

MIDDLE EAST TECHNICAL UNIVERSITY
DEPARTMENT OF ARCHITECTURE

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ARCH 504 Seminar in Thesis Research
Coordinators: Esin Kömez, Elif Gökçen Tepekaya

09.35 – 10.00

Elif Ecem Pala— Theoretical Analysis of High-Rise Residential Buildings: "Residences" in Ankara

Supervisor: İnci Basa
Jury: Esin Kömez, Esin Boyacıoğlu

Due to the increasing population and developing technology, the number of high-rise buildings is growing worldwide. These buildings, with mixed-use, office, or residential functions, are the symbols of so-called power and prestige at the same time. In this trend of high-rise buildings, residential ones are significant with their profound social and architectural impacts. In Turkey, high-security luxury buildings above a certain height that serve their residents with the logic of a hotel are called "residence/rezidans". Do these residences, designed to be introverted and disconnected by their nature, meet the conditions of being a "place"? This question presents a situation that needs to be examined in terms of the philosophy of architecture. Since high-rise residential buildings are built with economic concerns rather than architectural, their effects on the city and their relations with the city are not the priority in their design; hence, they turn into commodities of consumption. Privileged life these residences promise triggers social stratification and segregation; thus, some sociological problems arise. Also, these buildings have significant impacts on the city with their large scale and population density. Ankara is one of the cities in Turkey where these "residences" are increasing rapidly and has its dynamics in the development of high-rise buildings. This study aims to theoretically analyze the concepts of life in high-rise buildings and "residences" with their philosophical, sociological, and urban characteristics and examine the residences in various parts of Ankara with this theoretical framework.

10.00 – 10.25

Lale Tunçbilek— Transformed Urban Spaces and Emergence of Heterotopias: A Critical Approach to the Case of Çukurambar, Ankara

Supervisor: İnci Basa
Jury: Cânâ Bilsel, Zeynep Uludağ

The concept of heterotopia was employed by Michel Foucault in an architectural talk in 1966 to designate other spaces and differentiated sites. The concept entered the architectural and urban theory subsequently to generate a critical understanding and a new methodology for the inquiry of the collective outer space that interrupts the inherent continuity of the existing urban fabric. In the era of globalization and digitalization, to keep up with the uncontrolled rapid urbanization, cities have expanded unrestrainedly. This expansion also required an overhaul of the existing urban fabric. Urban transformation, mostly in the form of the destruction of the old and the emergence of the new, redefines the sociocultural urban complexity while creating spatial fragmentations. The material and cultural production of urban space through complete renewals of the urban fabric unavoidably disrupts the existing identity and the everyday life. Suggesting that fragmentation and identity problems result in a cultural, societal and spatial urban discontinuation, this study focuses on Çukurambar in Ankara, a neighborhood that has undergone an urban transformation recently. This study scrutinizes the urban architectural identity problems within Çukurambar district regarding the rapid and inattentive material and social production of the built environment, and secondly, it identifies and analyses the heterotopic qualities there due to being the places of otherness as a result of the transformation.

10.25 – 10.50

Çiğdem Çalık— A Study on the Measurement and Assessment Methods in Basic Design Education: The Case of METU Department of Architecture Basic Design Studio

Supervisor: Esin Kömez
Co-advisor: Yeşim Çapa Aydın
Jury: İpek Gürsel Dino, Derya Yorgancıoğlu

Being the fundamental design studio of design and architecture schools around the world, Basic Design aims to get learners to develop conceptual ideas and engage in two and three-dimensional design processes. The studio conduct is premised on the assessment through regular feedback for the student works through critiques and juries at different levels of publicity and formality. Measurement and assessment of creative works in these studio practices have been regarded as complex and hard to employ due to multifaceted assessment parameters, yet discussed by limited research. The motivation of this research is the ambiguity of the assessment criteria in Architectural Basic Design Education that causes evaluation to be considered subjective and time-consuming. The research supports that design knowledge and skills indicated by the design course objectives can be assessed in a measurable, systematized, and explicit manner. Thus, it aims to unfold the measurement and assessment methods and tools in Basic Design education and contribute to the development of relevant instructional changes and assessment instruments through a case study on Basic Design Studio at METU Department of Architecture. This study will conduct observations and in-depth interviews with architectural Basic Design students and instructors to analyze current assessment practices and the perspectives of the assessors on the ideal assessment in the studios. Hereby, it further aims to promote the following architectural design education research collaborating with educational sciences.

