Humanization of Living Environment Quality is Indicator of Quality Life (modern Danish architecture example)

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Abstract. Nowadays, one of the problems is the quality of the residential urban environment in our country. The course towards the development of a high-quality living environment, the transformation of unfavorable urban spaces are aimed at sustainable development, humanization of the urban environment. A high quality environment is an important policy objective in every society. In the entire there are only a few cities that could be nominated as successful examples of sustainable development. The article examines the experience of transforming the capital of Denmark into one of the most comfortable cities in the world as one of such examples. The definition of quality of life is given as a long run sense of happiness or well-being. A humane living environment in urbanized Copenhagen is the result a comprehensive architectural policy for Denmark and the government’s intentions that the architectural policy will contribute to the development of architecture the country. The goal of this article is to emphasize the need of high architectural quality that gives high quality for our lives to our country, using the example of a comprehensive policy in Denmark.

Since the 1970s, in the society there was an understanding of the need for a high-quality and humane urban environment. The term "humanization" means architecture friendly to a person in terms of scale, volumetric-spatial solutions, organization of outdoor spaces, and emotional impact. In an era of industrialization of the end of XIX - XX centuries the human needs and interests as a person have been set aside. Ideas of humanization in the Twenty-First Century came as the protest against the pressure from technologies and deteriorating ecology. Heavy traffic exacerbated ecological problems and problems of safety for pedestrians.

Recently, a high quality environment is an important policy objective in every society. We cite the definitions of environment and quality of life, during the Conference of UNESCO in Paris in 1976: "After having thought about the matter for several years, I have come to the conclusion that the only defensible definition of quality of life is a general feeling of happiness. because they bring quality to our lives achieve that value only if they bring happiness. I do not mean happiness as a momentary experience of joy but rather as a long run sense of happiness or well-being, the meaning that is imputed when a person says "by and large I am very happy". ... An environmental element brings quality to life only when it brings pleasure or satisfaction... Quality of environment is the total of happy environmental. ... Related to that is a sense of pride in the community; people have a need to be proud of the place where they have chosen to live [1]". "In the "Habitat" Conference in 1976 the...
United Nations distinguished the quality of life as the ultimate goal in city development. It was coined recently at it became an aspirational template of how to improve the quality of living environment. The concept of sustainable development includes the evolution of society in ecological, social and economic aspects. Sustainable development also targets the protection of public interest, the quality of living environment and the significance of community [2]. Aesthetics of the environment, comfort and convenience of city streets, squares, courtyards have become priorities when creating new quarters or renovating old ones. A high quality environment is an important policy objective in every society. These cities and others with attractive comfortable urban spaces have over time become one of the most visited and favorite places for tourists. A favorable high-quality urban environment has become a symbol of the prosperous life of citizens, one of the indicators of quality of life, which is confirmed by the annual countries rating in the world in terms of living standards from the Numbeo database.

The cities of Denmark and its inhabitants have become a remarkable example today. In the list from Numbeo for January 2019, Denmark ranks first place in terms of living standards. The Danish Government explains that "The life of Danes will be richer with inspiring architecture which makes buildings and the design and planning of the physical environment around the buildings functional and attractive. High architectural quality gives high quality of life because architecture creates an aesthetic and well-functioning setting for our lives [3]." Danish architect, partner and co-founder "Lundgaard & Tranberg Arkitekter " Lene Tranberg formulates the creative principles of its Bureau, that reflect the architectural policy in Denmark, by the following words:

- "In each and every project, we aim to create visionary, site-specific and sensuous architecture that makes a positive contribution people's lives and to community at large. We are rooted in the Nordic architecture tradition with humanism, simplification and craftsmanship as core values.
- Sustainability is always an integrated aspect of our projects.
- Good architecture attracts people and contributes to communities. Good architecture should be a generous gesture toward site, surroundings and society.
- In our practice, architecture is always about atmosphere. It's about listening to a place, finding the tone and the energy that flows through everything. That is where it begins [4]."

In Copenhagen pedestrian streets, boulevards, parks have long become popular and favorite places for leisure activities. The first pedestrian street in the capital "Strøget" with shops, bars, restaurants, souvenir shops, with performances of street musicians, magicians, acrobats, singers lives 24 hours a day. Large spaces of water, an abundance of islands, distinctive culture, and northern nature have created the charm that distinguishes modern architecture in Denmark and attracts attention. Today, modern Danish architects are leading in terms of novelty and originality of new ideas and images in architecture.

