involving significant investment to establish if it is appropriate to install sprinklers in

	accordance with the guidelines contained within the report, except in buildings where the risk is accepted as low (para 3.2 and 3.4). (iii) sprinkler systems be installed on all other new build County Council buildings, except where the risk is accepted as low as measured using the DCSF risk assessment method referred to in 2.2 (para 4.1).
Reasons for Recommendations	On 1 March 2006 the Cabinet approved the installation of sprinklers in all new care homes and buildings used by vulnerable groups and a risk based approach on other County Council buildings. Since then, the Department for Children, Schools and Families has issued further guidance which recommends that only in schools with a low risk, based on the simple fire risk assessment tool, should sprinklers <u>not</u> be installed. However, they have also stated that there are no specific additional grants for sprinkler systems and that they will have to be funded from the overall sum provided. To update the Council's policy on the installation of sprinkler systems in accordance with the corporate aims of improving health, community safety and well being and being a well managed Council.
Appendices	None
Background Papers	Report to Cabinet 1st March 2006 – in particular, note Sections 8, 9 and 11 New Policy on Fire Sprinklers – Extract from DfES Newsletter Spring 2007
Report Originator and Contact	Name: Brian Cox, PMD Capital and Performance Manager Tel: 01305 221903 Email: b.e.cox@dorsetcc.gov.uk

1. Background

1.1 For a number of years, the Dorset Fire & Rescue Service has asked the County Council to consider installing sprinkler systems in schools. On 1st March 2006, the Cabinet considered a detailed report examining the reasons for this recommendation, based on reports considered by the Building Construction Group (now Construction Scrutiny Group) and the Asset Management Group. These reports explored the practical and economic constraints of installing sprinklers in schools and considered:-

- the frequency of fires in schools in Dorset
- the causes of these fires
- the economic consideration of the fires and their prevention
- the statutory regulations applying to fire precautions
- the current standards for fire precautions in County Council buildings and the means for improving them
- the advantages of automatic fire protection
- the advantages of sprinkler systems and the cost of installation in new and existing buildings

1.2 The report then examined what other authorities were doing at that time. The reports from six South West authorities demonstrated that whilst consideration had been given to installing sprinklers, most authorities had no clear policy and only two had decided to install them on new buildings. The report concluded that whilst there were compelling reasons for installing sprinklers on all new projects, the cost would be significant. At that time the Asset Management Group's view was that Fire Risk Assessments should be carried out at the feasibility stage of each major project to decide whether sprinklers should be installed. This was also supported by the advice in the Draft Consultation document from the DfES – Building Bulletin 100 – Designing and Managing against the Risk of Fire in Schools.

1.3 The Cabinet therefore approved the recommendations in the report which were to:-

(i) As a matter of policy, sprinklers be installed in all new residential homes and buildings where vulnerable groups are accommodated
(ii) A risk based approach be adopted for the installation of sprinklers in County Council buildings
(iii) The Asset Management Group undertake a review of fire risk assessments and review and analyse data from recent crime and fire statistics to highlight areas of high risk
(iv) Fire Risk assessments be carried out for all major new building projects as part of the feasibility study in order to consider the case for installing sprinklers

1.4 This policy was implemented following the approval by the Cabinet and the Care Homes at Wimborne, Streets Meadow and Christchurch, Jumpers Lane, which were both in design, had sprinkler systems installed. Risk Assessments were also carried out on new schools that were in design, but none were assessed as being high risk and sprinkler systems were not included in the design.

2.0 Proposed change in policy following revised guidelines from government.

2.1 In 2007, the Department for Children, Schools and Families (DCSF) issued new policy guidance on sprinkler systems in which it was stated that they expected the majority of new schools or those which undergo a major refurbishment to have to

complete an analysis using a risk assessment tool. However, the Government's expectation was that in the majority of cases this process (the risk assessment) will lead to sprinklers being fitted.

