Learning from Earthquakes

The Hollister Earthquake of August 12, 1998

The magnitude 5.4 earthquake that struck near Hollister, California at 7:12 a.m. PST on August 12, 1998, occurred near the intersection of the San Andreas and Calaveras faults. It was the strongest earthquake in the region since the aftershocks of the 1989 Loma Prieta earthquake.

Many ground motion records were obtained almost instantaneously by the California Strong Motion Instrumentation Program (CSMIP) from 19 near-real-time stations (see the September 1998 EERI Newsletter). CSMIP later obtained and processed the records from analog film stations, some of which were closer to the epicenter. These analog film records contained higher recorded peak ground accelerations. At the SAGO South station, at Hollister and closest to the epicenter (6 km), accelerations of 0.093 g horizontal and 0.029 g vertical were recorded. The strongest shaking recorded was at the Gilroy #2 station, which is on alluvium 27 km from the site: 0.174 g horizontal, 0.063 g vertical.

Building structures in the affected region are small and sparse. Most structures are lightweight residential, one-story, light frame or masonry buildings. An exception is the Mission San Juan Bautista. The older portion of this building is 201 years old, constructed with adobe walls and heavy timber roofing. It is located about 16 km from the epicenter, almost directly on the San Andreas fault. The Mission suffered limited cracking in the stucco facade, especially in regions of stress concentration, such as the re-entrant corners and arches. The photograph shows cracking of the stucco around the corner pier of the entryway.

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