

Approaching the design of apartment block gardens: benefits for mental and physical health and ecological impact

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Abstract

In a continuous process of urbanization, apartment building gardens remain lifeless spaces, where local involvement is almost non-existent. In the case of recently built apartment buildings, green spaces are completely absent. In this paper, design solutions were proposed for apartment building gardens, aimed at facilitating therapeutic benefits, contributing to community well-being and diversifying biodiversity, through the choice of plant species. Species such as *Melissa officinalis*, *Thymus citriodorus* or various types of mint have both therapeutic benefits, through the scent that the leaves give off in a garden, but also ecological benefits, being points of attraction for pollinators, their integration into apartment building gardens being easy due to the low maintenance requirement. Community cohesion is achieved through socialization, and this can be done in the garden in front of the apartment building, through its design solution, despite the limited time that residents currently take. The findings aim to inform future urban planning strategies that must prioritize livable, resilient and health-promoting residential environments.

Keywords: landscape design, urban design, plant design, green infrastructure

Introduction

Most residents of Romanian cities live in apartment building where green spaces are unkempt, lifeless spaces, where residents are not involved in their care and do not spend free time in them. Green space continues to be ignored in the design of new apartment buildings, not considering their benefits, both ecologically and psychologically on residents.

In cities with developed green infrastructure the vertical space of buildings is used as green space, which is already a common practice [17]. A green facade improves the thermal performance and energy savings of apartment buildings, stabilizes humidity levels and reduces pollution [4]. To reach such green performances, for Romania, a first step would be to take care of the green space around apartment blocks and give them a utility, intended to also facilitate social cohesion.

A garden around an apartment building represents an environment where residents can freely exchange opinions and information, facilitating social and cultural cohesion and through direct participation in horticultural activities it helps to improve psychological well-being and reduce stress, also having therapeutic effects by integrating sensation and perception experiences [12]. Horticultural plants also have implications for the emotional motivation of residents and, by engaging in gardening, help them feel confident and responsible, gaining a sense of accomplishment [12,13]. Innovative forms of green urban architecture aim to combine production, food, design and architecture to find sustainable solutions and integrate them as components of cities climate change adaptation [18].

A mixed use of green spaces and land in a neighborhood can positively influence residents' preferences regarding the means of transport they use, thus promoting walking and cycling, improving the sustainability performance of neighborhoods [22].

The paper focuses on approaching the design of apartment block gardens, creating a design that focuses on the psychological and ecological benefits, emphasizing the needs of residents who are involved with or without their will in the urbanization process, aiming to inform future urban planning strategies that must prioritize livable, resilient and health-promoting residential environments.

Material and Method

Realttime Landscaping Architect, a 3D design program specialized in landscaping and green space, was used to design a 200 m² (25 m length and 8 m width) garden in front of an apartment building (Figure 1), following a series of steps: an initial site analysis of Craiova apartment blocks gardens, the creation of a design concept that considered both the aesthetic effect and the benefits of plants, followed by 3D modelling. A series of renderings were made using the same software, generating realistic digital materials of the garden, a clear image of the design that residents can understand and perceive. The garden was designed around the benefits of vegetation, considering the therapeutic aspects of the plants, as well as the ecological ones, studied in specialized literature.

Results and Discussion

Due to the straight lines that we encounter in the architecture of apartment buildings, but also in the structure of streets and sidewalks, we opted for a garden with geometric shapes, starting from the square steps that we installed as a path (Figure 1), integrating through the dwarf white clover lawn. White clover was chosen because, during the growing season, it is a valuable resource for pollinators, such as *Apis mellifera* and *Bombus* spp. [15], but also because, when the clover dies, it leaves behind traces of nitrogen that act as a natural fertilizer that is absorbed by the surrounding plants [16].