2.2 This risk assessment is similar to the one the County Council had been using. Previously, the advice contained within Building Bulletin 100 from the DCSF (formerly Department for Education and Science) had been that should a building fall into the low or medium category, the recommendation would be that it did not require sprinklers. Now the guidance from the DCSF has changed in that it is only buildings in the low risk category which should not have sprinklers installed.

2.3 The DCSF in developing the simple risk assessment have also provided a spreadsheet – based on cost benefit analysis. The DCSF would therefore expect the County Council to complete this analysis at feasibility stage on all its projects. Given the issues raised in the previous report, the objectiveness of any risk assessment and the substantial investment now necessary to provide sprinkler systems in new buildings, it is proposed that, subject to approval of this report, ALL new schools, even those with a low risk, should include a sprinkler system. This would provide property protection and provide enhanced life safety systems.

2.4 The recommendation to provide sprinklers in all new schools, irrespective of the risk assessment, is because our experience to date has placed the schools in the medium risk category which requires sprinklers to be installed. This occurs largely because of the rural more isolated nature of many of Dorset schools and the consequently longer response times for the Fire and Rescue Services.

2.5 Furthermore, it is increasingly apparent that sprinkler systems provide an additional safeguard. The County Council therefore needs to decide whether the investment represents value for money in terms of reassurance of public confidence, and of ensuring against the educational disruption, sense of loss, psychological damage and personal distress of a fire. As stated in the previous report, academic pressures are such that a significant loss of teaching facilities and coursework could have a major effect on student examination results, especially at secondary schools and there is substantial evidence that to recover from a major fire at a school can take a minimum of 12 months. This may be a fine judgement in some instances, but on balance, and taking into account recent advice from the Fire and Rescue Service that where a building is on fire but no threat to life exists, fire crews will not be put at undue risk to save a building, it is considered that a common policy for all new school buildings is justified.

3. Proposed Policy for Sprinkler Systems on Extensions and Major Refurbishments to Schools

3.1 The previous report highlighted that the installation of sprinkler systems in existing buildings is considerably more difficult and hence expensive. Fitting sprinkler systems within existing buildings can be double the cost of fitting compared to those under construction. Installation of a network of pipes throughout the building to provide adequate sprinkler cover is required. Possible disturbance of asbestos containing materials may be required and it may be likely that the existing water supply could not cope with the demand. Actual costs would be dependent on the suitability of the building structure and type of system to be fitted and therefore it is hard to accurately estimate, but because of the need to provide infrastructure equipment as well as replacing ceilings and light fittings is likely to be in excess of

£200/m².

3.2 The cost benefit of installations on school extensions is more difficult to assess, but will still almost certainly be disproportionately high because of the infrastructure costs and it is therefore proposed that it only be considered on major schemes (it is proposed therefore that it would apply to those projects where there is a significant investment, those where the construction cost is over £1M or in excess of 50% of the existing floor area, whichever is the greater) and where the risk assessment is a medium or high risk.

3.3 This latter proposal will have a significant cost effect on the Modernising Schools Programme. Allowance has already been made within feasibility estimates for new schools, but no allowance has been for extensions to existing schools and will affect schemes which are not yet approved, but are in early design. This will include those at Blandford School (Phase 3 Extension); West Lulworth School (Hall Extension), Blandford Downlands School (Key Stage 2 Extension).

3.4 The installation of sprinkler systems in existing buildings where a major refurbishment is required also needs to be reconsidered. The advice to date is that it may be more cost effective to increase the fire detection because of the difficulties in installing a sprinkler installation, but given the increasing recognition of the benefits of sprinklers in safeguarding property the Cabinet may wish to consider adopting a risk based approach on these buildings where significant remodelling is proposed (in excess of 50% of floor area).

4. Proposed Policy for Sprinkler Systems on Non Schools Projects

4.1 Investment in any new building is substantial and given the recommendation to install sprinkler systems in schools, it is proposed to follow the same recommendations for other new buildings. Therefore it is proposed that all other new County Council buildings should include for a sprinkler system.

