

## Luxemburg

Luxemburg has general fire codes for low, medium and high-rise buildings. It also has a number of codes for specific types of building. Most of the provisions for sprinklers are in the code for medium height buildings.

### Low-Rise Buildings - Code ITM-SST 1501.2

Article 1.2 defines low-rise buildings as divided into two categories:

- A one or two storeys without a sleeping area
- B three storeys (7m floor) or with a sleeping area on the second storey

Article 7.1 requires fire resistance of 60 minutes over a horizontal width of 1m for adjacent category B buildings but this requirement does not apply if a water spray system covers the surface.

Article 7.2 requires a fire wall every 40 m, so that the maximum compartment size is 1,600 m<sup>2</sup>. With a sprinkler system these values may be relaxed to 80 m and 3,200 m<sup>2</sup> for buildings.

Article 15.5 requires sprinklers in any archive larger than 600 m<sup>2</sup> and 2,000 m<sup>3</sup>.

Article 15.5.3 requires that areas or compartments containing a fire load of more than 250 MJ (equivalent to 16-17kg of wood) per m<sup>2</sup> on average and items of furniture with a total calorific value of more than 500 MJ be fitted with a sprinkler system.

### Medium Height Buildings - Code ITM-SST 1502.2

These are defined as buildings higher than 7m but lower than 22m.

Articles 5.5 and 7.2.4 require a fire engineered solution for atria, with sprinklers suggested as one of the measures.

Article 7.1 requires fire resistance of 60 minutes for facades but this requirement does not apply if a water spray system covers the surface.

Article 7.1.6 requires that double facades either be fitted with a smoke extraction system or a water spray system.

Article 7.2 sets out maximum compartment sizes. Fire compartments must be separated by 90 minute fire walls. The maximum dimension of a compartment is 40m and the maximum area is 1,600m<sup>2</sup> but these values can be doubled to 80m and 3,200m<sup>2</sup> in the presence of a sprinkler system.

Article 15.5.3 requires that areas or compartments containing a fire load of more than 250 MJ (equivalent to 16-17kg of wood) per m<sup>2</sup> on average and items of furniture with a total calorific value of more than 500 MJ be fitted with a sprinkler system.

Article 15.5.3 also requires that archives larger than  $600\text{m}^2$  with a volume larger than  $2000\text{m}^3$  be protected with a sprinkler system.

### **High-Rise Buildings - Code ITM-SST 1503.2**

Article 1.2 defines high buildings as divided into three categories:

- A higher than 22m and up to 30m
- B higher than 30m and up to 60m
- C higher than 60m and up to 200m

Article 7.1 requires fire resistance of 90 minutes for the facades of buildings higher than 30 m but this requirement does not apply if a water spray system covers the surface.

Article 7.2 requires a fire wall every 40 m, so that the maximum compartment size is  $1,600\text{ m}^2$ . With a sprinkler system these values may be relaxed to 80 m and  $3,200\text{ m}^2$  for buildings 20-30 m in height.

Article 15.5 requires a sprinkler system in buildings higher than 60m.

Article 15.5.3 requires that areas or compartments containing a fire load of more than 250 MJ (equivalent to 16-17kg of wood) per  $\text{m}^2$  on average and items of furniture with a total calorific value of more than 500 MJ be fitted with a sprinkler system.

Article 15.5.3 also requires sprinklers in any archive larger than  $600\text{ m}^2$  and  $2,000\text{ m}^3$ .

### **Offices - Code ITM-SST 1504.2**

Article 7 states that the maximum fire compartment size for a single storey office is  $800\text{m}^2$  or  $1,600\text{m}^2$  if it is protected by a sprinkler system; while for combined offices the maximum fire compartment area is  $400\text{m}^2$ , rising to  $800\text{m}^2$  with sprinklers.

### **Shops and Shopping Centres - Code ITM-SST 1508.3**

Article 5 states that there are no structural fire resistance requirements for a single storey buildings protected with a sprinkler system.

Article 7.2 requires that individual units in a shopping centre be separated from each other by a compartment of 60 minute fire resistance. This requirement is not applicable to buildings protected with a sprinkler system.

Article 7.4 relaxes the separation requirements from the storage area to smoke separation if a sprinkler system is fitted.

Article 15.4 requires that a sprinkler system be installed in shops or shopping centres with a total area of more than 3,000m<sup>2</sup> or in buildings of more than three storeys with a total area of more than 1,000m<sup>2</sup>.

### **Care Homes and Homes for the Elderly - Code ITM-SST 1510.2**

Article 7.2.8 requires that if the living areas open directly onto the corridors, they must be fitted with either a sprinkler system or a smoke extraction system.

### **Car Parks for more than 20 cars - Code ITM-SST 1506.2**

Article 15 states that closed car parks, which by definition include underground car parks, with more than 50 vehicles must be protected with a sprinkler system.

### **Public Buildings – Code ITM-SST 1507.2**

The scope includes theatres, concert halls, exhibition centres, conference centres, cinemas and any space able to accommodate more than 100 people.

Article 7.4 limits the compartment area to 4,500 m<sup>2</sup> but permits it to be doubled to 9,000 m<sup>2</sup> if a sprinkler system is fitted.

Article 15.2 requires a sprinkler system in the cloakrooms if they open directly onto the public area.