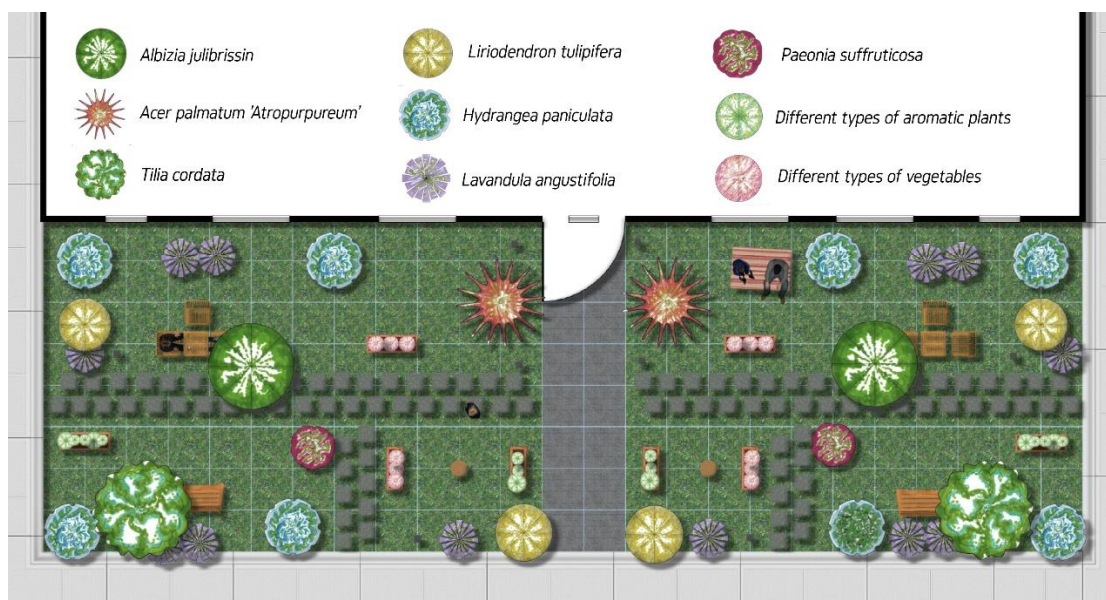


Figure 1. Apartment building garden plan and plant legend

One of the trees used in landscaping is *Liriodendron tulipifera*, a plant that is not integrated into the public green space in Craiova, chosen due to research indicating that it has a high level of energy conversion into bioenergy and large impact carbon dioxide fixation [9], it also was an aesthetic effect [21], during summer when leaves are green and the flowers are at full bloom green with yellow shades, while during spring leaves are light green and the flowers are green, but ineffective and during autumn leaves turn yellow and start to fall [20].

A species often found in the green spaces between apartment buildings in Craiova is the linden tree, so we placed two specimens of *Tilia cordata* Mill. (Figure 2), 7 meters away from the building, being a species that tolerates temperatures up to 44 °C, if the water supply is sufficient, it can withstand higher temperatures and also has a high tolerance to cold [3]. Due to its scent, linden has therapeutic effects on residents. Studies show that, for example, in special education facilities - in children's therapy, a familiar plant scent, especially one associated with home and family, contributes to better performance in spatial orientation tasks and to building self-confidence and autonomy. Thus, it is important for landscape designers to include elements of sensory gardens in the design of public green spaces [10]. Residents can also get involved in picking linden

flowers, actively participating in the garden, socializing and facilitating social cohesion, and also benefiting from a natural remedy, linden tea, which has curative effects for colds, coughs, fever [24], intestinal diseases, ulcers and constipation [7].



Figure 2. 3D view of the garden (*Tilia cordata* Mill. in the right corner, *Acer palmatum* 'Atropurpureum' in the left corner of the picture)

Traditionally, in the city of Craiova, the gardens around the apartment blocks are surrounded by a small green metal fence, or by an irregular and untrimmed hedge. In the landscaping proposal the visual barrier is eliminated, the space is open, so that the garden seems larger and it is united with the urban landscape. Several species of *Hydrangea paniculata* were placed to highlight the corners and straight lines of the layout. *Hydrangea paniculata* is relatively drought-resistant, grows well in both full sun and partial shade, and is not affected by late spring frosts [11], a phenomenon we also encounter in Craiova. Her flowers influence the aesthetic effect, opting for a white hue to create a peaceful environment [23].

To enhance the stability of building a strong color plant [23] two specimens of *Acer palmatum* 'Atropurpureum' were placed (Figure 2), whose growth will be limited by pruning. Two specimens of *Albizia julibrissin* were placed in the project, due to their aesthetic appearance, but also their ecological benefits, being a species that helps filter dust particles, along with *Liriodendron tulipifera* [14]. *Albizia*, with its soft, woolly flowers, also contributes to the therapeutic effect of the garden through tactile stimulation [8], alongside with all the other plants that have different textures, such as lavender, mint.



