

ERGONOMICS AND VIDEO ECOLOGY IN THE PEDESTRIAN ZONE IN THE CITY OF VARNA - IS IT SAFE, COMFORTABLE AND AESTHETIC?

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Abstract This article provides an overview of the urban environment intending to combine ergonomic aspects and video-ecological elements in the design of recreational and walking areas. The visual impact of the buildings around the pedestrian zone in the city of Varna on the well-being of the citizens is examined. The findings are useful in the education of students in the Industrial Design specialty.

Keywords: Video ecology; ergonomics; pedestrian zone.

1. INTRODUCTION

The main objective of aestheticization and modernization in the urban environment is to improve the physical and living environment in the city as a prerequisite for providing a sustainable and ecological space, with a better quality of life and with the possibility of achieving a stable socio-economic development. The improvement of the condition and attractiveness of the urban environment includes the aestheticisation and modernisation of the main pedestrian areas, the public recreation areas, the increase of accessibility to the urban centre, including the creation of an easily accessible architectural environment for the disadvantaged, the creation of conditions for their integration, as well as the increase of safety and security of the urban environment. Over the last 5-6 years, many municipal and European projects to improve our surroundings have been implemented in Varna. The people of the city are also involved in the creation of a modern and ergonomic urban environment, as they expect not only ecological architecture but also a comfortable, accessible, and safe urban environment..

The object of the presented research is ergonomic and video-ecological aspects in the surrounding outdoor space. The subject is focused on safety and aestheticization through the resources of ergonomics and video-ecology in the pedestrian and public recreation area in the city of Varna. The aim is to follow the trend of whether sidewalks, alleys, and recreational areas are safe and how they impact people. To achieve this objective, the following tasks were solved: existing publications on the topic were studied, different locations of the pedestrian zone were observed and analyzed, and main conclusions were formed.

2. TIMELINESS

Video ecology is the science that studies the influence of the visual environment on the human psyche. The visual environment is everything that surrounds a person in their everyday life or everything that they look at, or perceive with their eyes. This is the natural environment – forests,

fields, mountains, lakes, clouds, and the artificial environment - industrial and residential premises: apartments, offices, shops, transport – buses, cars, trains, planes, etc. In modern cities, major changes are occurring where very homogeneous and aggressive visual fields are emerging. Homogeneous visual fields are the visible fields in the surrounding space in which visual details are either absent or their number is sharply reduced. An example of a homogeneous field is a large monochromatic wall or a massive glass facade of a building. These industrial construction methods have resulted in the excess of large planes in architecture. Alongside large reinforced concrete slabs, glass panels are increasingly used, which even have worse effect on the eye.



Figure 1. Bel Epoch Beach Hotel pleasant visual perception.



Figure 2. Hotel Orbita – unpleasant visual perception.

In Varna the passive and aggressive fields are not balanced (Figure 1, 2) [19, 20]. The new buildings create a sense of dominance of the aggressive fields. This imbalance can be avoided through quality design and implementation of the projects by close specialists in ergonomics, architecture, design, video ecology. Homogeneous visual fields in the urban environment are formed by edges of buildings, fences, roofs and asphalt roads. The homogenisation of the urban environment is associated with the use of large panels and glass, chipboard, film, linoleum, plywood and plastic. Surrounded by homogeneous fields, the eye cannot work fully, as in such an environment it has nothing to focus on, which inevitably results in a feeling of discomfort.

Video ecology experts recommend the following factors to create a comfortable visual environment that meets physiological vision standards:

- To avoid homogeneous fields of vision. Where such an environment already exists, it should be enhanced by landscaping, shading. If it is in the residential unit, this can be accomplished using houseplants, pictures, vases, carpets, and other decorations that are available.

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- To avoid the appearance of large empty planes in the architecture. When viewing such planes, visual defects (astigmatism, different acuity of the right and left eye, deficiencies in synthesis abilities) are detected. Natural scenery consists of objects at different distances - forest or mountain. In ancient architecture, elements such as portico, columns, bay windows and decor exclude the appearance of a large plane. For example, as on the façade of the State Opera Theatre in Varna (Figure 3) [11].



Figure 3. State Opera Theatre – Varna.

It is well known that "the eye does not like" straight lines and right angles. The more curved lines there are in the surrounding space, the closer it is to the natural environment and therefore the better the visual environment [1, 2, 3, 4]. Eco-style houses fit this principle well (Figure 4) [12, 13, 15].



Figure 4. Eco design.

The building silhouette is one of the important components in creating a comfortable visual environment. Many ancient houses ended with towers. The eyes can move, catching and holding various protruding details and elements. The vision of the city is as necessary a component as the

skyline of an individual building [5, 6]. In ancient times, and even today, the unique skyline of European cities was created by the bell towers and spires of churches, which protrude above all buildings, and trees and are a kind of accents to nail the eye. In Varna there is a limitation of the spread of building heights. The contemporary vision of European cities is achieved by following several principles:

- The height of the floors shall not exceed the height of the trees. People should find themselves "inside" the nature and achieve complete harmony with it. People should live on a beautiful street, in a beautiful house and opposite a beautiful house.
- Limiting urban growth: The big city separates people from their natural environment and causes many environmental problems. Cities with a population of no more than 80-100 thousand people are more profitable and allow to provide citizens with all the necessary amenities.

