SPRINKLER LEGISLATION IN NORWAY

Current Legislation

All activity / buildings are governed by technical legislation (Teknisk Forskrift 1997 - TF97) and complimentary guidance rules (REN Veiledning) to TF 97. Specific fireload "Q" (MJ/m² surrounding area of walls+floor + roof) are an essential factor.

All legislation concerning sprinklers is generally pre-accepted trade ups for deviation from choice of size or materials. Sprinklers may also be installed as a choice of self-interest.

A fire section shall have mechanical stability and a fire resistance of 0.3 x Q_{max}, normally not less than 120 minutes, but in some cases 90 minutes may be used. Common specification is a fire resistance of 120, 180 or 240 minutes.

Neither cellars nor attics are necessarily "countable stories"; depends on the activity they are used for.

Airports

Buildings with more than one story must have incombustible load bearing and fire separating constructions.
Specific fire load is normally 50 > Q > 400 MW/m².
Number of persons normally present > 150.
Automatic fire alarm system is mandatory.

Sprinklers to be installed (trade up) if a fire section is larger than 1800 m² per floor. If each floor is a separate fire compartment (closed), you may have as many stories as you whish, except that there is a limit - but not clearly defined and telling you - when your building starts to be a special hazard, even if the fire section is less than 1800 m² per story.
Fire cells larger than 800 m² and open over 2 - 3 one floors have to be sprinkler protected (3 floors are maximum).

If sprinkler protected, the building may have fire sections not larger than 10.000 m², and it may be open over maximum 3 floors.

There are 2 - 3 exceptions for small buildings. Example : Buildings with 2 stories, and maximum 800m² per story, may have combustible load bearing and fire separating systems.

Places of Assembly

Same legislation and exceptions as described for Airports. (i.e. Airports are places of assembly).

Shopping centres

Fire load normally 50 - 400 MW/m²
Automatic fire alarm system is mandatory.
Buildings with not more than 2 stories may have combustible load bearing and fire separating systems.

For sprinkler protection as trade up for fire sections larger than 1800 m², we have the same limits as for airports/places of assembly, but if the fire load is greater than 400 MJ/m² the area limit is 5.000 m².

Fire cells open over 2 - 3 floors and > 800 m² are to be sprinkler protected.

Industry

This term cover production, offices and warehouses. The clue is actual specific fire load, and whether an automatic fire alarm system (not mandatory) is installed or not. Here are the maximium allowed sizes without sprinklers installed:

Offices

Specific fire load normally less than 400 MJ/m² and limit of fire sections:

Without automatic fire alarm system: 1.200 m²
With automatic fire alarm system: 1.800 m²

Warehouses (and other industries)

Specific fire load (Q): **50 > Q > 400 MJ/m²** and limits for fire sections are:

Without automatic fire alarm system: 1200 m²
With automatic fire alarm system: 1.800 m²

Fire cells open over 2 - 3 floors and > 800 m² have to be sprinkler protected.

Maximum fire section **10.000 m²**

If applicable: Fire cells open over 2 - 3 floors and > 800 m² have to be sprinkler protected.

Specific fire load **Q > 400 MJ/m²** and limit of fire sections:

Without automatic fire alarm system: 800 m²
With automatic fire alarm system: 1.200 m²

Maximum fire section **5.000 m²**

If applicable: Fire cells open over 2 - 3 floors and > 800 m² have to be sprinkler protected.

Car Parks

Same as for places of assembly; normally 50 > Q > 400 MJ/m², fire sections 1.800 m² with automatic fire alarm system, 1.200 m² without automatic fire alarm system. If sprinklers are installed, the automatic fire alarm system may be reduced to manual call points only.

Hotels

No legislation has demand for sprinkler protection if size of fire sections and choice of combustible / non-combustible materials are met. Most of these type of activities have a demand for fire alarm systems, and as the specific fire load (Q) normally is: 50 > Q > 400 MJ/m², the general rule for fire sections with automatic fire alarm and 1800m², or 1.200 m² without fire alarm system, is valid.

Fire cells the more than 800 m² and open over 2 - 3 floors have to be sprinkler protected.

Two story buildings with less than 300 m² per floor may have combustible load bearing and fire separating systems.

Health and Care Facilities and Teaching Establishments
No legislation has demand for sprinkler protection if size of fire sections and choice of combustible / non-combustible materials are met. Most of these type of activities have a demand for fire alarm systems, and as the specific fire load (Q) normally is: $50 > Q > 400$ MJ/m², the general rule for fire sections with automatic fire alarm and 1800m², or 1.200 m² without fire alarm system, is valid.

Fire cells open over more than one story are not allowed.

Heath and care facilities with more than one story shall have incombustible load bearing and fire separating constructions.

Teaching facilities with two stories may have combustible load bearing and fire separating systems.

Other comments
Sprinklers are frequently used as trade ups for deviation from our building code. There are no clear cut rule for which / how many deviations that at the same time may be compensated by a sprinkler installation, or to what extent the fire resistant constructions may be reduced if a sprinkler installation is provided. Most often this will be a case to case decision, based on the results of calculations of simulated evacuations.