

Aseismic System with Magnetic Insulators

The proposed system is based on the following operations:

- interruption of the solidarity between the building and the foundation-soil complex;
- laying of bearings with magnetic insulators.

Each bearing consists of two different systems of direct current electromagnets, reciprocally facing each other with the same polarity. One of them, consisting of four distinct electromagnets, is connected to the building; the other, consisting of only one uninterrupted electromagnet, is linked to the foundation. When an earthquake begins, the electromagnets are activated by a device consisting of:

- a sensor;
- an electronic control station;
- a current generator;
- a magnetic flux regulator.

During an earthquake, the magnetic flux between the two electromagnetic systems is able to raise the building, separating it from the foundation-soil complex. The layer of air between the electromagnets permits the rigid translation of the foundation-soil complex with respect to the building, which remains motionless. A special device, placed along the external perimeter of the bearing, ensures the perfect verticality of the building. At the end of the earthquake, the magnetic flux gradually stops and the building returns to its initial rest position, after any potential horizontal eccentricity with respect to the foundation has been annulled by a device whose function is to center the building.

The incontestable advantage of the proposed system is that the seismic energy in the building is eliminated completely.