Journal of Architectural Sciences and Applications
JASA 2025, 10 (1), 607-625
Research article
e-ISSN: 2548-0170
https://dergipark.org.tr/en/pub/mbud

Therapeutic Spaces: Architectural Approaches to Drug Addiction from the Perspective of an Architectural Studio

Aysun TUNA [1]*, Meral VURAL [2]

ORCID 1: 0000-0001-5365-3273
ORCID 2: 0000-0002-2684-1620

[1] *Bolu Abant Izzet Baysal University, Faculty of Architecture, Department of Urban and City Planning, 14030, Bolu, Türkiye.*
[2] *Bolu Abant Izzet Baysal University, Department of Architectural Restoration Name, 14030, Bolu, Türkiye.*
**** e-mail**: aysun.tuna.@ibu.edu.tr*

Abstract

Architectural design studios have increasingly diversified their themes in response to changing societal needs. This reflects the growing focus on interdisciplinary collaboration and social responsibility in architectural education. Drug addiction, a global and multidimensional issue, highlights the importance of rehabilitation as a key response. Within this context, a third-year design studio at Bolu Abant Izzet Baysal University explored how architecture can support recovery and reintegration through therapeutic spatial approaches. Emphasizing architecture's healing potential, the studio adopted a user-centered and interdisciplinary methodology. Student projects addressed nature-based metaphors, sensory experience, and social adaptation to promote holistic healing in architectural design.

Keywords: *Architectural design studio, therapeutic architecture, rehabilitation center, drug addiction, ınterdisciplinary approach.*

Terapötik Mekanlar: Mimari Proje Stüdyo Perspektifinden Uyuşturucu Bağımlılığına Yönelik Mimari Yaklaşımlar

Öz

Mimari tasarım stüdyolarında ele alınan konular, toplumsal ihtiyaçlara bağlı olarak çeşitlenmektedir. Bu çeşitlenme, mimarlık eğitiminde sosyal sorumluluk ve disiplinlerarası etkileşime verilen önemin artışıyla ilişkilidir. Küresel bir sorun olan uyuşturucu bağımlılığı, çok boyutlu yapısıyla dikkat çekmektedir ve rehabilitasyon bu soruna yönelik önemli bir çözüm yoludur. Bu çerçevede, Bolu Abant İzzet Baysal Üniversitesi Mimarlık Bölümü'nde yürütülen üçüncü sınıf mimari proje stüdyosunda bir rehabilitasyon merkezi tasarımı ele alınmıştır. Stüdyo süreci, mimarinin iyileştirici potansiyelini araştırmak ve bağımlı bireylerin iyileşme ve topluma yeniden entegrasyon süreçlerini destekleyen terapötik mekân kurgularını ortaya koymak amacıyla yapılandırılmıştır. Öğrenciler, kullanıcı odaklı ve disiplinlerarası bir yaklaşımla, doğa temelli metaforlar, duyusal deneyimler ve sosyal uyumu odağa alan tasarım stratejileri geliştirmiştir.

Anahtar kelimeler: *Mimari tasarım stüdyosu, terapötik mimari, rehabilitasyon merkezi, uyuşturucu bağımlılığı, disiplinlerarası yaklaşım.*

Citation: Tuna, A. & Vural, M. (2025). Therapeutic spaces: Architectural approaches to drug addiction from the perspective of an architectural studio. *Journal of Architectural Sciences and Applications*, 10 (1), 607-625.

DOI: https://doi.org/10.30785/mbud.1629794

Received: *January 30, 2025 –* ***Accepted:*** *July 4, 2025*

1. Introduction

Since the second half of the 20th century, societal concerns have increasingly intersected with architecture, planning, and design, sparking significant discussions on social and cultural dimensions. Modern living conditions, societal transformations, and debates over social and cultural values have prompted a reevaluation of the concept of quality of life from a societal perspective. These societal shifts and advancements in the architectural profession have fostered multidisciplinary dialogue. For instance, initiatives such as the International Union of Architects' (UIA) working groups on "Design for All," "Children and Architecture," and "Responsible Architecture" reflect efforts to strengthen the connection between architecture and society. Similarly, the European Forum for Architectural Policies (EFAP) aims to broaden networks encouraging participation and addressing social issues through interdisciplinary interaction (İncedayı, 2009).

Today, drug addiction ranks among the most significant social problems globally. According to reports, addiction inflicts severe damage not only on the individual but also on their family, work life, and the economy, threatening both the present and future of societies (Prime Ministry High Council on Combating Drugs Activity Report, 2014–2015). Addiction, characterized as a chronic mental health disorder, leads to compulsive drug use driven by behavioral disorders and a loss of self-control (Balseven et al. 2002).

The 2023 World Drug Report by the UN Office on Drugs and Crime (UNODC) highlights a 23% increase in drug use over the past decade. In 2021, approximately 296 million people worldwide, or 1 in 17 individuals aged 15-64, were reported to have used drugs. In Turkey, the situation is equally alarming, with reports indicating an unprecedented increase in both the variety and availability of drugs. Addressing addiction, typically a relapsing condition, often requires long-term and multifaceted treatment approaches, encompassing medical, psychosocial, and social rehabilitation programs (Erükçü & Mutlu, 2016).

Rehabilitation is a process that involves various stages, including detoxification, gradual adaptation to communal living, and reintegration through community-based activities like sports and vocational training. Spaces designed for rehabilitation should facilitate this transitional process (Ebenezer, 2010).

1.1 Exploration of Issues through the Fall Semester Architectural Studio Project (2023-2024)

Architecture, as a discipline that integrates concepts from various fields, necessitates a special effort to bridge theoretical knowledge and practical application through models that unify different skill sets. Establishing connections between theory, research, and practice is among the primary objectives of architectural education. Yücel & Aydınlı (2015) advocate for an education model in architecture that prioritizes a learning-focused approach rooted in the concept of educating architects, as opposed to a product-oriented or teaching-centric curriculum design. They emphasize the importance of developing strategies that enable individuals to internalize understanding, knowledge, and skills through awareness-oriented educational strategies.

Architectural design studios play a central role in architectural education by confronting students with design problems and encouraging them to experiment and devise solutions, ultimately learning how to learn (Kararmaz & Ciravoğlu, 2017). The success of studio education in contributing to the goals and vision of architectural education lies in producing studio content designed to foster awareness and integration into social life. Such content helps architecture students—described by Tschumi (1994) as "place and event designers"—to actively engage with their surroundings. As Philip Johnson stated, "All architecture is shelter; all great architecture is the design of space that contains, cuddles, exalts, or stimulates the persons in that space." (Philip Johnson Quotes).