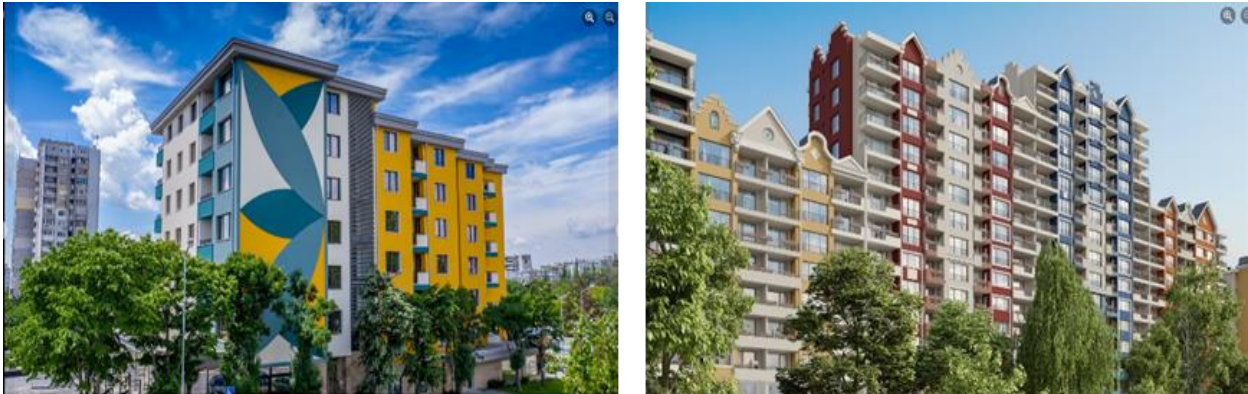


Figure 5. Colour and video ecology.

- The colours of the city: colour saturation of the urban environment is one of the necessary conditions for creating a comfortable visual environment (Figure 5) [16, 17, 21].
- Landscaping: Through landscaping, many existing City buildings can be improved. Greenery not only pleases the eye but also brings the urban environment closer to the natural one. In addition, vertical landscaping is recommended in the city, especially in the historic part of the city. It is better to start with the landscaping of children's facilities - kindergartens, schools and clubs should essentially become mini-parks. In addition, urban recreation areas should be carefully protected.

Three main factors are important for the quality design of modern urban space: safety, convenience and aesthetics (creating pleasure of place). We will analyse exactly these factors in the pedestrian zone of Varna. The most extensive walking area in the maritime capital is the Sea Garden. In the summer season, it is colourful (Figure 6). This aesthetic effect is achieved by the landscaping, and the spreading of trees and shrubs. The pedestrian area is busy with tourists and local people. The recreational and walking area is not safe as vehicles such as bicycles, scooters, etc. are seen along with pedestrians. No lane is provided for these vehicles. Another unsafe area is the sidewalks and walkways provided for pedestrians (Figure 7) [9, 10, 14, 18]. There, areas for walking citizens are often narrowed at the expense of vehicles.

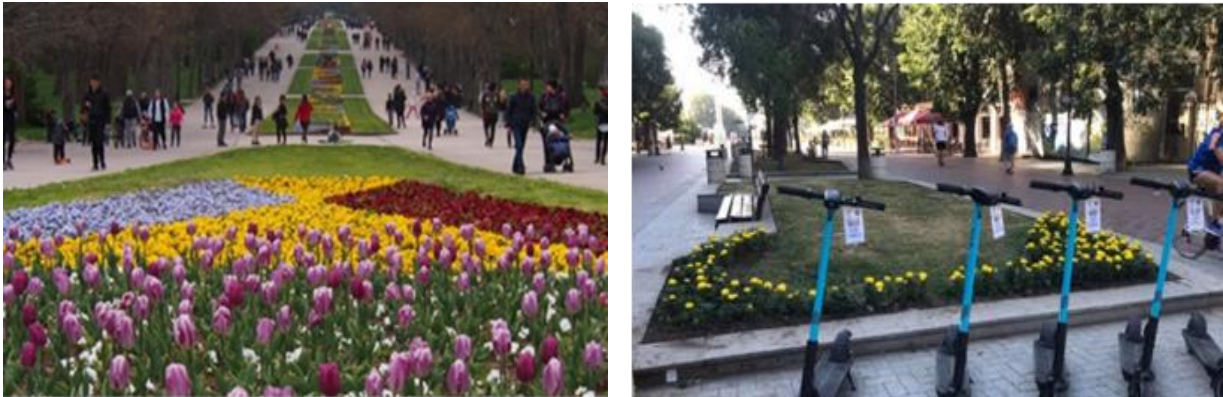


Figure 6. Scooters in the pedestrian zone.



Figure 7. Bike lanes.

It can be noted that bike lanes are dysfunctional. One is too narrow and the other ends immediately at the beginning of the underpass [7, 8].

Therefore, we can draw the following conclusions:

- The quality of the design of pedestrian zones and the implementation of European infrastructure projects is low;
- Lack of comfortable, safe and aesthetic areas for recreation and walking;
- Video ecology in the urban environment is not secured.

3. CONCLUSION

In conclusion, we can summarize that it is necessary to observe the following principles when designing pedestrian zones in the urban environment:

- Conservation of the natural landscape;
- Creating a comfortable urban recreation area;

- Combining two antagonistic paradigms: a quiet place for recreation and rest and optimal organization of the transport system - bike paths, lanes in the city park.

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