4.2 Similarly, it is proposed that major extensions and major refurbishments should also have a risk assessment completed, using the DCSF model, to establish whether a sprinkler system be installed.

Miles Butler
Director for Environment

Agenda Item

Cabinet – 1 March 2006

Use of Sprinkler Systems in Schools and Other Council Buildings

Joint Report of the Director of Environmental Services and Head of Financial Services

1. Purpose of Report

1.1 **To consider a recommendation by the Dorset Fire Authority that Dorset County Council install sprinkler systems in schools and other County Council buildings.**

2. Recommendations

2.1 **It is recommended that:-**

(i) As a matter of policy, sprinklers be installed in all new residential homes and buildings where vulnerable groups are accommodated.

(ii) A risk based approach be adopted for the installation of sprinklers in other County Council buildings.

(iii) The Asset Management Group undertake a review of fire risk assessments and review and analyse data from recent crime and fire statistics to highlight areas of high risk.

(iv) Fire Risk Assessments be carried out for all major new building projects as part of the feasibility study in order to consider the case for installing sprinklers.

3. Reasons for Recommendations

3.1 To clarify the Council's policy on the installation of sprinklers in accordance with the corporate aims of improving health, community safety and well-being and being a well managed Council.

4. Background

4.1 Fires in schools and other public buildings are an emotive issue. The damage and distress that can be caused by fires cannot be underestimated. The recent examples at Lytchett Minster School and Bincombe Valley School have highlighted this. For this reason, it is essential that the public have confidence in the measures put in place to prevent and deal with fire in public buildings.

4.2 One such preventative measure is sprinklers. There is only very limited use of sprinkler systems in Council buildings at present.

4.3 Dorset Fire Authority has asked the County Council to consider installing sprinklers in all schools. The Local Government Association has also published a series of booklets, Automatic Fire Sprinklers – *Toolkits for Local Authorities, Schools and Domestic Properties,* in February 2004 and the DfES has issued draft consultation document –Building Bulletin 100 *Designing and Managing Against the Risk of Fire in Schools.*

4.4 The Asset Management Group has explored whether there were any practical and/or economic constraints on installing sprinklers in schools and has considered the alternatives. This scrutiny can inform the building of new schools within the Modernising Schools Programme.

4.5 The Building Construction Group was asked to consider the issue in detail.

4.6 The main focus of the scrutiny has been on schools, but it has also been necessary to consider the policy in relation to residential homes for the elderly. The key questions asked by the Group were:

- What extra safety could be achieved by installing sprinklers?
- Would fitting sprinklers be affordable and good value?

