3. STRONG MOTION RECORDS

3.1 Strong Motion Records from Land-Based Instruments

Several strong motion accelerographs and seismoscopes obtained records of the earthquake. In particular, accelerograms were obtained from two well-instrumented multistory buildings: North Hall on the campus of the University of California, Santa Barbara (UCSB), near Goleta, and the Freitas Building at 200 E. Carrillo Street in downtown Santa Barbara (see Fig. 3.1). Each of these buildings was instrumented with a 9 channel accelerograph. In addition, accelerograph records were obtained from triaxial instruments located in Building 340 on the UCSB campus (Goleta Free-Field), in the Goleta Substation of the Southern California Edison Company, and the Santa Barbara County Courthouse at the corner of Anacapa and Anapamu Streets in downtown Santa Barbara.

Very small amplitude accelerograph records were obtained by triaxial instruments at the crest and in the valve house of Bradbury Dam (Lake Cachuma), and by instruments at Juncal Dam and Gibraltar Dam (see Fig. 9.11). A very small amplitude record was also obtained by an accelerograph on the roof of the Holiday Inn on U.S. Highway 101 in Ventura, but the nearby free field instrument did not trigger.

Accelerographs located at Casitas Dam and at Point Conception did not trigger. An inspection after the earthquake showed that these instruments were fully operational.

Significant seismoscope records were obtained from two locations: in the basement of Biological Sciences II on the UCSB campus, and near the accelerograph in the Santa Barbara County Courthouse.

Copies of the strong motion records are presented in this report in the best available form at the time of writing. Some records are presented in uncorrected form, and in such cases the nominal scale factors are reported.

North Hall, U.C.S.B.

North Hall is located on the UCSB campus near the intersection of Ocean Road and Mesa Road, as shown in Fig. 3.2. North Hall is a three story reinforced concrete shear wall structure which was designed in 1960 and partially rebuilt in 1975 by adding interior shear walls for additional seismic resistance. The added shear walls are in accordance with the earthquake resistance provisions of the 1976 version of the Uniform Building Code. A photograph of the structure is shown in Fig. 3.3. A floor plan and elevation of the structure locating each of the nine accelerometers is shown in Fig. 3.4. The exterior reinforced concrete and concrete block columns are 48" x 16" and mounted upon caissons. The floor is a 4" thick reinforced concrete slab with 12" x 18" reinforced concrete tie beams. In addition to the exterior columns, there are two rows of ten interior columns which are 14" x 10" and made of reinforced concrete. Upper floors consist of 2.5" reinforced concrete slabs supported by longitudinal reinforced concrete joists spanning between transverse reinforced concrete floor beams. Details of the structural sections are provided later in Chapter 7.

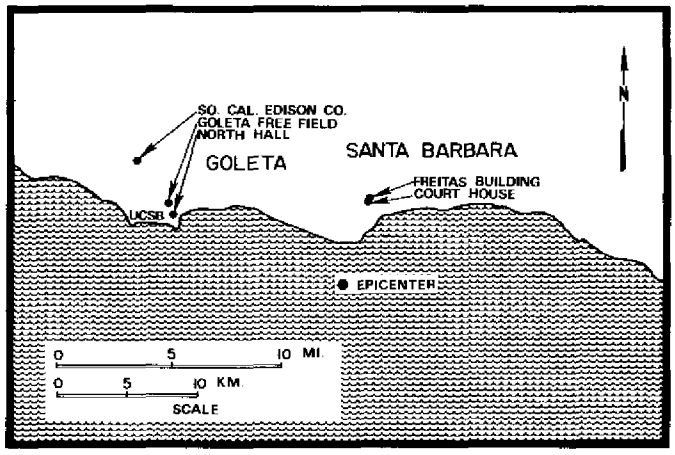


Fig. 3.1 Location of Strong Motion Instruments in the Santa Barbara-Goleta area.