Based on this premise, the theme of the Fall 2023-2024 Architectural Design Studio 3 was determined as drug addiction, focusing on how architecture students can both raise awareness and play a role in solving this pressing societal issue. The project advisor's direct observation of drug use problems during fieldwork after the devastating Kahramanmaraş earthquake of February 6, 2023, highlighted the urgent need for recovery spaces, serving as a key motivator in the selection of this

studio theme. Consequently, the studio aimed to explore "the impact and role of architectural space and landscape solutions in the rehabilitation process of drug addiction."

This studio experience offered a platform for students to investigate the therapeutic potential of architectural and landscape interventions in creating environments conducive to recovery and reintegration into society.

2. Material and Method

2.1. Research Design

This study adopted a qualitative research design based on a studio-based educational model. The aim was to explore how architectural design education can respond to complex social issues, particularly drug addiction, through therapeutic spatial strategies.

2.2. Study Context and Sample

The Architectural Design Studio at Bolu Abant İzzet Baysal University's Department of Architecture was used as the primary setting. The study involved third-year undergraduate architecture students enrolled in the fall semester studio course (2023–2024). A total of 16 students participated, including international students. The studio focused on designing a rehabilitation-oriented "renewal center" based on a user-centered and interdisciplinary approach.

2.3. Data Collection

The data collection phase included the following activities:

- A comprehensive literature review on therapeutic architecture, rehabilitation models, and socio-spatial dimensions of drug addiction.
- Expert consultations with professionals in the fields of addiction, psychology, and rehabilitation.
- Field visits to existing rehabilitation centers to observe spatial organization and user experience.
- Two thematic panel discussions conducted within the university, where former drug users and individuals in recovery shared their experiences in a moderated setting.

These activities provided students with indirect but authentic insights into the lived experiences of users, enriching the design process with a deeper understanding of psychological and spatial needs.

2.4. Design Studio Process

The studio employed a user-centered and iterative design process, structured in four phases:

- **Concept Development:** Students explored emotional, psychological, and social aspects of addiction and recovery, developing design concepts grounded in user experiences.
- **Spatial Analysis and Program Development:** Sites were selected and analyzed based on therapeutic design criteria such as proximity to nature, privacy, accessibility, and adaptability.
- **Design Implementation:** Concepts were translated into spatial programs and architectural forms through iterative critique sessions with interdisciplinary experts.
- **Evaluation and Presentation:** Final projects were evaluated based on their integration of therapeutic architecture principles and their potential to support rehabilitation and social reintegration.

2.5. Reflecting Addiction and Rehabilitation Concepts in the Studio Environment: Designing the Studio Context

Within the framework of the studio's contextual setup, two approaches were adopted to address the design problems: an "interdisciplinary production" approach to understand concepts from various

fields related to the theme, and a "user-centered design" approach for the design process. These approaches aimed to foster diverse perspectives and scales of inquiry, establishing a dynamic of shared language and understanding among participants with different experiences. The user-centered design approach involves a process where user behaviors are defined based on scientific research data, and behavior goals inform design decisions. In this process, responses and decisions are made collaboratively by professionals and users, utilizing knowledge from environmental and behavioral research, and effects are frequently evaluated through feedback (Ersoy, 2010).

In the preliminary studies conducted as part of the studio, consultations were held with experts on addiction and the rehabilitation process. Field visits were conducted, and field visits and expert consultations informed the studio process; in particular, moderated panel discussions with individuals in recovery were used to gain insight into lived experiences. These visits and field studies guided the creation of the architectural design studio process, including the creation of the studio course curriculum (Figure 1). The studio's main theme was determined in consultation with expert groups.

Rehabilitation models used in addiction treatment globally and in Turkey were examined, and based on the country's specific needs, the "psychosocial support model" was selected. This model aims to reintegrate individuals into society after completing detoxification by providing not only psychological support but also vocational, familial, economic, and social assistance. Despite the proven effectiveness of such centers, the number of facilities operating on this model in Turkey remains significantly below demand (Ünübol et al., 2021). According to the Turkish Ministry of Health, there are over 120 AMATEM units operating nationwide as of 2023, with an estimated total inpatient capacity of approximately 2,000 beds. Despite growing demand, this number remains insufficient, particularly in rural areas, resulting in long waiting lists and limited access to comprehensive rehabilitation services.

Based on this, the studio theme was set to design a "renewal center" for clients who had completed their detoxification process at an Alcohol and Drug Addiction Treatment and Research Center (AMATEM). This center would provide psychosocial support to aid their recovery journey. Given the directive of the Turkish High Council for Combating Addiction to establish "gender-segregated or specialized residential social service facilities," it was necessary to determine the user profile based on gender. Studies show that alcohol and drug use are more prevalent among men and that men are at a higher risk, often starting drug use at a younger age (Lokman Hekim University, n.d.). Consequently, the user profile was defined as adult males for the studio project.

2.6. First Encounter | Collective Studio: Experience Sharing

To understand the concept of drug addiction and the user experience within spaces designed for recovery, the project coordinators organized a panel discussion. Given the significant societal impact of the theme, participation was not limited to architectural design studio students; instead, the event was open to all university students, relevant academic staff, and members of the university administration, thereby reaching a broader audience. The panel was organized with the support of Bolu Abant Izzet Baysal University's Center for Combating Addiction.

In the first part of the panel, an invited speaker who was a former drug addict, a social worker, and an addiction counselor, also serving as the director of an addiction support association, shared their personal experiences. Following this, other former users currently in the recovery process shared their journeys.

In the second half of the panel, these individuals discussed their ongoing rehabilitation at a recovery house and their experiences during the social reintegration process (Figure 2).