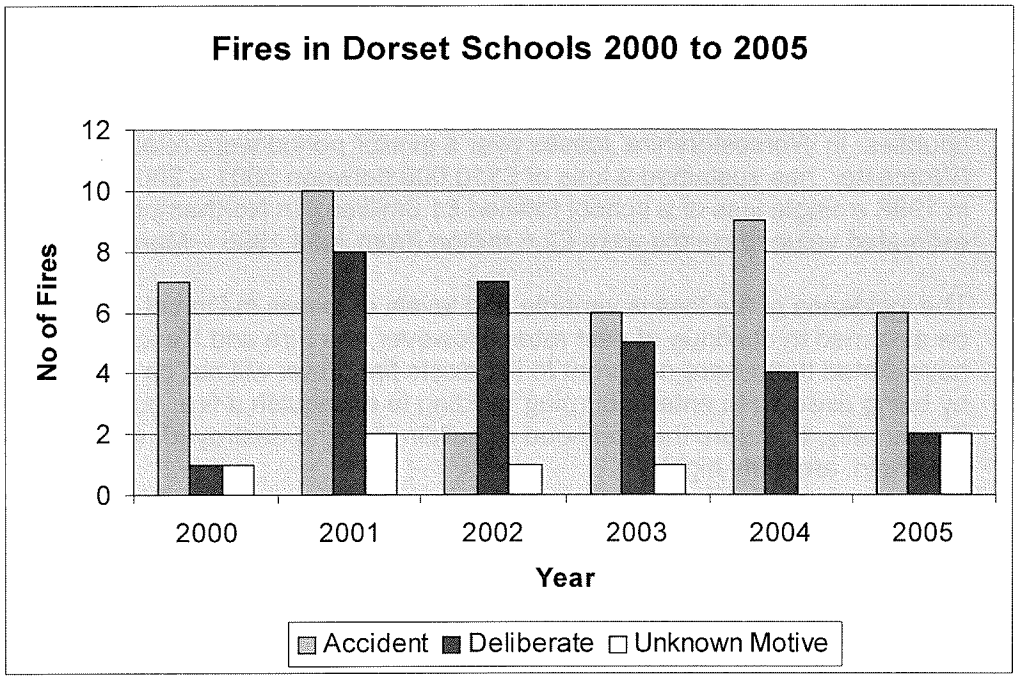
4.7 The Building Construction Group agreed that any recommendations should be based on the most recent evidence within the County Council, and other Local Authorities, as well as informed stakeholders.

4.8 The Group has therefore considered evidence from:

- Dorset Fire and Rescue Service
- The County Insurance and Risk Manager and Insurers
- Detailed reports carried out by Worcestershire County Council in May 2004, Northamptonshire County Council in July 2005 and other Local Authorities
- Wormald PLC (sprinkler manufacturer).

5. Fires Occurring in Schools in Dorset

5.1 To help establish the level of risk in Dorset, the Fire and Rescue Service have forwarded information on the number of fires on school premises to which they have responded over the last five years; these are shown in graphical form:



In total they amount to 74 call outs covering all schools in Dorset, Bournemouth and Poole including private schools. The risk frequency of a fire in a school over this 6 year period is 1:23. For the same period the risk frequency of a fire in the home is 1:532. This means that in Dorset a school is 23 times more likely to have a fire than a domestic dwelling. A list of the incidents is included in the appendix. Four of the fires over the last five years led to significant loss of buildings. Those at Lytchett Minster School, Wey Valley School, Bincombe Valley School and Barton Hill House.

5.2 Cause of Fires

The Fire and Rescue Service acknowledges nationally that certain trends can often be identified, starting with minor vandalism or graffiti, followed by a series of small fires in school grounds which may get progressively bigger, until finally the school is set on fire. In Dorset there does not appear to be any record of significant trends at particular schools but it is recommended that analysis is carried out with the Fire and Rescue Service to identify any particularly high risk schools.

5.3 Cost of Fires

Nationally the Arson Prevention Bureau reported in September 2003 that losses through school fires were estimated at £97m per year, this has doubled over ten years. The estimate only covers direct costs and excludes indirect costs such as temporary accommodation.

5.4 In Dorset the estimated value of claims in the last five years totalled over £4Million. These comprised:-

Lytchett Minster School	£3,500,000
Bincombe Valley School	£840,000
Wey Valley School	£60,000
Barton Hill House	£10,000

5.5 The losses from fires in schools in Dorset are low compared to metropolitan areas (Leeds has had losses of £12 – 13 million between 2001 – 2004). To provide a Shire County perspective, we have obtained data from two counties. In Worcestershire, losses over a similar period were relatively high. (Worcester, has sustained a loss of £110,000 between 2001 – 2004 however in 1998 a single loss of a school totalled £1.6million). In Northamptonshire the estimated value of claims were £2.6 million (from April 1996 – March 2004).

5.6 The incidence of fire loss is variable and levels of losses in Dorset must not be assumed to continue at past rates. However, the Fire and Rescue Service have stated that where no threat to life exists fire crews will not be put at risk by being directed to enter a burning building to extinguish a fire, but will tackle it externally, therefore the likelihood of buildings being destroyed, should a fire gain hold, are fairly high.

