

Harmonizing urban living and nature through modern private garden design

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Manuscript received: 7 June 2025; revised: 18 June 2025; accepted: 19 June 2025

Abstract

A critical challenge in contemporary urban landscape architecture is enhancing urban well-being by balancing grey infrastructure with blue and green spaces. As students in the "Drawing and Graphic Representations" discipline, of Landscaping Program, we embraced this challenge through our inaugural didactic project. This endeavor allowed us to hone our drawing techniques and master the creation of detailed layout plans for private gardens. In this paper, we present one of our designs - a versatile, vibrant green space thoughtfully tailored to the lifestyle needs of a young couple with an active social life and a focus on healthy living. The project is developed based on the hypothesis of a 2,500 sqm property incorporating a rectangular house with dimensions of 12 by 6 meter. The property's street frontage is oriented towards the southern side, while the remaining three sides are bordered by neighboring gardens. We applied the fundamental principles of landscape architecture - harmony, unity, and proportionality - to design a functional geometric private garden while promoting urban biodiversity through the integration of ornamental tree species, aromatic plants, perennial flowers, and aquatic vegetation. Our design creates a peaceful green oasis within a tumultuous urban landscape, enhancing the quality of life for the users.

Keywords: geometric compositions, landscape architecture principles, contemporary gardening techniques

Introduction

In the earliest stages of human history, the relationship between humans and nature was characterized by a natural biological balance, sustained through hunting, fishing, and gathering. This harmony began to deteriorate with the advent of agriculture and the shift toward herding and farming societies, which led to significant disruptions in ecosystems such as: accelerated erosion, hydrological imbalances, and climatic disturbances. It was in this context that the garden emerged, not only as a practical response to the need to protect cultivated crops but also as a symbolic effort to restore the lost equilibrium with nature [11]. Thus, the garden became both a functional space and a lasting ideal of a harmonious human-nature relationship.

A series of key agricultural innovations, most notably: cereal cultivation, the development of complex irrigation systems, and the construction of terraced landscapes, preceded the rise of urban centers, establishing the foundational conditions for integrating organized green spaces within early urban environments. The development of urban gardens was deeply rooted in the rise of cities and the establishment of distinctive forms of civilization and culture [2]. In Europe, the first *Greek gardens* were created for the cultivation of fruit trees, vines, vegetables, as well as plants used in the production of perfumes and medicines [4,13]. The Greek concept of the house with a garden was adopted by the *Romans*, who adapted it to their own homes by designing interior courtyards in the form of gardens, known as *peristyles*. In Rome and on the surrounding hills, aristocratic families owned urban villas, where ornamental gardens were created, featuring both native species and plants brought from various regions of the Empire [5]. *Medieval European gardens* were established within monastic enclaves and around castles, contributing to the advancement of agriculture, horticulture, and fruit growing, while also enriching the flora with exotic species brought from the East. The majority of gardens in medieval European towns and villages were cultivated with vegetables or fruit trees for the purpose of food production [2,4]. One of the principles of *Renaissance Garden* composition emphasized that the garden and the house should form a unified whole [1,5]. The creation of the garden involved shaping the terrain, introducing architectural elements (colonnades, sculptures, fountains), with particular emphasis placed on the element of water. *Baroque gardens* are characterized by grandeur, designed according to the surrounding landscape, the natural features of the site, and the variety of vantage points, all intended to delight

the visitor. A key characteristic of Baroque gardens is the focus of perspectives toward the exterior landscape, with architecture and nature integrated into a unified framework [13]. After the 1848 revolution, two characteristic models emerged for the *post-liberal European city*: the continuous street frontage in central areas and the isolated building, positioned on its private plot towards the outskirts [6]. Gardens, once a hallmark of residences from previous centuries, were sometimes reduced to a narrow strip of only a few meters, isolating the small bourgeois villa. *The Garden-City movement* was spread from England across Europe during the first two decades of the 20th century [3]. *Progressive urbanism*, which emphasizes urban efficiency and aesthetics while centering hygiene around sunlight and vegetation, was introduced in cities worldwide [2]. Nowadays, massive urban complexes of the 20th century have emerged, spanning the scale of entire regions. The impact of urban expansion on environmental components and landscapes directly influences the quality of life for residents, the costs of residential comfort, the health of inhabitants, as well as the multiplication of land use conflicts [1]. A critical challenge in contemporary urban landscape architecture is enhancing urban well-being by balancing grey infrastructure with blue and green spaces. Contemporary private urban gardens are designed to optimize space efficiency, with focal points seamlessly integrated into the green space. They serve as a modern expression of the desire to create a pleasant and functional retreat within the urban landscape. Throughout the history of European gardens, up until today, despite differences in size, as well as the cultural and religious customs of their owners, the main purpose of the garden has remained the same: to be a place in harmony with nature and life itself.