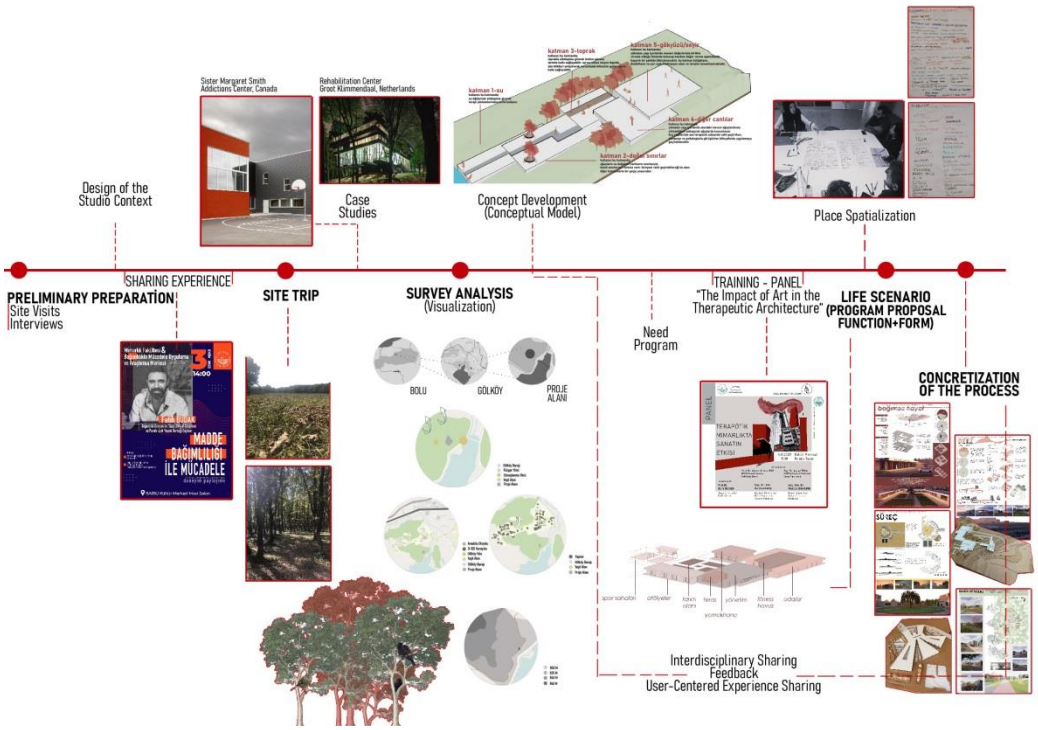

Figure 1. Process of an Architectural Design Studio Themed around a Recovery Center (Created by the authors)

Figure 2. Panel I: Combating Drug Addiction: Experience Sharing (Created by the authors)

3. Findings and Discussion

The design process is inherently complex and multilayered, requiring architecture students to develop innovative concepts to address the challenges they encounter. Concepts form the foundational elements of the design process. Following the panel, the studio environment was re-engaged to allow students to internalize and conceptualize the knowledge and experiences shared under the theme of addiction. Conceptualization is defined as the experience of organizing the perceived fundamental elements of objects and events into coherent concepts (Hançerlioğlu, 2011). According to De Bakleer (1989), the act of generating concepts in the design process functions as a driver for the problem-solving sequence in which the designer participates and serves as the carrier of the design concept (Bilir, 2013).

The panel, grounded in direct interaction with the defined user profile, was observed to significantly contribute to the concept development process (Table 1). It facilitated students' discovery and enhancement of their creative potential during both individual and group activities.

Table 1. Concepts Produced by Students About Addiction and Their Associations (Created by the authors)

Psychological Aspects	Physical and Chemical Aspects	Social and Behavioral Aspects	Metaph. and Symbolic Representations
Shame	Dopamine	Boundaries	Route
Pleasure	Syringe (Injector)	Loneliness	Grave
Seeking Happiness	Insatiability	Habit	Void
Rebalancing	Numbness	Loss of Control	Spiritual Awakening
Abstracting	Worthlessness	Awareness	Final Hit (Golden Shot)
Escape	Addiction Cycle	First Regret	Lowest Point
Trauma	Superior Power	Holding On	"Just Once Won't Hurt"

These concepts form the basis for creative spatial solutions within the studio, allowing students to explore the multifaceted nature of addiction and recovery. Each concept offers a pathway for developing architectural interventions that resonate with the lived experiences of those affected by addiction.

After the concept development process, the concepts were mapped by the students to potential spatial applications (Table 2). These interpretations aim to address the psychological and emotional aspects of addiction and recovery through purposeful architectural solutions. These spatial solutions reflect the dual objectives of addressing the psychological dimensions of addiction while fostering recovery and reintegration. By linking emotional states with corresponding environments, these designs aim to provide holistic support throughout the rehabilitation journey. These concepts form the basis for creative spatial solutions within the studio, allowing students to explore the multifaceted nature of addiction and recovery. Each concept offers a pathway for developing architectural interventions that resonate with the lived experiences of those affected by addiction. This systematic approach ensured that design solutions were not only informed by theoretical understanding but also enriched by experiential insights gained through the collaborative studio process.

The studio design process, following the definition of concepts, comprises several steps: determining spatial requirements, context analysis, spatial organization, model development, feedback/revision, and final design.

3.1. Therapeutic Architecture: Design Approach in Healing and Restorative Spaces

When rehabilitation centers are programmed using conventional architectural design approaches, they frequently increase stress levels for both patients and staff. This has been demonstrated in various healthcare and recovery settings, where small rooms, poor lighting, and limited therapy spaces present heightened risks during recovery and rehabilitation (Seaward, 2011; Atamewan, 2022). These environmental conditions often contribute to an elevated sense of confinement and anxiety, potentially prolonging or complicating the therapeutic process (Ulrich, 1984; Marcus & Sachs, 2014). By contrast, design features such as access to daylight, views of nature, and adequate personal space can lessen stress and improve overall patient outcomes (Dilani, 2009; Ulrich et al., 2010).

In this studio, which investigates the effect of architectural interventions on the rehabilitation process, the research question led to the concept of therapeutic architecture. Chrysikou (2014) defines therapeutic architecture as "a human-centered, evidence-based discipline of the built environment that seeks to identify and support ways of incorporating spatial elements into design, interacting with the physiology and psychology of individuals." This definition underlines the integration of both scientific insights and user-centered perspectives, ensuring that spatial solutions address not just basic functional requirements but also emotional and psychological well-being (Joseph & Kirk, 2016).

The concept of therapeutic architecture has emerged as a response to the rigidity of modern treatment facilities and traditional rehabilitation structures (Basson, 2014). An increasing body of evidence suggests that spatial configurations promoting comfort, privacy, and natural sensory inputs—such as views, light, color, sound, or even scent—can significantly enhance recovery. While architecture on its own cannot "heal," it can provide an environment conducive to the healing process by harnessing natural elements and minimizing environmental stressors (Ulrich, 1991; Maller et al., 2006).