6. Current County Council Policy

6.1 There is currently no agreed Dorset Standard for Fire Safety other than that the County Council must comply with current fire precaution regulations.

6.2 What fire precautions are required by regulation?

6.3 The Fire Precautions (Workplace) Regulations 1997 and Amendments define certain fire safety measures, such as ensuring means of detecting and fighting fire, escaping from workplace in the event of a fire, and requiring employees to include fire hazards in their risk assessment. Under these regulations every premises, including schools, where five of more people are employed must have a Fire Risk Assessment (FRA) carried out and a written record of this maintained on each site. In schools there is joint responsibility for fire safety between the LEA, head teachers and school governors.

6.4 Properly completed and adhered to, an FRA is the first line of defence against fires and should ensure that, where improvements have been put into a building, fires can be avoided or at the least contained. For instance fire doors are installed to prevent the spread of fire, but if wedged the investment in the door may be wasted as the open door will allow a fire to spread. Other examples relate to the care needed over the siting of dustbins or the chaining of 'wheelie' bins to stop them being set on fire and positioned next to a building.

6.5 The FRA is the responsibility of the individual establishment, however the Fire and Rescue Service on their inspections have noted that these are not being carried out consistently.

6.6 Additionally, all new building work is subject to approval under the Building Regulations and since April 2001 this has also applied to schools. Buildings must be designed in accordance with Approved Document B (Fire Safety). Following Approved Document B provides a satisfactory standard of life safety and minimum property protection. The areas covered by regulation mean that the following areas are addressed:-

- the likely rate at which flames will spread
- the resistance to fire of the structure
- the means of escape in the case of fire

6.7 **Current means of providing fire precautions in County Council Buildings**

6.8 The design of the construction of the building is most important in protecting both the occupants and the property itself. The design process in new buildings addresses such areas as:-

- limiting the use of easily ignited materials
- using fire resisting construction (especially for fire escape routes) and compartmentalisation with fire walls which reduce the risk of the spread of fire
- using smoke restricting measures (e.g. smoke and fire doors)
- limiting the likely speed of flames and smoke production
- preventing fire and smoke exploiting cavities, services or ventilation ducts
- limiting the spread of fire to an adjacent building
- using automatic fire alarm and fire detection systems to alert the occupants to a fire
- ensuring safe evacuation including using emergency lighting

6.9 Since the mid 1990's there has also been an ongoing programme of Fire Protection works to existing buildings to bring them up to a similar standard to new buildings. This is ongoing but Fire Officers and Property Management Division have been working through a list of improvements similar to those in the paragraph above.

6.10 In addition to the Fire Risk Assessments all establishments have a means for raising the alarm. Usually these are electrical systems, although there are a small number of school buildings and temporary classrooms where manual systems are regarded as adequate. In all new buildings, apart from temporary classrooms, installation of automatic fire detection is usually a requirement. However, most of these systems only operate to alarms. These will warn the occupants of a building, should a fire occur, but will not provide any protection to the building. Should the fire occur at night or when the building is unoccupied then there is usually no automatic link to a monitoring system and a fire could become widespread before anyone notifies the Fire and Rescue Service. This was the case at Lytchett Minster School.

6.11 Therefore, current regulations should protect the occupants adequately but the protection of the building is somewhat haphazard especially when the building is unoccupied.

7. Means of Improving Fire Protection of Properties

7.1 Earlier reference was made to the ongoing fire protection of buildings. From this it would appear that improvements have been made to reduce the likelihood of fires occurring but there is still no guarantee that a fire will not start. It can be detected and occupiers warned to escape but should a fire start it can be some time before the fire is noticed and the Fire service called.

