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Title of Report:	Sprinklers in Schools and Other Council Buildings
Report to be considered by:	Safer Select Committee
Date of Meeting:	05 July 2010
Forward Plan Ref:	

Purpose of Report: Review the approach to the use of fire sprinklers in Council buildings

Recommended Action:

Reason for decision to be taken:

Other options considered:

Key background documentation: DCSF guidance, Building Regulations & BB100

The proposals contained in this report will help to achieve the following Council Plan Priority(ies):

- CPP1 – Support our communities through the economic downturn** – to alleviate the impact on different communities and individuals who find themselves out of work and/or disadvantaged
- CPP2 – Raise levels of educational achievement** – improving school performance levels
- CPP3 – Reduce crime and the fear of crime**

The proposals will also help achieve the following Council Plan Theme(s):

- CPT1 - Better Roads and Transport**
- CPT2 - Thriving Town Centres**
- CPT3 - Affordable Housing**
- CPT4 - High Quality Planning**
- CPT5 - Cleaner and Greener**
- CPT6 - Vibrant Villages**
- CPT7 - Safer and Stronger Communities**
- CPT8 - A Healthier Life**
- CPT9 - Successful Schools and Learning**
- CPT10 - Promoting Independence**
- CPT11 - Protecting Vulnerable People**
- CPT12 - Including Everyone**
- CPT13 - Value for Money**
- CPT14 - Effective People**
- CPT15 - Putting Customers First**
- CPT16 - Excellent Performance Management**

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The proposals contained in this report will help to achieve the above Council Plan Priorities and Themes by:

Portfolio Member Details	
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Date Portfolio Member agreed report:	

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Implications

Policy:

Financial:

If there are any financial implications contained within this report this section **must** be signed off by a West Berkshire Group Accountant. Please note that the report cannot be accepted by Policy and Communication unless this action has been undertaken.

Personnel:

Legal/Procurement:

Property:

Risk Management:

Equalities Impact Assessment:

For advice please contact Principal Policy Officer (Equalities) on Ext. 2441.

Corporate Board's Recommendation:

to be completed after the Corporate Board meeting

NOTE: The section below does not need to be completed if your report will not progress beyond Corporate or Management Board.

Is this item subject to call-in?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>
If not subject to call-in please put a cross in the appropriate box:		
The item is due to be referred to Council for final approval		<input type="checkbox"/>
Delays in implementation could have serious financial implications for the Council		<input type="checkbox"/>
Delays in implementation could compromise the Council's position		<input type="checkbox"/>
Considered or reviewed by Overview and Scrutiny Commission or associated Task Groups within preceding six months		<input type="checkbox"/>

Footer to be completed by Policy & Communication

West Berkshire Council

name of decision body

date of meeting

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Item is Urgent Key Decision

Footer to be completed by Policy & Communication

West Berkshire Council

name of decision body

date of meeting

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Executive Summary

1. Introduction

- 1.1 At the last meeting of the Safer Select Committee, it was agreed to review the approach to the use of fire sprinklers in Council buildings (new or refurbished and including schools) with consideration to developing a policy around this. The following colleagues were consulted in preparation of this report:

Bill Bagnell	- Manager - Special Projects
Mark Lewis	- Education Assets Manager
Marina Billinge-Jones	- Insurance Officer
Ian Priestley	- Assurance Manager
Andy Green	- Maintenance Manger

2. Proposals

- 2.1 The Committee have requested that the Property Development Manager prepare and present some information to inform the Committee of possible options relating to fire safety systems.
- 2.2 The motion put to Full Council some years ago by Councillor Bryant required the Council to undertake a fire risk assessment to establish whether a sprinkler system was required to mitigate the risk of fire, whether by arson or other causes on projects that met the criteria within the motion.
- 2.3 The report considers the following points that the Committee requested investigation:
- What is the current Council policy regarding fire safety systems?
 - What consideration has been given to the use of fire sprinklers in Council buildings (new builds or during refurbishment projects)?
 - Were they installed, or were alternative systems installed?
 - How was the decision reached as to the appropriate system to be installed?
 - Are there any relevant risk assessments available?
 - Is there any cost / benefit information that may be of use to the Committee?
 - Is there any other information that may be of use to the Committee?
- 2.4 Council Policy
- 2.5 West Berkshire Council do not currently have a policy to install sprinklers to their buildings, however must comply with current fire precaution regulations. Since 2007 WBC have undertaken Fire Risk Assessments on all school projects (that meet the criteria). This is to establish whether there is a need to install sprinkler systems to reduce the risks to an appropriate level. This means that a Fire Risk