Figure 3. 3D view of the garden from the side (*Hydrangea paniculata* in the corners of the picture, lavender, *Liriodendron tulipifera* on the left, *Albizia julibrissin* in the background)

An ornamental plant, specific to Romania, is the peony, the national flower of Romania since 2022, signifying the prosperity of the country [19] as it is a traditional flower for Romania, it could not be missing from the landscaping, along with *Hydrangea paniculata*, both types of plants decorating with their large flowers (Figure 3). The peony blooms between May and June, then the hydrangea between July and September, thus, the floral element will contribute to the aesthetic effect gradually, over a period of approximately 5 months.

Contributing to both the aesthetic and therapeutic effect, lavender was placed behind the benches, but also near the tables and chairs, precisely so that its scent could be felt by the residents. The simple touch of the flowering lavender releases its aroma, feeling a relaxation sensation, due to the fact that lavender encourages feelings of calm and tranquility [5]. To further highlight the therapeutic benefits of plants, a series of aromatic plants were placed in containers, such as: *Melissa officinalis*, *Thymus citriodorus* or various types of mint (Figure 5). Scents of the plants play an important role for the spatial orientation of blind people, but also in children's therapy, helping them in building self-confidence [10].

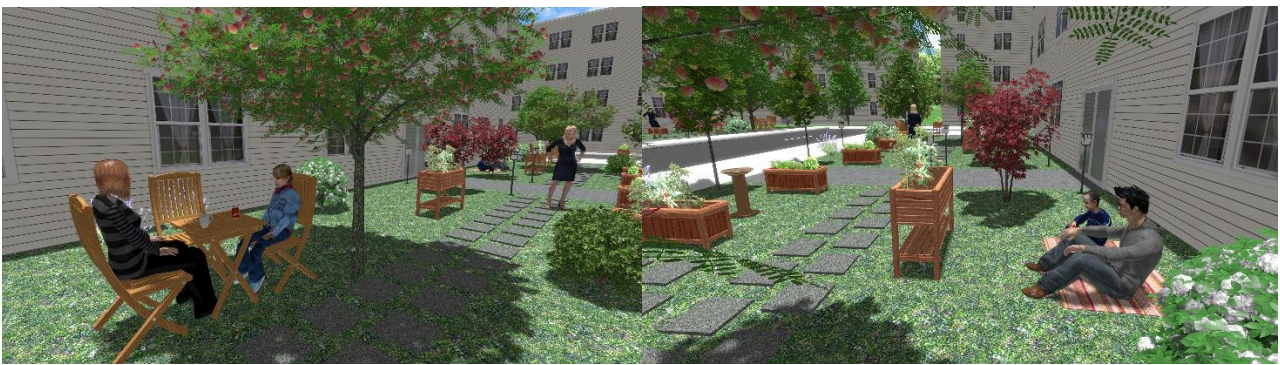


Figure 4. 3D view of the garden focusing on the containers and garden furniture

Regarding the ecological benefits, aromatic plants improve the ecosystem services on degraded lands which includes above and below ground carbon sequestration and more important reduce wildlife menace [6].

Vegetables placed in raised beds aim to emphasize horticultural therapy, which involves a series of activities specific to gardening and different dimensions of this experience, intended to bring a series of psychological benefits: the beauty of nature with its seasonal changes and the multitude of life forms that surround it generates a sense of fascination, relaxes and puts life's worries into perspective; caring for plants and caring for their growth creates a sense of affinity with nature, and by sharing common experiences with other people, such as cultivating and harvesting, it leads to the achievement of contiguity and socialization [1] (Figure 4).