In recent years, Copenhagen have been built up with objects with a unique architecture that takes into account not only the lifestyle of local residents, but also their needs for a comfortable, eco-friendly, aesthetic living environment. The process of transformation of the former port and storage areas and adaptation to new realities is underway. On the site of the old warehouses, on Holmen Island, a new Opera House (architect Henning Larsen) has been erected, townhouses with a modern level of landscaping are under construction on the Brygge Islands.

In 1948, a new "Finger Plan" was developed for the capital, where the idea of the unity of nature and urban development was already laid. Now, in the 21st century, the topic of a healthy and humane environment, which is topical all over the world, continues its consistent development in Copenhagen at a new qualitative level. Over 50 years in Copenhagen, the tradition of using the bicycle as the main means of transportation has been actively supported and developed. The urban environment is for cyclists and pedestrians. To support this trend, bike bridges are being built in Copenhagen and routes (over 400 km) are created to develop cycling infrastructure. The priority is a healthy lifestyle, safety for the environment, ecology of the city, a healthy environment. A sustainable urban cycling culture has emerged, supported by the Government and city planners.
The new urban project Ørestad in the Amager Vest area of Copenhagen has become the first example of a new neighborhood that meets the needs of residents for convenience, comfort and beauty, in which the theme of water, greenery, landscape has become the leading one. This part of the city is almost free from road transport, with a modern metro line. From here, the city center can be reached in 10 minutes by bike.

Ørestad-City is Copenhagen's new business center with a permanent population of up to 20,000. Head offices of large companies are moving to Ørestad, a conference center, a shopping mall, business center towers, and a hotel are being built for them. In this part of the district there are famous residential buildings from the young Danish bureau BIG, as well as a school, gymnasium and universities. The topic of water is taking center stage on the Copenhagen University new campus in Ørestad and on the popular Tietgenkollegiet student residence. The campus has two canals: a wide and straight canal runs between buildings, the other is narrow and picturesque. The canal embankments are filled with people on sunny days.

The Danish authorities are developing new principles for the development of the city, giving the capital an avant-garde look. Humans react to an avant-garde buildings in terms of their beauty and functionality. Every building is designed with certain purposes in mind and it satisfies those human needs, satisfy the human need for beauty. But the historic city center still retains its identity and attractiveness. The longest and oldest pedestrian street in Europe "Stroget" - the central pedestrian and shopping street - one of the main arteries of Copenhagen one and a half kilometers long. The street, which consists of five streets flowing into each other, was closed to traffic in 1962. As a result, the townspeople got an attractive promenade, they began to spend more time in cafes and shops. The city's economy won: shop owners increased their turnover. Along the pedestrian street there are shops, bars, restaurants, souvenir shops, as well as medieval churches, squares with old streets.

Another example of its interaction of old with new: stone "living" benches with heavy metal "animal" legs are installed in the square between the modern building and ancient temple in the Old City. All the side faces of the thick stone slabs-seats are processed with sculptural reliefs (figure 1.) The originality of the entire composition is in the fact that the benches change their location at night. In the morning could be seen a new compositional groups with the benches-animals. Funny and original. And most importantly, people get a good positive charge.

Figure 1. "Living" benches in a square by the Copenhagen Temple.

"The importance of various environmental elements for bringing quality to living reflects lifestyle and cultural preferences which are learned and which can vary widely from person to person and from culture to culture [1]". The local culture, "the Nordic architecture tradition with humanism and craftsmanship" estimate a typical feature of the Danish architecture and urban environment.

"Architecture should be humanized in balance with nature, its physical presence promoting nature in our cities. Architecture will always be part of nature, which ties the world together [4]". This principle lies at the heart of an understanding of the architectural tasks as integrative human-built environment in harmony with the natural environment. This principle can also be attributed to the urban environment created by Danish architects, artists and designers. Projects for the reconstruction of embankments, territories of former industrial enterprises, warehouses, docks are different, funding
sources differ, but the interpretation of public spaces is the same. Considerable attention in modern Denmark is paid to the improvement of city squares and streets, embankments, parks, walking areas and recreation areas for active leisure, residential yards and playgrounds. Places for communication, unexpected public spaces have turned the Danish capital into one of the coziest capitals. Below are examples of some environmental elements.

*Embankments.* In recent years, society has realized the value of coastal areas for living, parks and recreational spaces. The vast spaces are fulfilling a health-improving and aesthetic function. On the embankments of Copenhagen, conditions are created for walks by the water, with recreation sites, and you can observe visual connections and vistas with urban landscape panoramas from there. Descents to the water, parapets, benches complement the architecture of the embankments, giving them a originality. During the reconstruction of the embankments, the existing landscape is preserved, it is used with the maximum benefit for the townspeople. On the territories of the abandoned docks with a picturesque view of the sea strait, instead of industrial enterprises, residential quarters, lawns and recreational areas with wooden embankments appeared. The same embankments with wooden amphitheaters and with descents to the water or fountains at the level of the granite embankment adorn the city (figure 2 (a), (b).