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Assessment (FRA) should be carried out for each new project undertaken as appropriate

- 2.6 This does not preclude fitting sprinklers in Council owned buildings, but there is no blanket policy for installing sprinklers. The Council is also responsible for ensuring that staff are adequately trained in basic fire prevention processes. In schools there is joint responsibility for fire safety between the LEA, head teachers and school governors. It is recommended that members consider the implications of adopting the motion as outlined in this report. If Council is minded to adopt the motion they may be requested to consider a policy to install sprinklers in all new school buildings, including extensions built by and on behalf of the Council.

3. Conclusion

- 3.1 Any policy adopted should define the criteria to be applied for projects that include extension or refurbishment of existing buildings. It is recommended that a practical application is sought to avoid encumbering smaller projects with disproportionate infrastructure costs.
- 3.2 The policy should also acknowledge that there may be instances where planning constraints prevent the installation of above ground tanks for water based systems.
- 3.3 The current policy of undertaking Fire Risk Assessments is a successful and managed approach which is affordable when assessing whether sprinklers are required in council buildings. A blanket policy to install sprinklers to all new council buildings would financially impact on what can be achieved for capital and corporate projects.

Executive Report

1. Introduction

- 1.1 Sprinklers have the outstanding advantage of attacking, rather than containing a fire, and do so quickly, locally and effectively. Sprinklers should be seen in context; other fire protection measures, many of them mandatory, minimise fires and fire-damage.
- 1.2 Fires in schools and other public buildings are an emotive issue. The damage and distress that can be caused by fires cannot be underestimated. 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.
- 1.3 The Fire Service is currently urging local authorities to consider installation of sprinklers in schools as part of its wider strategy to develop a pro-active approach to fire prevention as set out in the White Paper *Our Fire and Rescue Service*. 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.

2. Background

- 2.1 The Fire Service supports the installation of sprinklers for the following reasons. Because they:
 - detect fire
 - extinguish fire
 - raise the alarm (both in the building and linked directly to Fire Brigade)
 - protect occupants (the spray reduced the harmful effects of large particles in smoke)
 - protect the building
 - provide additional safety for fire fighters
 - are reliable
 - tackle a fire far sooner than the Fire Brigade could usually arrive;
- 2.2 The Fire Service also emphasise the distress caused by fire and argued that the ensuing educational disruption, sense of loss and psychological damage should be taken into account when considering what preventive measure to put in place.
- 2.3 Property has found that 'end users' had concerns raised about the water damage caused by sprinklers due to the high volumes of water they use. Apparently firemen's hoses can cause more water damage than sprinklers. Modern sprinklers have a localised action and often only one or two sprinklers directly above a fire would be activated. It is also extremely rare for sprinklers to cause water damage through faulty mechanisms.

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3. Education buildings - DCSF policy regarding sprinklers Systems.

- 3.1 Sprinkler systems installed in buildings can significantly reduce the degree of damage caused by fire and can reduce the risk to life, however sprinklers should not be considered to be an essential feature to assure the life safety of occupants. On 1 March 2007, DCSF announced the new policy on sprinklers and their value as a measure against the risk of fire and arson. All new schools i.e. a new site (not standalone new buildings) should have fire sprinklers installed except in a few low risk schools.
- 3.2 Although the provision of sprinklers is not a requirement of the Building Regulations, DCSF expects that the Education Authority, Funding Body or overall 'client' of the scheme, should request, as part of the Employer's Requirements, that a risk assessment be undertaken to assess the validity of providing sprinklers in the scheme. Formal requirements for life safety are covered by national legislation (Building Regulations) and supporting technical guidance with respect to fire. The relevant building regulation is Approved Document B.
- 3.3 To help clients, local authorities and design teams assess the level of risk and make the right decisions; the DCSF has developed two new practical aids. The first is an interactive fire risk assessment tool. DCSF expects that this risk analysis will always be carried out and new schools being planned that score medium or high risk using the risk analysis tool will have sprinklers fitted.
- 3.4 In the recent past the Council have had very few instances of fire damage in the Council's schools, and none have been major. However, many school sites are in areas not served by retained fire crews, and hence the impact of a fire could be much greater due to the resulting response times.
- 3.5 The risk in schools, as a building type, is considered higher than other types due to a number of factors, notably the hours of use, holiday periods during which they remain largely vacant, and a lack of natural surveillance.
- 3.6 Without fire sprinklers installed, the impact of a significant fire at a school would be significant, and would extend far beyond the financial impact of making good the damage caused. Such an event would inevitably result in the loss of teaching material and student's coursework, but would also cause significant disruption with the school or parts of it shut down, and teaching taking place from temporary classroom facilities.
- 3.7 It is important to note, that the Building Regulations provide a framework whereby safe operation and evacuation of the building is assured through robust fire engineering. Where buildings are designed to meet the Building Regulations Approved Document B the installation of sprinklers would improve the level of protection afforded to the building itself, limiting the ability of a fire to spread and thus vastly reducing the impact of making good fire damage.
- 3.8 Where specialist space is affected e.g. science or sports facilities, this accommodation may not be easily or quickly replaced leading to a compromise in standards at the affected school while fire damage is made good.

