

Sprinkler systems for residential and domestic occupancies — Code of practice

ICS 13.220.20

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by Technical Committee FSH/18, Fixed firefighting systems, to Subcommittee FSH/18/2, Sprinkler systems, upon which the following bodies were represented:

- ABI — Association of British Insurers
- Association of Building Engineers
- BASA — British Automatic Sprinkler Association
- BRE/LPC Laboratories
- British Fire Consortium
- British Plastics Federation
- British Pump Manufacturers' Association
- British Fire Protection Systems Association
- Chief and Assistant Chief Fire Officers' Association
- Copper Development Association
- District Surveyors' Association
- Fire Sprinkler Association
- Home Office
- IFS — Institute of Fire Safety
- London District Surveyors' Association
- London Fire and Emergency Planning Authority
- National Fire Sprinkler Network
- ODPM — represented by BRE
- ODPM — Construction Directorate
- Powder Actuated Systems Association
- Water UK
- Co-opted member

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Foreword

This British Standard has been prepared by a Task Group from Technical Committee FSH/18/2. It supersedes DD 251:2000, which is withdrawn.

It gives recommendations for the design, installation, components, water supplies, commissioning and maintenance of fire sprinkler systems for use specifically in residential and domestic occupancies. It is intended for the use of designers, engineers, architects, surveyors, contractors, installers and authorities having jurisdiction. Sprinkler protection for other buildings and industrial plant is specified in BS 5306-2 and BS EN 12845.

Fire sprinkler systems for domestic and residential application are designed to provide an additional degree of protection of life and property, above that already achieved by the installation of smoke and/or fire detectors and systems. This British Standard presumes that the sprinkler protection will form part of an integrated fire safety system as part of the building design.

Product certification/inspection/testing. Users of this British Standard are advised to consider the desirability of third-party certification/inspection/testing of product conformity with this British Standard. Appropriate conformity attestation arrangements are described in BS EN ISO 9001. Users seeking assistance in identifying appropriate conformity assessment bodies or schemes may ask BSI to forward their enquiries to the relevant association.

The recommendations contained in this British Standard result from the best technical information available to the committee at the time of writing. Firefighting and life protection encompasses a wide field of endeavour and as such it is impracticable to cover every possible factor or circumstance that might affect implementation of this British Standard. Therefore the design and installation of any system should be entrusted to a suitably qualified and experienced sprinkler contractor.

Attention is drawn to the requirements of BS 6700 with special regard to back-flow prevention and to BS 1710 for guidance on identification and marking of pipework.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Attention is drawn to the requirements of the Water Regulations [1], [2], [3].

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 23 to and a back cover.

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Introduction

Sprinkler systems have demonstrated their value in protecting life and property in industrial and commercial applications for many years. The advent of sprinklers that operate at an earlier stage in the development of a fire, plus the recognition that the largest numbers of deaths from fire occur in the home, have led to the introduction of sprinkler systems specifically designed for residential and domestic occupancies.

A correctly designed and installed sprinkler system can detect and control a fire at an early stage of development and activate an alarm. Operation of the system will rapidly reduce the rate of production of heat and smoke, allowing more time for the occupants to escape to safety or be rescued.

