THE USE OF GLASS IN LANDSCAPING ELENA DOAMNA SQUARE FROM IASSY

UTILIZAREA STICLEI ÎN AMENAJAREA PEISAGERĂ A SCUARULUI ELENA DOAMNA DIN IAȘI

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Abstract. *This paper presents a brief review of the ways of using glass, a few case studies, and the solution for the redevelopment of a real site in Iasi, all of them with glass as a building material used as the generator of the design concept. fter an analysis of the existing situation of the site proposed for development, the zoning of the site and the images of the proposed solutions for each of the zones are presented, all of them constituting points of interest of the square linked together with a network of alleys connected to the three main access points to the space. The proposed solution can be a model for landscaping a degraded green space*
Key words: landscaping with glass, landscape design, urban furniture, square arranging

Rezumat. *Lucrarea de față prezintă o scurtă trecere în revistă a modurilor de utilizare a sticlei, câteva studii de caz, dar și soluția de reamenajare a unui sit real din Iași, toate aceste amenajări având sticla ca material de construcție utilizat ca generator al conceptului de design. După o analiză a situației existente a sitului propus spre amenajare, sunt prezentate zonificarea sitului și imaginile soluțiilor propuse pentru fiecare dintre zone, toate acestea constituind puncte de interes ale scuarului legate între ele cu o rețea de alei conectată la cele trei puncte principale de acces în spațiu. Soluția de propusă poate constitui un model de amenajare peisageră asupra unui spațiu verde degradat.*
Cuvinte cheie: amenajare cu sticlă, proiectare peisageră, mobilier urban, amenajare scuar

INTRODUCTION

Over time glass has constantly evolved. From its uses in a few areas, we can now enjoy the beauty and properties of glass almost everywhere. The development of the glass manufacturing field is an ongoing process, closely connected to our daily needs and concerns.

The first glass industry developed in ancient Egypt. At that time it was discovered that by coating the walls of a clay vessel with a mixture of wet sand and soda, when fired it turns into enamel, i.e. a thin film of glass. From the mixture that produced the enamel, once burnt in larger quantities than the thin sliver on a pot - enamel or glass beads - the first objects made of glass appeared - beads. The oldest glass beads are thought to be about. 5000 - 6000 years old. The

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Egyptians are also credited with making the first prosthetic eyes. The oldest actual glass object is thought to be a blue amulet found in Egypt and dated to 7000 BC.

At the beginning of the 1st century AD, a Roman craftsman invented the glass-blowing pipe. For almost 2000 years all glass objects were made this way.

The earliest documented glass factory in our country was near Tirgoviste and belonged to Matei Voievod (1650).

Glass is an avant-garde material with many applications in different fields. It is a fundamental component of various products used daily in private households in public spaces or even in industry.

Glass is a hard, brittle and transparent inorganic material with varying shades of opacity and colour depending on its specific chemical composition. It is a rare material in its natural state, occurring as obsidian, a magmatic rock.

Among the areas of use of glass are:

- the packaging industry (food jars, beverage bottles), bottles for cosmetics and pharmaceuticals;
- construction of buildings and roads, in innovative materials;
- street furniture (benches, partitions, railings, tables, lighting fixtures);
- renewable energy industry: photovoltaic panels;
- landscaping using glass objects: glass mouldings, glass gabions, decorative objects

Glass recycling is another important area in which today's society is actively involved to support sustainable development and environmental protection efforts. (https://www.glassallianceeurope.eu)

MATERIAL AND METHOD

Green spaces play an important role in an urban 'ecosystem', providing a place for physical activity, relaxation, social interaction, allowing for the psychological restoration of urban dwellers. In high-density urban areas or areas with a high concentration of traffic, green spaces can provide a place relatively free from air and noise pollution.

Thus, the general objective of this work is to rehabilitate the Elena Doamna Square in Iasi, introducing urban furniture made of glass and decorative objects made of the same material, with different functionalities, so that the inhabitants of Iasi can have another green space dedicated to socialization and relaxation.