7.2 There are two methods therefore that need to be considered to increase the protection of the County Council's future and existing property assets:-

i) Comprehensive automatic fire detectors linked to a monitoring station
ii) Installation of sprinklers

7.3 Comprehensive automatic fire protection

7.4 Recent new build projects include fire alarm systems designed to L2 classification (which covers detection systems to all escape routes and rooms onto them together with high risk areas). This strategy has been developed with the Fire Officers and local building control and provides much better warning should a fire occur in an unoccupied part of the building, such as a boiler room. It has limitations when the building is unoccupied at night or in the holidays and therefore the fire alarm system has sometimes been linked to the intruder alarm system, which is in turn linked to a monitoring station. The monitoring station will contact a duty holder to see if there is likely to be a false alarm, if in doubt the Dorset Fire and Rescue service will be activated but will only send an initial attendance of one fire engine. However, this system is not mandatory and therefore is not applied consistently in all new buildings.

7.5 The advantage of this system is that it enhances the present fire alarm systems and is therefore comparatively economical but the auto-dialler in the intruder alarm panel only has 24 hour back-up on power failure. It may be better to have the separate phone line link to the monitoring station with a 72 hour battery back up.

7.6 As an example, the estimated cost to install such a fire alarm system with link at the proposed new Holy Trinity School is £16,000 (£5/m^2). To bring the fire alarm to a full L1 standard automated system (detectors in every room) with Red Care Phone Line and 72 hour battery back up would be approximately £20,000 (£6.30/m^2). There is a revenue implication in paying for the monitoring station and renting the separate telephone line which is in the order of £650? per annum per establishment.

7.7 <u>Advantages of comprehensive automatic fire detectors</u>

- detects fire and smoke
- raises the alarm (both in building & linked via monitoring station to fire service)
- reliable
- early warning of fire
- comparatively economical

- can be retro fitted into existing buildings at same time as improvements to fire detection being made.
- Infrastructure (electric power supply) will not need upgrading.

7.8 Disadvantages

- does not extinguish fire and fire damage will occur;
- building not totally protected but dependant on speed of fire service attending alarm call;
- water damage through fire fighting activities.

8. Sprinkler Installations

8.1 The advantage of installing sprinklers in a building is that they quickly suppress the fire at source, usually bringing the fire under control by using one or two sprinkler heads. However they have a reputation for being unsightly and a perception that they can result in extensive water damage. In our discussion with Andy Fox, Watch Manager, from Dorset Fire and Rescue Service, we considered these issues together with the question: "Could they be subject to abuse especially in schools"? He advised us that modern vandal proof sprinklers can be installed above the ceiling tile with an insert that drops away if the temperature rises to a critical point and therefore the sprinkler heads cannot be seen and are consequently not as vulnerable to being tampered with. Should a fire occur then, only one or two sprinklers would be activated and these would contain the fire until the arrival of the Fire & Rescue Service. Buildings not fitted with sprinklers will suffer far greater water damage and fire damage as fire fighters will be faced with a more advanced fire. It was also rare for sprinklers to cause water damage through faulty mechanism. Additionally, they provide extra safety to the occupants if they are not ambulant.

8.2 Advantages of Sprinklers

These can be summarised as:

- detects fire;
- extinguishes fire;
- raises the alarm (both in building & linked via monitoring station to fire service);
- protects the occupants(the spray reduces the harmful effects of large particles in smoke);
- protects the building;
- provides additional safety for fire-fighters;
- reduced water damage;
- reliable;
- tackle fire sooner than fire service could usually arrive;
- reassuring in an area with high incidence of arson;
- business continuity – very speedy return to normality.

8.3 Disadvantage

The main disadvantage is thecost of installation especially in existing buildings.