Based on findings from scientific studies on drug abuse rehabilitation, Aliyu et al. (2022) outline the principles of therapeutic architecture as follows:

- Harmony of the Built-up Structures with the Natural Environment: Encouraging visual and physical connections with nature has been associated with reduced stress and improved mental health (Ulrich, 1984; Kaplan & Kaplan, 1989).
- Exposure of the Built-up Structures to Natural Daylighting, Ventilation and View of Nature: Ample daylight and fresh air are linked to better patient satisfaction and faster recovery times (Walch et al., 2005; Marcus & Sachs, 2014).
- Principles of Privacy/Access Control, Pleasing Smell and Color Application: Environments that allow for varying degrees of privacy can accommodate diverse therapeutic needs, while thoughtful use of color and aromatherapy can help regulate mood (Ching & Binggeli, 2012).
- Isolation from Negative Distraction and Application of Positive Attractions: Removing or minimizing sources of stress (e.g., overcrowded corridors, excessive noise) and introducing comforting elements (e.g., nature sounds or calming artworks) can facilitate positive emotional states (Zeisel et al., 2003).
- Principle of Building Appearance: The overall aesthetic of a facility can influence patients' willingness to engage in treatment, as well as staff job satisfaction (Joseph, 2006).
- Application of Relaxation/Recreational Facilities: Integrating spaces for leisure and social activities, such as gardens or shared lounges, supports informal therapeutic interactions and promotes social reintegration (Marcus & Sachs, 2014; Maller et al., 2006).

By synthesizing these design principles, architects and planners can create spaces that do more than merely house individuals receiving treatment. Instead, they can provide restorative environments that positively influence the psychological and physiological states of their users, thereby supporting the core mission of rehabilitation facilities (Ulrich et al., 2010). Ultimately, the goal of therapeutic architecture is to reframe how healthcare environments, particularly those addressing drug rehabilitation, can move beyond traditional institutional designs to become instruments of healing, resilience, and transformation (Chrysikou, 2014; Aliyu et al., 2022).

In light of this information, a site has been selected for the designated project theme of a "Recovery Center." The suitability of the site was analyzed based on therapeutic architecture parameters. The suitability analysis for the project site was based on the following parameters:

- Presence of natural landscape elements that allow students to engage with the therapeutic architectural design approach.
- Accessibility, including the proximity of the proposed recovery center to healthcare facilities and its relative distance from the city center.
- Control and security to ensure a safe environment.
- Student access, providing opportunities for frequent site visits during the design process.

Based on these criteria, a vacant plot surrounded by oak trees in the picnic area of Gölköy Reservoir, located 8 km from the city center and adjacent to the BAİBÜ Faculty of Architecture, was selected as the project site.

During the spatial production process on the selected site, students were informed about the therapeutic architectural approach. Discussions were held on international best practices, plan solutions, and the integration of the specified design principles.

During the architectural design process, the need for art therapy spaces was frequently identified in the needs programs developed by the students. To ensure that design critiques progressed efficiently and on an evidence-based manner, interdisciplinary input was deemed essential. In response to this need, a panel titled “The Impact of Art in Therapeutic Architecture**”** was organized in collaboration with the Faculty of Fine Arts at Bolu Abant İzzet Baysal University (Figure 3). This panel aimed to explore the role of art in therapeutic environments and foster a multidisciplinary dialogue to enrich the design process (Figure 4).

The panel featured interdisciplinary contributions from esteemed academics in the fields of architecture, fine arts, and medicine, offering valuable perspectives on the role of art in therapeutic environments. Topics included the application of art therapy within architectural contexts, the spatial dimensions of music therapy under GETAT (Traditional and Complementary Medicine) regulations, and the intersection of music and addiction. Rather than presenting these as isolated lectures, the panel created a dynamic platform for exploring how artistic and sensory interventions can enhance the therapeutic potential of architectural design.

Figure 3. Panel II: The impact of art in therapeutic architecture (Created by the authors)

These discussions significantly enriched students’ understanding of emotional and psychological dimensions related to addiction, while also encouraging more holistic, user-centered design strategies. As a result, students were better equipped to integrate non-conventional healing elements into their architectural proposals, reinforcing the studio’s goal of connecting technical design with empathetic, socially responsive practice.

Table 2. Concepts developed by students and their spatial associations (Created by the authors)

Concept Solutions	Spatial Solutions	Potential and Spatial Applications
Passion	Spaces encouraging skill development and engagement	Vocational Workshops
Loneliness	Facilitating shared healing experiences	Group Therapy Rooms
First Regret	Representing a moment of clarity and reflection.	Swimming Pool
Awareness	Providing visual narratives to foster mindfulness	Cinema Room
Suicide	Encouraging nurturing and connection with life	Flower Gardens and Animal Feeding Patches
Longing	Spaces for reconnection with loved ones	Family Meeting Rooms
Escape	Offering a sense of freedom and peace	Forest Walkways
Superior Power	Supporting spiritual exploration and grounding	Meditation Spaces and Worship Areas Confrontation Room
Shame	Designed for personal reckoning and growth	Activity Rooms
Habit	Promoting routine and productive behaviors	Encouraging hands-on, calming
Loss of Control	Horticultural Therapy Plots	activities
Worthlessness	Providing a sense of purpose and contribution	Vocational Workshops
Void	A quiet, reflective space for introspection	Library
Dopamine	Adventure Parks and Art-Therapy Rooms	Stimulating joy and creativity
Grave	A space for deep reflection and closure	Healing Room
Pleasure+ Passion	Engaging the senses and fostering communal enjoyment	Gastronomy Areas
Confrontation	Supporting guided emotional processing	Psychologist's Office
Lowest Point	Offering expansive views and a sense of elevation	Observation Terrace and Sky Gardens
Care	Sauna, Hammam, and Physiotherapy Rooms	Providing comfort and physical well-being
Boundaries	Promoting discipline and self-improvement	Sports Units (Fitness Areas)

Figure 4. The initial collages created based on the insights gained from the therapeutic architecture approach (Created by student Rümeysa Şura Bulut)

3.2 Design Concepts Developed by Students

This section presents a collection of conceptual design proposals developed by undergraduate architecture students in the studio. Each project focuses on the role of nature-based metaphors and spatial strategies in supporting rehabilitation and emotional renewal for individuals recovering from drug addiction. The concepts are derived from various themes such as sensory experience, social integration, therapeutic landscape, and symbolic transformation. The following table offers a comparative summary of the key aspects of each project before detailed narratives are presented (Table 3).