10.50 – 11.15

İlkim Canlı— Urban Scale Prediction of Indoor Daylighting Illumination for Sustainable Building Design

Supervisor: İpek Gürsel Dino

Co- advisor: Sinan Kalkan

Jury: Koray Pekerçli, Zehra Tuğçe Kazanasmaz

Augmenting the integration of daylight with designs has always been an essential topic for architects throughout history. Daylight is a critical design element for long-term sustainability that influences the mood of the human, visual and thermal comfort of the occupants, and energy usage in buildings. The efficient usage of daylight diminishes the energy used for artificial lighting and the internal load of the buildings. However, dense urban areas prevent daylight from reaching buildings. Each of the surrounding buildings acts as a shadow element and blocks the light of the building. Therefore, analyzing daylight illuminances and understanding the building design characteristics that affect daylight illuminance are unavoidable for sustainability. Simulations are one of the most preferred tools to analyze the level of illuminance in buildings by designers. On the other hand, simulations require detailed modeling knowledge and expertise to get precise results. Also, illuminance simulations performed at an urban scale take much computational time. In contrast, machine learning models enable designers to analyze illuminance levels without requiring computational time and detailed knowledge. This study presents a machine learning model (artificial neural network) that can forecast daylight illuminances inside the building on an urban scale. As a methodology, the buildings in Ankara, Bahçelievler neighborhood will be simulated with different design parameters, and simulation results will be used to train and validate the machine learning model. This model will enhance the usage of machine learning in early design stages to predict daylight illuminances in buildings and help designers integrate daylight into the buildings.

11.15 – 11.40

Nur Ulu— Design Performance In-Between: Climate Responsive Facades in Architecture

Supervisor: İpek Gürsel Dino

Jury: Funda Baş Bütüner, Ayşem Berrin Çakmaklı

The urban heat island phenomenon and climate change brought about by the increasing population and urbanization cause an increase in hot and warm days throughout the world, which affects both the comfort of the user at the building scale and the comfort of the pedestrian at the city scale. In order to enhance this situation, studies towards more effective, sustainable and rational solutions are increasing, but the urban and building scales are often evaluated separately in analyzes made for these studies, while urban geometry and building envelope parameters contribute to both occupant thermal comfort and urban environmental quality. For this reason, this study aims to examine both indoor and outdoor comfort through climate responsive facade design and thus investigate the multi-scale effects of building envelope design in transitional zones where the indoor and outdoor climate meet. Within the scope of the study, energy saving potential of climate responsive facade based on transient thermal conditions and occupants indoor and outdoor thermal comfort conditions evaluated with a holistic approach with the simulation workflow moves from micro-urban to building scale assessment by linking the ENVI-MET software to the energy simulation program EnergyPlus.

