Base Isolation and Seismic Consideration in Civil Engineering

Earthquake is sudden shaking of the earth surface caused by a source of disturbance inside the earth. It occurs due to sudden mass shifting in bedrock caused by forces within the earth. It causes one of the most destructive natural disasters leading to heavy losses of life and property. These losses can be minimized if suitable measures are taken in the design, construction and maintenance of structures and foundation built on ground.

This report is attempt to understand and assess the seismic forces (earthquake forces) so that damages caused by them can be prevented. Base isolation and seismic dampers are two type of technologies that can be used to reduce the effect of earthquake. Many other remedial measures are also listed here.

Base Isolation :-

The idea behind the Base Isolation is to detach (isolate) the building from the ground in such a way that earthquake motions are not transmitted up through the building, or at least greatly reduced.

If a building is rested on flexible pads that offer resistance against lateral movements, then some effect of the ground shaking will be transferred to the building above. If the flexible pads are properly chosen, the forces induced by ground shaking can be a few times smaller than that experienced by the building built directly on ground.

Seismic Dampers:-

Seismic Dampers are fixed in place of structural elements as diagonal braces.

They absorb a part of seismic energy when it is transmitted through them.