



A block on the Sprinkler Rules?

Is the validity of the industry's Bible, the *LPC Rules for Automatic Sprinkler Installations incorporating BS EN 12845*, under threat? This possibility is linked with legislation affecting the European Union, on which topic there exist whole encyclopaedias. So this piece will be legally skimpy but you will get the general idea.

Essential to the maintenance of Europe's single market is its competition policy which aims to guarantee the non-restrictive conduct of companies and so help consumers procure goods and services on the best terms. Article 81(1) of the Treaty of Amsterdam (the EC Treaty) prohibits agreements and concerted practices which may affect trade between member states and which have as their object or effect the prevention, restriction or distortion of competition within the common market.

Basics of the open market

Put crudely, the open market should operate so that in the most general of terms, and without going into details, a product can be:

- Designed in country A
- Manufactured in country B
- Tested/approved in country C and
- Installed in country D by a company from country E.

Under Article 81(3) an anti-competitive agreement (which might be the conditions contained in the prevailing rules in a member state by which sprinkler systems are designed/equipped/installed) may be exempted from the prohibition via Article 81(1) if the positive effects brought about by the agreement outweigh its negative effects. The Commission can exempt by Regulation (that is, 'block exempt') categories of agreements of the same

nature and it did so in 1992 (renewed in 2003) for certain types of agreements in the insurance sector. There were four types of agreements, thus:

1. the establishment of common risk premium tariffs;
2. the establishment of common standard policy conditions;
3. the joint coverage of certain types of risks;
4. the testing and acceptance of safety devices.

Type 4, on safety devices, covers protection equipment including fire and security equipment and also companies installing and maintaining such equipment. So it has a direct bearing on the fire sprinkler industry. In the UK, the commonly applied *LPC Rules* present a commentary on the harmonised regulation (BS EN 12845) and also include insurers' requirements over and above those existing in harmonised legislation/standards.

Insurers pursue property-protective measures

Across Europe, legislation devoted to the area where safety and fire prevention matters overlap tends to dwell on life safety while not quite ignoring property protection. Insurers are always keen to beef up the legal minimum of fire protection measures to improve their effect in protecting premises and the contents thereof. Insurers make the valid point that buildings which are generally less likely to experience the outbreak of fire – and stand up better to its effects in the event of fire - will also be safer places in which to live and work.

The LPC Rules

In the UK very many sprinkler systems are designed, installed and maintained in accordance with the requirements of

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the *LPC Sprinkler Rules*. Technical Bulletins in the *LPC Rules* are prescriptive. They note, for example, that where European sprinkler component standards exist then only components which comply with those standards shall be used. Alternatively, if there are types of components for which harmonised standards do not exist, the *LPC Rules* prescribe that components shall be approved or certificated by an appropriate organisation in accordance with specified criteria. The *Rules* cite the Loss Prevention Certification Board as an example of an approvals and certification body and points interested parties to the LPCB's list of approved fire and security products and services.

Similarly, the *LPC Rules* give prescriptive guidance on the choice of suitable installers (variously qualified under the LPCB's scheme LPC 1048, 'Requirements for the approval of sprinkler contractors in the UK and Eire') and for the appointment of sprinkler servicing and maintenance

firms (LPS 1050). This combination of circumstances for the UK can be found repeated in other European countries and their effect might be construed to be that of concerted practices or agreements that might affect trade and could be prohibited were it not for the Block Exemption Regulation (BER).

What could change?

The reliance upon the design, installation and maintenance principles in the *LPC Rules* has served the industry and its customers very well and has its roots in the insurers' *Fire Offices' Committee Rules* (the forerunner of the BS 5306: Part 2 version of the *Rules*).

All this could change, however, if current consultations about the Insurance BER lead to its withdrawal. The European Commissioner for Competition, Neelie Kroes, is taking a hard look at the effect of the BER and asking some hard questions:

- are insurance exemptions necessary in the first place – and if so, are they causing market problems?
- what is the best way to ensure that insurance is efficient and effective?
- will consumers be better off if the current exemptions are maintained?
- would tighter restrictions on cooperation between insurers be more beneficial in the long run?

