

Spain

There are two key pieces of Spanish fire protection legislation which refer to fire sprinklers. They are the building code Documento Basico SI Seguridad en caso de incendio of March 2006, which applies to public and commercial buildings, and Real Decreto 2267/2004 which applies to industrial sites. Both are in the Spanish legislation section on www.eurosprinkler.org.

There are many references to sprinklers in both documents. Below is not a literal translation but an unofficial translation that summarises the sense of the various clauses.

Unofficial Translation of Key Clauses

DB SI Marzo 2006

II. This code applies to all buildings except large industrial sites.

III 1 Prisons and psychiatric hospitals require a risk assessment and specific measures.

SI 1 Interior propagation.

SI 1.1 The maximum fire compartment size in a shopping centre is 2,500m² but can be increased to 10,000 m² if a sprinkler system is installed and the highest evacuation point is no more than 10m above ground level. The compartment size is unlimited with a sprinkler system and building exits on each floor.

SI 1.2 The maximum above ground areas for storage in a shop double from 1,000m² to 2,000m² for low fire loads and from 300m² to 600m² for medium fire loads if sprinklers are fitted. With sprinklers high fire loads can be stored in areas up to 25m².

SI 1 Table 2.2 Note 7. Areas of special risk may be 25% larger if a sprinkler system is fitted.

SI 3 Table 3.1 Note 1. Escape routes may be 25% longer if sprinklers are fitted.

SI 4 Table 1.1

Sprinklers are required in all buildings higher than 80m.

Sprinklers are required in kitchens in hospitals and residential buildings if the rated power is more than 20 kW.

In kitchens in other buildings they are required if the rated power is more than 50 kW. Fire suppression is required in transformer stations if the flashpoint of the dielectric is less than 300°C and the power transferred is more than 1,000 kVA in one unit or more than 4,000 kVA in the station.

Sprinklers are required in hotels and motels higher than 28m.

Sprinklers are required in shops with an area of more than 1,500m² if the fire load is greater than 500 MJ/m².

Sprinklers are required in automatic car parks.

Unofficial Translation of Key Clauses

Real Decreto 2267/2004

This code is applicable to large new industrial buildings, to existing industrial buildings which change their use and to extensions to existing industrial buildings.

Capitulo III specifies fire safety and fire safety system inspection and maintenance requirements.

Capitulo IV makes clear that the occupier of the building must report to the authorities all fires which cause injury, total business interruption, partial business interruption for more than 14 days or more than €30,000 in material damage.

Annex I, 2.1

Building Type A is a building housing an industrial business and other businesses or activities.

Building Type B is a building housing an industrial business and adjoining other buildings housing other businesses or activities.

Building Type C is a building or buildings housing an industrial business and at least 3m from the nearest building housing a different business.

Table 2.1, note (3). If the building is protected by a fire sprinkler system all the maximum compartment areas in table 2.1 may be doubled.

Table 2.1, note (4). If a type C building is protected by a sprinkler system the fire compartment size is unlimited, as long as the building is at least 10m from another building.

Table 2.1 Maximum Permitted Area of each Fire Compartment (m²)

Fire Compartment Risk	Building Configuration		
	Type A	Type B	Type C
Low			
1	1,000	4,000	6,000
2	1,000	4,000	6,000
Medium			
3	500	3,500	5,000
4	400	3,000	4,000
5	300	2,500	3,500
High			
6		2,000	3,000
7	Not Permitted	1,500	2,500
8		Not Permitted	2,000

The risk classifications 1 to 8 depend on the fuel density loading:

1 <425 MJ/m ²	3 <1,275 MJ/m ²	5 <3,400 MJ/m ²	7 <13,600 MJ/m ²
2 <850 MJ/m ²	4 <1,700 MJ/m ²	6 <6,800 MJ/m ²	8 >13,600 MJ/m ²

Annex II, 4.3 If a sprinkler system and a smoke extraction system are fitted in single storey buildings, the fire resistance rating in minutes for structural load-bearing members may be reduced:

Level of Fire Hazard	Single Floor above Ground		
	Type A	Type B	Type C
Low Risk	From 90 to 60	From 60 to No Requirement	From 30 to No Requirement
Medium Risk	From 120 to 90	From 90 to 15	From 60 to No Requirement
High Risk	Not Allowed	From 120 to 30	From 90 to 15

Annex III, 3 Note. A fire sprinkler system may substitute any requirement for a thermal fire detection system.

Annex III, 11. Sprinklers must be installed on industrial sites in:

a) Production, assembly, transformation or repair areas when:

Building Type	Fire Risk	Area in m ²
A	Medium	>500
B	Medium	>2,500
B	High	>1,000
C	Medium	>3,500
C	High	>2,000

b) Storage areas when:

Building Type	Fire Risk	Area in m ²
A	Medium	>300
B	Medium	>1,500
B	High	>800
C	Medium	>2,000
C	High	>1,000

If a risk requires a sprinkler system this meets any requirement for a thermal detection system.

Additional Local Regulations

In addition to the above national fire safety legislation, cities and regions have supplementary requirements. Barcelona requires that new high-rise buildings above 50m be fitted throughout with sprinklers.