Table 3. Overview of student design concepts and their ıntegration with nature (Created by the authors)

Student	Concept Title	Main Theme	Spatial Strategies	Nature Integration
Rümeysa Şura Bulut	"Joint" Metaphor	Transition and Recovery Phases	Layered design (water, soil, trees, sky)	Symbolic use of natural layers
Eyyüp Can Nas	"Independent Life"	Social Reintegration	Work-activity zones, production spaces	Integration with existing landscape
Dilan Çağlar	"Lotus Flower"	Detoxification and Renewal	Biomorphic circular plan, color symbolism	Seasonal vegetation and symbolism
Beyzanur İlkutlu	"Purification in Nature"	Nature as Healing Cycle	Central tree, circular inward form, phased zoning	Forest, water, and symbolic tree
Elaf Alsaadi	"Rain Sound as Therapy"	Acoustic Healing Environment	Acoustic panels, water harvesting, lighting design	Rain, biophilia, soundscape
Muaiad Aleissa	"Sensory Integration"	Multisensory Healing	Roof modules, polycarbonate, visual/auditory linkages	Rainwater, light, forest contrast

Rümeysa Şura Bulut – *"Joint" Metaphor: Transition from Past to Future*

The design concept draws inspiration from the existing landscape layers of the site, integrating them with the Minnesota 12-Step Program, a supportive therapy method for addiction rehabilitation. Each layer symbolizes a stage in the recovery journey, shaping the architectural and spatial organization of the project:

Layer 1: Water – Connection and Reflection
Design Element: This layer revolves around the water element, incorporating terraces that extend towards and interact with the water feature on the site.
Program Spaces: A pool, sauna, and changing rooms emphasize the therapeutic relationship between the client and water, addressing both physical and psychological needs.

Layer 2: Trees – Personal Boundaries and Shelter
Design Element: The natural boundaries formed by the existing trees symbolize personal boundaries. Modular units and shelters are designed within these boundaries, creating semi-enclosed spaces.
Program Spaces: Inner courtyards are developed using overhangs and eaves, fostering a sense of refuge and introspection.

Layer 3: Soil – Renewal Through Production
Design Element: This layer focuses on the therapeutic potential of working with the earth, integrating the recovery phase with productive activities.
Program Spaces: Workshops and agricultural fields provide opportunities for hands-on engagement, symbolizing growth and renewal.

Sky Layer: Freedom and Perspective
Design Element: The rooftop, described as the "Sky Layer," features a walkable terrace with expansive views of the forest landscape. This design encourages a sense of liberation and connection

to nature.

Program Spaces: Spiritual values are emphasized through spaces such as a chapel, library, and open meditation areas. These aim to foster introspection, spiritual growth, and holistic healing.

The concept of a "joint" or "seam" is used metaphorically to signify the transition between a client's past life and their future, symbolizing the pivotal moment of transformation in the rehabilitation process. This metaphor is reflected architecturally, providing a narrative framework that aligns with the emotional and psychological journey of recovery.

Eyyüp Can Nas – ***"Independent Life": Social Integration and Adaptation***

The themes of social integration and adaptation during the rehabilitation process, as well as reintegration into society, have played a pivotal role in shaping the spatial organization of the project. During a panel discussion, where individuals undergoing treatment shared their experiences, participants highlighted their economic concerns about starting a new life after completing the rehabilitation process.

In response, the student incorporated work-activity workshops and production areas into the design to address these concerns. These spaces aim to equip clients with practical skills and foster economic self-sufficiency post-rehabilitation.

Design Integration with Natural Landscape: The project emphasizes creating a harmonious relationship between the designed structure and the site's existing natural landscape. Key design strategies include:

- Viewing and bird-watching terraces promoting relaxation and mindfulness.
- Building heights respecting the scale of existing vegetation
- Facade materials and colors chosen to blend with the surrounding forest

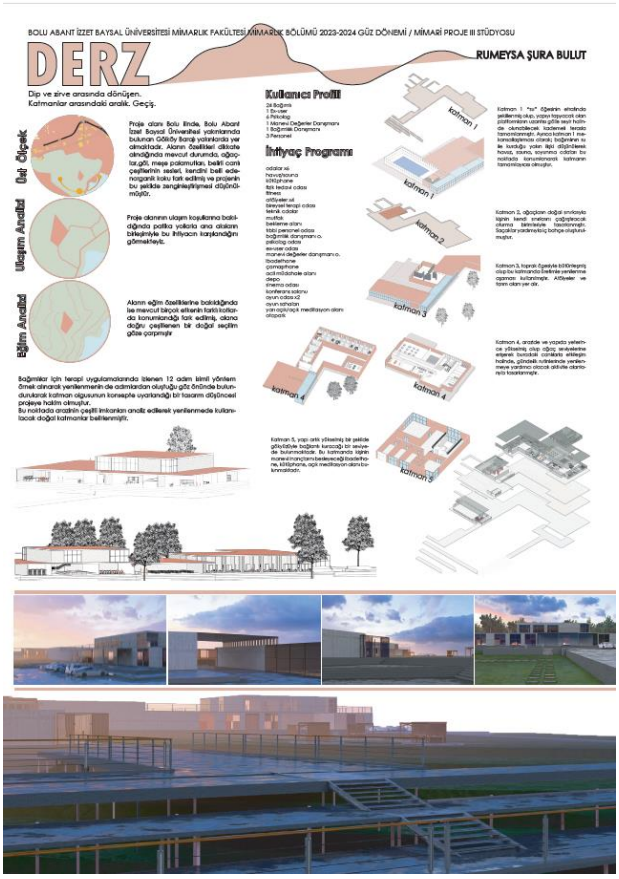

Figure 5. Design poster (Bulut, 2024)

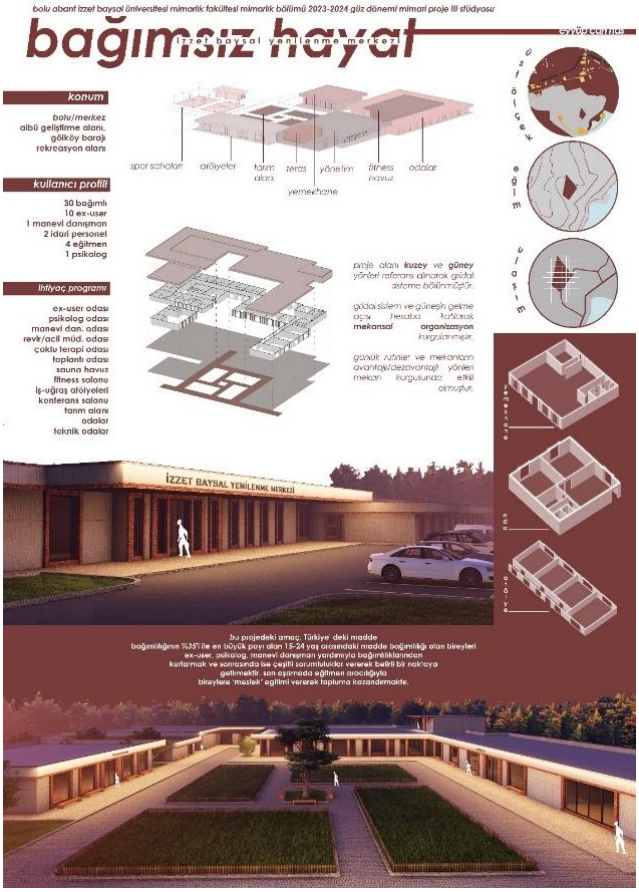

Figure 6. Design poster (Nas, 2024)

Dilan Çağlar – *"Lotus Flower": Detoxification and Renewal with Biomorphic Design*

The project draws a parallel between the detoxification process in addiction recovery and the renewal processes in nature, using a biomorphic design inspired by natural patterns. The lotus flower, thriving in muddy waters and possessing self-cleansing properties, serves as a metaphor for the purification journey.