Glass in landscaping is used in various forms, creating spectacular elements that can break up the monotony of a landscape. The Indautxu Square in Spain, the gardens of the Hotel Le Bristol in Paris, and the Mirror Mirror in Alexandria, Virginia were chosen as inspiration for the proposed design.

The Indautxu Square (fig. 1) was to be able to support many different activities within the community. This is why two distinct spaces were designed within the site: a main space for social events, such as markets, fairs and exhibitions, and a quieter space surrounding the site for walking, reading and relaxing. The main space is defined by a large, central canopy, 40 metres in diameter and made of glass and wood. The translucent canopy (fig. 2), four metres wide, creates a stall cover for book or craft fairs. While the circle is designed to be an open space for a variety of activities, the surrounding space is occupied by circular green garden beds of various

sizes between walking areas. The ability of the Indautxu Square to be traversed in all directions is one of the most important features of the site and is designed to allow people to use the space as much as they wish. (https://www.archdaily.com/454910/indautxu-square-jaam-sociedad-de-arquitectura)

Fig. 1 Indautxu Square (https://www.archdaily.com/454910/indautxu-square-jaam-sociedad-de-arquitectura)

Buren's intervention on the garden of the Bristol Hotel in Paris, called "Colorée une Pause" (fig. 2a), features two dining rooms with translucent colored walls and connects people through a prismatic pergola. The colours create a totally fantastical gallery that subtly changes hue depending on the sunlight hitting it and the filtering of the glass. The tones are arranged alphabetically and respond to changes in weather and lighting.

The walkway (fig. 2b) that was completely white and joined the two spaces now brings an intense gallery of colour to visitors. The installation interacts with the architecture and ambience of the Hotel Le Bristol Paris, subtly changing the mood and viewpoint of those passing by.

a   b

Fig. 2 „Colorée une Pause" Intervention (https://followthecolours.com.br/follow-decora/daniel-buren-le-bristol-paris/)

New York City design studio Softlab designed an interactive public artwork in Alexandria, Virginia, "Mirror, mirror" (fig. 3). The installation is a kaleidoscope of color, made up of a series of special outward-facing, inward-facing colored mirror panels, 2.5 meters high, arranged in a circle (8m diameter). The structure invites visitors to enter, allowing them to move from the outside of the mirrors to the inside of the rainbow.

The exterior mirrors are intended to reflect the urban environment of the Waterfront Alexandria installation. When guests enter the circle, they are instead greeted by a more intimate reflection of the human face, shaded in the colours of the rainbow for a surreal effect.

The artwork isn't just dynamic in its reflections; it's also an interactive experience, thanks to sound-sensitive lights. The LED lights inside the colour blocks are activated by sound.

Fig. 3 „Mirror mirror" Expozition (https://mymodernmet.com/softlab-alexandria-public-art)

The area proposed to highlight the use of glass in landscape design is located in a central area of Iasi, at the intersection of Anastasie Panu and Elena Doamna streets, with an area of approximately 17000 square meters.

On the surface of the site there is a considerable amount of existing mature vegetation, mostly consisting of deciduous trees and shrubs. The Elena Doamna Square belongs to the category of urban green spaces in a process of advanced degradation due to the lack of interest given to the area and the absence of a concrete function.

The SWOT analysis of the site revealed a number of strengths and weaknesses, opportunities and threats.

Strengths include the central location and proximity to areas and institutions of public interest, the generous size of the site, the existence of mature tree and shrub vegetation on the site that can be exploited.

Weaknesses are represented by the very deteriorated alleyways, the existing degraded and insufficient furniture, the lack of night or decorative lighting, the vegetation planted or grown haphazardly, the lack of attractive functions and an inefficient use of the space.

The most important of these opportunities is the fact that a lot of appropriate functions can be introduced, furnished and equipped in accordance with current times, and the vegetation can be cleared of degraded or poorly placed specimens and supplemented with groupings of decorative species, at various heights, with visual and olfactory impact.