Material and Method

As students in the "*Drawing and Graphic Representations*" discipline of the *Landscaping Program*, we embraced the challenge of designing a modern private garden as part of our inaugural academic project. This endeavor allowed us to refine our drawing techniques and master the creation of detailed layout plans for private gardens, harmonizing urban living with nature. In this paper, we present one of our designs - a versatile, vibrant green space thoughtfully tailored to the lifestyle needs of a young couple with an active social life and a focus on healthy living.

The project is based on the assumption of a 2,500 sqm property located in Timisoara, featuring a rectangular house with dimensions of 12 by 6 meters. The property's street frontage is oriented towards the Southern side, while the remaining three sides are bordered by neighboring gardens.

We used grey and colored pencils to draw the General Plan and Perspectives of the garden's main attractions, with a scale of 1:100. We applied the fundamental principles of landscape architecture - harmony, unity, and proportionality - to design a functional geometric private garden while promoting urban biodiversity through the integration of ornamental tree species, aromatic plants, perennial flowers, and aquatic vegetation.

Results and Discussion

The garden design is conceived in a geometric style that encourages outdoor activities, while considering both its aesthetics and functionality. It also addresses environmental challenges associated with urban pollution by introducing a new green space that improves air quality and provides cooling effects [7].

There is one access to the property, on the South side, as shown in Fig.1. The design follows the principles of landscape architecture, establishing the house as the primary compositional focal point, positioned at the center of the first third of the area. Additionally, multiple secondary points of interest are integrated throughout the garden, contributing to a dynamic and engaging spatial experience. The site is organized into distinct functional zones, each dedicated for a specific use, yet seamlessly integrated to create a cohesive and harmonious overall landscape composition.

The pavilion and *fire pit* define *the primary social area*, offering a comfortable and inviting space for gathering and outdoor relaxation as shown in Fig.2. *The pavilion*, surrounded by water, serves as the garden's primary space for social-recreational activities. Centrally located, it offers a panoramic view of the entire landscape. Aquatic plants such as *Hydrocleys nymphoides* and *Nelumbo 'Pink'*, along with species planted around the basin including: *Echinops bannaticus*, *Festuca cinerea*, *Physostegia virginiana*, and *Myosotis arvensis*, create a visually captivating setting and contribute to a serene, calming atmosphere. Adjacent to the pavilion a *fire pit* provides a warm and inviting space for gatherings with friends and family during cooler evenings. *The outdoor kitchen* is located in the Northern part of the site and benefits from the shade provided by trees such as *Juglans regia* and *Castanea sativa*, offering a cool and pleasant environment for outdoor cooking as shown in Fig.3.

A *tranquil recreational area* is created through a labyrinth of perennial plants, featuring colourful and fragrant blooms such as *Crocus vernus* and *Myosotis arvensis* [8]. Encircling the labyrinth, benches and

pergolas draped in climbing plants like *Wisteria sinensis* and *Lonicera japonica* form a secluded retreat, perfect for reading and relaxation.

As medicinal and aromatic plants, such as *Thymus vulgaris*, *Ocimum basilicum*, and *Rosmarinus officinalis*, are essential elements in a modern urban garden, we have proposed a wide variety of such species in the Eastern part of the area. These plants serve both functional and aesthetic purposes, enriching the garden's biodiversity.

As we encourage a healthy diet and lifestyle, we have designed a vegetable garden and mini-greenhouse that harmoniously complement the functional aspect of the space. Additionally, we have introduced fruit trees such as *Prunus avium*, *Prunus cerasus*, and *Ficus carica*, as well as shrubs like *Rubus hirtus* and *Rubus hirsutus*, which serve both aesthetic functions and yield healthy fruits.

Active recreation in the garden is facilitated by the design of a sports area in the Western part of the site, which includes a basketball hoop. The turf areas are spaces that can be used for various outdoor sports activities, such as volleyball or badminton.

