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## **HISTORICAL SCIENCE AND DIFFERENT MODERN BUILDINGS**

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### *Abstract:*

The development of Modern architecture revolutionized our cities and workplaces, and its design principles not only reflected progress in science, health, and social equality but were also intended to help these ideals thrive.

Today, Modern design principles help connect society and are seen in the construction of schools, homes, and even bridges and highways.

What is Modern architecture?

The term “Modern architecture” describes architecture designed and built within the social, artistic, and cultural attitude known as Modernism. It put an emphasis on experimentation, the rejection of predetermined “rules,” and freedom of expression in art, literature, architecture, and music. The Modern Movement in architecture was born in the 20th century and really took off after World War I. Advancements in engineering, building materials, social equality, health, and industry converged, while past historical styles were rejected. This created a perfect storm that allowed architecture to enter a new era of design.

Modern architecture also attempted to help solve a practical problem: a boom in the urban population. Immigration and new industries like steelmaking were attracting people from rural areas to cities, and there was a need for new offices, factories, and housing to keep up with growth. New mass production techniques meant buildings (and furniture) could be produced quickly and relatively cheaply.





Over the years, Modern architecture spread around the world and expanded to include regional adaptations, which met local needs and design sensibilities. Modern architects also explored how materials could influence design.

2. Engineering Advancements: Engineering techniques developed to the point where structures could employ those new building materials, giving architects the freedom to design buildings that were no longer dependent on thick, load-bearing walls to stand up. This allowed them to grow taller (i.e. skyscrapers). Buildings could become thinner, lighter and could incorporate large glass surfaces. They could have larger floor plans with bigger interior spaces, since fewer walls were needed, and outer walls could be designed in expressive ways that traditional brick and mortar structures couldn't support. Especially in the early days of Modern architecture, architects and designers used new building materials and construction techniques experimentally, without a clear understanding of how they would perform and age over time. As a result, some Modern buildings now show signs of deterioration and aging. (Conservation efforts like the Getty Foundation's Getty Conservation Institute's were created to provide resources and help people who take care of these buildings with their conservation and maintenance).

1. New Building Materials: Before the turn of the 20th century, building materials were restricted to simple items like brick, stone, and wood. But scientific innovations led to the creation of brand-new materials such as mass-produced glass, steel, reinforced concrete, and cast iron. An exciting world opened up for architects—suddenly, they could experiment with materials that simply weren't available before.

Form Follows Function: Before Modernism, architects were accustomed to referencing historical styles and forms in their designs. In the 19th century, popular styles included Beaux-Arts, Gothic Revival, and Neoclassicism. In these styles, the





building's purpose didn't necessarily have a strong influence on its design. But Modernism introduced the idea that the building needs to function properly, and that its appearance could be derived from its function, said Chandler McCoy, senior project specialist at the Getty Conservation Institute. As a result, Modern architecture tends towards minimalism: clean lines, carefully balanced composition, exposed building materials, and a lack of adornment or reference to historical architecture styles. "It needs to serve [its purpose] if it's a bus station or if it's a school or if it's a library. It shouldn't look like an Italian palazzo," said McCoy. "So its functionality is key."