The biggest threat is the lack of interest of the authorities in the area, which has led to the continuous degradation of the space and the appearance of homeless people or criminals in the perimeter of the square.

RESULTS AND DISCUSSIONS

The proposed design of the Elena Doamna Square in Iasi combines geometric elements and the linearity of the existing site with relaxed and relaxing elements, through winding alleys and compositions. Thus, the park approaches the mixed architectural style, composed of straight axes and perfect circles harmoniously combined with serpentine lines.

Fig. 4 Proposal for the development plan of Elena Doamna Square, Iași

At site level there are several areas with different functions and concepts as shown in figure 5.

The connection between the zones is made by straight main alleys in the case of zones A, B and F, and in the case of zones C, D and E they are associated with secondary alleys, thus increasing the interest and curiosity of visitors.

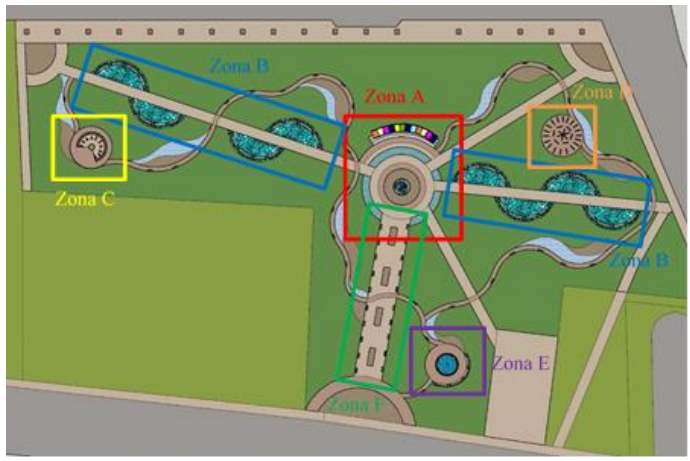

Fig. 5 Proposed functional zoning plan of Elena Doamna Square development, Iași

Area A is represented by the centre of interest of the Elena Doamna Stables (fig. 6), marked by the generous roundabout with which the promenade alley ends at the southern entrance, as well as being the connection point of all four access alleys in the studied perimeter.

Fig. 6 Images with the proposal for the arrangement of zone A, from the center of Elena Doamna Square

Area A serves as the centre of interest of the park, which can host collective meetings or small performances by placing bleachers with a considerable number of seats. The shading of the terraces is achieved by placing a semicircular pergola that uses coloured and anti-reflective glass panels to decorate the space, but at the same time incorporates solar panels to power the ambient lighting system and multimedia charging sockets added to the poles. The pergola is associated with evergreen and

ornamental trees such as *Picea pungens* Fastigiata, *Juniperus scopulorum* Blue arrow, as well as vines such as *Lonicera japonica.*

The B-areas, represented by the semi-circular shaped walkway modules, are intended for rest and relaxation through the design offered by the furniture fixtures that have the capacity to serve a large number of people. The furniture is equipped with planters housing globular *Catalpa bignonioides* Nana trees, which provide shade and aesthetic value to the site but also mark boundaries between the seating areas. At the base of the trees are ornamental flowering plants such as *Lavandula angustifolia* and *Spiraea japonica*. Also for shade and privacy a persistent hedge of *Euonymus fortunei* has been planted.

Fig. 7 Images with the proposal for the arrangement of zone B: the alleys with semicircular benches

Zone C is assigned the function of a fitness zone, targeting both young and old (figure 8, left). It is equipped with modern fitness equipment to perform physical exercises in a pleasant environment and setting and to invite the population to a healthy lifestyle.

The most unique area is located in the northern part, next to a winding side alley. Zone D is a labyrinth made of mirrored walls that offers entertainment through games of reflections and optical illusions (figure 8, right).

Fig. 8 Image with the proposal for the arrangement of sports zone B (left) Image with the proposal for the arrangement of zone C - the labyrinth of mirrors (right)

The water element is again present in the E area. Here, a fountain with water features has been proposed, this time the glass tubes guiding the direction of the jets feature a variety of colours in shades of purple, pink and blue contrasting with the green of the vegetation and lawn.