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- 4. The use of fire sprinklers for Council buildings (new builds or during refurbishment projects)**
 - 4.1 Property Services & Special Projects project officers act as the Councils'/Schools expert construction representative. The projects officers provide advice and guidance on the regulation pertaining to each individual school or project; coordinates, consultant services, ensuring interaction between sponsors and end users. However we are not experts in sprinkler or fire systems and therefore buy in advice as required through consultants.
 - 4.2 To date very few projects have required the installation of sprinklers. An example project where sprinklers have been a requirement is the St.Bart's Redevelopment Project. The driver for the requirement was the then DCSF who stated that central government funded school's projects will require sprinklers unless an independent assessment can state why there is no benefit in terms of property protection.
 - 4.3 Parts B of the Building Regulations are due to change again whereby buildings of a certain size and occupancy rate must have sprinklers and thus regardless of DCSF requirements, the St. Bart's project would have required sprinklers to satisfy new regulations. The driver in this instance is human safety and associated with the large assembly of people in different key areas of the new school; the main (internal) assembly hall, the sports hall and central atrium spaces within each house block.
 - 4.4 The new sixth form extension proposed for Theale Green School has been found to require sprinklers. NIFES Consulting Group was commissioned to carry out a sprinkler risk assessment in accordance with Building Bulletin 100 (BB100). All assessments are undertaken with a consistent approach as follows:
 - 4.5 A visit to the school is made by a specialist consultant, carried out along with liaison with the fire service and West Berkshire Council. This allows for all drawings, visual surveys and interviews with the relevant people to be carried out. This allows all the relevant data required to carry out the sprinkler risk assessment to be obtained.
 - 4.6 Using the data and information provided, the sprinkler risk assessment is carried out. The sprinkler assessment is produced based upon the frozen layout and implementation of recommendations. See Appendix A.
- 5. Sprinkler system's installed**
 - 5.1 Recently the findings of a sprinkler risk assessment for the proposed sixth form extension at Theale Green School produced a score of 56. This equates to the school being at an average risk with sprinklers being recommended. The project is at 'Design Stage' and therefore details are ongoing.
- 6. St. Barts**
 - 6.1 A wet sprinkler system was installed at St. Bart's. Without sprinklers, the proposed school and community occupancy rates/usage of key school areas would not have all been approved by the Fire Officer unless the school could prove that mitigating school management procedures would make up for the lack of sprinklers. Such management procedures would not have been universally practical and thus in turn Building Control would not be prepared to issue 'Certificate of Occupation'.

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6.2 Property Services are carrying out fire risk assessments for most Council buildings. A programme of fire risk assessments in all WBC properties has recently been completed by NIFES Consulting. From the fire risk assessments a 5 year programme of remedial works has been prepared and approved by Corporate Board to enable the Council to meet its obligations under the RRO; the programme of remedial commenced 2008. For further details see Appendix B.

