



# FIRST CLASS FIRE-PROTECTION

## Luxemburg Airport car park

In spring 2008, the new Terminal A at Luxembourg International Airport opened after four years of construction. The new terminal is designed to take the more than 3 million passengers who pass through Luxembourg Airport each year. To meet the logistical demands created by this large number of passengers, two underground car parks were built. This new underground car park provides space for 4000 vehicles on four 30,000 m<sup>2</sup> levels. The visual concept of the car park is exceptional. The bright and friendly walls on all four levels ensure there are no dark corners. The deliberate use of colour makes the building appear friendly and prevents car park users from getting lost. 300 fire-proof doors and 52 sliding and sectional fire-resistant doors provide maximum safety on four car park levels.

## The task

A four-storey underground car park needs to meet enormous fire protection requirements. Preventive fire and smoke protection and fully functional escape routes and emergency exits were top of the list when planning the doors and barriers. Fire protection measures must prevent the growth and spread of fire as well as contain smoke in a localized area. All the fire doors had to fit in with the car park's general colour concept: The colours of the four car park levels are yellow, green, red and blue. The footprint of the four car park levels is identical, but each one is painted in a different colour. Level 1 provides direct access from the car park to the terminal.



## The solution

In close cooperation with planners and developers, an individual solution was created to satisfy all the safety and convenience requirements. T90 fire and smoke protection doors were used for highly frequented areas with a higher risk of fire and the gallery and escape-routes between the individual fire compartments were fitted with single and double-leaf T30 doors with round glazing. Access points to the individual levels were equipped with T30 sliding doors and T30 sectional doors. All the doors were primed prior to delivery and then finished on-site.

Teckentrup has been a competent partner for building fire protection for many years. The company's wide range of doors covers all types of fire and smoke barriers. Flexible manufacturing systems ensure rapid response times, even to short deadlines. This meant that the 300 fireproof doors and 52 sliding and sectional fire-resistant doors were delivered in record time. The expert advice and ultimate reliability provided by Teckentrup exceeded all expectations. The weekly on-site meetings with contractors were a matter of course for everyone involved in the project.

### Between the terminal and the car park.

The doors at this critical point needed to be extremely reliable and robust in order to cope with the steady stream of visitors, with and without luggage. The robust double-leaf T90 fire-proof doors used at this point are incredibly strong. In case of fire, they are closed automatically by a slide rail door closer. And a low-wear retractable bottom seal helps to ensure smoke protection.

Electrical equipment areas and supply shafts are located on each car park level. The risk of fire is a very real threat here. Therefore, fire-resistant T90 doors were fitted in these areas. Due to their integration in the colour coding system, the doors not only perform a vital function, but also play an important visual role.



### Clever fire-protection.

Fire doors must close automatically to guarantee preventive fire protection in buildings. Therefore, all double-leaf doors were equipped with a top door closer and hold-open device. Strong magnetic clamps hold the doors open during daily use. To ensure that the doors close correctly during a fire, smoke detectors disconnect the magnetic clamps from the power supply and the top door closers shut the doors. A total of 64 double-leaf T90 doors ensure fire escape routes at the entrance to as well as between individual parking decks and to rooms containing the ventilation and sprinkler system. All the doors are fitted with a hold-open device and retractable bottom seal.

At the gallery, porthole windows in the active door leaves allow car park users to see people approaching from the other side before even opening the door. This reduces the risk of injuries.

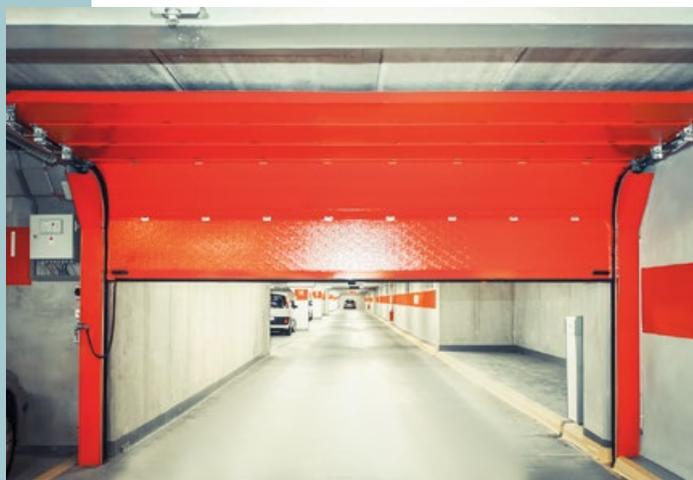
**Fire-resistant sliding doors.**

Functional requirements and space availability are usually decisive factors when choosing a door. T30 sliding doors were installed at the entrances and exits of the car park levels. The doors slide to the side of the opening and are held open by electromagnets during normal operation. In case of fire, the doors are automatically closed by counterweights. Some of the doors include a wicket door without a threshold, which provides an additional escape route in emergencies.



**Fire-resistant sectional doors.**

Fire protection between the fire compartments on the various car park levels is additionally guaranteed by high-quality fire-resistant sectional doors with a drive. Besides the integrated fire protection, a decisive factor for the application of these doors was their flexible and space-saving design. These door leaves really save (parking) space. The door opens vertically upwards underneath the ceiling, thus requiring less space than a sliding door. And even the lateral frame casing has been finished in the same colour as the door.



**Construction Boards**

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Constructor	Lux-Airport S.A., Luxemburg-Findel
Architect	TR-Engineering, Ingénieurs-conseils, Luxemburg se consult
Footprint and volume	120.000 m <sup>2</sup> for 4000 parking spaces

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