Considering all types of historical buildings in Turkey, minaret structures are one of the most critical ones in all over the country. The minaret buildings are representing the cultural and historical change in time. In larger cities of Turkey, Ottoman type minarets are commonly built. With its cultural synthesis of the history, Ottoman type differce from the others with their technical capacity and structural ability. Minaret structures are constructed by using natural material from the region. Minaret structures may have multi faces or rectangular. A good sign from the historical buildings, they stay standing up the earthquakes and disasters through the history. In Turkey which is a earthquake prone country, it is very important to have earthquake behavior of the existing minaret structures. There are numerous research studies are available in this topic. From this stand point, Hagia Sophia Minaret Buildings were investigated through linear time history analysis by using 3 different earthquake data. As a result of the analyses, displacements and stress values are determined.