6.3 The following measures are incorporated to minimise fires and fire damage.

- Compartmentalisation of a building, with fire doors and fire walls and fire resistant materials. These localise the fire and stop it spreading
- Fire Risk Assessments to enable improved observance of fire-avoidance procedures
- Automatic Fire Alarm systems which alert the brigade to fires automatically
- Emergency Lighting systems

7. Conclusion as to the system that should be installed

7.1 To date only one WBC project has incorporated sprinklers and therefore we can only refer to the example below:

7.2 St. Barts

A wet sprinkler system was installed at St. Barts at a cost of approximately £800K. By the time the cost of servicing the main internal hall, sports hall and the atriums of each of the house blocks had been accounted for, it made sense to service the whole school with sprinklers. The new St. Barts is an IT rich building and thus there is an argument for installing a dry/gas sprinkler system. This has planning (and cost) advantages since an area for large water storage does not need to be found.

Risk assessments available?

7.3 Theale Green 6th form project (See Appendix C)

8. Cost/benefit information that may be of use to the Committee

8.1 Generally, the cost burden of sprinklers to a project increases as project size decreases. For example, the St. Barts costs of £800K should be set against a total building construction project cost of £32M, whereas the Theale Green project of £1.5M includes a comparable sprinkler coverage to St. Barts (relative to size) at a cost of £200K (This is an initial indicative cost)

8.2 There are project scenarios where building use, in addition to safety measures, will dictate which type of system will be considered – wet or dry (gas). An example of a building being better serviced by a dry system would be a Public Library. However, it must be remembered that dry sprinkler systems on average cost 35% more than a traditional wet sprinkler system.

8.3 DCSF funding models do not include an allocation for sprinklers. It therefore falls on the Local Authority to either fund the installation themselves or to fund it from within defined funding envelopes.

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9. Insurance

- 9.1 The projects that have been progressed to date with sprinklers installed have enabled Council officers, together with their design teams to work closely with the Council's insurers.
- 9.2 At design stage, WBC insurer Aspen, via DLJ (Brokers), were informed that the new St. Barts School would be fully sprinklered. The brokers confirmed the new school would be covered by the Council's existing blanket cover with Aspen for all Council buildings, that the costs of full replacement would be noted and that the inclusion of sprinklers would not beneficially affect the Council's total cover premium for its portfolio of buildings. Generally there is evidence of insurers requiring new buildings which have long periods of non occupancy (some schools during summer holidays) to have sprinklers, but this course of action does not appear to result in more generous insurance terms.
- 9.3 The Fire Service believes that installing sprinklers would reduce insurance premiums or result in lower excess payments.
- 9.4 The impact on the Council's insurance policy of installing sprinklers is minimal due to the size of the Council's property portfolio, the impact on the insurable risk by installing sprinklers on relatively few new build schools is negligible, and does not therefore result in a reduction to the premium.
- 9.5 Insurers are unlikely to seek significant input on the protection if only a minority of the site is protected as the site is classified as un-sprinklered. According to our insurance team our deductible has not been breached in this respect (i.e. any claims that we have had were under the excess of £250,000 however sprinklers may have reduced the costs to the Council) see Appendix D for arson data & Appendix E for other fire.

10. Sprinkler Costs – Retro-fit

- 10.1 Sprinkler systems are expensive to install within existing buildings since they require a network of pipes throughout the building to provide adequate sprinkler cover. This is very disruptive to the building fabric with installation work above ceiling and may involve asbestos removal prior to installation.
- 10.2 Costs are dependent on the building structure and type of system to be fitted and are therefore hard to accurately estimate. Worcestershire County Council carried out a survey at a medium-size school (1500m²) to ascertain the cost of installing a system complete with all the necessary controls and water storage. The price quoted was £83,500, i.e. about £55 per square metre. In addition there would be costs to remove and reinstate ceilings, and possibly remove asbestos. They concluded that the costs of installing sprinklers in all existing schools is too expensive for the County to bear and do not recommend installation in existing schools.

11. Sprinkler Costs – New Build

- 11.1 It is more cost effective i.e. economy by scale when installing sprinkler systems to new sites because the services such as water supply, tanks, pumps etc will be serving all of its buildings compared with say one building e.g. new sixth form

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building Theale Green School. In other words the set up infrastructure costs are similar.

