

9 High living: skyscrapers

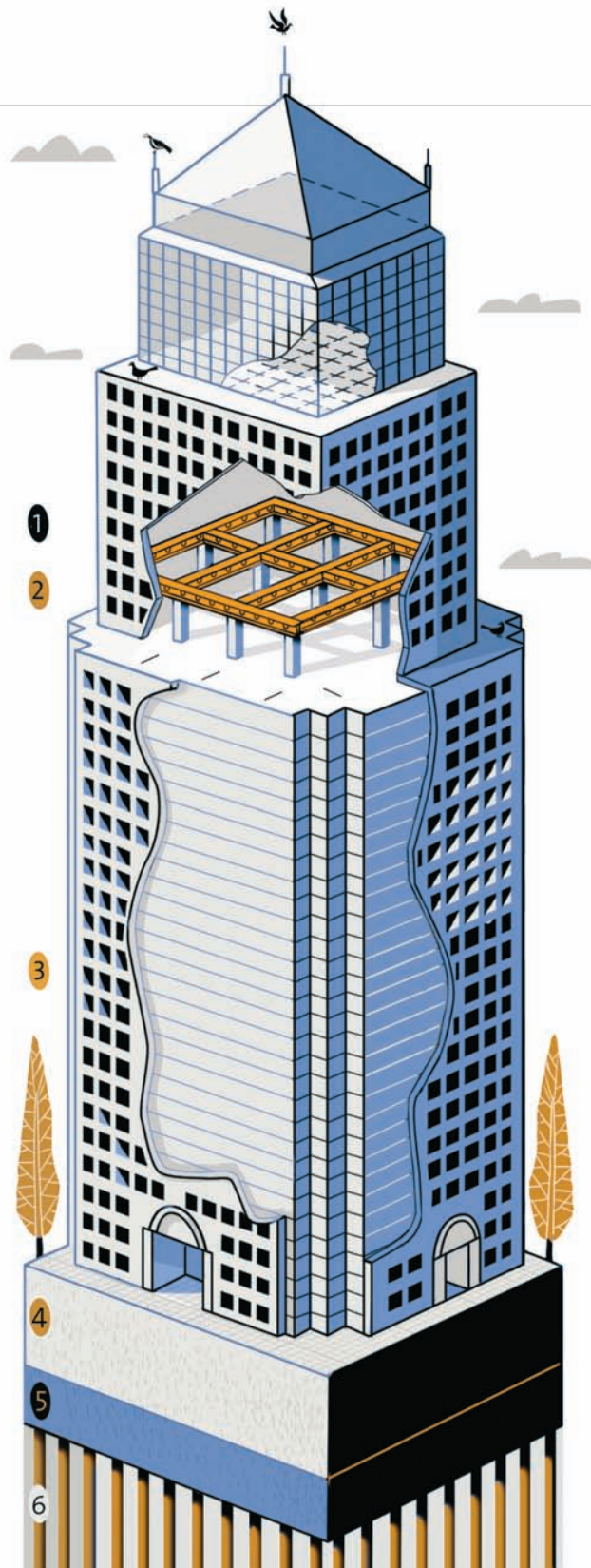
Switch on

- 1 Name some famous skyscrapers. Which cities are they in?



- 2 Look at the diagram. It shows some of the components of a skyscraper. Match a–f below with 1–6 in the diagram.

- a concrete base
- b cladding
- c floors below ground
- d steel columns
- e horizontal I-shaped girders
- f steel piles



In this unit

- key terms for different parts of a skyscraper
- how to describe safety signs and give safety advice
- how to stress long words
- using your search skills to find out about the world's tallest buildings

It's my job

1 Listen to Leon Peters, a Steel Erector, and answer the questions.

- 1 How big is Leon's gang?
- 2 How long is a contract?
- 3 What kind of buildings has he worked on?
- 4 What word does he use to describe components which are cut and drilled off-site?
- 5 How long is a typical shift?

2 Listen again and find the reasons why

- 1 contracts vary in length
- 2 bonuses are paid
- 3 you need good ground people
- 4 you don't come down for tea-breaks
- 5 moving girders is dangerous.

Reading**How skyscrapers are built**

1 Put these stages in the construction of a skyscraper in the correct order. Then work in small groups and compare answers.

- a _____ Metal decking called *floor formers* are laid between the beams to form a shallow pan.
- b _____ Outer walls, called *cladding*, are lifted into position by crane.
- c _____ Girders are bolted to the columns to form the floors of the building.
- d **1** The foundations are laid.
- e _____ Liquid concrete is poured onto the formers.

- f _____ Ducts are installed beneath each floor to carry cables and pipes.
- g _____ The vertical steel columns that form the base of the building's main frame are fixed to the foundations.
- h _____ The process is repeated floor by floor until the skyscraper is completed.

2 Read the text and check your answers.

Skyscraper construction

Skyscrapers start with a very large hole in the ground which will contain the foundations, several floors, and possibly even a metro or subway station. The type of foundations depend on the nature of the ground. Usually they are made by drilling narrow, deep holes and filling them with reinforced concrete to form piles. Another method is to drive steel piles, as much as twenty metres in length, into the ground. A thick raft of concrete is laid on top of the piles.

Vertical steel columns are bolted to the foundations. Each column rests on a platform of steel to spread the load. Steel girders are fixed horizontally from column to column by Steel Erectors to form a strong framework. Metal decking is laid across the girders and filled with lightweight liquid concrete which is pumped up from the ground. When it sets, it forms the floors.

Ducts are installed below the floors to carry all services: electricity, water, drains. All exposed metalwork is fireproofed. If a fire happens, it is important that the structure can withstand high temperatures without buckling.

The same process is repeated as the building rises. In some construction methods, entire floors are built at ground level and hoisted into position by cranes.

The outside of the building is covered in cladding. This consists of prefabricated panels of materials such as stainless steel, aluminium, and glass.