Designed for Safety

Hurricanes, tornadoes, volcanoes, and earthquakes are all natural hazards. We can't stop them from happening. We can, however, stop some natural hazards from causing so much damage, if we can find new and innovative ways to build homes and cities.

Here are some ideas that engineers have come up with to help protect people from the damage caused by hurricanes, tornadoes, and earthquakes:

HAZARD	DAMAGE	PROTECTION
 Hurricanes	• Strong winds destroy buildings • Rain and ocean water floods towns	• Use concrete and steel to make buildings that resist wind damage • Build away from the ocean or raise buildings up above flood waters
 Tornadoes	• Strong winds destroy buildings	• Use concrete and steel to make buildings that resist wind damage • Build deeper into the ground or underground so that buildings are not exposed to as much wind • Construct a "Safe Room" that will resist wind damage inside homes and businesses
 Earthquakes	• Shaking knocks down buildings and power lines, breaks water and gas pipes	• Put "shock absorbers" under buildings to lessen the effects of shaking • Use materials that twist and stretch for power lines and pipes

You've learned a lot about these three natural hazards. Use what you know to come up with your own ideas for protecting people from the damage that **one** of these hazards can cause. Try to think of a new way to build homes and cities that will protect them from that hazard. If you want, you can use ideas from the chart above. Draw or describe your ideas for a hazard-safe building here, or use the back of this sheet if you need more room. You can also work with your teacher to help research your design. Here are some websites to get you started: **http://earthquake.usgs.gov/learn/publications/saferstructures**, **www.ready.gov/tornadoes** (for Safe Room), and **http://webecoist.momtastic.com/2011/04/22/disaster-proof-architecture-13-super-strong-structures**.

My Safe Design for: ☐ **Hurricane** ☐ **Tornado** ☐ **Earthquake**

After you have finished your design, share it with your whole class. Ask your classmates for ideas to make your design even better.

Be Prepared

Until everyone lives in a home that's built to protect them from natural hazards, it's important to learn how to stay safe when a natural hazard happens. You can find out how to be prepared for all kinds of hazards at the American Red Cross website. Visit **redcross.org/prepare/disaster** to learn about hazards that can happen in your state and how everyone in your home can stay safe if one occurs.