The paths are the result of people finding the most efficient way to get from one point to another [12]. The space is well-structured, with paths that create smooth connections between the main focal points and the house, forming a circuit that allows passage in one direction and a return along a different path. Furthermore, by using similar textures and materials for the garden furniture, we have created a sense of **unity** within the space.

Water is prominently featured as a central element of the garden. It enhances the landscape through its plants while also enriching biodiversity by supporting a variety of fauna.

We apply the **principle of harmony** by making the space integrate properly into the urban landscape, introducing tree species adapted to the local climate of Timișoara, along with fruit trees and shrubs traditionally used in the Banat Region, such as *Juglans regia*, *Tilia spp.*, and *Prunus sp.* [9,10]. The design of the space allows it to evolve dynamically, with plants undergoing a vibrant transformation of colors throughout the year. During the winter, our garden remains green thanks to the *Pinus nigra* and *Picea abies* trees. Additionally, by incorporating a variety of flowering, aquatic, aromatic, and medicinal plants, we enhance the biodiversity of the urban landscape (Table 1).

The sizes, shapes, and spatial arrangements of all the garden's components and open spaces are **proportionate** to one another, designed at a human scale to create a balanced and aesthetically pleasing ambiance.

Economically, our project can be implemented by a family viewing the garden as a long-term investment in a healthy lifestyle. However, we have not made any calculations to estimate the costs of our proposal, as this is a first-year project and no such requirements were specified.

