



Brakel® Multilevel Car Park Concept

Fire-safe, pleasant and sustainable

In multilevel car parks where there is a high risk of fire and large quantities of exhaust gases, fire safety and good ventilation are of paramount importance. It is vital that the public can make a fast and safe escape from the building. Prompt detection and the alerting of the fire service together with an efficient exhaust of smoke and heat are required. All multilevel car parks vary in size and shape so having an insight into heat and smoke development is essential. Furthermore, it is vital that the exhaust gases are expelled quickly and efficiently. Finally, sustainability is becoming increasingly important in the building and renovation of multilevel car parks.

The Brakel® Multilevel Car Park Concept has been developed using specific advice from Brakel regarding fire safety, ventilation and maintenance. Energy efficiency and the prevention of excessive noise were among critical considerations.



Ventilation, comfort and sustainability

Polluted air needs to be expelled efficiently from multilevel car parks.

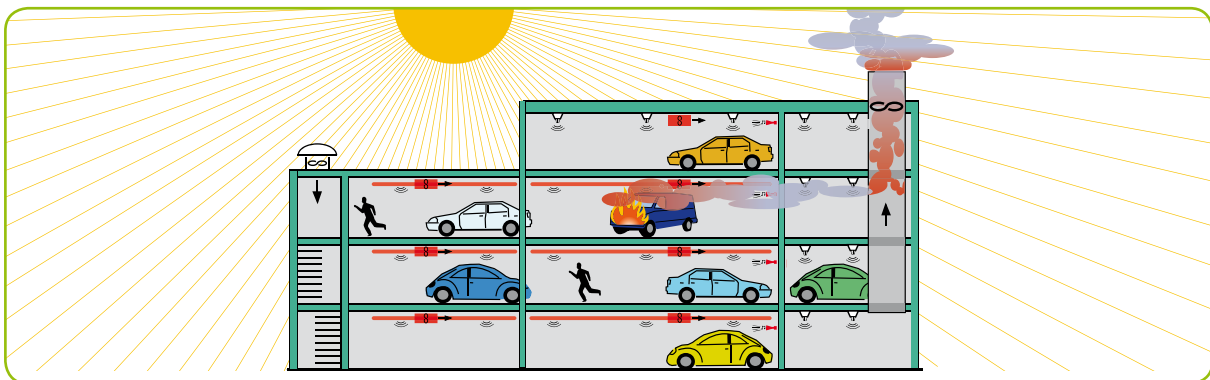
- Preferably by using a natural process.
- Combination of natural and mechanical ventilation
- Using CO/LPG detection: energy-efficient with reduced noise levels

Special fire detection for multilevel car parks

Sensor cable detection is capable of registering even the slightest change in temperatures. Linear sensor cable systems are highly suitable for monitoring tunnels and multilevel car parks.

Brakel can provide total fire safety:

- The wishes and requirements of both the client and the authorities
- The prevention of hazardous situations caused by smoke and exhaust gases (no dead areas)
- The fire suppression duties of the fire department (attack route, position of dry fire extinguishers, view of the fire)
- Ambient factors, such as adjacent buildings, wind influences etc. Achieved with the use of "controlled smoke management"
- The structural aspects (incl. the correct positioning of jet ventilators, determining escape routes, prevention of smoke and fire spread)
- Energy costs and integral costs in the long-term
- Legislation - Brakel is a member of the multilevel car parks committee
- Prompt alerting of individuals using evacuation alarm systems and warning lights
- The provision of safe escape routes using signage and emergency lighting
- Regular monitoring of fire safety through maintenance, inspections and certification
- Overpressure systems in stairwells to provide smoke-free escape routes



Total solutions	Advantages
<ul style="list-style-type: none"> • Fire Safety Engineering 	<ul style="list-style-type: none"> • Total fire safety • The architectural, installation, technical and organisational aspects are all considered • Adapted to the Fire Department's plan of attack
<ul style="list-style-type: none"> • (Jet) ventilation system • In accordance with EN 1201-2 and 3 • Controlled natural smoke management 	<ul style="list-style-type: none"> • Exhaust of smoke and heat to reduce temperatures • View of the fire during rescues and extinguishing duties • Daily ventilation to reduce CO/LPG levels
<ul style="list-style-type: none"> • Fire alarm system* • CO/LPG detection 	<ul style="list-style-type: none"> • Prompt alerting to smoke and fire • Alerting authorities • Prompt alerting of increased CO/LPG levels • Automatic adjustment of ventilation system for unacceptable levels (energy-efficient and noise reducing)
<ul style="list-style-type: none"> • Evacuation alarm system* • Escape route signage 	<ul style="list-style-type: none"> • Safe and fast evacuation • Escape route distances considered
<ul style="list-style-type: none"> • Compartmentation using smoke and/or fire screens • Smokescreens in accordance with EN 12101-1 	<ul style="list-style-type: none"> • Prevents the spread of smoke and fire spread
<ul style="list-style-type: none"> • Evacuation alarm system* 	<ul style="list-style-type: none"> • Adjoining stairwells (escape routes for fire suppression)
<ul style="list-style-type: none"> • Management and maintenance • Annual fire safety inspections and checks • Certification* 	<ul style="list-style-type: none"> • Reduction in financial risks due to fire • All-in maintenance contract • Guarantee of fire safety
<ul style="list-style-type: none"> • CFD simulation calculations 	<ul style="list-style-type: none"> • Optimal positioning of jet ventilators • Smoke spread analysis, field of visibility, temperatures, airflow
<ul style="list-style-type: none"> • The possibility of fire transfer and fire spread calculated 	<ul style="list-style-type: none"> • Prevents fire transfer and fire spread
<ul style="list-style-type: none"> • Ventilation (combined with natural ventilation where possible) 	<ul style="list-style-type: none"> • Warm and polluted air effectively expelled using mechanical ventilation) • Healthy indoor climate

* In accordance with local regulations



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