- 11.2 On the question of actual costs, Worcestershire County Council sought examples from authorities that had fitted sprinklers and found that the average cost was higher than 1.8%. Warwickshire's pilot project, building a new Special School for Nuneaton and Bedworth, is currently being planned. The total project cost is about £7m and the architect has estimated that £350,000 (5%) approx is the cost of installing sprinklers.
- 11.3 The installation of sprinkler systems in two Wiltshire Council projects has enabled costs to be tested for typical school project types. This leads to indicative costs as below, which compare with benchmark costs from other sources:
- 1350 pupil Secondary School - £550,000, equivalent to 2.3% of construction cost
 - 210 pupil Primary School - £70,000, equivalent to 2.5% of construction cost
 - 420 pupil Primary School - £125,000, equivalent to 2.8% of construction
- 11.4 Our findings for the new sixth form extension proposed for Theale Green School, a relatively small project based on actual current figures, are that outline costs for this are coming in at around 200k. This would suggest an increase of project cost of between 12 to 15%. There is no separate funding to finance the inclusion of sprinklers in our projects therefore they are a project cost. Clearly this will have a major impact on this and other projects.
- 11.5 We accept the possibility that a low cost system (where no storage tanks or pumps are required) may be possible. In most cases though, it is likely that pumps and storage tanks are needed and therefore the cost of installing a fire sprinkler system is based upon the following criteria:
- A separate water supply from the mains within the road is required as it cannot be taken off of the school supply as the water board will not guarantee the mains pressure necessary to facilitate the system. To overcome this issue they require a fairly large water storage capacity, pumps and controls on site, as in many cases the mains water supplies to the site are inadequate to cope with the demands of a sprinkler system. A large storage tank is may create planning, location and financial issues.
 - A new electrical feed to plant room & pump motors must come from the incoming supply prior to the Meter. If power supply is unreliable as can be experienced in rural areas then a back up generator must be included.
 - Regular maintenance is required. Reading University have undertaken research into sprinkler systems, apparently there is an issue over corrosion to steel pipe work due to use of oxygenated water.

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12. Maintenance Costs

- 12.1 If a sprinkler system is installed, it is important that it is monitored closely and properly maintained. Routine maintenance should include checks for Legionella (a risk in any static water system). Worcestershire County Council Maintenance Department advised that actual costs would vary dependent on the size of the property, but an average estimate would be £1000 pa. The maintenance costs are incurred by the 'end user'. For Schools this is idea is unpopular.
- 12.2 Stuart Blackie of 'Education Leeds' confirmed that they had just agreed a new maintenance contract on a sprinkler installation at a large high school (approx. two thirds sprinklered) and the annual cost is £1280+vat.
- 12.3 Wiltshire Council indicate the annual maintenance cost of fire sprinklers could be £5,000-10,000 for a secondary school, depending on the extent to which routine inspections can be carried out by the school, and the scale of the system. This is a significant cost for any school, but particularly a primary school, where the cost could reach £5,000 per annum. It is recommended that the views of the Council in respect of a policy be discussed at the Schools Forum to raise awareness of the potential maintenance and servicing responsibility and associated financial burden.
- 12.4 We conclude that at this stage it is too early to quantify on going maintenance costs due to the wide scope of buildings and their arrangement to each other.

13. Other information of use to the Committee

13.1 Options Considered

13.2 An alternative to introducing a sprinkler policy would be to continue designing and building schools without sprinklers. This would continue to deliver well designed schools that comply with the relevant building regulations, and are therefore safe for their occupants. There is not considered to be adverse risk to pupils, staff and other users of school buildings if this option were to be taken.

13.3 However, the ongoing risk of a serious fire in one of the Council's schools clearly remains, and the impact of such a fire to the operation of a school would be significant.

13.4 The reputational impact to the Council of a newly built school being severely damaged by fire without the mitigation of a fire sprinkler system should be considered.

13.5 There appears to be 3 categories WBC buildings/sites fall into:

- Older building stock seem to be most at risk, due to lack of adequate fire protection and detection however are the most expensive to fit out. A maintenance program is in place to upgrade buildings to cover detection and compartmentation.
- New Buildings on existing sites to include sprinkler systems are very costly due to the economy of scale and necessary infrastructure works/costs. Also no insurance premium can be demonstrated.

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- New build sites demonstrate the most cost effective and successful solution for introducing sprinkler systems because the infrastructure costs are incorporated into the scheme as a whole.

Appendices

There are Appendices to this report.

Appendix A -

Appendix B -

Appendix C -

Appendix D -

Appendix E -

Consultees

Local Stakeholders: *

Officers Consulted: *

Trade Union: *