

The history and development of ecological architecture

■ Is ecological architecture really a contemporary concept?

Many people see ecological architecture as a **brand-new** concept, but it has actually been around for a very long time. Whenever humans built up urban areas, they were aware of the changes they were making to the natural environment. Ecological architecture is about preserving and complementing the natural elements within an urban **setting**, whether that is a green wall on a single building or integrating green spaces as a city is planned. Ecological architecture is a type of urban greening, which is about creating green spaces that promote symbiosis between urban and natural environments. As cities around the world become larger, ecological architecture has grown to promote that symbiosis in new, creative, aesthetically pleasing ways. It has also grown in popularity as we have become more aware of climate change, and search for means of containing its effects. Eco-architecture, as we know it, has been around since the 1960s, and is constantly evolving to accommodate the new ways in which we build. We are at a fascinating point in the timeline of ecological architecture, and watching this system grow and adapt will provide infinite possibilities to our cities' skylines.

■ The history of ecological architecture

Ecological architecture has existed for thousands of years. A famous example is Angkor Wat, a Cambodian temple complex built in the 12th century AD that still stands today. Angkor Wat uses a complex irrigation system and hydraulic engine to power many aspects of the complex, including reserving water for drier months, **watering** crops, and heating and cooling areas as needed. Angkor Wat also uses **locally-sourced** natural materials throughout its structure, meaning that its **carbon footprint** is lower than a structure where the materials would have been transported to the site from around the globe. These transport emissions are a huge source of carbon emissions within the building industry; looking back at the practices used in Angkor Wat could help us to improve our own practices 900 years later.

Ecological architecture, as we know it today, developed from the wave of environmental **advocacy** that gained popularity in the United States in the 1960s. This movement combined a number of factors such as a reverence of the Native American way of living with nature, and an opposition to the **urban sprawl** and **suburbs** that were quickly growing across the US.

These environmental activists experimented with living structures and how their way of living interacted with the local ecosystem. In 1969, Ian McHarg, a Scottish landscape architect, published *Design With Nature*, a book about ecological architecture that promoted the ideas that had been explored over the past decade. From that point, ecological architecture has continued to advance, both technologically and in popularity. The 21st century saw a boom in green architecture, as the importance of green space in the urban environment became clearer.

advocacy: *difesa, protezione*

brand new: *nuovo di zecca*

carbon footprint: *impatto delle attività umane sull'ambiente*

locally-sourced: *presenti localmente*

setting: *insediamento*

suburb: *periferia*

to water: *irrigare*

urban sprawl: *espansione urbana incontrollata*



■ Eco-architecture in the 21st century

Contemporary ecological architecture aims to combat the prevalent architecture style that is damaging the earth. According to The Encyclopaedia Britannica, the building of shelter consumed more than half of the world's resources in the early 21st century. This includes: 16% of the freshwater resources, 30-40% of all energy supplies, 50% of all raw materials withdrawn from the Earth's surface (by weight), 40-50% of waste deposits in landfills, 20-30% of greenhouse gas emissions.

The relationship between environment and architecture is currently at an **all-time low**, and contemporary ecological architecture is battling that. 21st century eco-architecture uses design and urban ecologies to create buildings that work with the environment, rather than against it. The **pillars** of this style are the reuse of materials, using alternative energy sources, energy conservation, and careful **siting**. Implementing all of these structures when designing and building results in eco-friendly, sustainable architecture.

■ What happens next?

Cities around the world are using the City Biodiversity Index to measure the strength of its biodiversity using factors such as native biodiversity in the city, ecosystem services, and governance and management of biodiversity. Cities use the CBI to conduct measurements annually and use this information to determine how they can improve their local ecosystems. When a city receives a low score on the CBI, ecological architecture is often one of the first measures put in place by city planners. Living walls and green roofs can be added to **extant** buildings to improve the carbon footprint of the area, and ecological architecture practices can be used when constructing new buildings. Combining these practices helps us to create a greener, environmentally safer world.

Adapted from: <https://www.ansgroupglobal.com/blog/history-and-development-ecological-architecture>

all-time low: *il più basso di tutti i tempi*
extant: *esistente*
pillar: *pilastrino*
siting: *ubicazione*

1 Decide if the following statements are true or false and correct the false ones.

- | | T | F |
|--|--------------------------|--------------------------|
| 1. The more people have become aware of climate change, the more eco-architecture has become popular. | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Eco-architecture has evolved to its highest level. | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. The carbon footprint of a building can be minimized by using materials available in-loco. | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. The way native Americans integrated with the environment was seen with respect in the U.S.A. in the 1960s. | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. More than 50% of the world's resources in the early 21 st century were consumed for building houses. | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. In addition to that 50%, 16% of the freshwater resources have been also consumed. | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. The higher the City Biodiversity Index, the greener the city. | <input type="checkbox"/> | <input type="checkbox"/> |