

Requirements in the Danish Building Codes regarding sprinkler systems (2010)

Chapter 5. - Fire safety

Chapter 5.1 – General

(5.1, clause 1) Guideline sketches and comments on the legal requirements.

For fire safety measures in traditional buildings, including single-family houses, terraced houses and holiday homes as well as agricultural buildings, see the Danish Enterprise and Construction Authority's "Eksempelsamling om brandsikring af byggeri" [Collated examples of fire safety measures in buildings, April 2006]; and for more nontraditional buildings see the Danish Enterprise and Construction Authority's "Information om brandteknisk dimensionering" [Information on structural fire design, April 2004].

(In "Collated examples of fire safety measures in buildings" maximum size of un-sprinkled fire compartments stated. If the size of the fire compartments exceed these limits it is normally practice to install sprinkler systems.)

(5.1, clause 2)

The fire safety of a building must be maintained throughout the lifetime of the building.

(5.1, clause 2) Guideline sketches and comments on the legal requirements.

For the fire safety of a building to be maintained throughout the lifetime of that building, the fire safety installations and building elements must be regularly checked and maintained. Note also that conversions of or other alterations to the building must not be in breach of the rules governing fire safety. Note also that change of use of the building may necessitate modification of existing fire safety measures.

(According to "Collated examples of fire safety measures in buildings, April 2006" the following standards, guidelines etc. can be used as design criteria for installation, control and maintenance regarding sprinkler systems)

EN 12845 Stationære brandslukningssystemer. Automatiske sprinkleranlæg. Beregning, installation og vedligeholdelse

NFPA 13 Installation of Sprinkler Systems

NFPA 13D Standard for installation of Sprinkler Systems in One- and Twofamily Dwellings and manufactured Homes

NFPA 13R Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height

DS 431 Dansk Ingeniørforenings norm for automatiske sprinkleranlæg i bygninger

DS/EN 12259-1 Brandslukningssystemer. Komponenter til sprinkler- og vandspraysystemer, Del 1: Sprinklere

DS/EN 12259-2 Brandslukningssystemer. Komponenter til sprinkler- og vandspredningssystemer, Del 2: Våd alarmventil

DS/EN 12259-3 Brandslukningssystemer. Komponenter til sprinkler- og vandspraysystemer, Del 3: Tør alarmventil

DS/EN 12259-4 Stationære brandbekæmpelsessystemer. Komponenter til sprinkler- og vandspraysystemer, Del 4: Vandtryksdrevne alarmklokker

DS/EN 12259-5 Stationære brandbekæmpelsessystemer. Komponenter til sprinkler- og vandspraysystemer, Del 5: Vandgennemstrømningsmålere

prEN 12259-8 Fire protection. Components for automatic sprinkler systems. Part 8: Pressure switches

prEN 12259-9 Brandslukningssystemer. Komponenter til sprinkler- og vandspredningssystemer, Del 9: Deluge ventiler

prEN 12259-10 Brandslukningssystemer. Komponenter til sprinkler- og vandspredningssystemer, Del 10: Multikontroller

prEN 12259-11 Brandslukningssystemer. Komponenter til sprinkler- og vandspredningssystemer, Del 11: Medium eller højhastighedsforstøvere

prEN 12259-12 Brandslukningssystemer. Komponenter til sprinkler- og vandspredningssystemer, Del 12: Sprinklerpumper

prEN 14816 Stationære brandslukningssystemer. Vandsprøjtesystemer. Dimensionering og installation

DBI retningslinje 251/4001. Sprinkleranlæg. Projektering, installation og vedligeholdelse.

In Denmark DBI guideline 251/4001 (April 2009). Sprinkler systems. Design, installation and maintenance is primarily used. The standard/guideline is a translation (with additional national conditions) of CEA 4001:2006. Sprinkler systems, Planning and Installation.

Chapter 5.4 – Fire safety installations

(5.4, clause 1)

Fire safety installations must be built to be reliable and so that they can be inspected and maintained throughout their lifetime.

(5.4, clause 2)

Fire safety installations must be inspected and maintained such that they remain reliable throughout the lifetime of the building.

(5.4, clause 4)

Building sections in usage category 1 must incorporate an automatic fire alarm system if the building section is used as an industrial or warehouse building and has a floor area of more than 2,000 m². If the building section has an automatic sprinkler system, an automatic fire alarm system may be omitted. This provision also applies to certain agricultural buildings used for livestock.

(5.4, clause 5)

Building sections in usage category 1 used as industrial and warehouse buildings must incorporate automatic sprinklers if the floor area is greater than 5,000 m². If these building sections have a high fire load, they must have automatic sprinkler systems if the floor area is more than 2,000 m². This provision does not apply to agricultural buildings.

(5.4, clause 7)

Car parks in usage categories 1 and 3 must have automatic sprinkler systems if the floor area is greater than 2,000 m².

(5.4, clause 8)

Rooms in usage categories 1 and 3 with a floor area greater than 1,000 m² must incorporate an automatic fire ventilation system or an automatic sprinkler system.

(5.4, clause 12)

Building sections in usage category 3 must incorporate an automatic sprinkler system if the building section has a total floor area greater than 2,000 m².

(5.4, clause 15)

Building sections in usage category 6 must be provided with automatic sprinkler systems if the building has bedroom sections greater than 1,000 m² and is on more than one storey. The system must have the facility for giving the alarm to staff.

(5.4, clause 16)

Alarms from a warning system must be appropriate for the use and organization of the building section. If the building is fitted with an automatic fire alarm system or an automatic sprinkler system, it must activate the warning system.

(5.4, clause 17)

An automatic fire alarm system and an automatic sprinkler system must transmit an alarm to the emergency services.

Usage categories:

Usage category 1: Offices, industrial and warehouse buildings, agricultural buildings, garages, carports and outbuildings, equipment houses for electronic communications networks and services as well as certain car parks on one or more floors.

Usage category 2: Teaching rooms, school day-care centres and other after-school facilities, day centres and similar rooms occupied by no more than 50 people. Each room is a fire-resisting unit.

Usage category 3: Shops, places of public assembly, canteens, cinemas, restaurants, function rooms, certain parts of schools, sports halls, churches, discotheques, theatres, car parks in for example shopping centres, meeting rooms, concert halls, exhibition facilities, galleries and other similar rooms designed for more than 50 people.

Usage category 4: Blocks of flats, student and youth accommodation and single-family houses, semi-detached houses, terraced and linked houses, cluster houses and holiday homes.

Usage category 5: Hotels, student halls of residence/dormitories, youth hostels, inns and boarding houses.

Usage category 6: Assisted living facilities for the elderly, treatment and bedcare units in hospitals, care homes, prisons, residences and institutions for the physically or mentally disabled, day nurseries and preschools.