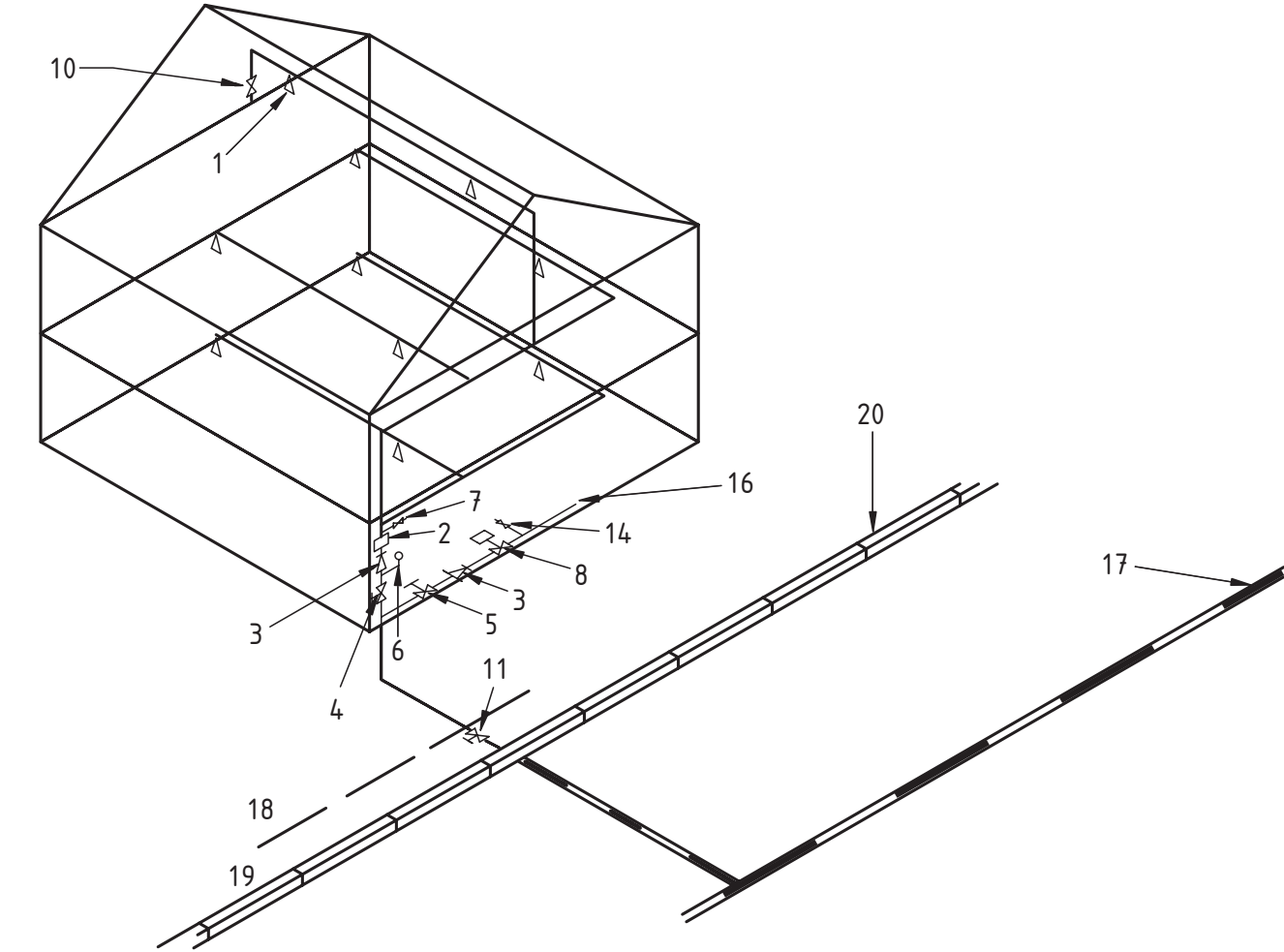
This British Standard accordingly covers design, installation, components, water supplies, maintenance and testing of residential and domestic sprinkler systems installed for life safety purposes.

Residential and domestic fire sprinkler systems are systems in accordance with this standard and consist of a water supply, backflow prevention valve (check valve), stop valve, priority demand valve (where required), automatic alarm system (both internal and external) and pipework to quick response sprinklers. The sprinklers are fitted at specified locations, the appropriate sprinkler type being used for each location. The main elements of a typical domestic fire sprinkler system are shown in Figure 1a) and Figure 1b), Figure 2a) and Figure 2b) and Figure 3a) and Figure 3b).

Sprinklers operate at a pre-determined temperature to discharge water over a known area below. The flow of water thus initiated causes the sounding of an alarm. Only those sprinklers operate which are individually heated above their operating temperature by the heat from the fire.

The provision of a sprinkler system does not negate the need for other fire precautions or practical measures, which may include structural fire resistance, escape routes, smoke or fire detectors and safe housekeeping practices. Even with the installation of a sprinkler system, normal actions on the discovery of a fire should be taken, such as immediate evacuation and the calling of the fire service. The sprinkler system should be turned off by the fire service when it is deemed safe to do so.

Sprinkler system maintenance is not complex but is essential (see Clause 7). It is important that owners and occupiers pay particular attention to precautions issued by the sprinkler contractor, such as the avoidance of obstructions to the sprinkler, or the painting of the sprinkler head.