11.40 – 12.05

Helin Bingöl— Disposition to Rupture: Projections on Flexible, Adaptive, and Transient Urban Space Formation

Supervisor: Funda Baş Bütüner

Jury: Esin Kömez, Gizem Deniz Güneri Söğüt

The urban sphere is in the motion of a ceaseless change in the matrix of conditions which means the endless possibilities of varying circumstances. Constant changes, generating patterns of

unpredictable movements and uncertainties, occur gradually and suddenly in the urban context. Thus, this study unveils uncertainty -rapid changes, paradigm shifts, displacements (i.e., migration of people, of program, and sometimes of the place itself), and alterations in programs- as urban rupture. Basically, rupture refers to a shift corresponding to an unpredictable or uncertain change, causing significant remarks on different scales and contexts in the contemporary city. On a broader scale, war/violence, pandemic/contagion, technological shift (i.e., industrial revolution) or failure, environmental disaster/global catastrophe (i.e., climate crisis), migration/massive displacement can be considered as ruptures. However, rupture might appear on a variety of scales. Even an unplanned change in the built environment program and its capacity to adapt can be identified as rupture. In the light of these, this study questions what kind of design thinking might be compatible with the urban ruptures? It poses a critical position towards the static ways of place-making and fixed plans and regulations through the ecological understanding of space. It further intends to investigate the concepts of flexibility and ephemerality to ground design strategies for urban ruptures.

12.05 – 12.30

Mohammadhossein Amouei— Architectural Spaces Considering Autism Spectrum Disorder (ASD): Simulating User Experience in Computer-based Virtual Environments

Supervisor: Mualla Erkılıç

Jury: Semra Selçuk Arslan, Gökhan Töret

Autism Spectrum Disorder (ASD) is a neurological condition associated with sensory overload. It can affect the individuals' lifestyle in various ways, such as social interactions, cognitive performance, perception, and communication skills. A vast amount of literature was published on autism in medical and psychological journals starting from 1943. Subsequently, due to the increased awareness of autism and its relation with human-environment interactions, architects also began to conduct further

research, shaping design frameworks to eliminate potential triggers for users with mental disorders. According to literature published in the last thirty years by architecture and interior design researchers, impactful sensory stimuli in designed environments are divided into three categories (visual stimuli (lighting, details, colors, etc.), acoustic stimuli, and smell stimuli). Also, transition spaces, spatial layout, safe zones, visual relation, and predictability are some of the other design factors to bear in mind in order to facilitate cognitive mapping for users in the spectrum. Besides written manuals, we can translate these findings into a more immersive format using Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR). By using game-based programs and environmental stimuli as variables, we can experience the sensory overload symptoms of the individuals visually, audibly, and haptically. The experience will create broader awareness towards triggers that can cause symptoms in built environments and make it easier to review architectural projects at every stage. Additional tools can also be included in order to enhance the immersive experience in the following steps, such as pain simulators, AI enforcement, etc. This technique can also be used to study other disorders in built environments.

13.00 – 13.25

Sahr Farooq— A Critical Reading of Urban Space: The Role of Military Institutes on Socio-spatial Organization in Post-colonial Rawalpindi, Pakistan

Supervisor: Güven Arif Sargın

Jury: Esin Kömez, Gizem Deniz Güneri Söğüt

Colonialism relied on the military to exercise political and economic territoriality; the military was important in defining the colonial urban forms and political structures. As the British imperial rule over the subcontinent ended in 1947, its influence, rooted in military urban form of cantonments and the state power structure, did not. Therefore, military forms continue to affect architecture, and socio-political relations, thereby shaping the urban fabric in post-

colonial cities of Pakistan even today. This research investigates the inheritance of the colonial military urban forms and the political structures into the neoliberal era and the resulting influence on shaping the urban spaces, which mediate the social relationship between the civilian and military urban population today. This study of civil-military urban divide relies on comparative land use, land ownership, and spatial analysis of military and civilian urban spaces in Rawalpindi. As a prominent military city that has hosted the general headquarter since 1851, first for the British army and now for the Pakistan army, Rawalpindi is a suitable case study. This research develops an understanding of the role of the military's political and economic activism in shaping the disparity in the right to the city between civil and military urban members.

