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## ARCHITECTURE OF THE FUTURE – MODERN TRENDS AND INNOVATION

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**Аннотация:** В статье раскрываются новые тенденции и направления в современной архитектуре будущего, высокие технологии, композиционные приемы, новейшие строительные материалы.

**Ключевые слова:** инновация, модернизация, авангард, новейшая технология, эволюция, ЭКО дом,

**Abstract:** The article reveals new trends and trends in modern architecture of the future, high technologies, compositional techniques, the latest building materials.

**Keywords:** innovation, modernization, avant-garde, latest technology, Evolution, Eco-house.

**Annotatsiya:** Maqolada kelajakning zamonaviy arxitekturasidagi yangi tendentsiyalar va yo'nalishlar, yuqori texnologiyalar, kompozitsion texnikalar va yangi qurilish materiallari haqida ochib berilgan.

**Kalit so'zlar:** innovatsiya, modernizatsiya, avangard, yangi texnologiya, evolyutsiya, Eko uy.

With the advent of high progress, architecture, like any other industry, does not stand still, opportunities to experiment, creatively search for new forms are revealed.

The beginning of the XX century was a revolution in architecture, which introduced new technologies and materials into practice.

Modernism and the avant-garde manifested itself in architectural images, structures and building materials.

In fact, this revolution continues: technologies are developing, the appearance of the building is changing, evolution continues.

The advent of 3D printing made it possible to create architectural buildings of almost any shape

without problems. The introduction of innovations in architecture and construction continues, and a lot of amazing things are waiting for us in the near future.



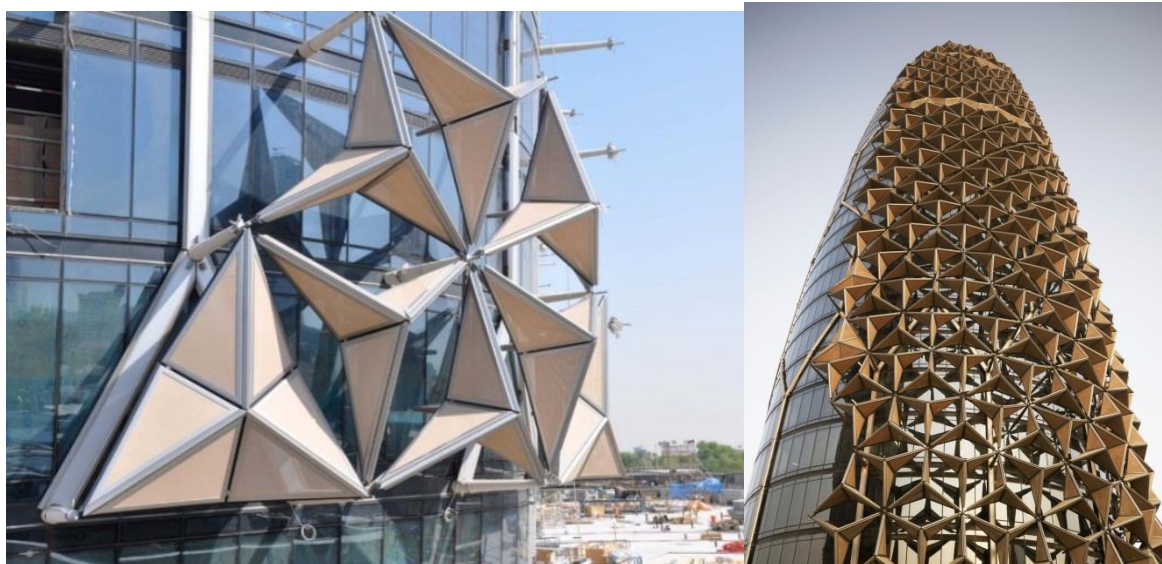
***Pic. 1 Residential ECO-house. France.***

An eco-house is a structure that uses mainly natural materials to create it. As well as innovative technologies that allow you to achieve maximum energy savings and comfort. While causing minimal damage to the environment. In Europe, where the fashion for eco-houses came from, they are called passive houses, in Russian the term "eco-house" is used.

Innovative architecture today in the field of architecture has experienced a history of centuries-old development. Their evolution began about 20,000 years ago, when the first brick was invented, and people began to gradually abandon buildings made of stone. Then concrete appeared, which brought architectural design to a new level of strength. [2]

The impact of technology on architecture is huge. These are the creation of new materials and structures, digital design and construction capabilities, endless interpretations of the eternal material of architecture, design and, of course, the development of new engineering structures.

Innovations are born when architects create something new under the influence of changes taking place in the life of society. For example, everyone used to work in small offices, now they work in open-space, and this affects the architecture, requires innovation. On the other hand, the architecture is traditional, our dwellings have not fundamentally changed over a thousand years.



***Pic. 2 Al Bahar Towers, Abu Dhabi, Dubai.***

In recent years, Asia has become the center of high-rise construction, and in Europe and the United States, they are betting not so much on the height of buildings as on their manufacturability and efficiency - the more amazing the Al-Bahar towers in Abu Dhabi. Two 29-storey high-rises using the motifs of traditional architecture refute the very term "real estate". After all, their facades are moving.[1]

To protect the interior from the 50-degree heat, engineers came up with the idea of placing a golden honeycomb cover on top of the facade, which open and close depending on the illumination. The degree of opening of the honeycomb shells is determined by the computer: from fully open in the morning to fully closed at noon.

