

NOTEWORTHY EXAMPLES OF GREENERY IN THE TOWN WITH A GREAT TOURISTIC POTENTIAL

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With diminishing greenery areas in European cities there should be paid much attention to the art of sustainable public space creating. As covering buildings with vegetation is lately becoming popular approach, noteworthy examples of such modern greenery are presented on the example of Valencia city, vigorously developing capital of Autonomous Community of València. The inventory of ornamental plant species is also presented.

Keywords: landscape architecture, green walls, modern gardens, public space

Introduction

The Region of Valencia belongs to seventeen autonomous region of Spain, and Valencia city is intensively developing capital of Autonomous Community of València, localized in eastern part of the country. The population inside administrative borders of the city is above eight hundred thousand, with population density 8 100 persons per square kilometer, so presently it is third largest Spanish city (Gallego et al., 2011; Goerlich and Cantarino, 2013). Moreover, it is large urban centre with numerous historically important monuments, beautifully located on the Mediterranean seashore which attracts tourists from all over the world. In addition there are numerous interesting examples of modern architecture.

Nowadays buildings are designed and constructed in such a way that the space between each other is very limited. Frequently there is literally neither possibility to admire the landscape nor to secure inhabitants to be taken with nature. Thus complementary green belt, and innovative ideas on its arrangement are necessary to supply all aesthetic, emotional, and intellectual demands of cities inhabitants (CABE Space, 2005; Pęckowska, 2007; Wong and Chen, 2010). Newly created buildings are planned with the aim of protect the existing forms of green. The greenery are step by step becoming the integral part of the architectural designs. Therefore the objective of the study was to present some interesting examples of composing greenery within architecture. Valencia, the Spanish town with great touristic potential was chosen because this city can also attracts tourists by interesting implication of ornamental plants in urbanized space.

Material and methods

The area of investigation was noteworthy examples of Valencia modern greenery. As objects of the study were

chosen the site-specific public buildings, representing the examples of contemporary architecture. During the field-study performed in 2012 the inventory of the ornamental plant species, and the photographic record of analyzed objects were accomplished. The area of investigation was chosen taken into consideration current, rapidly developing approaches, when greenery are closely connected with architecture of the city. It leads to inventing quite new solutions of the use of plant material in urban space. The particular objects were typical of public buildings localized in main roads with heavy traffic.

Results and discussion

Research building of Valencia University Botanical Garden

Valencia University Botanical Garden (Jardí Botànic de la Universitat de València) founded in 1567 for over two hundred years was mainly used to grow medicinal plants for students and their tutors (www.jardibotanic.org). The location of the Botanic Garden has been changing up to 1802, when it was transferred to Huerto de Tramoyeres near The Torres de Quard, where is currently situated (www.valencia.es). At present time the plant species grown in collection exceed in number three thousand of species originated from all five continents. The main are tropical trees, especially palms, and desert plants collections.

In the year 1987 as reconstruction of the buildings was urgently needed people at positions of authority decided to restore the glory of El Botànic. The new building designed by two architects Carlota Bento and Luisa Gay became modern center of science and a place for study. The most interesting concept of the building was design it in such a way as to keep growing specimen of South

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Figure 1 Forms of landscape architecture in Valencia. A–C: Botanical Garden (phot. A. Zając); D–F: Estación de Telemando (phot. K. Kałużny); G–H: Estación Depuradora (G – phot. www.abc.es, H – A. Zając); I–J: Ciudad Politécnica de la Innovación (I – phot. www.via-arquitectura.net, J – phot. A. Zając); K–L: Palau de les Arts Reina Sofía (phot. A. Zając)

American *Celtis australis* – the tree, used to be located at the entrance to the garden which creates special atmosphere there (Fig. 1 A–B). Roofs over the galleries are planted with vines hanging down in the courtyard in harmony with the rest of the vegetation, which really adorns the entrance to the garden (Fig. 1C).

Green walls and roofs of buildings of Central Operativa de Saneamiento del Ciclo Integral del Agua

Green roofs have been made in April 2010 on buildings located along Avenida del Mediterráneo and Calle del Doctor Lluch, which belong to the Central Operativa de Saneamiento del Ciclo Integral del Agua (Estación Depuradora, Fig. 1. G–H). At the same time green walls have also been accomplished (Estación de Telemando, Fig. 1. D–F). According to the Mayor of Valencia – Rita Barbera, this project has to launch eco-friendly trend that will be continued (www.valencia.es). The city has decided on such a solution not only for aesthetic, but also eco-friendly and economic reasons as green roofs and walls provide isolation from noise and heat. Application of green cover reduces in the summer the temperature on average about 5–8 °C, while in winter allows to keep the temperature of the outside, increasing the energy efficiency of the building. Moreover, thanks to the large amount of absorbed carbon dioxide can reduced the occurrence of “heat islands” on the heavily urbanized areas (Wong and

