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ISBN: 978-1-68021-757-5 eBook: 978-1-64598-061-2

Printed in Malaysia

25 24 23 22 21 1 2 3 4 5

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GLOSSARY



# CHAPTER 1 TOUCHING THE SKY

A fall from 1,000 feet would kill. From that height, people are hard to see. Cars look like grains of rice. This is the view from the top of the tallest buildings. One of them is the North Tower. It is also called 30 Hudson Yards. That is its address. At 1,296 feet, it towers over New York City.

This is the most expensive building project in the U.S. It cost \$25 billion. The building is the fifth tallest in the U.S.

Hundreds of people worked on the plans. Every detail had to be perfect. These workers are called engineers.



Engineers plan structures of all kinds. They design and test them too. Some engineers work on roads and tunnels. Others make objects for outer space. While working, they think about cost and safety. The **environment** is a big concern too. Another consideration is the impact on local plants and animals. Unique projects can become engineering wonders.



#### **TYPES OF ENGINEERS**

There are many types of engineers. Each has a special focus.

Civil engineers work on buildings. They build roads and bridges. Their structures need to be safe and strong. These engineers find creative ways to make this happen.

Mechanical engineers build machines. These can include engines and elevators. Engineers make them work faster and better. Engines are more efficient. Elevators go even higher than before. Often the goal is to make the most advanced machines possible.

Electrical engineers work with power. They design circuits and motors. Computer chips are made too. Technology is advancing. Demand is high for electrical engineers.

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## CHAPTER 2 ANCIENT WONDERS

Modern buildings are built with advanced technology. Construction crews use power tools. Cranes and bulldozers do the work. This was not possible long ago. Human power was used. People had to carry large rocks. Animals moved materials too. These projects took a long time. Many took thousands of years.

The Great Wall of China is huge. It is one of the largest structures on Earth. Construction began over 2,000 years ago. Millions of people worked on it.

A structure like this had to be tall. The Chinese built it to keep enemies out. Strength was important. That way no one could get in.

This wonder is over 13,000 miles long. That is four times the distance between Los Angeles and New York City. It is as tall as a four-story building.

The wall is no longer used for protection. Still, it is a big **attraction**. Over ten million tourists visit each year.





Another ancient wonder is Teotihuacan. This is an ancient city in Mexico. The name means "the place where the gods were created." Teotihuacan is home to large **pyramids**.

The city's design is advanced. Experts do not know when the first buildings were built. Construction may have begun in 300 BC. One structure is the Pyramid of the Sun. It is the third largest pyramid in the world. There are also apartments. Over 2,000 people once lived in them. By the 1400s, no one lived there. Some experts think there was an invasion. Others think **drought** forced the people to leave.

Egypt also has pyramids. More than 100 are spread across the country. The Great Pyramid is the biggest. It was the tallest structure on Earth for 4,000 years. A taller church was built in 1311.

People still debate how the pyramids were built. It seems impossible that it was done by hand. But Egyptian engineers found a way. More than 20,000 people worked on the Great Pyramid. The pyramids have become a symbol of Egypt's history. Pharaohs were buried in many of them. These were Egyptian kings. Some believe their graves have curses and ghosts inside.

#### **GILA CLIFF DWELLINGS**

In the 1200s, technology was not advanced. People used simple tools. They found unique ways to make their homes. Some of those people were the Mogollons. They lived in what is now New Mexico.

The Mogollons built their homes into the sides of cliffs. This protected them from the weather. Many walls were made from fallen rocks. People carried these heavy rocks by hand.

Despite the time period, the engineering at this site is very advanced. Rooms were built for different purposes. Several were for storage. Others were for people to gather. Designs were ahead of

their time.