These queries will be applied across all four types of agreements listed above but inevitably raise some questions about the continued acceptance of such documents of guidance as the *LPC Rules* which are not harmonised standards. At a conference in Brussels on 2 June 2009 the Commissioner said that technical specifications appear to fall into the general domain of standard-setting and are not unique to the insurance industry. The Commission is approaching the final stages of its survey of the Insurance BER and nobody is keen to predict the outcome or – if it is scrapped – what the outcome will be for those interested in the technical aspects of sprinkler protection in the UK.

BAFSA, via its website and email information, will keep members abreast of the situation ❖

CEN has a plan to issue a number of harmonised standards devoted to components of sprinkler systems. This plan is far from completion and the following list shows how many documents have been completed and issued in the UK as Parts of BS EN 12259: *Fixed firefighting systems: Components for sprinkler and water spray systems*, or are work in progress at CEN.

Part 1	Sprinklers (issued 1999)
Part 2	Wet alarm valve assemblies (issued 1999)
Part 3	Dry alarm valve assemblies (issued 2000)
Part 4	Water motor alarms (issued 2000)
Part 5	Water flow detectors (issued 2002)
Part 8	Pressure switches (in progress)
Part 9	Deluge alarm valve assemblies (in progress)
Part 10	Multiple controls (in progress)
Part 11	Medium and high velocity water sprayers (in progress)
Part 12	Sprinkler pump sets (in progress)

MacRobert prize goes to Arup



Congratulations to leading British engineering design firm Arup which, with a bit of assistance from sprinklers, has won the 40th annual MacRobert Award, the UK's biggest prize for engineering innovation. HRH the Duke of Edinburgh presented the team with a £50,000 prize and the solid gold MacRobert Award medal at the Academy Awards Dinner on 9 June 2009.

It was the innovative fire engineering approach to designing the Water Cube in Beijing, China's National Aquatics Centre for the 2008 Olympics, among other attributes, which helped to clinch the award. Without Arup's fire engineers, the Water Cube's structure as we know it could not have been used. After the innovative design was voted the winner of an international competition judged by the people of China, the challenge for Arup Fire and the design team was to demonstrate that the design provided for an acceptable level of safety.

Since the Water Cube did not follow the prescriptive rules of the Chinese Building Code, the task involved complex analysis, the use of research data, detailed reporting,

and presentations to the Chinese authorities. The Chinese Building Code does not allow for the use of combustible materials for façades, so Arup Fire needed to address concerns about its performance in fire, the potential fire scenarios, and the consequences for safety. This allowed the development of appropriate criteria for material selection to provide an acceptable level of safety. It was estimated that 20,000 people, including spectators, athletes, officials and support crews would use the Water Cube at any one time during the Olympics. To cater for these numbers, the Chinese Building Code would have required 200 metres of exit doors, the equivalent of two sides of the building. Not only would this have significantly impacted on the architectural look of the Water Cube, it would have been a security issue.

Knowing that people prefer to enter and exit from the same place, the fire design encompasses open circulation routes rather than enclosed circulation routes, and incorporates appropriate fire safety systems like sprinklers and smoke exhaust. This makes the building safer for longer and allows the more open and familiar circulation routes to be used for egress.

The fire engineering delivered the best of both worlds. The Water Cube retains its architectural integrity and is a magnificent venue for users, all within an environment that leads in fire safety performance ❖

LPS 1301: Audits and non-compliance

Loss Prevention Standard 1301 sets out the requirements for the Loss Prevention Certification Boards approval of sprinkler installers in the UK and Ireland for residential and domestic sprinkler systems (under controlling technical standard BS 9251). Approved installers will not be surprised to discover that, as is the case with many other LPCB schemes, LPS 1301 contains a section (Appendix A) which deals with surveillance audits: installers will be audited every six months for continued compliance with:

- the requirements of the scheme document;
- the system standard(s); and
- their own general standards of design, installation, testing, commissioning and servicing.

Every LPCB audit will address compliance with:

- the relevant clauses of LPS 1301;
- the technical standard (and specification) applicable to individual contracts.

Non-compliance

If the LPCB's technical audit reveals non-compliances of significance then additional surveillance visits may be required until matters of concern have been resolved. Examples of circumstances that may cause an increase in the frequency of audits are:

- design standards falling below acceptable levels;
- breaches of management systems' procedures;
- complaints to LPCB of poor execution of site work.