Chen, 2010; Kowalczyk, 2011), so as many as three walls of the Estacion de Telemano building were covered by plants (Fig. 1. D–F). The plant material was chosen not only for the appropriate climatic zone, but also paying attention to the whole composition. Yellow (e.g. *Bulbinella*, *Santolina*) or rouge (*Dianthus*) flowering species were combined with eye-catching green background formed from *Pittosporum* and *Asparagus* species and varieties (Fig. 2). As a result, the green walls with high decorative qualities were obtained.

Park of Science in the Technical University in Valencia (Ciudad Politécnica de la Innovación)

Park of Science at the Technical University in Valencia was designed by Luís Manuel Ferrer Obanos at the sametimes as a thoughtful, uncluttered layout (www.via-arquitectura.net). The aim of CPI is to combine the science with the business, conducting advanced research and promotion of innovation. Despite dense architecture in the urban area, the place for greenery was found. Numerous, evenly, planted deciduous trees with white pebbles tightly covering the ground, fit into the climate of modern architecture. The paths arranged between bases made with wooden sleepers in order to make the space more comfortable and friendly (Fig. 1J). The only green element of the CPI space except woody plants, is overgrown with grasses, which emphasize the minimalist architecture (Fig. 1I).

The Palace of Art Queen Sofia (Palau de les Arts Reina Sofia)

Palau de les Arts Reina Sofia (Fig. 1K), designed by Santiago Calatrava (www.lesarts.com), is one of the buildings belonging to the Ciudad de las Artes y las Ciencias (City of Arts and Sciences). It is included to mostly visited places in the city of Valencia. Its construction was completed in October 2005 and since then it become the cultural centre of Valencia. It held numerous theatrical performances, banquets and concerts, it is also the Opera and the Orchestra of the Autonomous Community of Valencia. The architecture of the Palace of Arts Reina Sofia attracts with the sight of futuristic shape. On its specially exposed terraces numerous of plant species were placed, including the tall palms, which gave the spectators the substitute of a hanging garden. The aerodynamics shape of the Palau de les Arts Reina Sofia contrasts with the vertical form of cypress trees, which were planted around the building (Fig. 1L).

Nowadays greenery becomes an integral part of architecture. Without being able to integrate the buildings with the landscape it is properly impossible to ensure residents with greater contact with nature. Covering of buildings fronts or roofs with plant material may be the solution. As stated by Peck and Callaghan (1999) or Trzaskowska (2010) the use of suitable plant material affects on building by protecting them from sunlight, extensively low temperatures, moreover definitely it helps to improve urban microclimate. According to the “Green Roofs” report the potential for biodiversity conserving in such areas is enormous (Myszak, 2010). The idea of garden creating on building’s roof has been discovered in ancient times, so it is almost as old as architecture (Kowalczyk, 2011; Szczepańska, 2010). Another interesting solution to the management of vertical

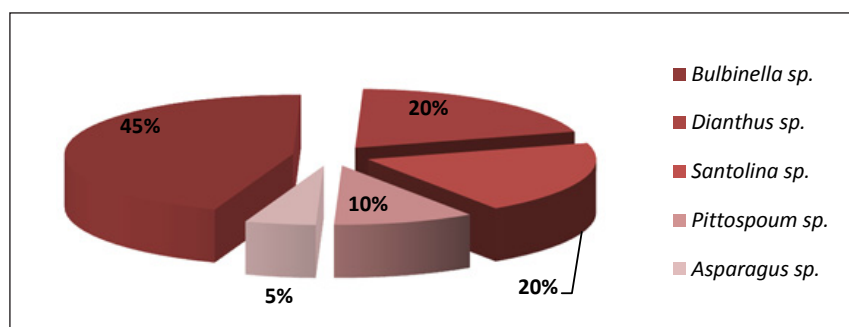


Figure 2 Genus inventory of the front wall of Estación Depuradora

planes in the urban space could be vertical gardens, so called Green Walls designed for the first time in the 20th century by Patrick Blanc. Additionally, vertical surface of the building is usually larger than the roof, therefore green walls affect better on urban microclimate.

Conclusion

Although the space in the modern minimalistic building complexes is used to its maximum, it is possible to design there some interesting elements of greenery. The already existing projects or individual specimens of plants can be the inspiration to create some interesting architectural solutions. The arrangement of the vertical and horizontal planes with a suitable plant material is a solution which affects positively the urban environment, and at the same time increases the decorative values and aesthetic feelings of the dwellers.

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