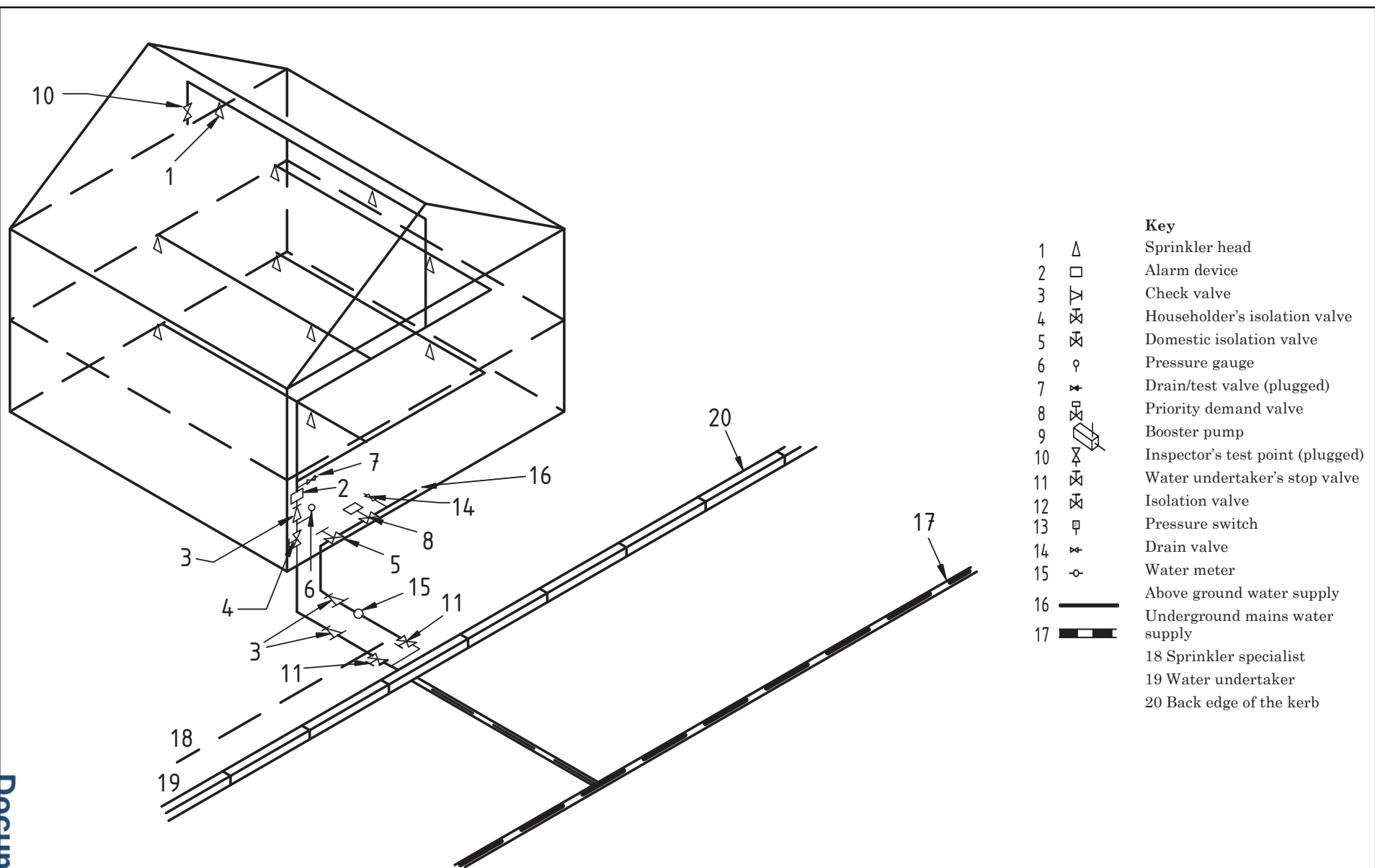
Key	
1	△ Sprinkler head
2	□ Alarm device
3	▽ Check valve
4	⊞ Household's isolation valve
5	⊞ Domestic isolation valve
6	○ Pressure gauge
7	⊞ Drain/test valve (plugged)
8	⊞ Priority demand valve
9	⊞ Booster pump
10	⊞ Inspector's test point (plugged)
11	⊞ Water undertaker's stop valve
12	⊞ Isolation valve
13	⊞ Pressure switch
14	⊞ Drain valve
15	○ Water meter
16	— Above ground water supply
17	— Underground mains water supply
18	— Sprinkler specialist
19	— Water undertaker
20	— Back edge of the kerb

NOTE 1 Employing one combined system for drinking water and sprinkler water.