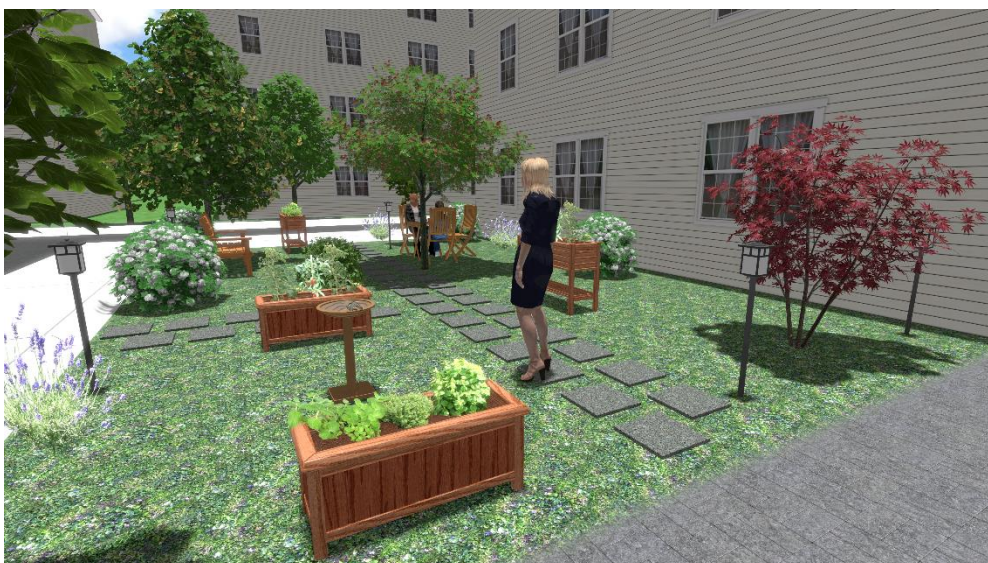


Figure 5. 3D view of the garden from the middle of the garden to the end of it

To encourage biodiversity, but also to stimulate the hearing of the residents, we placed two bird fountains. The chirping of birds, but also the rustling of leaves are pleasant, relaxing sounds [2] (Figure 5). Gardens in apartment complexes should have a minimalist look, so that residents can enjoy gardening activities, but not consume a lot of time. Herbs and vegetables are placed in raised containers. To facilitate gardening activities for seniors, whose physical condition is not as good as that of children, young people or adults. The presents of residents in a greenery-rich environment were found to facilitate psychological renewal and studies found that humans in urbanized areas have contact with nature to recharge their batteries and cure the mental exhaustion [10]. In addition, residents can enjoy fresh vegetables, grown and cared for by them, which will generate a sense of belonging, but also satisfaction, personal pride, and motivation that will be transferred to other residents, perhaps developing even more such gardens. Studies show that a garden offers a slow rhythm and an absence of disruptiveness via its changing plants, which is noted by its users, and brings calmness and peace, as opposed to stress and the rapid pace of urban life [1].

Conclusions

Green space is vital for the relaxation of residents, caught up in daily problems, nature offers an environment for meditation and stress relief, whether through gardening activities or simply spending free time outside, surrounded by nature.

Developers of residential complexes should emphasize the creation of green space for the benefit of residents, not just on creating parking lots, and residents should be much more attentive to such details, considering that the creation of a green space in a residential complex can lead to an increase in apartment prices.

Municipalities that take care of public green spaces around blocks of flats should rethink their structure, considering the therapeutic, ecological and aesthetic benefits, and landscape engineers and designers must advocate for this. Rethinking cities to become green is imminent, considering the increasingly drastic climate changes we are experiencing.

