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SUBSIDENCE AND SETTLEMENT



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Ground subsidence is the settling or sinking of the ground surface with little or no horizontal movement. This condition is usually gradual and associated with the extraction of natural gas, oil, or water from below ground, or with organic decomposition of buried peat deposits and a resultant loss in soil volume. Although differential settlement generally occurs slowly enough that its effects are not dangerous to building inhabitants, it can cause significant damage to building foundations, pavements, aqueducts and pipelines over time.

Source: USGS

Settlement can also happen suddenly as a result of earthquake shaking. For example, many of California's urban areas are protected from flooding by earthen levees, and those levees are subject to settlement in an earthquake if not properly maintained. This could pose a risk of overtopping and failure of these critical flood-protection systems during a major earthquake.

In addition, in California's non-urban areas, levees keep the state's clean drinking water from being contaminated by salt water intrusion from the San Francisco Bay. Over half of that levee system is vulnerable to failure due to earthquake-triggered settlement.

(Additional sources: California Dept. of Water Resources)