Name _____

Building Resilience: Designing for Earthquake Safety

Short Answer Key

1. Base isolation involves placing a building on flexible bearings or isolators that allow it to move independently from the shaking ground during an earthquake. The isolators absorb and dissipate seismic forces, reducing structural damage.
2. Reinforced concrete and steel contribute to earthquake resistance by providing additional strength and flexibility. Steel bars or mesh within the concrete allow the building to bend and flex without collapsing.
3. Tuned mass dampers (TMDs) in tall buildings counteract swaying during an earthquake. They consist of massive weights suspended near the top of the building. When the building sways, TMDs move in the opposite direction, stabilizing the structure.
4. Bracing systems and shear walls distribute seismic forces evenly throughout a building. Braces are diagonal or cross-bracing elements that strengthen the structural frame, while shear walls resist horizontal movement, stabilizing the structure.
5. Critical infrastructure like hospitals implements earthquake-resistant design to ensure their functionality during and after earthquakes, allowing them to continue providing vital services to the community.