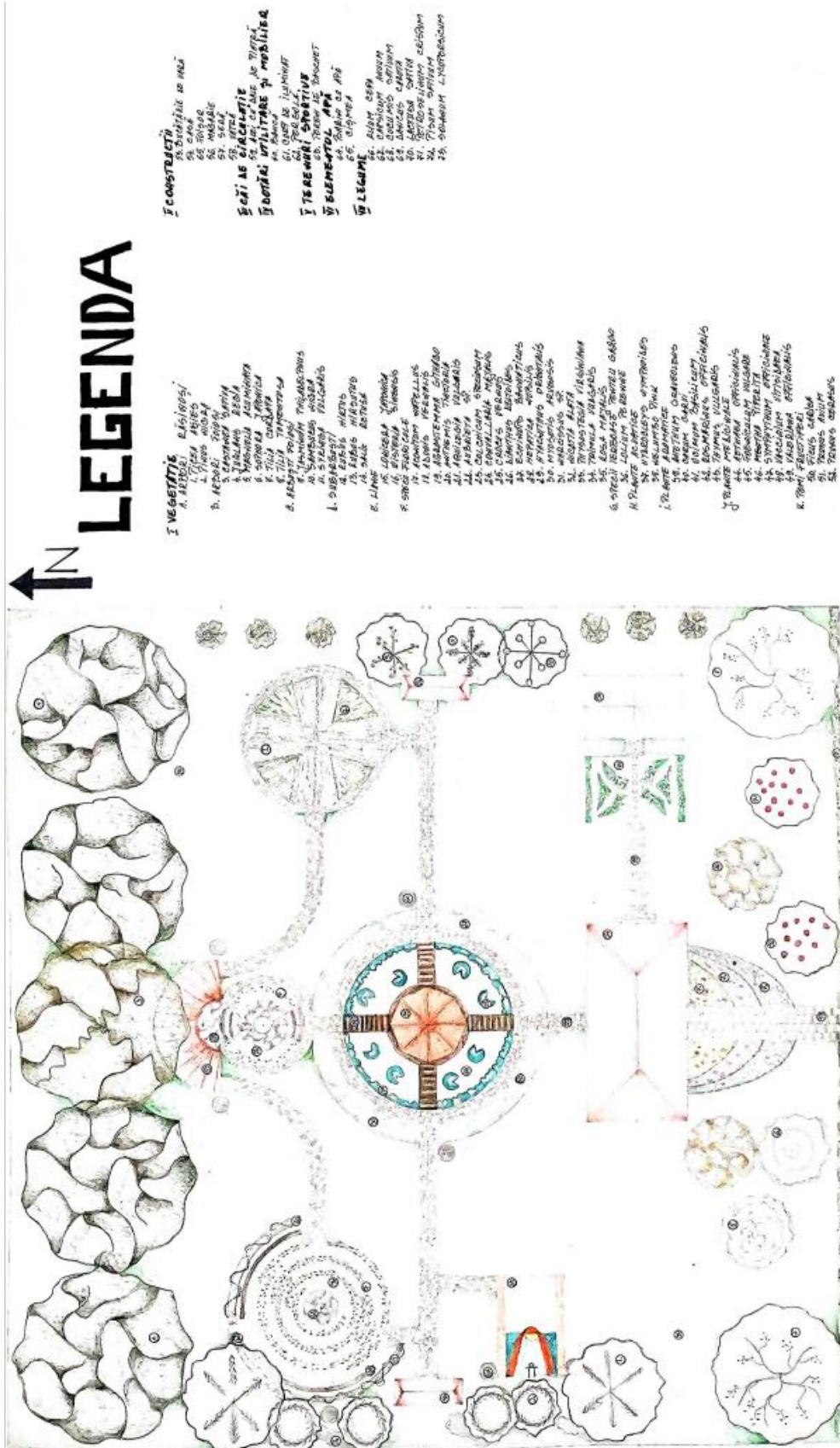


Figure 1. Garden plan



Figure 2. The pavilion



Figure 3. The fire pit and outdoor kitchen area

Table 1. Proposed vegetation

Proposed vegetation	Species	UM (pcs,kg)
Shrubs	<i>Jasminum philadelphus</i>	1
	<i>Sambucus nigra</i>	1
	<i>Syringa vulgaris</i>	1
	<i>Rubus hirtus</i>	3
	<i>Rubus hirsutus</i>	3
	<i>Salix retusa</i>	3
	<i>Ficus carica</i>	1
Trees	<i>Castanea sativa</i>	1
	<i>Picea abies</i>	2
	<i>Pinus nigra</i>	4
	<i>Juglans regia</i>	4
	<i>Magnolia acuminata</i>	1
	<i>Sophora japonica</i>	1
	<i>Tilia cordata</i>	1
	<i>Tilia tomentosa</i>	1
Fruit trees	<i>Prunus avium</i>	1
	<i>Prunus cerasus</i>	1
Aromatic and medicinal plants	<i>Anethum graveolens</i>	1
	<i>Carum carvi</i>	1
	<i>Ocimum basilicum</i>	1
	<i>Rosmarinus officinalis</i>	1
	<i>Thymus vulgaris</i>	1
	<i>Aethaea officinalis</i>	1
	<i>Foeniculum vulgare</i>	1
	<i>Mentha piperita</i>	1
	<i>Symphythum officinale</i>	1
	<i>Vaccinium vitisidaea</i>	1
	<i>Valeriana officinalis</i>	1
Flowering plant	<i>Aconitum napellus</i>	1
	<i>Adonis vernalis</i>	1
	<i>Agrostenema githago</i>	1
	<i>Anthemis tinctoria</i>	1
	<i>Aquilegia vulgaris</i>	1
	<i>Aubrieta sp.</i>	1
	<i>Calchicum speciosum</i>	1
	<i>Convallaria majalis</i>	1
	<i>Crocus vernus</i>	1

	<i>Dianthus deltoides</i>	1
	<i>Echinops bonnaticus</i>	1
	<i>Hepatica nobilis</i>	1
	<i>Hyacinthus orientalis</i>	1
	<i>Myosotis arvensis</i>	1
	<i>Narcissus sp.</i>	1
	<i>Nicotia alata</i>	1
	<i>Physostegia virginiana</i>	1
	<i>Primula vulgaris</i>	1
	<i>Rosa majalis</i>	1
Aquatic plants	<i>Hydrocleys nymphoides</i>	8
	<i>Nelumbo pink</i>	8
Lianas	<i>Lonicera japonica</i>	1
	<i>Wisteria sinensis</i>	1
Grasses	<i>Lolium perene</i>	3

Conclusions

As this is our first garden plan, we are pleased to have designed a space that creates a peaceful green oasis within a tumultuous urban landscape. We applied the skills we acquired in the 'Drawing and Graphic Representations' discipline, including creating a clear representation of an individual garden plan using a 1:100 scale. This project marks a significant milestone in our journey, seamlessly merging technical expertise with creative vision to establish a functional, sustainable, and aesthetically refined outdoor environment that truly elevates urban living.

This article serves as further evidence of our progress as students and aspiring landscape engineers.

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