The main walkway, which connects to the entrance on the south side of the park, is also the walkway with the highest number of pedestrian flows. Along the promenade there are multiple seating areas, ornamental plant cuttings to cut through the rigour of the landscaping but also play of flagstones through the intersections with the side alleys.

The access points to the square are made by circular braces in the shape of a semicircle or quarter-circle, the interior being intended for plant compositions (fig. 9). These provide year-round decoration with evergreen specimens used for the cool season and flowers and port for the summer season. The small size of the plants means that facilitates a broad, overall view of the whole site.

Fig. 9 Image with the proposals for arranging the access areas in the square

In the design proposal several models and types of street furniture or constructions serving the rest area were used. Figure 10 shows in detail the design of the street furniture for the rest area, being made of industrial

fiberglass pipes and steel frame. Although not visually confident, the construction can support a weight of up to 120 kg. By approaching this type of bench, the view of the landscape is not obstructed while also providing places to rest.

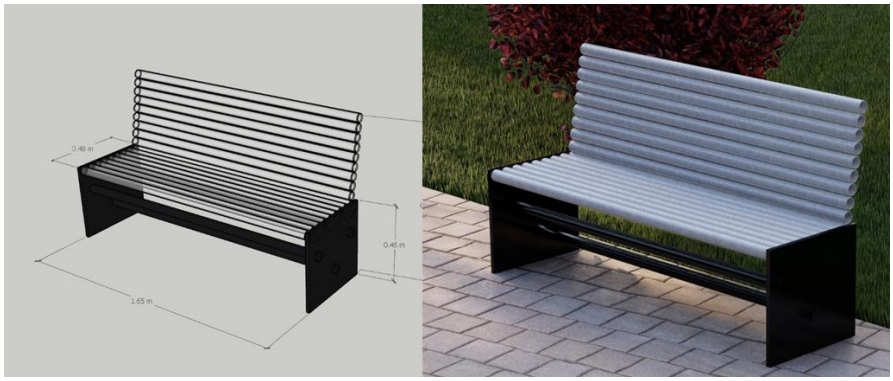

Fig. 10 Image of the piece of furniture (bench) proposed for arrangement.

Figure 11 shows details of the semicircular benches with planters. The planters are decorated with coloured fibreglass inserts to match the rest of the design.

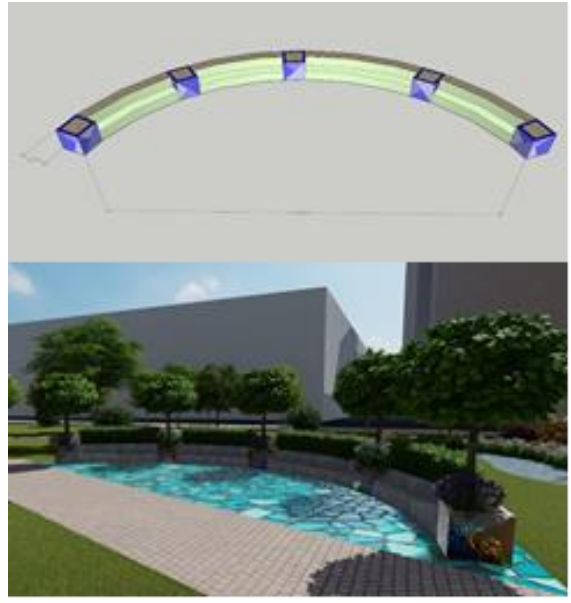

Fig. 11 Picture of a piece of furniture for rest (semicircular benches with intercalated planters)

Group meetings can be organised in area A where there is a bleacher with a capacity of more than 60 people at a time.

