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Course Earth quak-

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Seismic wave

A seismic wave is a wave that travel to the earth's surface most often as a result of a tectonic earth quake some time from explosion

Types of seismic wave

There are two types

of seismic waves

↳ Body wave

↳ Surface wave

Body wave

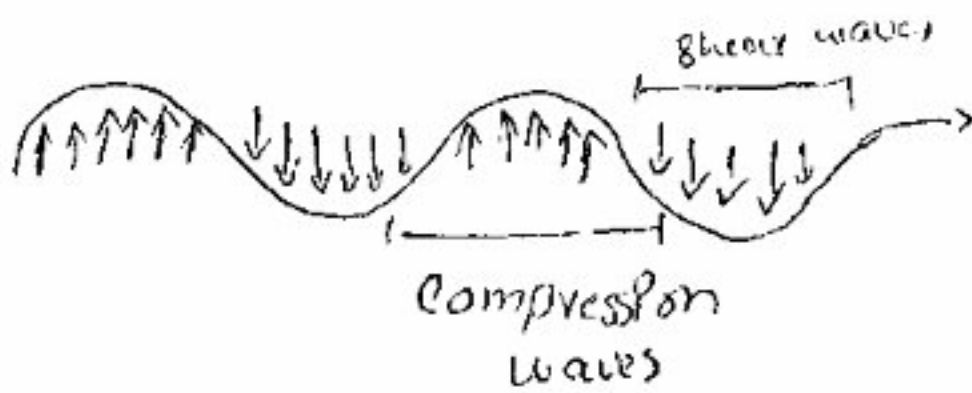
A body wave is a types of seismic wave that move through the interior of the earth, as opposed to surface waves that travel near the earth's surface.

Types of body waves

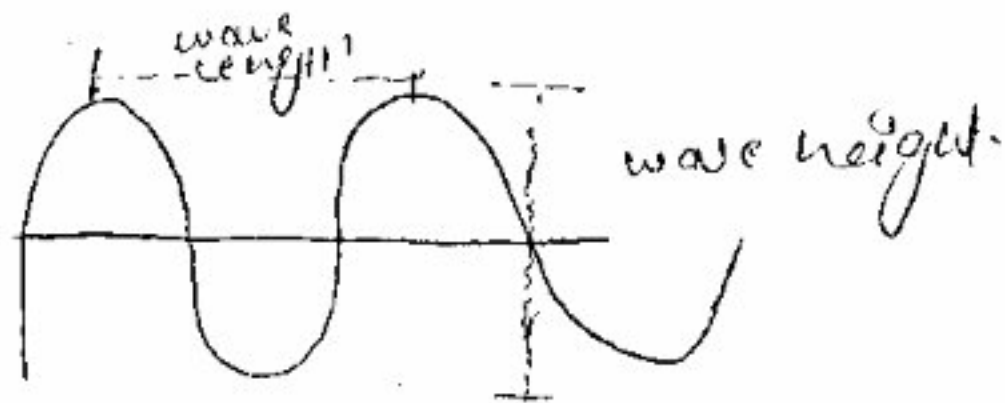
* P waves

* S wave

each types of wave shake the ground in different ways



Surface wave type of seismic wave that travel along or parallel to the earth surface



Primary wave & secondary wave
 Primary waves travel faster move in a push-pull pattern, travel through solids, liquids and gas and cause less damage due to their smaller size.
 Secondary wave secondary waves travel slower move in an up and down pattern travel only through solid and cause more damage due to their greater size.

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Seismic Risk Risk seismic risk refers to the risk of damage from earth quake to a building.

Seismic Risk Increasing day by day :->

The current building stocks is enlarged by the addition of new building many with significant OR even excessive, earth quake vulnerability. This above all due to the fact that for new building. New building must be designed to be reasonably earth quake resistant to prevent the constant of new vulnerable structures.

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Seismic risk can be minimized.

we cannot prevent natural earthquakes from occurring but we can significantly minimize their effects by identifying hazards building safer structure and providing education on earthquake safety.

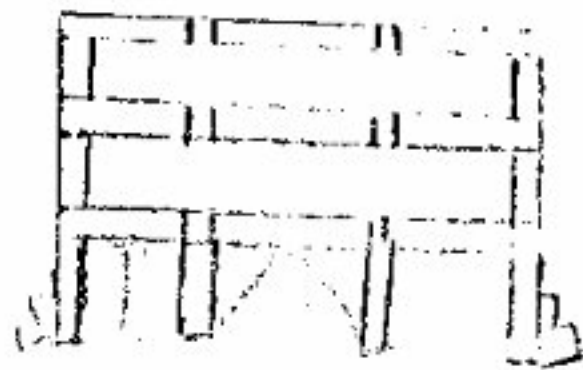
By preparing for natural earthquakes we can also reduce the risk from human induced risk.

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Soft Storey :->

A soft storey building is a multi-storey building in which one or more floors have windows, wide doors large unobstructed commercial spaces.

Soft storey effect can be minimized.



- ↳ Add some additional columns
- ↳ Add bracing
- ↳ Add buttresses

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Mechanism To Dissipate energy imparted to a structure by earth quake.

The following mechanism to dissipate energy imparted are the following.

↳ Base Isolation

↳ Seismic Dampers

Base Isolation

also known as seismic Base Isolation or base Isolation system is one of most popular means of protecting a structure against earthquake forces - It is a collection of structural element which should substantially decouple a super-structure from its sub-structure resting on a shaking ground thus protecting a building or non building structure integrity.

Seismic Damper

Another method for controlling

seismic damages in building is installing
of seismic damper - In this case the
damper device are provided by lead based

Types

Different types of seismic
damper.

- 1) viscous damper
- 2) friction damper
- 3) yielding damper.

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Effect of shear wall arrangement on the torsional resistance of Building

- 1) Greatest torsional resistance is obtained by concentrating the longitudinal walls of the corner of the building.
- 2) Although the position center of rigidity of the symmetrical arrangement.
- 3) The lack of symmetry about one axis the center of rigidity will move slightly off central axis and lateral forces will have an increased torsional effect due to this offset of the center of rigidity of the flanged section.
- 4) Although the arrangement of wall is symmetrical the longitudinal wall have been moved close to the center of rigidity.

c) A very poor arrangement of longitudinal members clustered toward one corner.