13.25 – 13.50

Aysema Ülke— From Hippodrome to Millet Bahçesi: A Sociospatial History of Public Sphere in Ankara, 1934-2021

Supervisor: Güven Arif Sargın

Jury: Funda Baş Bütüner, Deniz Altay Kaya

The notion of 'public sphere' implies an egalitarian ground in social and political terms to express and exchange ideas freely for every individual who partakes and produces them. In an urban environment, in return, public space defines a ground for people to access equal opportunities as well as goods and services even in their everyday life patterns, which could create a democratic public domain in the end. Yet, the instruments of the current mode of production further provoke mechanisms-in-power to de-territorialize and then re-territorialize the said space on which ideologies work forcefully by the disposition of capital via property relations. Therefore, counter to its ideal nature, the public sphere becomes a question in itself regarding social segregation, fragmentation disposition, etc. In respect to the faculties of critical urban geography, the said problem with its global and local multi-layered complexities needs a critical reading of the contemporary notion of

the public sphere. In tune with that, this research studies Atatürk Kültür Merkezi area in Ankara in a historical context from the era of Hippodrome to its current urban program, Başkent Millet Bahçesi. From the standpoint of monopoly rent, its multi-dimensional timeline presents successive territorialization processes of overlapping ideologies through three turning points: Hippodrome as the place of sports and national celebrations, AKM as a gift to the nation on behalf of the founding father of the Republic, and finally, the largest Millet Bahçesi by conservative urban policies. The research, in this respect, intends to understand the said ideologies with the hope of providing an intellectual ground for further possibilities of reading the socio-spatial qualities of the public sphere in Ankara's urban history.

13.50 – 14.15

Fatma Fulya Akın— Appropriation as an Urban Practice: A Critical Reading of Don Quixote Social Center of İstanbul, in 2013 and Since Then

Supervisor: Güven Arif Sargın

Jury: Ela Alanyalı Aral, Aktan Acar

Today's capitalist urban reality, in its disguised forms, always finds particular ways of integrating its oppressive powers to our lives, no matter how our life patterns differentiate. As well as all these mechanisms of diverse ideologies, the form of resistance could also take multi shapes, making social groups come together and share their common values, beliefs, and needs. In this context, this study with a sole purpose of searching for the possibilities of just and fair alternative life patterns, questions a specific urban realm as a contested locus of resistance in/through/for space. Therefore, it seeks to investigate the notion of 'resistance through space' which is to generate alternative ways of dwelling with non-standard practices. Based on the said theoretical approach, in other words, the main motivation of this research is to search for possible potentials of resistance in an urban context by appropriation and squatting as a grass-root movement. In this regard, the Don Quixote Social Centre, which was the first example in its own

terms in Turkey, commonly used and utilized during and after the Gezi Parkı uprisings, will be investigated through those of tripartite structures of appropriation and squatting. Its contribution to Turkey's social and political contexts as well as its generative capacities of social networks for possible urban social movements will also be studied. In pursuit of the above objectives, first, the dynamics of Gezi Parkı movement and its successive urban initiatives will be examined in respect to its socio-spatial history. Secondly, the Don Quixote Social Center will be in question to further understand the said experiences of possible potentials of social solidarity in an urban context.

14.15 – 14.40

Alp Fahri Ardiç— Re-Visiting Gecekondu: Between Habitat and Habiting; Learning from Informal Architecture and its Subject since 1960s

Supervisor: Güven Arif Sargın

Jury: Ela Alanyalı Aral, Tonguç Akış

Undertaking of national economies is in the processes of further commodification by global capitalism. Within this trajectory, the use value of the vital elements of collective life, including the urban space is now overwhelmed by the faculties of exchange value for sole purpose of consumption, etc. This results in defects in domestic social life, which is addressed in Lefebvre's distinction between the concepts of "habiting" and "habitat". Today's dwelling spaces, habitats, are the products of homogenizing profit-based policies that are implemented in urban space. Since capitalist relations control the formation of habitats, they also control the re-production of ongoing daily life in living environments. Habitats restrict people's right to participate in the processes of re-shaping urban space, which is "the right to the city". Today's domestic architectural production does not serve to improve the quality of daily life. In fact, it serves as a commodity to be used as an investment tool. This positions the architects, who work in the production of habitats, as a part and parcel of the speculative financial system of properties. In this framework, gecekondu emerges as an informal

