SUPER SLIDE

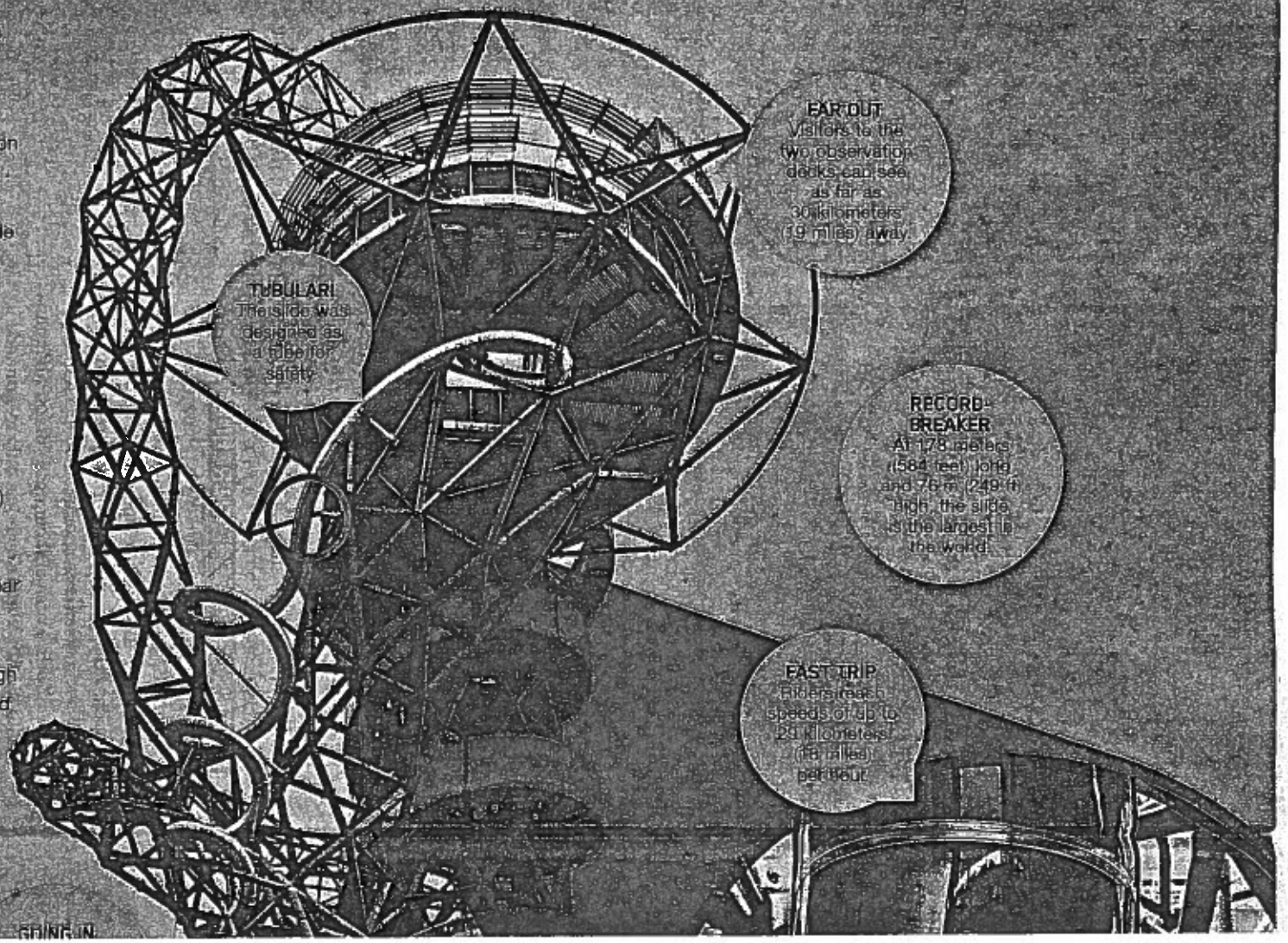
Learn what it's like to zip down the world's longest and tallest slide

ESSENTIAL QUESTION: What safety factors do engineers need to consider when creating an extremely tall and long slide?

You may think you're too old for slides, but a new attraction in London, England, might change your mind. The ArcelorMittal Orbit tower slide is the longest and tallest on Earth.

The tower was built in 2012 as a viewing tower and art project, and the slide was added later. After traveling 25 stories by elevator to the top of the tower, riders strap on elbow pads and helmets, climb on top of a soft mat, and shoot down a tube. In about 40 seconds, they zip 178 meters (584 feet) through a series of turns and corkscrews. Along the way, they can spot famous London landmarks through clear panels in the slide's tube—but only if they're not squeezing their eyes shut!

Creating a slide that was fast enough to be exciting but not dangerous posed an engineering challenge.



LONDON'S ARCELORMITTAL ORBIT TOWER AND SLIDE

"Your speed on a slide has a

an engineering challenge.

"Your speed on a slide has a lot to do with weather," says Tim Finlay, a structural engineer who helped design the ride. If the air is damp, moisture in the tube will cause a rider's mat to stick to the slide's surface. That increases *friction*, slowing a rider down. But on a dry day, friction will be low, causing the rider to *accelerate*, or gain speed. That could pose a safety problem on a long, straight slide.

Luckily, the twists and turns of the ArcelorMittal slide slow riders to a safe speed. Once the slide was finished, Finlay tried it himself. How did the design turn out? "Brilliant!" he says.

—Stephanie Warren Drimmer

GOING IN CIRCLES
Riders go through 12 full, hair-raising turns as they descend.

STEEL STRUCTURE
The slide is built from thin stainless steel sheets. If all that steel were compressed together, it would make a block 1 m (3 feet) wide and 1 m (3 ft) high.

SPEED SHIFT
On a dry day, when friction is low, the ride down the slide lasts about 30 seconds. On a humid day, when friction is high, the ride can last 40 seconds.

CORE QUESTION

Describe a problem that too little friction could cause on a slide. What is a possible solution to that problem?