The continued approval of installers is conditional upon LPCB audits finding that the firms continue to perform in accordance with the requirements of LPS 1301. The LPCB has an established procedure for

dealing with non-compliances (minor and/or major). This usually involves special visits at the cost of the errant company and may involve withdrawal of approval if the necessary corrective actions are not accomplished within a specified timescale.

According to the appropriate section of LPS 1301 (Glossary of Definitions Used), non-compliance (aka non-conformity) may be identified in three ways:

- as a listing on LPS 1301 Certificates of Conformity;
- items raised during assessment or surveillance audits; or
- via observation notes relating to circumstances for which, unless corrective action is taken, a non-conformity report might be necessary.

In relation to LPS CoC listings, the definitions of non-compliances which are minor or major are as follows:

Minor: a departure from the system standard that will not reduce the effectiveness of the sprinkler protection to control or extinguish a fire.

Major: a departure from the system standard that will significantly reduce the effectiveness of the sprinkler protection to control or extinguish a fire.

The LPS goes on to note the features to which non-compliances/departures might apply and stipulates that a number of minor non-compliances may constitute a major non-compliance. With regard to definitions applying when non-compliances are raised during audits, the LPS refers the reader to LPCB quality document QP5-3.

Visit www.redbooklive.com and look for the full text of LPS 1301 under Loss Prevention Standards – Automatic Sprinkler etc Systems ❖

Contracts – you need to be careful

As with most legal topics, there is more to contract law than meets the eye, especially in the technicality of the small print.

At first sight it seems fairly straightforward when the contract is an express contract, which is an agreement stated either verbally or in writing. Party A seeks to get something done and Party B agrees to do it. Party B specifies a cost for providing the goods or service and Party A agrees to pay. Both parties being in favour of the endeavour, they signify their intention to create legal relations in respect of it. These are the three elements of a simple contract:

- agreement
- consideration (supply/payment)
- legal relations.

So far so good. But in times of economic downturn, parties have been known to change their mind and wish that the contract terms were not quite as set down. And at any time Party A may wish to challenge Party B about the matter, quality, quantity or price of what is being supplied.

Messrs Hawkswell Kilvington (HK) of Wakefield, solicitors to the construction and engineering industries, have produced an annual review of recent developments, which includes articles containing practical guidance on some key areas which may strike chords with BAFSA members. Members will find, at the end of this article, a reference to help locate the whole document. Meanwhile, here is an overview of its contents.

Formation of contracts

If no contract has been formally signed and negotiations are ongoing about contract conditions, then does commencement of works by one party amount to acceptance of the other party's conditions? Three recent cases heard in the Technology and Construction Court looked at the effect of commencing work in the absence of a formal contract. HK's annual review summarises the cases and their

outcomes. To ensure that both parties are clear about the contractual position it is necessary to identify at the outset which elements of the contract are essential and even then there is huge scope for disagreement.

Can contracts be terminated at will?

'Termination-at-will' or 'termination-for-convenience' clauses in contracts allow parties to end contracts for any reason at any time. Such clauses were conceived originally for use in Government contracts so that the right could be exercised if there was a change in public policy. They are now found in construction contracts outside the public sector. In the present economic climate, parties may wish to terminate part way through or at the end of a stage, citing cash flow problems. HK examine a number of cases involving the use of termination clauses. Contractors need to be aware of the existence of such clauses and their implications and, where possible, ensure that a contract also provides for the right to compensation.

Pitfalls in terminating a contract

The review looks at the case of *Reinwood Ltd v. L. Brown & Sons Ltd*, and a dispute which arose over the interim payment of VAT for part of the works of a mixed residential/commercial premises which Brown was building. The summary describes the essentials of the case and the relevant provisions of the JCT Standard Form of Building Contract, and then moves from the specific to the general and provides helpful guidance to a party who is considering terminating a contract due to the other party's repetition of a 'specified default' (failure to carry out a particular, contracted action).

Commercial negotiation or economic duress?

When does commercial bargaining cross the line between the turmoil of negotiation and become illegitimate pressure and lead to economic duress? The case of *Adam Opel GmbH and Renault S.A. v. Mitras Automotove (UK)* provides a good example of the Court drawing a line between negotiation and duress.