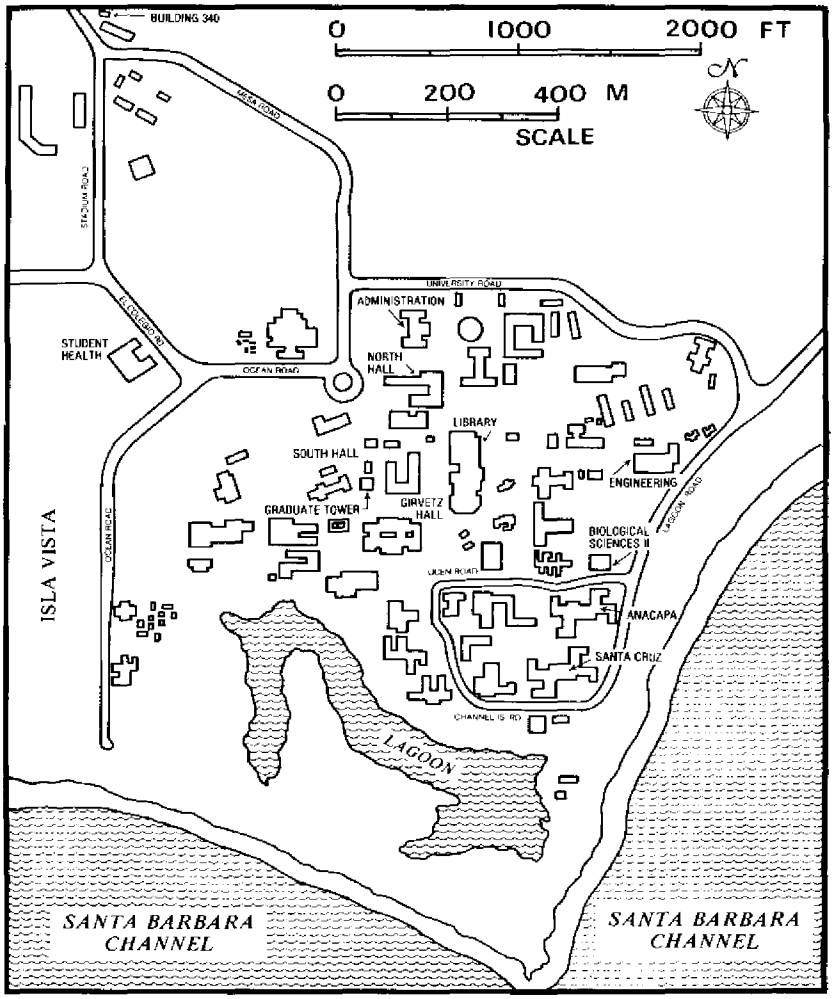


Fig. 3.2 The Campus of the University of California, Santa Barbara

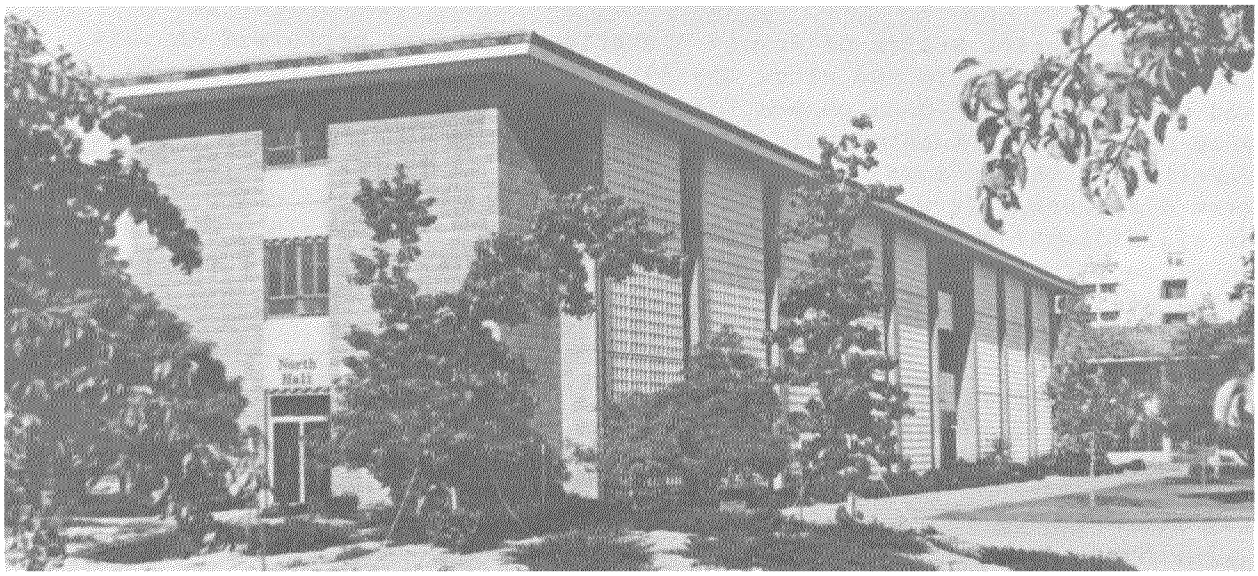
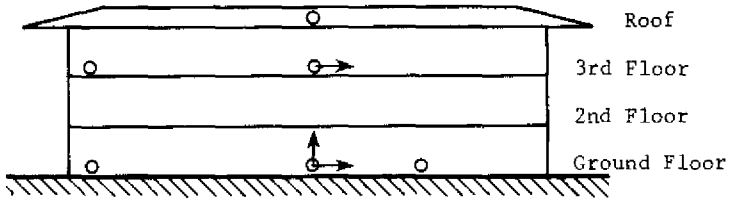
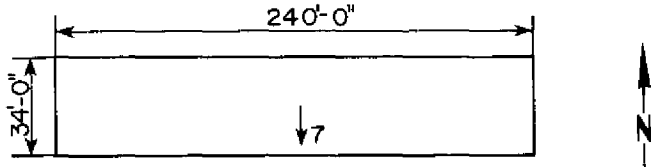


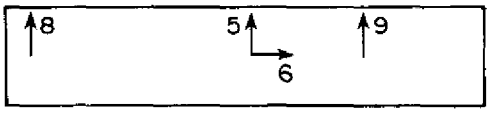
Fig. 3.3 Elevation of North Hall, UCSB. (View from southwest).



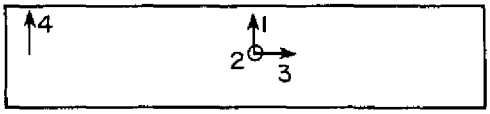
EAST–WEST SECTION



Roof Level Plan



3rd Floor Plan



Ground Floor Plan

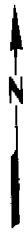


Fig. 3.4 Location of accelerometers within North Hall, UCSB.