NOTE 2 Fluid category 2 water supply no additives.

NOTE 3 Check valve to comply with fluid category 2 no additives.

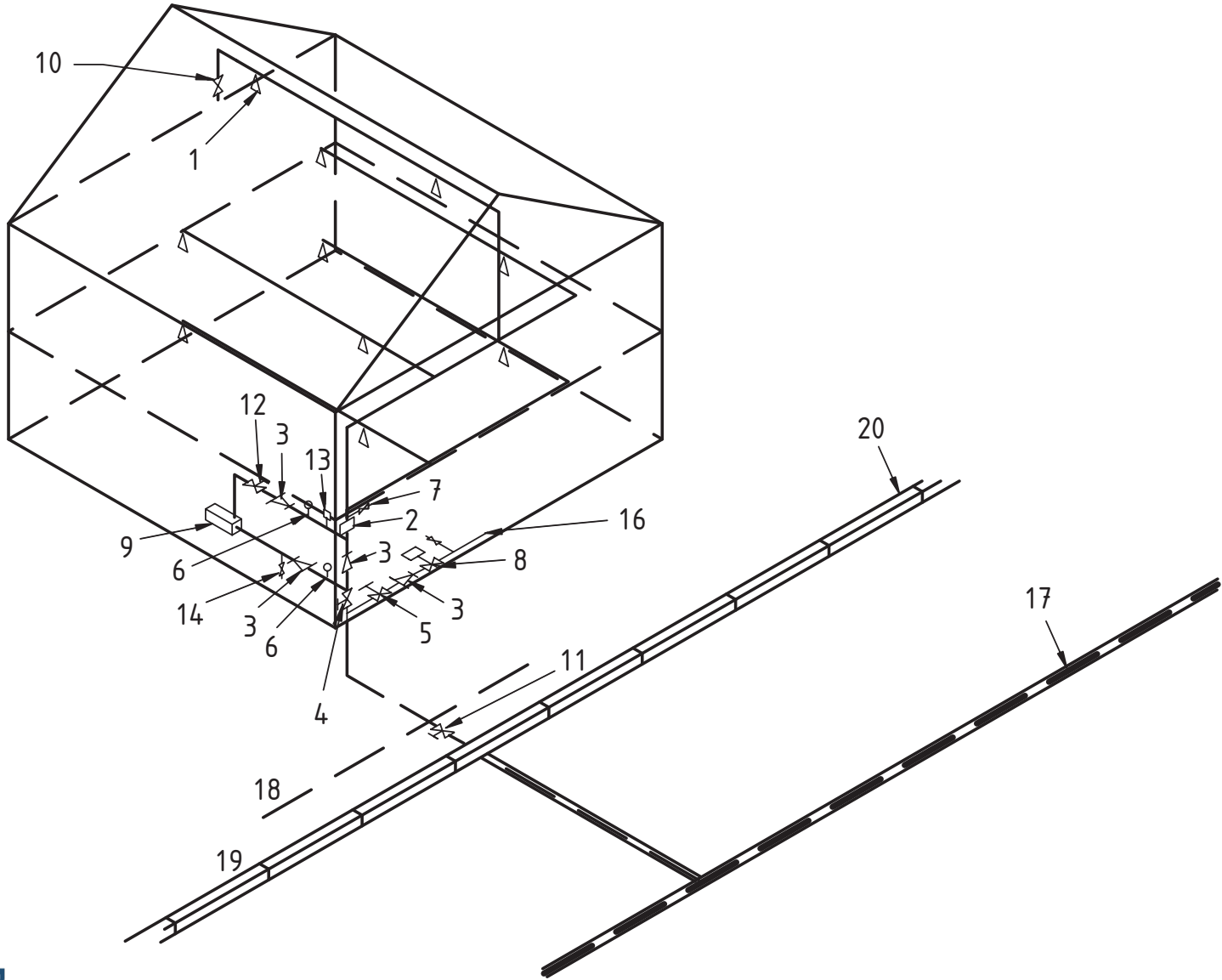
Figure 1a) — Typical mains fed sprinkler system installation control details (unmetered supply)



NOTE 1 Fluid category 2 water supply no additives.

NOTE 2 Check valve to comply with fluid category 2 no additives.