An interesting geometric pattern of the protective facade envelops the towers from all sides except the north, giving them a unique appearance and at the same time protecting them from excessive overheating. Such a solution was inspired by mashrabiya — traditional Arab openwork lattices designed to shade the premises. The protective screen will allow you to maintain a moderate temperature in offices without the use of air conditioners, which, given the extremely hot climate of the country, will make it possible to save a huge amount of electricity.

According to the design team, the movable elements of the structure open and fold throughout the day, depending on the position of the sun, thus halving the amount of heat entering the room. This system is powered by renewable energy generated from photovoltaic panels. The fact is that each tower has a sloping roof directed to the south, which is equipped with solar cells that produce about five percent of the total energy consumed by the building.

Following the spirit of the recently published Abu Dhabi Development Plan, these stunning buildings were built in accordance with the cultural and environmental needs of the country, becoming an easily recognizable symbol of the city.

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sloping roof directed to the south, which is equipped with solar cells that produce about five percent of the total energy consumed by the building. [3]

Architects from Aedas Architects noted that they primarily worked to maintain a cool temperature inside the complex during the summer months, without the use of a huge number of air conditioners. In Abu Dhabi, such an approach to architecture is of particular importance, especially if we take into account the promises of the city authorities to develop an economy that will be completely independent of oil and other fuels. In general, the facade of the complex is a modern, software-controlled interpretation of the exterior cladding of mashrabiya. This construction technology was considered effective and was used to protect homes in hot climates throughout the Middle East back in the twelfth century.

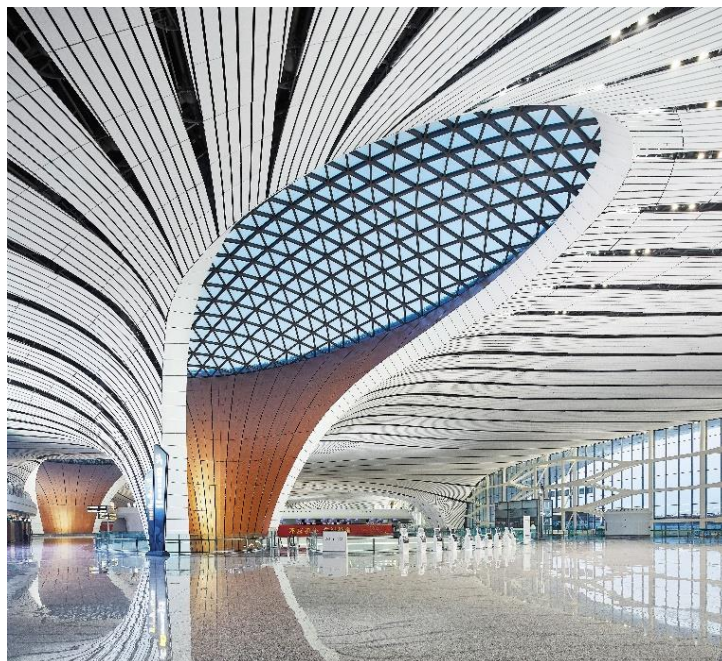
Technologies today allow mankind to automate architectural objects with minimal load of electronics, while ensuring high resource conservation. In the South Korean city of Yesu in 2012, the opening of the thematic pavilion "OneOcean" of the SOMA studio for EXPO 2012 took place (Pic. 3). This structure is a remarkable example of this technology. OneOcean pavilion of SOMA Studio for EXPO 2012 (Pic. 3).

This structure is a remarkable example of this technology. The facade is constructed of 108 kinetic panels, each of which is made of reinforced fiberglass polymer. The material is able to deform according to the architect's idea without destruction, which makes it indispensable in such objects.



***Pic.3 Thematic pavilion "OneOcean" of SOMA studio for EXPO 2012***

More and more new materials and various systems including them are being approved in the construction market. Modern buildings of 196 shopping malls, business parks, museums surprise with plastic, complex, diverse architecture and unusual decoration. Innovative solutions in building materials are conditioned by the breadth of ideas that require characteristics that standard, familiar materials cannot give us. One of such solutions is the facade systems "Knaufakvanel". They are distinguished by innovation, lightness, flexibility, multifaceted design, and the ability to take the most expressive forms. With the use of this technology, more than one structure has been rebuilt.



***Fig. No. 4 International Airport in Beijing, China Arch. Zaha Hadid***

Beijing Airport was opened on March 1, 1958.[6]:20 At that time, the airport consisted of one small terminal building, which still stands to this day, apparently for the use of VIPs and charter flights, as well as a single 2,500-meter (8,200 ft) runway in the east[6]:18, which was expanded up to 3200 meters.

### **Conclusion**

Now the term "sustainable development" is very developed. According to this concept, architecture should cause minimal harm to the environment. According to this logic, eco-houses can be recognized as the most innovative and environmentally friendly housing. After all, renewable materials are used in its construction, which are easily disposed of.

In fact, in my understanding, a building with sustainable development is a building that is capable

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of not becoming obsolete either physically or morally for up to a hundred years. Therefore, the first call to architects is: "Build good buildings that will stand for a long time and will benefit society!"

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