

Underground structures are naturally protected from severe weather (hurricanes, tornadoes, thunderstorms, and other natural phenomena). Underground structures can also resist structural damage due to floodwaters, although special isolation provisions are necessary to prevent flooding the structure itself.

Moreover, underground structures have several intrinsic advantages in resisting earthquake motions; they are less affected by the surface seismic waves, as it has been noted notably on the occasion of the Kobe earthquake in 1995, and previously in San Francisco and in Mexico City. The structural oscillation effects are limited, since they are constrained to move with the ground motion. Besides, as they are designed to support important ground loads, they often can better resist earthquake loadings.

### Examples



In France, in the Romanche valley, a landslide has occurred and this may involve the entire slope. Among solutions envisaged is a hydraulic gallery as a road bypass through a tunnel.