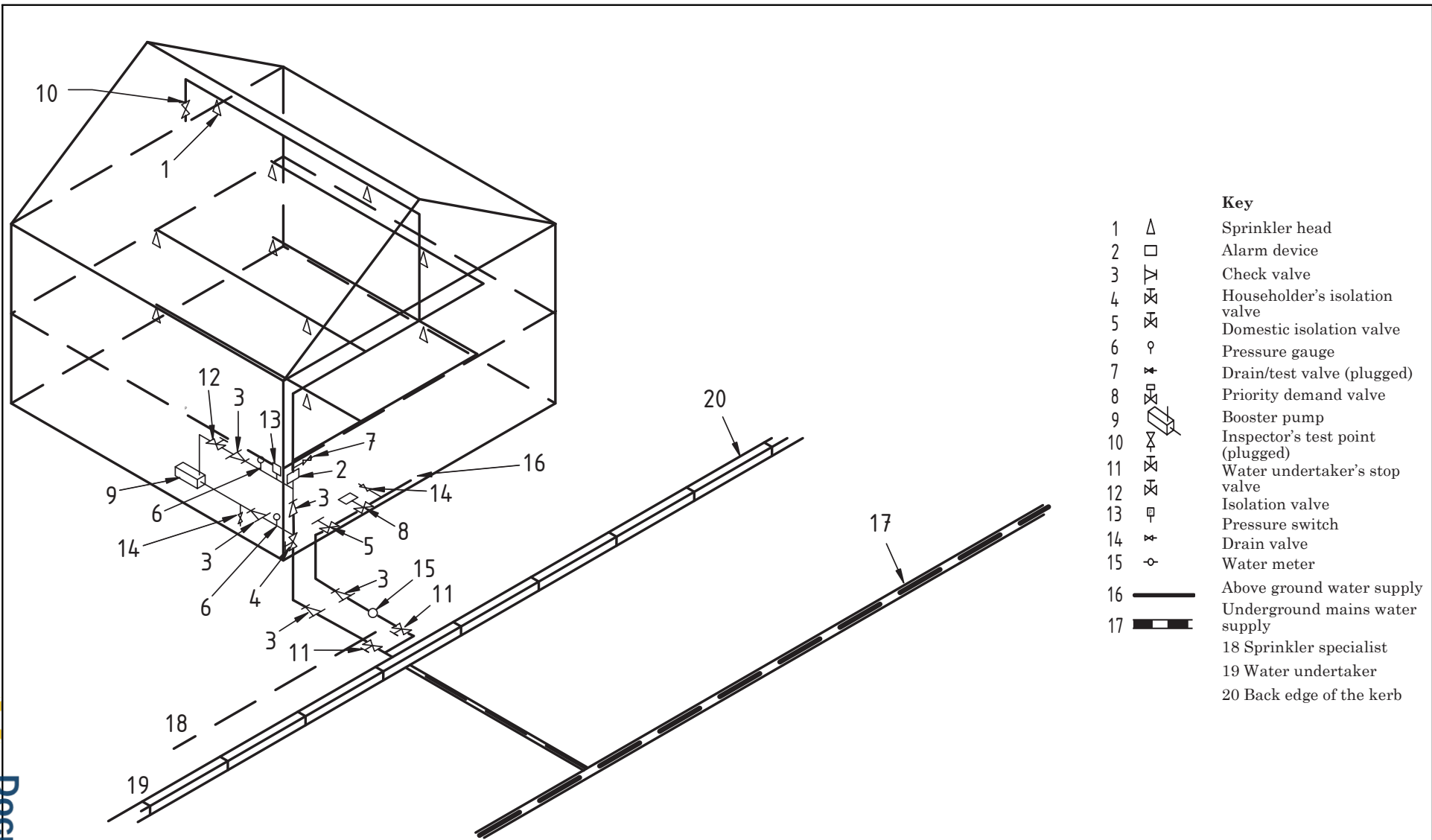
Figure 1b) — Typical mains fed sprinkler system installation control details — For new buildings (metered domestic supply)



NOTE 1 Fluid category 2 water supply no additives.

NOTE 2 Check valve to comply with fluid category 2 no additives.

Figure 2a) — Typical in line fire pump fed sprinkler system installation control details (unmetered supply)



NOTE 1 Fluid category 2 water supply no additives.

NOTE 2 Check valve to comply with fluid category 2 no additives.

Figure 2b) — Typical in line fire pump fed sprinkler system installation control details (metered domestic supply)