construction form that originally performs communing practices, which conflict with the capitalistic property relations. Gecekondu can now be regarded as a form of habiting since its dwellers are the producers of their own daily-life. In its production processes, participation as well as solidarity appears to be a vital feature that it would rather give ways to habiting. On the other hand, the formal architectural profession still has merits that collective life of habiting can benefit in many ways. While examining gecekondu and its faculties of collective production in respect to some examples in İstanbul and Ankara since the 1960s onwards, this research aims to re-locate communing as part of architectural practice; and the architect-subject as part of the said practice that would produce habiting rather than habitats.

14.40 – 15.05

Gültekin Doruk Atay— Investigation on the Urban Sprawl of Western Ankara through Hybrid Urbanisation Perspective

Supervisor: Ela Alanyalı Aral

Jury: Güven Arif Sargın, Namık Erkal

Urban space can be viewed as a dynamic system of interconnections, a complex system of flows and actions. The city is genuinely heterogeneous, conflicting, and ambiguous therefore, hybridity reveals to characterize differences for the separate elements within the city to produce a ground for the process of ever-lasting progression, assemble further interactions, interweave programs as a systemic organization. For these reasons, it creates an ecology that is an extensive and inclusive ground plane that organizes and supports the land activities to maximize its use and be resilient to newly invented programs and events. Consequently, hybrid urban ground and buildings are inherently multi-functional, producing complex relationships with their program, context, and society. Especially, within the hybrid system, integration of living, working, circulating, and recreation gains importance. However, mixed-use architectures can be defined as more consumption-oriented, multi-purpose complexes with no grafted

activities and relationships that are not meant to increase interactions and spontaneous production of constantly developing urban ground. Accordingly, urban space or building cannot be a volume to contain profit-driven functions independent of each other in a hybrid understanding. Similarly, in the research area, Ankara's Western sprawl, development resulted in freestanding mixed-use facilities, high-rises, and single dwelling units, offering a diversity of actions to their inhabitants alongside the Eskişehir Road. However, it is mostly producing an environment of consumption-oriented actions and poor recreation, connectedness, and walkability which resulted in a reduced way of urban life. For these reasons, the paper focuses on hybrid urbanization, investigates the potentials of space making, and evaluates further possibilities of architecture through an analysis of Ankara's western sprawl.

15.05 – 15.30

Hande Sığın— Impacts of Digital Technologies on the Urban Public Space

Supervisor: Ela Alanyalı Aral

Jury: Pelin Yoncacı Arslan, Başak Uçar

Urban public spaces exist with their social benefits in which the community gathers and coheres, involves in organizations appealing to urbanites, exchanges ideas and experiences with others. As the new digital technologies start to appear and are practiced on the stage over the last few decades, public spaces so the publicness has been affected, and even potentially reconstructed enough to alter human life, perception, and action. Digital practices, which offer various experiences with diverse application methods, have the potential to augment and strengthen the experience of public space with their components. The society participates in public exhibitions and installations stimulating conversation, witnesses data displaying through screens bringing people together, gains interactive experience through digital tools triggering the senses, establishes a connection with the context utilizing the situated technologies. The paper will review the related dimensions and essential

sub-topics from the literature. Then, what the state of being performative, participatory, and interactive does bring to the publicness specific to digital technologies within the context of urban public spaces will be discussed through examples expansively. The point is to discuss the impact and contribution of the wide-ranging examples to the publicness.

