SAFE BY DESIGN

SAFE BUILDINGS



pogo

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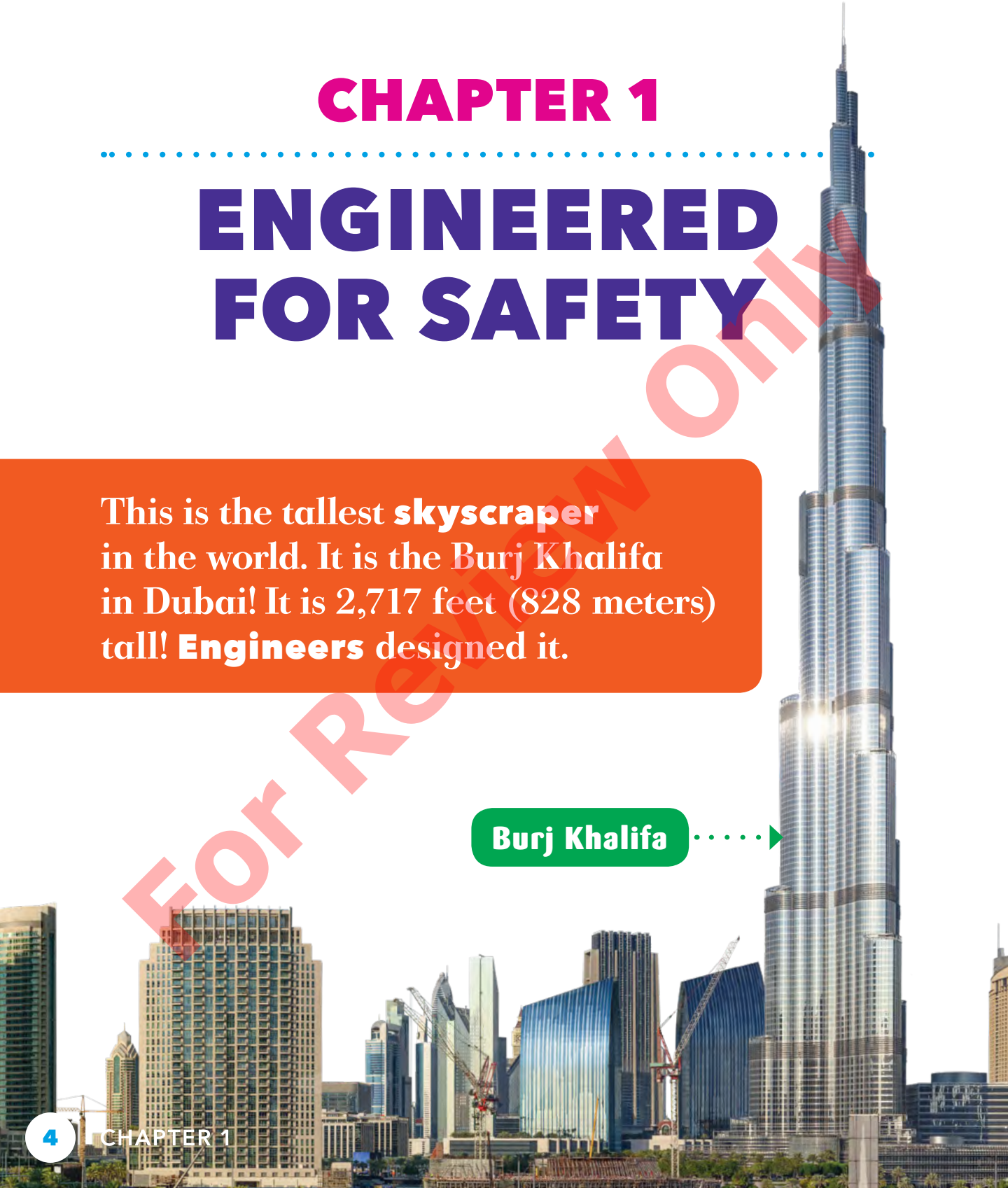
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CHAPTER 1

ENGINEERED FOR SAFETY

This is the tallest **skyscraper** in the world. It is the Burj Khalifa in Dubai! It is 2,717 feet (828 meters) tall! **Engineers** designed it.



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They made this building safe from wind. Wind pushes tall buildings. They move slightly from side to side. This is called sway. **Earthquakes** can cause sway, too.



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How do they build for sway? Sometimes, they design buildings with special shapes. The Burj Khalifa has a Y-shaped base. It is very **stable**. It can stand up to strong winds.

Special building materials help, too. The core is made of strong concrete. Concrete and steel are commonly used to build skyscrapers. Why? They can support a lot of weight.



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CHAPTER 2

WEATHER AND DISASTERS

Engineers plan ahead. They plan for **natural disasters**, dangerous weather, and accidents. There is a lot to think about! They must follow **building codes**, too.



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hazard map

Engineers look at hazard maps. Why? They see where buildings are most at risk for disaster. Then they choose building materials. They might make special designs.

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ACTIVITIES & TOOLS

TRY THIS!

TEST YOUR OWN BUILDING



Engineers test out building designs with models. This helps them plan for natural disasters. You can make your own model. See if it can stand up to an earthquake!

What You Need:

- toothpicks
- miniature marshmallows
- small pieces of cardboard
- clear tape
- aluminum baking pan
- 1 box of instant gelatin

1. **Using the toothpicks, marshmallows, and cardboard, make a model building. Will you build a tall skyscraper or a short, sturdy building?**
2. **Make the gelatin in a flat pan. Allow it to set.**
3. **When the gelatin is ready, place your model on top. Gently move the pan back and forth. Does your building hold up? Does it fall?**
4. **Go back to the drawing board to design and test new models until you create a structure that stays intact!**

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