Contracts and protective steps

The sprinkler contractor may find itself just one more party in the chain of contractors and subcontractors. In the event that the party immediately above in the chain becomes insolvent then the aim is to minimise costs on further works for which no payment may be given and to recover whatever sums are outstanding. It may also be necessary to avoid liabilities to other

parties downstream with whom contracts may exist. The review also looks at these topics and their implications. The overall advice is – **be careful with contracts.**

More information from Hawkeswell Kilvington LLP, tel: 01924 258719 and visit www.thkp.co.uk, or contact Claire Crawshaw at HK for an electronic copy of the document, CCrawshaw@thkp.co.uk ❖

Legionnaires Disease

Concerns have been expressed that sprinkler systems may be sources of Legionnaires Disease. In that connection the following summary may prove helpful, not least because, if remedial action needs to be taken, summer is a good time to make investigations into the quality of stored water.

Thirty three years ago, in July 1976, illness spread among a number of members of the American Legion who had attended a World War Two reunion and stayed at the Bellevue Stratford Hotel, Philadelphia. The name Legionnaires Disease (more scientifically, *Legionellosis*) was coined for the illness. Its most common manifestation is a very severe form of pneumonia – it killed some of those in Philadelphia - and it is now known to be contracted by inhaling clouds of fine droplets of water which have been infected by the bacterium *Legionella pneumophila*. At the time the search for the cause was protracted and subject to setbacks but the bacteria were found to have been emitted by the cooling towers atop the Bellevue Stratford Hotel.

Legionella are present in rivers, ponds and streams. In addition to cooling towers, sources of very-fine-droplets which may have been contaminated with legionella can include showers, fountains, cooling spas and humidifiers.

Potential for infection

- The likelihood of catching *Legionellosis* from a properly installed and maintained firefighting system is remote. Those most likely to be exposed are personnel who maintain firefighting systems such as sprinklers or drenchers. Even then, *if the systems get their water from the public mains there is no significant risk of infection.*

- There is a theoretical risk of infection with *legionella* where firefighting systems are supplied with water from poorly maintained private tanks, wherein may exist conditions in which the bacteria can thrive. (*Legionella* are dormant at temperatures below 20C, they grow at temperatures from 25C to 45C, and are killed by water temperatures above 60C.)
- In places where *legionella* exist, potentially exposed people who are most likely to become ill are those in health care premises and people with existing lung disease.

Controls

There are some sensible control measures:

- Identify equipment/potential sources which might house legionella;
- During maintenance and testing routines, seek to prevent the production of fine sprays of water;
- Keep tanks and pipework at less than 20C by shielding them from heat sources such as sunlight, heating ducts, hot water pipes or currents of warm air;
- Make regular inspections of storage tanks (at least once a year) to monitor conditions and deposit build ups, and remedy as appropriate;
- Carry out technical monitoring of water tank bacterial concentrations at least annually and preferably in summer, to check if decontamination treatment is necessary.

Further information

- For health and safety updates visit www.hse.gov.uk/legionnaires.
- In the *LPC Rules*, Part 3: Supplementary information, see Technical Briefing Note 'Legionella and firefighting systems' ❖

NFPA sprinkler standards, 2010 editions

NFPA 13 and its adjuncts are the NFPA's principal standards relating to the design and installation of sprinkler systems. The NFPA have recently released details of some of the changes that will be contained in the 2010 editions of the documents.

NFPA13: Installation of sprinkler systems

The 2010 edition contains significant revisions. In chapter 20 ('Special designs of storage protection') there are three new special storage arrangements. Sprinkler protection of carton records storage with catwalk access is new to this edition as a particular protection scheme. A further new section deals with compact shelving of commodities comprising paper files/magazines/ books/similar documents in folders and miscellaneous supplies with no more than 5% plastics, up to 8ft (2.5m) high. Protection of high-bay record storage is also included in this chapter.

Another major difference sees the combination of large drop sprinkler and specific application control mode sprinkler information; there is revision of terminology to identify them as control mode specific application (CMSA) sprinklers. This change affects not only section 8.4.7 ('Large drop sprinklers') but also other requirements in the standard, mainly in the requirements for storage in chapters 12 to 19.

