Water supplies for life safety systems

Implementation date: It is recommended that this Technical Bulletin should be implemented for all contracts let after <[INSERT DATE] 3 months after publication>

SUPPLEMENTARY INFORMATION RELATING TO APPROVED DOCUMENT B

TB 233.1 SCOPE

This Technical Bulletin gives details of water supplies for life safety sprinkler systems and provides an interpretation of how the guidance given in Approved Document B (ADB) measures may be complied with whilst fully complying with the LPC Rules for automatic sprinkler installations. Other ADB compliant interpretations may not comply with the LPC Rules and may not be suitable for property insurance purposes.

TB 233.2 DEFINITIONS

TB 233.2.1 Life safety system (BS EN Clause 3.40)
Term applied to sprinkler systems forming an integral part of measures required for the protection of life.

TB 233.3 BACKGROUND

Applications for building works should follow the guidance contained in Approved Document B (Volumes 1 and 2) available from Communities and Local Government (http://www.planningportal.gov.uk/england/professionals/en/1115314683674.html).
Volume 2 - Buildings other than dwelling houses provides guidance on Sprinkler Systems, identifying water supplies that should be provided where life safety is a consideration, see Appendix 1 Extract ADB General Introduction - Sprinkler systems.

TB 233.4 WATER SUPPLIES FOR LIFE SAFETY SPRINKLER SYSTEMS

TB 233.4.1 Water supplies
The following water supplies for (non-residential) life safety sprinkler systems are deemed to comply:

i. two single water supplies complying with BS EN clause 9.6.1 where each is independent of the other and where;
    1. gravity and suction tanks comply with TB224 or equivalent; and
    2. only one supply may be either a pressure tank or reduced capacity tank for LH and OH1 occupancies; and
    3. only one supply may be a reduced capacity tank.

ii. two stored water supplies, where:
    1. gravity or suction tanks satisfy the requirements of at least TB224.6.1 – Superior twin water supplies; and
    2. any reduced capacity tank complying with TB224.5 or equivalent; and
    3. water storage tanks complying with TB224.7 and Table TB224.T1 or equivalent; and

COMMENTARY AND RECOMMENDATIONS ON TB233.4
Pump arrangements should comply with TB210.2
Where direct town main connections or reduced capacity tanks dependent on inflow are proposed a written agreement should be obtained from the water supplying company at the design stage agreeing that the user or his agent may undertake quarterly flow tests at the maximum demand flow. If it is not possible to obtain a written agreement to undertake flow tests on the town main, direct town main connections and reduced capacity suction tanks should not be used.

TB 233.4.2 Equivalent capacity of water supplies
Whichever water storage arrangement is employed the total design capacity of the water supply, including any inflow for a reduced capacity tank should be at least equivalent to a single full holding capacity.

TB 233.5 EXTENT OF SPRINKLER PROTECTION AND COMPLIANCE

To satisfy the guidance given in the ADB it may be permissible not to sprinkler protect certain parts of a building when sprinkler protection is installed as a compensatory feature to address a specific risk or hazard.

COMMENTARY AND RECOMMENDATIONS ON TB233.5
Where the extent of sprinkler protection does not comply with BS EN clause 5 the sprinkler installation will not comply with either EN12845 or the LPC Rules for automatic sprinkler installations and should not be certified to either specification. Additionally, the property may be considered as unsprinklered for property protection and insurance purposes.

APPENDIX 1: APPROVED DOCUMENT B (FIRE SAFETY) VOLUME 2 BUILDINGS OTHER THAN DWELLINGHOUSES - EXTRACT

SPRINKLER SYSTEMS

0.16 Sprinkler systems installed in buildings can reduce the risk to life and significantly reduce the degree of damage caused by fire. Sprinkler protection can also sometimes be used as a compensatory feature where the provisions of this Approved Document are varied in some way. Where sprinklers are provided it is normal practice to provide sprinkler protection throughout a building. However, where sprinklers are being installed as a compensatory feature to address a specific risk or hazard, it may be acceptable to protect only part of a building. Further guidance can also be found in Sprinklers for Safety: Use and benefits of incorporating sprinkler in buildings and structures, BAFSA 2006 (ISBN: 0 95526 280 1)

There are many alternative or innovative fire suppression systems available. Where these are used it is necessary to ensure that such systems have been designed and tested for use in buildings and are fit for their intended purpose.

0.17 Where a sprinkler system is specifically recommended within this document it should be provided throughout the building or separated part and be designed and installed in accordance with either:

a. for dwellings and residential buildings, BS 9251: 2005 Sprinkler systems for residential and domestic occupancies – Code of practice and BS DD 252 Components for residential sprinkler systems – Specification and test methods for residential sprinklers; or
b. for non-residential buildings dwellings and residential buildings outside the scope of BS 9251, either:
    i. the requirements of BS 5306-2:1990 including the relevant hazard classification together with the additional requirements for life safety;
    ii. the requirements of BS EN12845: 2004 including the relevant hazard classification together with the special requirements for life safety systems.

Note: Any sprinkler systems installed to satisfy the requirements of Part B of the Building regulations should be regarded as a life safety system.
However there may be some circumstances where a particular life safety requirement, specified in either BS 5306-2 or BS EN12845 is inappropriate or unnecessary.

0.18 Water supplies for non-residential sprinkler systems should consist of either:

a. for systems designed and installed to BS5306-2:
    i. two single water supplies complying with BS 5306-2 clause 13.1.2 where each is independent of each other; or
    ii. two stored water supplies where:
        1. gravity or suction tanks should be either Type A, Type D or their equivalent (see BS5306-2 clause 17.4.1.6) and
        2. any pump arrangement should comply with BS 5306-2 clause 17.4.1.5
        3. the capacity of each tank should be equivalent to at least half the specified minimum water volume of a single full capacity tank, appropriate to the hazard; or
        4. one tank should be equivalent to half the specified water volume of a single full capacity tank and the other shall not be less than half the minimum volume of a reduced capacity tank (see BS 5306-2, Table 25), appropriate to the hazard; and

Note: The requirements for inflow should be met.

5. whichever water storage arrangement is used at (3) or (4) above, the total design capacity of the water supply, including any inflow for a reduced capacity tank should be at least equivalent to a single full holding capacity tank complying with Table 21, 22, 23, 24 as appropriate to the hazard and pipework design.

b. for systems designed and installed to BS EN12845:
   i. two single supplies complying with BS EN 12845 Clause 9.6.1 where each is independent of the other; or
   ii. two stored water supplies where:
      1. gravity or suction tanks should satisfy all the requirements of BS EN 12845 clause 9.6.2 b) other than capacity; and
      2. any pump arrangements should comply with BS EN12845 clause 10.2 and
      3. the capacity of each tank is equivalent to half the specified minimum water volume of a single full holding capacity tank appropriate to the hazard; or
      4. one tank should be at least equivalent to half the specified water volume of a single full capacity tank and the other shall be not less than the minimum volume of a reduced capacity tank BS EN12845 clause 9.3.4, appropriate to the hazard;
      5. whichever water storage arrangement is used at (3) or (4) above, the total design capacity of the water supply, including any inflow for a reduced capacity tank should be at least equivalent to a single full holding capacity tank complying with BS EN12845 Table 9 or clause 9.3.2.3 as appropriate to the hazard and pipework design.

Where pumps are used to draw water from two tanks, then each pump should be arranged to draw water from either tank and arranged so that any one pump or either tank can be isolated.

The sprinkler water supplies should be generally not be used as connections for other services or other fixed fire fighting systems.