



Dangers in Underground Garages



An underground car park ceiling collapse is a preventable disaster. Engineers are aware that most underground car parks meet today's norms and standards in terms of safety, but some do not (yet).

About 1000 properties have a significant hazard potential and some of them are even at risk of collapse. If other factors unfavorable to structural safety are added to the usually missing documentation or insufficient inspections, a sudden collapse can occur with a small additional load.

Other main causes of slab collapses are errors in structural calculations and load assumptions as well as in execution. Investigations carried out throughout the country of Switzerland have shown that ground-covered parking halls and underground garages are particularly at risk.

A professional inspection and condition assessment includes all building files and plans as well as the utilization and safety documents. If even parts of this information are missing, it is almost impossible to compare the assumptions, calculation and impact parameters made during construction with those that exist today.

In most known cases of damage, the punching of the columns plays a decisive role. In this area, great progress has been made in reinforcement in recent years and new knowledge has been gained, which is now being incorporated into new standards. With a reasonable amount of time and effort, overly weakly dimensioned columns with the problem of column head can be quickly analyzed and properly rehabilitated.

Building Owners are Liable

All owners of underground garages and parking garages are advised to check their buildings and facilities. For this purpose, the SIA has published a leaflet entitled "Maintenance of supporting structures". Finally, liability in the event of an accident lies with the owner, which can have both civil and criminal consequences.

We show you how to specifically avoid increased risks and demonstrate punching shear safety