The new edition also includes significant changes to rack storage and provides a new method for calculating rack shelf area.

Criteria for the use of smoke vents have been added – this follows from the perception that their use and consequent effect on sprinkler operation can be limited, depending on the mode of operation of such vents.

Chapter 9, 'Housing, bracing, and restraint of system piping', includes a number of changes linked to sway bracing of sprinkler systems, including the introduction of new zone-of-influence tables for steel pipe, CPVC and Type M copper tube.

NFPA13D: Installation of sprinkler systems in one- and two-family dwellings and manufactured homes

The most noticeable change for 2010 is the addition of a prescriptive pipe sizing method as an alternative to the hydraulic calculation method. It is a novel, 8-step method which, it is hoped, will encourage more widespread use of residential sprinklers by establishing a design technique for residential systems which homebuilders and the relevant enforcement authorities may find more appealing.

Also for 2010, new definitions and requirements have been added for stand-alone and passive purge systems. It is anticipated that these changes will help clarify the reasons for the existence of passive purge systems, which the standard does not consider to be multipurpose systems.

The new edition also includes, in the definition of dwelling, the term 'townhouses', in order to make clear that townhouses that fall within the definition of dwelling can be protected by an NFPA13D system.

Finally, in new annex material there is clear guidance for property owners on how to inspect, test and maintain systems in a proper manner. (Note also that the NFPA's Technical Committee on residential sprinkler systems has received approval to expand its scope and the scope of NFPA13D to include inspection, testing and maintenance of 13D systems.)

NFPA13R: Installation of sprinkler systems in residential occupancies up to and including four stories in height

The 2010 edition has been recast and expanded into 11 chapters: there are now separate chapters on installation; discharge; plans and calculations; water supplies; acceptance testing; and care and maintenance. In the annex of chapter 1 clarification has been provided to assist in determining

when NFPA13R is applicable, and establishing that the building code defines the structure and NFPA13R is used after such determination has been made.

The 2010 standard also provides that sprinklers are not required on balconies or balcony closets ❖

More information on this and related topics can be found at www.nfpa.org

BS EN 12845: then and now

- On 29 November 2002 the Comité Européen de Normalisation (CEN) approved the text of European Standard EN 12845 which thus had the status of a British Standard, BS EN 12845: 2003 becoming the official English language version of EN 12845: 2003.
- BS EN 12845: 2004 was published by BSI following controversy concerning changes which had been made to the original wording of the CEN specification between its committee's approval and its subsequent (2003) publication. Complaints by member bodies were upheld and the changes reversed in the 2004 version. (Those changes were said to have no technical implications.)
- A Task Group of CEN Technical Committee 191/WG5 has been at work on perceived/necessary amendments to the 2004 version and two batches of amendments, A1 and A2, were approved for inclusion in a further revised version of EN 12845, which has now been published. BSI will publish BS EN 12845: 2009, maybe by September 2009.
- Meanwhile, work proceeds on a third batch of changes, which will have more significant technical content, dealing with concepts such as ESFR and CMSA sprinklers. This will result in a 2010 version of EN 12845 which BSI will also have to publish in due course ❖

IN BRIEF

Business Sprinkler Alliance

The Business Sprinkler Alliance is a coalition of interested parties which have resolved to work to achieve greater resilience for UK business against fire hazards through increased acceptance and use of fire sprinklers in commercial and industrial premises.

The BSA aims to:

- reduce the commercial, economic, environmental and social impact of fires;
- reduce the number and severity of injuries from fire including the risk to firefighters;
- safeguard the environment;
- achieve increased regulatory recognition of the efficacy of fire sprinklers.

BSA will pursue these aims by:

- working with others to facilitate a coordinated approach to educate and inform society, private, public and social sectors of the benefits of fire sprinklers;
- campaigning and lobbying for the wider recognition of sprinklers to protect assets and preserve business continuity;
- encouraging research and development of sprinkler technology to maximise the cost-effectiveness of sprinkler protection.