8.4 Cost – New Buildings

One of the main prohibitive factors to fitting sprinklers is the cost of installation and maintenance. Cost estimates vary significantly with capital costs quoted between 1.8% - 5% of overall construction cost, for a new building. Based on installation costs for the residential homes, schools appear to be more expensive as it has been possible in these buildings to put in a system of similar specification to a more domestic type. The fitting of sprinkler systems in the proposed new Holy Trinity School is estimated to be between £55/m^2 and £85/m^2. This would equate to a range from £176,000 to £272,000(2.6% to 4% on build cost). These estimates also assume there is sufficient water supply off the public mains negating the need for storage tanks and pumping provision. A recent report from the Chief Fire Officer's Association on sprinklers in schools has provided a further example of a primary school in Lancashire, the Devonshire Primary School in Blackpool, where the cost of the sprinkler installation was £73,000 (July 2005 costs) and the school cost was £7M. As this is similar in overall cost to Holy Trinity School, Weymouth, it requires further investigation with the framework contractor, but early quotations would appear to support our estimates.

8.5 Cost - Existing Buildings

Installation of sprinkler systems in existing buildings is considerably more difficult and hence expensive. Fitting sprinkler systems within existing buildings can be double the cost of fitting whilst buildings are under construction. Installation of a network of pipes throughout the building to provide adequate sprinkler cover is required. Possible disturbance of asbestos containing materials may be required and it may be likely that the existing water supply could not cope with the demand. Actual costs would be dependant on the building structure and type of system to be fitted and therefore it is hard to accurately estimate, and requires further investigation.

8.6 Revenue Costs

If a sprinkler system is installed it requires regular maintenance. This includes checks for legionella (a risk in any static water system). The average cost for maintenance will be £400 to £1,000 per school, which covers two inspections annually.

8.7 Fire Engineering

In principle there should be a cost benefit of 'fire engineering' in new buildings if sprinkler systems are installed, i.e. reductions in compartmentalisation, fire doors, extinguishers etc. Although Fire and Rescue Services confirmed this, the knock on benefits are not always immediately apparent, it is not clear whether where sprinklers have been provided there will be a relaxation of Building Regulations e.g. will there still be a need to install fire doors in the 'open' circulation routes of the schools. This could be an example of compartmentalisation not being relaxed. This needs further examination with Building Control.

9. Insurance for Fire Risks

9.1 Reductions in Premium

It is recognised generally by insurers that the installation of sprinklers would provide a significant reduction in risk from fire loss and hence would reduce insurance premiums or result in lower excess premiums.

9.2 The Council's Insurance and Risk Manager advised that our insurance policy with Ecclesiastical Insurance offers blanket cover for all buildings. Common to the policy has been the excess (or self insurance) whereby the Council has to meet the first part of each claim. The current policy costs approximately £650,000 per annum and an excess of £150,000 applies to school buildings and £100,000 excess applies to other buildings.

9.3 As a consequence of this blanket cover for all buildings, it is not possible to accurately quantify the benefits overall to DCC of fitting sprinkler systems in some buildings.

9.4 It is recommended that more market research be undertaken with the Council's insurance advisor, as to the potential benefits that could be forthcoming when policies and premiums are renewed.

10. What Other Authorities Are Doing

10.1 Reference has been made to the very comprehensive reports carried out by both Northamptonshire and Worcestershire County Councils and BCG are grateful for permission to use information from their reports. Since their reports were approved Northamptonshire County Council installs sprinklers in all new buildings but Worcestershire County Council has only installed sprinklers in the schools planned through PFI.

10.2 In the South West Region the following responses were received from the respective fire authorities about their policy on installing sprinklers:

- Cornwall – no policy for installation but always comment that sprinklers should be considered in response to Building Regulations approval
- Devon – only PFI schemes have sprinklers installed
- Gloucestershire – awaiting response
- Somerset – Policy in place for last 3 years for installation of sprinklers in all new buildings
- South Gloucestershire – starting to install sprinklers in new builds
- Wiltshire – no policy but as with Cornwall and Dorset always comment that sprinklers should be considered

10.3 Other authorities nationally have considered the issue. East Sussex are proposing a risk based approach similar to a model trialed by Blackpool where a priority based approach is used based on a Fire Risk assessment. This assessment is considered by a panel comprising officers from Education, Property Service, the Police and Fire and Rescue and considers issues such as vandalism and incidence of crime and arson in the areas under consideration. It would appear that Gloucestershire may also be considering a similar approach.

