Figure 3-5: Vertical crack in a 36-story shear wall concrete building due to building irregularity.

Cairo Tower (Figure 3-6), a 30-year-old, 200-meter-high, cylindrical concrete structure with a 60-meter-deep foundation, sustained no damage from the earthquake. A restaurant located at the top of this building sustained various types of nonstructural damage.

Figure 3-7 shows a new, 30-story cylindrical hotel (about 20 km from the epicenter). The first three stories of the building are concrete, and the remaining 27 stories are of moment steel frame. The building is supported on wedge columns as shown in Figure 3-7 and sustained only nonstructural damage from the earthquake.

Pounding. Building pounding caused damage--some structural distress but not collapse--in a number of locations. Typical damage caused by pounding is shown in Figure 3-8. The tall building on the left pounded against the shorter building, resulting in damage to the corner column and beams of the shorter building.

Public School Buildings. Public school buildings were severely damaged during the Cairo Earthquake. About 100 school buildings collapsed, and about 950 school buildings were damaged and need repair. Most of the damaged buildings are old URM buildings on soft soil. Similar schools on good soil had only minor or no damage from the earthquake.

Hospitals. Most, if not all, hospital buildings lacked seismic design, but still performed well in the earthquake. A few sustained architectural damage, but there were no operational interruptions. Figure 3-9 shows a five-story hospital building (in the city of Maadi about 15 km from the epicenter) of reinforced concrete moment frame with URM infill. This building had very minor nonstructural damage from the earthquake.

3.3 Lifelines

Transportation

Road and Bridges. Roads and bridges performed well during and after the earthquake. Lateral spreading caused about 300 meters of the main road between Cairo and Asiot (near the village of El-Aiyat) (Figure 3-10), which is

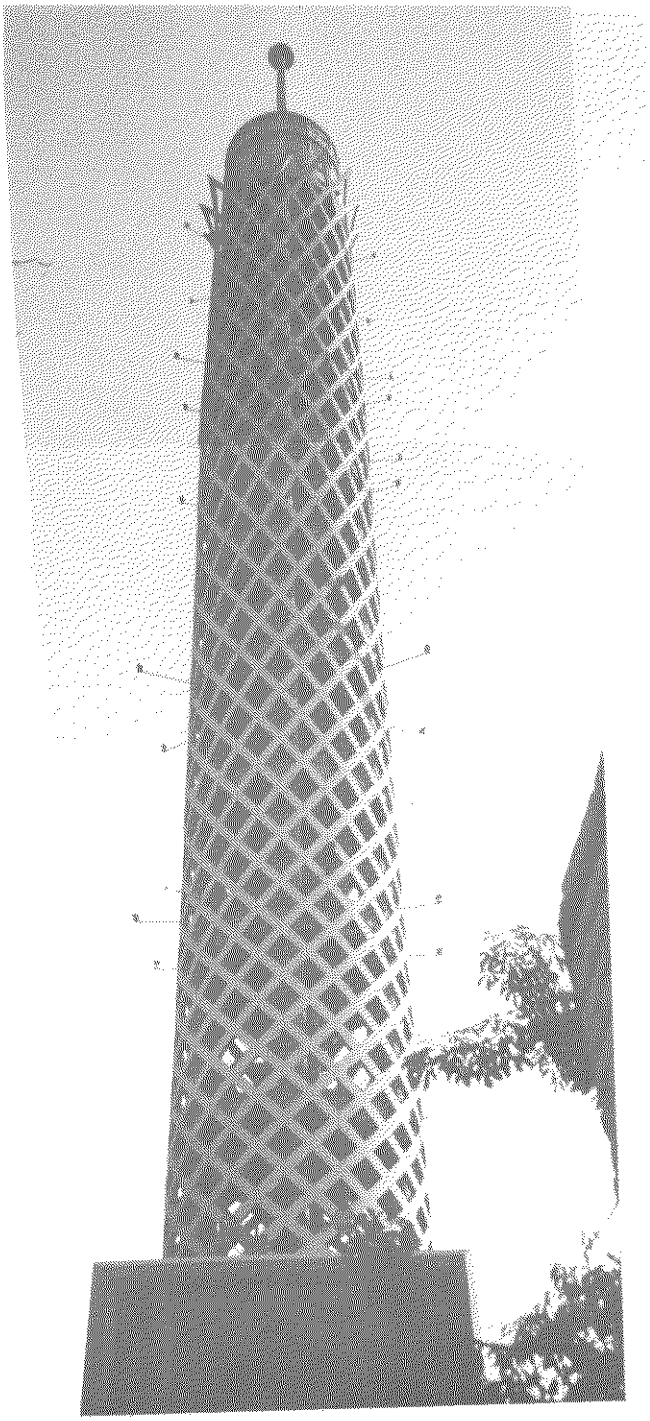

Figure 3-6: The tallest structure in Cairo (Cairo Tower) sustained only nonstructural damage.

Figure 3-7: 30-story cylindrical hotel sustained only nonstructural damage.