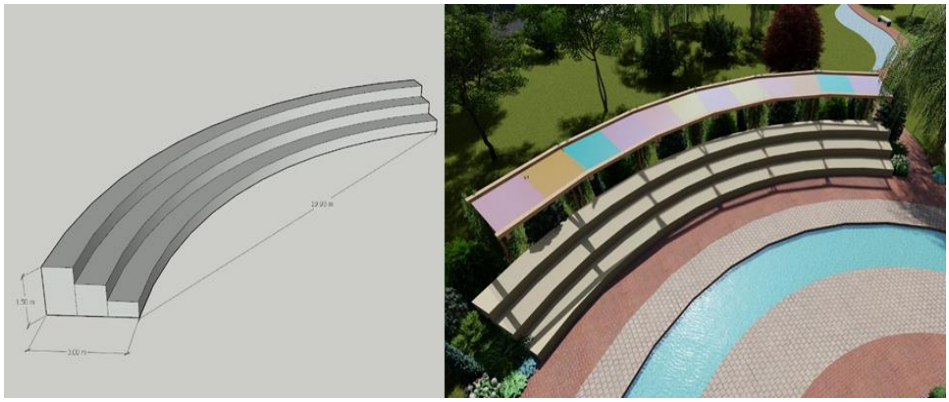

Fig. 12 Detail of piece of furniture for rest (public assembly stand)

The steps are shaded by a pergola made of wood and coloured glass panels at the top as in figure 13.

Fig. 13 Detail of pergola with colored glass panels and inserted solar panels (to cover the garden)

Water features mark the highlights of the park. They are dimensionally related to the surface of the site. Thus, an artesian fountain was proposed with water jets gushing from inside tubes made of coloured glass (figure 14 - a) and water jets at ground level through transparent pipes (figure 14 - b.).

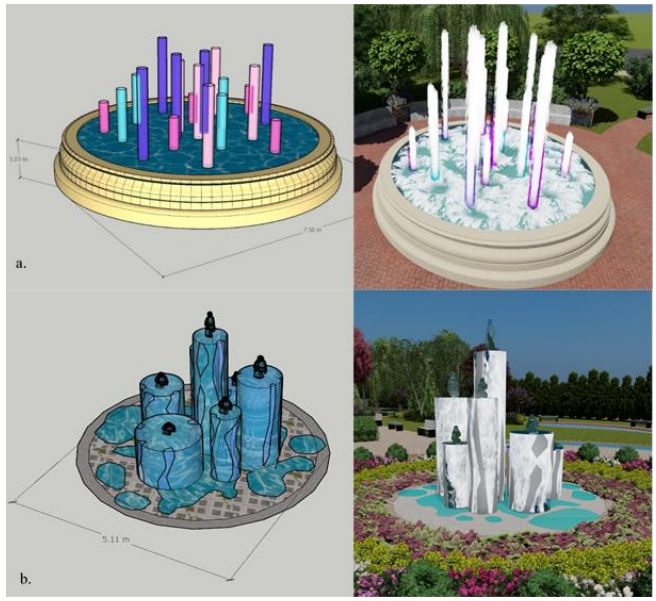

Fig. 14 Details of artesian wells with colored or transparent glass tubes

The plant compositions and pathways are enhanced by sinuous volumetric forms of mulch made of blue-coloured glass, giving the impression of flowing water.

Fig. 15 Alley details with colored glass mulch inserts

CONCLUSIONS

The paper "The use of glass in the design of the Elena Doamna Stables" highlighted the variety of uses of glass and how it can be used in public landscaping, in the structural composition of urban furniture and decorative objects, so that their aesthetic value is enhanced and resistant.

In the proposed landscaping, the position of the analysed space within the urban ensemble and the style of the existing buildings were taken into account, so the main material for the proposed constructions is glass.

In the project, areas for rest and relaxation as well as for outdoor sports activities have been created, allowing urban dwellers to detach themselves during their stay from urban noise and traffic.

The study of the use of glass in different fields of architecture and not only, as well as the choice of this material in the composition of furniture and decorative objects in the Elena Doamna Stables in Iasi, highlights the versatility of this material, bringing a touch of modernity in a space left in disrepair.

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