The design uses lotus flower color symbolism aligned with spatial functions:

Pink: Enlightenment, awareness – Healing rooms, group therapy areas

Red: Passion, pleasure – Gastronomy workshops, sports areas

Blue: Wisdom – Library, educational spaces

Black: Death, rebellion – Crisis room, infirmary

Purple: Spirituality – Prayer room

White: Purity – Pool, hammam

The project features a circular plan with terraced levels, thematic workshops, and panoramic views. Seasonally changing vegetation enhances the sense of transformation.

Figure 7. Design poster (Çağlar, 2024)

Beyzanur İlkutlu – *"Purification in Nature": Participating in Nature's Cycle*

Rooted in the notion of participating in nature's purification process, this project uses spatial representations of natural cycles. The addicted individual is symbolized by dried branches, while their essence is likened to the roots of a tree. The project parallels a tree's need for water with the individual's need for healing. The massing adopts an inward-oriented circular form, turning away from the external world and toward nature.

Upon entry, a symbolic tree stands at the heart of the structure. Social and therapy areas are on the ground level, while the upper level houses residential units. Different stages of treatment are reflected in spatial arrangements that emphasize forest and water connections. A distinctive rectangular "spiritual space" departs from the overall circular geometry to highlight its importance

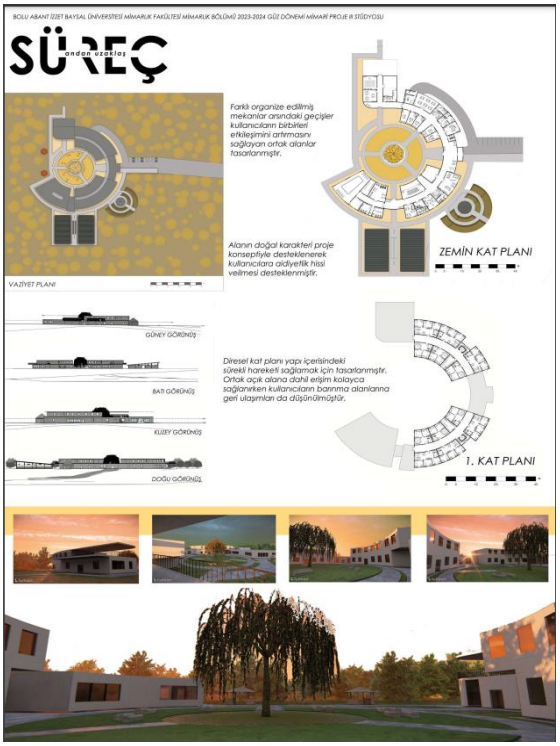

Figure 8. Design poster (İlkutlu, 2024)

Elaf Alsaadi – *"Rain Sound as a Therapeutic Tool"*

This project identifies rain sound as an effective therapeutic element for stress relief and emotional healing. It prioritizes acoustic design to harness the calming properties of natural sounds.

Acoustic Design and Spatial Strategy:

- Acoustic panels and insulation to manage sound transfer
- Custom roof openings that amplify rain sound and enhance natural lighting
- Rainwater collection systems integrated into the roof design

Spaces include group therapy areas and art workshops, promoting emotional recovery through sensory interaction. Visual links to nature and the sensory presence of rain form a layered therapeutic environment.

Lighting Design and Biophilic Principles:

- Maximization of daylight supports circadian rhythms
- Warm lighting complements acoustic comfort

Muaiad Aleissa – *"Therapeutic Space with Sensory Integration"*

The project incorporates natural elements—light, sound, vegetation—into the architectural framework to support healing. Lodging units feature polycarbonate roofs and tall windows, facilitating both visual and auditory contact with the environment.

The "soundscape" is shaped by the rhythm of rainfall and natural acoustics, supporting relaxation and concentration. Roof modules channel and recycle rainwater, reinforcing sustainability.

The contrast between geometric building forms and organic forest surroundings represents the individual's transition toward a renewed life, adding symbolic depth.

Figure 9. Design poster by (Alsaadi, 2024)

Figure 10. Design poster (Aleissa, 2024)

4. Conclusion and Suggestions

Beyond purely technical or design-focused benefits, immersing students in a socially critical issue within the university setting fostered a heightened level of social consciousness. The scarcity of built "renewal center" precedents for drug addiction in the country did, however, limit students' opportunities to conduct on-site investigations. To fill this gap, international examples were reviewed, providing alternative design perspectives and broader insights. Exhibiting studio outcomes with the participation of local administrators, other university students, and the general public served as an additional source of motivation for the students. Presenting their work to a wide audience catalyzed both personal and academic growth, and it was particularly notable that some students who had struggled with communication during interim juries adopted a more confident and determined demeanor in the public exhibition setting. Moreover, international students enrolled in the course demonstrated marked improvements in communication and self-expression skills over the course of the semester, illustrating the efficacy of a studio environment rooted in interactivity.

In evaluating the overall architectural studio process, the engagement with a real-world social concern, combined with interdisciplinary dialogue and stakeholder participation, was found to have a positive effect on design outcomes and student motivation. This integrated learning model supports the cultivation of not only technical proficiencies but also the social awareness and empathetic capacities that are crucial to contemporary architectural education. As Joseph Hudnut (1934) underscored, one of the foremost responsibilities of architecture schools is to ensure that students "are not merely narrowly trained technicians isolated from the developments of their time, but individuals keenly aware of social responsibility, employing their specialized knowledge and skills in service of society." (Hudnut, 1934, as cited in ArchQuotes, n.d.). Addressing the urgent challenge of drug addiction through architectural design has proven to be an effective medium for reinforcing both professional aptitude and societal engagement. Moreover, this approach holds promise for informing and inspiring future studio endeavors aimed at addressing other complex social issues.

The student projects consistently emphasized spatial strategies such as therapeutic gardens, family interaction areas, vocational workshops, and sensory healing environments. These solutions were closely tied to user needs, reflecting psychological, emotional, and social dimensions of addiction. Each design translated abstract themes such as trauma, shame, or spiritual renewal into concrete spatial programs. This demonstrated students' ability to transform conceptual narratives into architectural responses, producing diverse and context-sensitive proposals aligned with therapeutic architecture principles.