11. Conclusions

11.1 Do sprinklers provide additional safety?

Undoubtedly they do provide additional safety as they quickly extinguish or hold a fire in check until the arrival of the Fire & Rescue Service. This allows fire fighters, when they enter the building, to get to the seat of the fire and examine the cause to ensure that the building is safe to occupy.

11.2 Are sprinklers affordable and do they offer good value?

The costs of installing and maintaining sprinklers are considerable, even in just one school. A large primary school could cost almost £300,000, and a large secondary school almost £750,000. Further investigation needs to be carried out with the Modernising Schools Programme Tier 1 Framework contractors. Worcestershire County Council found that the cost of installing sprinklers in all its existing buildings was too great for the County to bear. However in residential accommodation, especially where vulnerable people are accommodated, it appears that by using a 'domestic' type solution the cost is more reasonable.

11.3 The latest research on cost analysis from the Building and Research Establishment (Feb 2004) on the effectiveness of sprinklers in residential establishments concluded that "residential sprinklers are probably cost-effective for residential care homes". It also concluded that in order for sprinklers to become cost-effective in a wider range of buildings:-

- Installation and maintenance costs must be minimal, and/or;
- Trade-offs may provide reduced costs by indirect means, and/or;
- High risk buildings may be targeted, and justified on a case-by-case basis using the cost benefit approach of this project, but with actual cost quotations, risk estimates based on more detailed local risk data, etc.

11.4 It is difficult to quantify the apparent savings that can be made on the trade-offs referred to above if sprinklers are installed.

11.5 It is also evident that money spent on sprinklers in one building could be used more effectively to improve fire safety especially with better automatic detection in a number of establishments, thereby benefiting many more people.

11.6 The decision to install sprinklers cannot be based therefore on 'raw' figures alone. It is clear that fitting sprinklers will add to the cost of a new school. Whether the extra expenditure is worth it – in terms of reassurance, of public confidence, or of ensuring against the educational disruption, sense of loss, psychological damage and personal distress of a fire – is a matter of judgement. Academic pressures are such that a significant loss of teaching facilities and course work could have a major effect on student examination results, especially at secondary schools and there is substantial evidence that to recover from a major fire at a school can take a minimum of twelve months.

11.7 Sprinklers provide an additional safeguard, and an important one. Installing sprinklers is therefore worthwhile, but consideration needs to be given to improving existing measures first, providing levels of training to relevant staff and giving further consideration to the present programme of fire precaution

improvements to the whole estate by improving automatic detection through to monitoring stations.

11.8 In view of the above, it is suggested that as a matter of policy, sprinklers be installed in all new residential homes and buildings where vulnerable groups are accommodated.

11.9 For other County Council buildings it is suggested that a risk based approach be adopted for the installation of sprinklers and that a small risk assessment group be set up to review Fire Risk Assessments in properties. The remit of the group should be to consider whether existing procedures are robust and review and analyse data from recent crime and fire statistics on a regular basis to identify patterns and highlight high risk establishments.

11.10 There is a compelling argument for installing sprinklers on all new projects, both because of the cost involved and the potential disruption caused by a major fire. However, it may be more cost-effective to target specific properties in high risk areas. There is no easy basis for establishing parameters as no one knows where an arsonist could strike. Therefore, it is proposed that Fire Risk Assessments be carried out for all major new building projects at the feasibility stage to consider the case for installing sprinklers.

11.11 For existing property it is suggested that the Asset Management Group investigate the cost of a programme to install automatic fire protection and signalling equipment, in all establishments, linked to an effective monitoring station.

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Appendices:- None

Background Papers:- None

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Flowchart
Dorset County Council's Fire Sprinkler Installation Policy