

Guideline for Inundation Protection of Strong-Motion Instrumentation

Strong-motion instrumentation installed in areas prone to flooding or tsunami inundation shall be adequately protected from water damage. Recorders and associated components that could be damaged by water should be installed above the highest water level predicted to occur.

In the United States, the flooding elevation for a site should be taken as the FEMA mapped value for a 500-year return period, and the tsunami inundation elevation for the site should be determined based on the Maximum Considered Tsunami run-up elevation provided in ASCE 7, increased by a factor of safety of 1.3.

Sensors, recorders, cabling connectors, and all components installed at lower elevation must be sealed against water intrusion to meet IEC 60529, International Protection Code IP68, and be able to withstand immersion to a depth of three meters for at least 24 hours. A recorder not meeting IP68 must be installed at a higher elevation or transmit its data in near real-time to a remote data center at higher elevation. A recorder must be able to withstand flooding of any remote sensor without compromising its operation or the integrity of stored data.