Acknowledgements and Information Note

The article complies with national and international research and publication ethics. Ethics committee approval was not required for this study.

We extend our sincere gratitude to **Rumeysa Şura BULUT, Dilan ÇAĞLAR, Beyzanur İLKUTLU, Elaf AL-SAADI, Muaiad ALEISSA, and Eyyüp Can NAS**, graduate students of Bolu Abant Izzet Baysal University, Department of Architecture, for their valuable contributions to this study through their coursework during the academic year. Prior to their participation, student consent forms were prepared and signed, ensuring that their contributions were voluntary and in accordance with ethical guidelines.

Additionally, we would like to express our appreciation to all our stakeholders from various disciplines who contributed with their participation and insightful perspectives to the panels organized within our university as part of the architectural project studio theme.

This study adhered to national and international ethical standards in research and publication, and all necessary permissions were obtained from the participating students.

Author Contribution and Conflict of Interest Declaration Information

All authors contributed equally to the article. There is no conflict of interest

References

Aliyu, A., Babayo, A. M., & Hamza, M. (2022). Application of therapeutic architectural principles in the design of drug rehabilitation centre for Nigeria. *International Journal of Research and Innovation in Applied Science,* 7(12), 13–19. ISSN: 2454-6194. Access Address (10.08.2024): https://rsisinternational.org/virtual-library/papers/application-of-therapeutic-architectural-principles-in-the-design-of-drug-rehabilitation-centre-for-nigeria/

Aleissa, M. (2024). *Therapeutic Space with Sensory Integration* (Unpublished student project, Fall Semester 2023–2024, *Yenileyen Mekanlar* Architectural Design Studio). Bolu Abant İzzet Baysal University, Faculty of Architecture.

Alsaadi, E. (2024). *Rain Sound as a Therapeutic Tool* (Unpublished student project, Fall Semester 2023–2024, *Yenileyen Mekanlar* Architectural Design Studio). Bolu Abant İzzet Baysal University, Faculty of Architecture.

ArchQuotes. (n.d.). *Joseph Hudnut quotes*. Access Address (28.12.2024): https://www.archquotes.com/joseph-hudnut

Atamewan, E. E. (2022). Architecture and societal problems: Development of rehab facility for drug addicts reintegration. *Journal of Studies in Science and Engineering*, 2(4), 1–16. Access Address (15.06.2024): https://doi.org/10.53898/josse2022241

Balseven, A., Doğan, Y. B., Hancı, H., Özdemir, Ç., & Tuğ, A. (2002). Madde kullanımı, bağımlılıktan korunma ve medya. *Sürekli Tıp Eğitim Dergisi*, 11, 91–93. Access Address (15.06.2024): https://www.ttb.org.tr/sted/sted0302/madde

Basson, J. (2014). *Adaptive Healing: Exploring therapeutic architecture and the integration of addiction rehabilitation into the Cape Flats, Mitchells Plain* (Doctoral dissertation, University of Cape Town). *Accessed from database Access Address (03.04.2024): http://hdl.handle.net/11427/13017*

Bilir, S. (2013). *Mekan tasarımında kavram geliştirme sürecine analitik bir yaklaşım* (Yüksek lisans tezi, Hacettepe Üniversitesi, Güzel Sanatlar Enstitüsü, İç Mimarlık ve Çevre Tasarımı Ana Sanat Dalı). Hacettepe Üniversitesi. *Accessed from database Access Address (03.04.2024):* https://www.researchgate.net/publication/380599436_Hacettepe_Universitesi_Guzel_Sanatlar_Enstitusu_Ic_Mimarlik_ve_Cevre_Tasarimi_Ana_Sanat_Dali_MEKAN_TASARIMINDA_KAVRAM_GELISTIRME_SURECINE_ANALITIK_BIR_YAKLASIM

Bulut, R. Ş. (2024). *"Joint" Metaphor: Transition from Past to Future* (Unpublished student project, Fall Semester 2023–2024, *Yenileyen Mekanlar* Architectural Design Studio). Bolu Abant İzzet Baysal University, Faculty of Architecture.

Ching, F. D. K., & Binggeli, C. (2012). *Interior design illustrated* (3rd ed.). Wiley.

Chrysikou, E. (2014). *Architecture for psychiatric environments and therapeutic spaces*. IOS Press. Access Address (12.12.2024): https://www.iospress.com/catalog/books/architecture-for-psychiatric-environments-and-therapeutic-spaces

Çağlar, D. (2024). *Biomorphic Healing: Detoxification and Renewal Inspired by the Lotus Flower* (Unpublished student project, Fall Semester 2023–2024, *Yenileyen Mekanlar* Architectural Design Studio). Bolu Abant İzzet Baysal University, Faculty of Architecture.

De Bakleer, J. W. (1989). *Languages of parallel architecture*. Wiley.

Dilani, A. (2005). Psychosocially supportive design. *Design and Health IV: Future Trends in Healthcare Design; Dilani, A., Ed*, 13-22. Access Address (11.10.2024): https://designhealth.academy/onewebmedia/Design%20and%20Health%20IV%20Book.pdf#page=14

Ebenezer, O. A. (2010). *Drug rehabilitation centre, Badagry, Lagos State: Architecture as a tool for rehabilitation and resettlement* (Doctoral dissertation, Bells University of Technology,

Department of Architecture, Ota). *Accessed from database Access Address (03.04.2024): https://www.academia.edu/86951010/Architecture_as_a_tool_for_Rehabilitation_and_Resettlement*

Ersoy, Z. (2010). Mimari tasarımda kullanıcı odaklı süreçler. *Mimarlık Dergisi*, *351*, 68-72. *Access Address (03.03.2024):* http://www.mimarlikdergisi.com/index.cfm?sayfa=mimarlik&DergiSayi=365&RecID=2288

Erükçü Akbaş, G., & Mutlu, E. (2016). Madde bağımlılığı tedavisi gören kişilerin bağımlılık ve tedavi deneyimleri. *Toplum ve Sosyal Hizmet*, 27(1), 101–122. Access Address (10.04.2024): https://dergipark.org.tr/en/download/article-file/514828

Hançerlioğlu, O. (2011). *Felsefe sözlüğü*. Remzi Kitabevi.

İlkutlu, B. (2024). *Purification in Nature: Participating in Nature's Cycle* (Unpublished student project, Fall Semester 2023–2024, *Yenileyen Mekanlar* Architectural Design Studio). Bolu Abant İzzet Baysal University, Faculty of Architecture.