![Figure 2. Examples of embankments: (a) fountains on the embankment near the Royal Library in Harbor; (b) a wooden amphitheatre descending to the water](image)

In creating the uniqueness of the city, great importance is attached to the picturesque nature of the embankments; they are a favorite walking place for city residents. People by the water can relax, fish, feed the ducks, or just lie on the grass. On the embankments, grounds can be located, for exhibitions with art design and avant-garde art. In the central part of the city, the embankments are the most comfortable and diverse: this is a cafe with chairs on the embankment; playgrounds and sports grounds, beaches and even public baths (figure 3 (a), (b), (c); figure 4).
Reconstruction and changes in the functions of former industrial enterprises in coastal areas have given rise to both new types of residential and public spaces. The most famous and popular holiday destination in Copenhagen is the public bathing complex - Bathing Harbor and Iceland Bruges Beach, with a large grassy beach, two children's pools and a third, about 50 meters long, with a diving and jumping board (architect bureau BIG, 2003). They are located right in the canal overlooking the industrial area, docks and cranes. You can have a lot of fun and active time there. Havnenparken is a unique bathing place in the city canal near the Langebro bridge with a total capacity of 600 guests. Just 15 years ago, water pollution was a health hazard. Thanks to the measures taken by the city authorities, residents can now swim in the center of Copenhagen. In summer, it is crowded here, everyone is lying, sunbathing, grilling something on disposable grills, playing games, eating ice cream, swimming and just enjoying life. The bathing harbor is a modern imitation of traditional Danish baths and, at the same time, a new type of public space (figure 5 (a), (b), (c)).
City squares have always been the centers of public life of townspeople, where mass events were held. In Copenhagen, a complex of three squares - the Superkilen park (architect bureau BIG, 2012) became a successful example of a new approach to solving social problems on a local territory by artistic means. In a multicultural area, home to migrants of 60 nationalities, an organic and attractive urban environment was proposed. The park consists of 3 parts: red and black squares, which merge into a half-mile green park in the center of Nørrebro. Trees, benches, fountains, and other elements of the urban environment are presented on the territory of the park, collected from 50 different countries to emphasize the multinationality of the area (figure 6 (a), (b)).

An original and interesting environment was created by means of architecture and design. This is an artificial relief, landscaping elements typical for the native places of migrants: pipes from Israel, palm trees from China, neon signs from Qatar and Russia. Color plays an important role in the design of squares, creating a special national flavor: red, gray, black, green. With the help of paving, the character and purpose of the space is emphasized: brick, colored and textured concrete. The paving pattern emphasizes the role of a particular site in the overall compositional design. Despite the low quality of performance of some elements of the landscaping noted by critics, the new square is
effective, expressive, attractive for its cozy spaces that are comparable to a person. In this case, a difficult task has been solved - in the conditions of the city, a recognizable, humane, urban environment that is remembered for its special features has been created.

**Copenhagen's city streets** impress with an abundance of glass surfaces, ingenuity in the shaping of new buildings, which are based on a new understanding of architecture tasks. The quality of public space on city streets has changed for the better. For example, there are no lampposts in the central part of the capital; lanterns to illuminate streets and bike paths are suspended on special guy wires. The same “branded” benches are installed in different parts of the city. Specific streets feature bicycle lanes, often built on overpasses above the streets or over the open water surface, an abundance of bicycle parking. All this further stimulates the development of environmentally eco-transport (figure 7 (a), (b).

![Figure 7. Bicycle racks and footpaths on the streets of Copenhagen.](image)

A residential yard as a humane environment. The improvement of courtyards in residential buildings is simple and laconic. Relief differences are skillfully used. Neat, well-groomed Scandinavian courtyards with a lot of greenery: lawns and trees. Lawns are arranged at the level of the sidewalk or slightly below. Dirt and soil from the lawns does not get onto the paths, so the yards and paths are clean. Walking paths are mainly made of natural stone. The slabs are large, it is convenient to walk on them with a stroller and walk in heels. To avoid puddles, grooves are laid along the sides of the paths for water drainage. Downpour grates are arranged every 5 meters. The equipment of playgrounds in the yard is also made of natural materials: wood, stone, logs (figure 8 (a), (b), (c), (d).
The works of Bjarke Ingles, a young Danish architect were noted by the master architect Rem Koolhaas with the words about him, saying that he "... completely freed the profession from longing." By the example of the solution of courtyard spaces on three adjacent plots of large apartment buildings *VM Houses*, 2006 and *Mountain Dwelling*, 2008, and the *8 House Complex*, 2010 in Ørestad by young architects of the bureau BIG (Bjarke Ingels Group), it is possible to follow the trend for the search new meanings in Danish architecture, in the space surrounding the average inhabitant.