References

- [1] Adevi, A. A., & Mårtensson, F. (2013), *Stress rehabilitation through garden therapy: The garden as a place in the recovery from stress*. Urban forestry & urban greening, 12(2), 230-237.
- [2] Chitra, B., Jain, M., & Chundelli, F. A. (2020), *Understanding the soundscape environment of an urban park through landscape elements*. Environmental Technology & Innovation, 19, 100998.
- [3] De Jaegere, T., Hein, S., & Claessens, H. (2016), *A review of the characteristics of small-leaved lime (Tilia cordata Mill.) and their implications for silviculture in a changing climate*. Forests, 7(3), 56.
- [4] Ghazalli, A. J., Brack, C., Bai, X., & Said, I. (2018), *Alterations in use of space, air quality, temperature and humidity by the presence of vertical greenery system in a building corridor*. Urban Forestry & Urban Greening, 32, 177-184.
- [5] Gilbert, G. M. (2021), *Multisensory Therapeutic Garden for a General Special Education School* (Doctoral dissertation, Virginia Tech).
- [6] Gupta, A. K., Tomar, J. M. S., Kaushal, R., Kadam, D. M., Rathore, A. C., Mehta, H., & Ojasvi, P. R. (2021), *Aromatic plants based environmental sustainability with special reference to degraded land management*. Journal of Applied Research on Medicinal and Aromatic Plants, 22, 100298.
- [7] Han, Ö. A., & Üçler, A.Ö. (2023), *The Importance of Linden (Tilia sp.) in terms of Carbon Sequestration: Perspective in the World and in Türkiye*.
- [8] He, M., Wang, Y., Wang, W. J., & Xie, Z. (2022), *Therapeutic plant landscape design of urban forest parks based on the Five Senses Theory: A case study of Stanley Park in Canada*. International Journal of Geoheritage and Parks, 10(1), 97-112.
- [9] Kim, H. J., Song, M. S., Kim, H. S., Park, S. I., Han, S. S., & Lee, S. H. (2016), *Carbon dioxide absorption for Liriodendron tulipifera using fertilization*. Applied Biological Chemistry, 59, 615-621.
- [10] Krzeptowska-Moszkowicz, I., Moszkowicz, Ł., & Porada, K. (2022), *Urban sensory gardens with aromatic herbs in the light of climate change: therapeutic potential and memory-dependent smell impact on human wellbeing*. Land, 11(5), 760.
- [11] Lancaster, N., & Wesley, W. (2008), *Hydrangea paniculata*. RHS Plant Trials Bulletin, (2), 2-15.

- [12] Lee, S. M., Jang, H. J., Yun, H. K., Jung, Y. B., & Hong, I. K. (2022), *Effect of apartment community garden program on sense of community and stress*. International Journal of Environmental Research and Public Health, 19(2), 708.
- [13] Lewis, C. A., & Sturgill, S. (1979), *Comment: Healing in the urban environment a person/plant viewpoint*. Journal of the American Planning Association, 45(3), 330-338.
- [14] Melinescu, A. (2024), *Urban landscape design-a community-oriented proposal for Craiova Old Town*. Annals of the university of craiova, Biology, Horticulture, Food products processing technology, Environmental engineering, 29(65).
- [15] Potter, D. A., Redmond, C. T., McNamara, T. D., & Munshaw, G. C. (2021), *Dwarf white clover supports pollinators, augments nitrogen in clover-turfgrass lawns, and suppresses root-feeding grubs in monoculture but not in mixed swards*. Sustainability, 13(21), 11801.
- [16] Smith, L. S., & Fellowes, M. D. (2013), *Towards a lawn without grass: the journey of the imperfect lawn and its analogues*. Studies in the History of Gardens & Designed Landscapes, 33(3), 157-169.
- [17] Song, S., Cheong, J. C., Lee, J. S., Tan, J. K., Chiam, Z., Arora, S., ... & Tan, H. T. (2022), *Home gardening in Singapore: A feasibility study on the utilization of the vertical space of retrofitted high-rise public housing apartment buildings to increase urban vegetable self-sufficiency*. Urban Forestry & Urban Greening, 78, 127755.
- [18] Specht, K., Siebert, R., Hartmann, I., Freisinger, U. B., Sawicka, M., Werner, A., ... & Dierich, A. (2014), *Urban agriculture of the future: an overview of sustainability aspects of food production in and on buildings*. Agriculture and human values, 31, 33-51.
- [19] Stoyanova, I. (2023), *National flora symbolica in english and romanian phraseology*. In Universitas Europaea: spre o societate a cunoașterii prin europenizare și globalizare (pp. 65-70).
- [20] Tarakçı Eren, E., & Düzenli, T. (2017), *Determination of the visual preference levels and perceptual differences in the appearance of certain taxa in different seasons*. Fresenius Environmental Bulletin, 26(12B), 8304-8315.
- [21] Turgay, Ş., & Akdeniz, N.S. (2021), *Aesthetic properties of some woody plant taxons that can be used in urban road afforestations*.
- [22] Vlassopoulou, E., & Persson, A. (2021), *Creating sustainability benefits by planning for integration of garden cities in the urban scale*.
- [23] Wang, D. (2021), *Seasonal color matching method of ornamental plants in urban landscape construction*. Open Geosciences, 13(1), 594-605.
- [24] Zhou, Y.J., Ren, Q., & Shen, Y.B. (2025), *Comprehensive review of Tilia L.: phytochemical profiles, edible value, therapeutic potentials, and ecological significance*. Food & Medicine Homology, 2(2).