BSA's founder members include: BAFSA, CFOA, EFSN, FM Global and NFSN. BSA will also be joining the Sprinkler Coordination Group. For information on BSA contact the secretary, Brendan McGrath at brendan.macgrath@fmglobal.com

BSS 9999/5588 reminder

This is the briefest of reminders that the new BS, *Code of practice for fire safety in the design, management and use of buildings* came into force in October 2008 and ran concurrently with the BS 5588 series until 6 April 2009. From that date onwards the BS 5588 series is phased out – all except BS 5588: Part 1: *Code of practice for residential buildings*, which remains in

existence, dealing as it does with mixed-use residential buildings, private dwellings and flats. There is a very good account of BS 9999 and its coverage by Jan Wassall in the June 2009 issue of *Fire Risk Management*.

Fire station gets sprinklers

On 25 June 2009 Dr Brian Gibbons, Minister for Social Justice and Local Government in Wales, opened the newly refurbished fire station at Buckley, Flintshire. The £360,000 makeover included the installation of a sprinkler system. The report in the Wrexham *Evening Leader* quotes CFO Simon Smith of North Wales F&RS: 'There was a real need to upgrade the station. It involved a substantial investment on behalf of the fire and rescue service and demonstrates our commitment to our firefighters and to the local community.'

Hall Fire Protection

On 15 May 2009 Hall Fire were voted 'Active' Fire Safety Installer of the Year for 2009, the third time in five years that this BAFSA member have won the award.

NFPA board

The group chairman of BAFSA member Viking, Tom Groos has been elected to the board of directors of the NFPA. His additional new appointment was confirmed at the NFPA's annual conference and exhibition in Chicago in June 2009 and he will serve a three-year term on the NFPA board. Mr Groos is a past chairman of the National Fire Sprinkler Association. Tom's brother, Nick sits on BAFSA's Council.

Second BAFSA DVD

A second DVD is in preparation, to explain the principles and benefits of sprinkler systems in residential and commercial premises. A certain amount of new location filming has been necessary at a variety of premises to illustrate the range of applications of systems. Colin Taylor (of BAFSA

member Domestic Sprinklers) has been busy helping the production company Norton Lodge to find sites to film, in and near Weymouth and beyond.

BAFSA Autumn Members' Meeting

The 2009 Autumn meeting will take place in London on 24 September, venue to be advised. The meeting will start at 0930 and will be followed at 1230 by the launch of the latest BAFSA-funded research programme into the benefits of sprinkler systems in care homes.

Sprinklers succeed

School fire in Leeds: On 27 May an arson attempt at a school in Pudsey was stopped by the operation of two sprinkler heads. Armstrong Priestley was the service provider.

Department store, Peterborough: Early on 3 June 2009 an electrical fire started in the pharmacy section of the Anglia Regional Co-op in Peterborough. One sprinkler activated to contain the fire to that section of the shop and arriving fire crews extinguished the remnants of fire. Hall Fire Protection was the service provider.

Foundry, Stourbridge: On the afternoon of 16 June 2009 a fire occurred at Caparo Aluminium Technologies, on its 22,500m² site in Stourbridge, West Midlands. The incident involved metal ducting in an advanced-technology aluminium foundry, where products include engine blocks for Triumph motorcycles and carbon fibre transmission cowlings for Aston Martin. The fire was mainly contained inside the ducting but because of the length and location of the ducting near to the roof, some fibreglass opaque light sheeting in the adjoining section of the factory was set alight, threatening to spread the blaze. The area was protected by high/roof-level sprinklers and there was a sprinkler head sited about 2ft from the affected roof panel. This single head actuated, preventing the fire from taking hold and greatly reducing the fire damage. The works manager was full of praise for the effectiveness of the sprinkler system ❖

Norway promotes sprinklers

The Norwegian government has issued a proposal for public comment, that would require sprinklers to be fitted in many new homes and other buildings.

As part of the government's commitment to universal design, so that buildings are safe for those with disabilities, the proposal would require sprinklers in new residential buildings of more than two storeys. It is felt that evacuation is not practical for people with disabilities and that it is only safe for them to stay in a building if it is fitted with a sprinkler system.

In addition to the requirement for sprinklers in residential buildings, the regulatory proposal would require sprinklers in new hospitals and health care facilities. The public comment period ends in October. Norway already fits sprinklers in perhaps 20% of all new housing. This proposal would increase that ❖

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