"*VM Houses*", thanks to their fantastic triangular balconies, have become a landmark in the area. There is a common open courtyard with trees, lawn, benches and a common barbecue (figure 9). The complex demonstrates the idea of openness in private life, the warmth of human relations. In Denmark, the historical tradition of openness and trust continues to this day, residents do not even curtain their windows at night.

"*Mountain Dwelling*" surprises with a non-standard combination of functions: on the sloping surface of a multi-level parking lot for 480 cars, reminiscent of a cliff side, rows of townhouses descend with terraces. All 80 apartments have their own patio with a garden. “Many single-storey houses formed a multi-storey cascade with gardens, penthouses and lawns” (figure 10). The north and west facades of the building are covered with perforated aluminum plates, which provide the parking lot with light and air. An unusual solution for parking in a residential environment gave the image of suburban villas buried in greenery with a huge parking lot under them. At the same time, the environmental friendliness of the house is undoubted, its visual connection with the surrounding nature, and as a result - a humane living environment in the urbanized territories.
The "8 House complex" in Ørestad was named Residential Building of the Year in 2011 at the prestigious World Architecture Festival. The house of variable number of storeys, forming the figure "8" in the plan, resembles a building on a steep relief, with a sloping street formed by low-rise buildings. "House-Eight" is built on the southern border of the city with stunning vistas. From the south and west, the site is surrounded by beautiful fields, ponds and a park. The advantages of the unique site dictated the architectural and planning solution of the house. The entire complex is facing south, with a decrease in number of storeys towards the sun and beautiful panoramic paintings that unfold. The sloping roof of the house facing the sun is a green lawn with an area of 1700 sq. m. Two landscaped courtyards with a through passage to the canal embankment located directly behind the outer wall of the house are also illuminated by the sun. You can get to the apartments, including the penthouse, by bike: there are walking and bike paths along the entire building. Bicycle ramps that lead all the way to the roof are also available inside the house (figure 11). The imaginative solution of the courtyards of the 8 House Complex has an individual theme: from a picturesque decorative green hills in the first courtyard to multilevel green terraces in the second, leading to a large reservoir and a wide vastness of perspective (figure 12 (a), (b).

The common task for all yards is to introduce elements and atmosphere of wildlife into the artificial environment, to create a connection with the surrounding nature. As they move, residents perceive changing pictures: artificial heights that revive flat terrain, lawns, flower beds, compositions with trees, stone, shrubs, artificial reservoirs. New impressions and positive emotions improve the psychological and physical condition of the residents of the houses.
Figure 12. 8 House Complex Courtyard Design: House Courtyard Design: Green Hills and Terraces

Originality, novelty of the forms of the buildings themselves; their facades, a variety of materials for facades: glass, metal, decorative tiles, greenery; architectural details, the scale of courtyard spaces in relation to a person, relief plastic - these are architectural and landscape techniques that arouse interest and create a novelty of sensations, comfort, peace, security. The complex of architectural and design techniques made it possible to form an aesthetically organized, comfortable and spiritualized environment of residential courtyard spaces.

Conclusions. The main thing in modern environmental design in Denmark is striking architectural solutions, preservation of the existing landscape, connection with the environment, a scale commensurate with a person. This trend reflects the modern mood in society: from the priority of technology to solving ecological problems and the health of its people. The overall objective of the program is to give more space for pedestrians, cyclists, athletes, artists and children, ecology of big city, air purity. Examples of a modern comfortable environment in Copenhagen reveal the main qualities in the architecture and design: humanity, ecology, aesthetics, diversity. A humane living environment in urbanized Copenhagen is the result a comprehensive architectural policy for Denmark and the government, that the architectural policy will contribute to the development of architecture the country.

I would like the experience of Danish architects to push for active transformations of the urban environment in our country. The course towards the development of a high-quality living environment, the transformation of unfavorable urban spaces are aimed at sustainable development, humanization of the urban environment. The living environment must be viewed as an aesthetic object that gives “comfort and pleasure to human feelings” and fills public spaces with new meaning. Access to a higher level of solving the problems of improving the quality of the urban environment lies in solving problems: the ecology of big city, air purity, the development of aesthetic urban spaces and favorite places for leisure activities of the citizens.

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