İncedayı, D. (2009). Meslekte bir araştırma alanı olarak: Toplum ve mimarlık. *Mimarlık Dergisi*, *349*, 55-57. *Access Address (03.03.2024): http://www.mimarlikdergisi.com/index.cfm?sayfa=mimarlik&DergiSayi=363&RecID=2189#*

Joseph, A. (2006). The impact of the environment on infections in healthcare facilities. *HERD: Health Environments Research & Design Journal*, 9 (4), 74–98. Access Address (05.05.2024): https://www.healthdesign.org/system/files/Joseph_The_Impact_of_Environment_2006.pdf

Joseph A, Bayramzadeh S, Zamani Z, Rostenberg B. Safety, Performance, and Satisfaction Outcomes in the Operating Room: A Literature Review. HERD: *Health Environments Research & Design Journal*, 11 (2):137-150. doi: 10.1177/1937586717705107. Access Address (05.05.2024): https://pubmed.ncbi.nlm.nih.gov/28436232/

Kaplan, R., & Kaplan, S. (1989). *The experience of nature: A psychological perspective.* Cambridge University Press. Access Address (05.05.2024): https://psycnet.apa.org/record/1989-98477-000

Kararmaz, Ö., & Ciravoğlu, A. (2017). Integration of the experience-based approaches with the early phase architectural design studios. *Megaron*, 12. Online ISSN: 1309-6915. Access Address (20.05.2024): https://megaronjournal.com/jvi.aspx?un=MEGARON-05925&volume=12&issue=3

Lokman Hekim University. (n.d.). *Özgür Köy treatment and rehabilitation center, bağımlılık rehberi.* Access Address (28.12.2024): https://www.lokmanhekim.edu.tr/ozgur-koy-tedavi-ve-rehabilitasyon-merkezi/bagimlilik-rehberi

Maller, C., Townsend, M., Brown, P., & St. Leger, L. (2006). Healthy nature healthy people: Contact with nature as an upstream health promotion intervention for populations. *Health Promotion International*, 21(1), 45–54. Access Address (04.05.2024): https://doi.org/10.1093/heapro/dai032

Marcus, C. C., & Sachs, N. A. (2014). *Therapeutic landscapes: An evidence-based approach to designing healing gardens and landscapes*. Wiley. Access Address (04.05.2024): https://www.wiley.com/en-us/Therapeutic+Landscapes%3A+An+EvidenceBased+Approach+to+Designing+Healing+Gardens+and+Restorative+Outdoor+Spaces-p-9781118231913

Nas, E. C. (2024). *"Independent Life": Social Integration and Adaptation* (Unpublished student project, Fall Semester 2023–2024, *Yenileyen Mekanlar* Architectural Design Studio). Bolu Abant İzzet Baysal University, Faculty of Architecture.

Philip Johnson quotes. (n.d.). Rethinking The Future. Access Address (23.11.2024): https://www.re-thinkingthefuture.com/rtf-fresh-perspectives/a2042-understanding-the-philosophy-of-philip-johnson/

Prime Ministry High Council on Combating Drugs. (2015). *Activity Report 2014–2015*. Ankara: Government Publications.

Rethinking The Future. (n.d.). *Philip Johnson quotes*. Access Address (23.11.2024): https://www.re-thinkingthefuture.com/rtf-fresh-perspectives/a2042-understanding-the-philosophy-of-philip-johnson/

Seaward, B. L. (2011). *Managing stress: Principles and strategies for health and well-being*. Jones & Bartlett Learning. Access Address (23.11.2024): https://aishwaryajaiswal.com/wp-content/uploads/2022/01/Managing-Stress-Principles-and-Strategies-for-Health-and-Wellbeing.pdf

Tschumi, B. (1994). *Architecture and event* (T. Riley & A. Dixon, Eds.). The Museum of Modern Art.

Türkmenoğlu Berkan, S., & Karaman Öztaş, S. (2023). An analysis on learning styles and personality types of students in the techniques of architectural presentation course. *Journal of Architectural Sciences and Applications*, 8(2), 496–515. Online ISSN: 2548-0170. Access Address (19.06.2024): https://doi.org/10.30785/mbud.1331736

Ulrich, R. S. (1984). View through a window may influence recovery from surgery. *Science*, 224(4647), 420–421. Access Address (07.05.2024): https://pubmed.ncbi.nlm.nih.gov/6143402/

Ulrich, R. S. (1991). Effects of health facility interior design on wellness: Theory and recent scientific research. *Journal of Healthcare Design*, 3, 88–109. Access Address (07.05.2024): https://pubmed.ncbi.nlm.nih.gov/10123973/

Ulrich, R. S., Berry, L. L., Quan, X., & Parish, J. T. (2010). A conceptual framework for the domain of evidence-based design. *HERD: Health Environments Research & Design Journal*, 4(1), 95–114. Access Address (08.05.2024): https://pubmed.ncbi.nlm.nih.gov/21162431/

United Nations Office on Drugs and Crime (UNODC). (2023). *World Drug Report 2023*. Access Address (03.04.2024): https://www.unodc.org/unodc/en/data-and-analysis/wdr2023.html

Ünübol, B., Çinka, E., Mayi, M., Şamar, B., Yılmaz, M., Urcan, M. F., Demircan, S., & Bilici, R. (2021). Bağımlı hastalar için rehabilitasyon: Erenköy BAHAR modeli. *Psikiyatride Güncel Yaklaşımlar*, 13(3), 412–427. Online ISSN: 1309-0674. Access Address (03.03.2024): https://doi.org/10.18863/pgy.796479

Walch, J. M., Rabin, B. S., Day, R., Williams, J. N., Choi, K., & Kang, J. D. (2005). The effect of sunlight on post-operative analgesic medication use: A prospective study of patients undergoing spinal surgery. *Psychosomatic Medicine*, 67(1), 156–163. Access Address (07.05.2024): https://pubmed.ncbi.nlm.nih.gov/15673638/

Yücel, S., & Aydınlı, S. (2015). Mimarın eğitimi üzerine spekülatif bir deneme. *Erciyes Üniversitesi Fen Bilimleri Enstitüsü Fen Bilimleri Dergisi*, 31(1), 17–23. Online ISSN: 1012-2354. Access Address (08.06.2024): https://dergipark.org.tr/tr/pub/erciyesfen

Zeisel, J., Silverstein, N. M., Hyde, J., Levkoff, S., Lawton, M. P., & Holmes, W. (2003). Environmental correlates to behavioral health outcomes in Alzheimer's special care units. *The Gerontologist*, 43(5), 697–711. Access Address (07.05.2024): https://pubmed.ncbi.nlm.nih.gov/14570966/