15.45 – 16.10

Yurdanur Melike Yürekli— Mapping Modern Campuses

Supervisor: Ayşen Savaş

Jury: Ela Alanyalı Aral, Pelin Yoncaçlı Arslan

This study is a part of an ongoing research project on modern campuses conducted by the METU-Getty Keeping It Modern Research Group and aims to map a specific network of modernism that claimed order to modern living practices as operational projections from architecture. Based on Genz and Lucas-Drago's definition, mapping is understood as a technique to generate a representation of spaces and places of the actors and their relation to each other. Setting the accumulated knowledge of the research on modern campuses in order and transforming for a readable ground as retrieving information need several trials on mapping and its medium. In that sense, this study unfolds through the mapping trials in the research process. Potentials, limitations, and shortcomings that occur in both representational and archival frames also lead the research and strategies on the structure; concepts, themes, and sub-lists. As the history of these urban models revealed, the design of modern campuses has been interpreted as the assemblage of a political, cultural, social, and educational drive of the context within the realization of modern architecture on different scales. Thus, mapping modern campuses with their knowledge networks can reveal that the universal aspects of modernism are beyond stylistic discussions, but continue as a behavior/ approach to shape society within its unique assemblage. Further, each trial becomes an operational layer of research and shows that there is a continuation in the flow of modern architecture knowledge, while each campus

case embodies such unique interpretations of modern architecture that evolve as other modernism which is not possible to be fully mapped.

16.10 – 16.35

Ecem Karabay— “Sketch Problem” in Architectural Education as an Observation Medium for Presentation of Concepts

Supervisor: Haluk Zelef

Jury: Ayşen Savaş, Aktan Acar

One of the common concerns of design instructors is that the subject analysis of the students on the assignments is not included in their design synthesis. It is not uncommon to discover that it occurs as a result of a student misconstruing the creation of analytical diagrams - that reflect their analysis - with the development of a design solution, and instructors occasionally comment on this thought gap between early analytical diagrams and the presentation of the final design. Although the design ideas illustrated in the student diagrams have been extensively recorded in a schematic system, the physical form has not been created beyond a basic arrangement of functions to achieve these purposes. An alternative way out of this vicious circle is to divide the project into a series of design stages. To place the subject in a clear temporal and geographical framework, a sketch problem introduced to students of an architectural school can be conducive. Because it frames a particular problem rather than concentrating on individual difficulties, this kind of an education method stresses the simultaneous settlement of numerous issues. The possibility to collect materials by such observation, survey and/or interview methods in studios of architecture schools also makes it easier to examine the educational environment, to witness the design processes.

16.35 – 17.00

Kaan Dökmeci— The Architecture of University Libraries in Ankara in Terms of Daylight Use

Supervisor: Haluk Zelef

Jury: İpek Gürsel Dino, Çağrı İmamoğlu

Dwelling is one of the most basic needs of human life and it depends on many environmental problems that change depending on where the shelters are located and what the surrounding climate is. In the history of architecture, Earth, Sun and wind were basic natural elements used to solve external problems such as cooling/heating, and to provide the habitat for daily tasks. The Sun and usage of sunlight is one of the most fundamental aspects of dwelling. Daylight usage in buildings not only helps improving the efficiency of energy use but also helps improve the visual comfort of the interior of rooms. Among the buildings that need efficient lighting both for tasks and daily usage are libraries. One of the biggest challenges within libraries from the architects' point of view is using daylight in an efficient way while considering the building tectonics, the economy and general functions. Within the frame of this thesis, selected university libraries in Ankara, such as the METU and Bilkent University libraries, will be investigated in terms of the usage of the natural daylight. The research will be investigated in terms of the usage of the natural daylight and its function. The research will be held by looking at the forms and functions of contemporary library building caseworks, to understand how the usage and importance of daylighting had been designed depending on different regions and climate. Then, with the theoretical and practical solutions gathered, the examination of university libraries will be held.

17.00 – 17.25

Furkan Sinan Ügütmen— 3D Concrete Printing in Architectural Design: A Performative Approach

Supervisor: İpek Gürsel Dino

Co-advisor: Çağla Meral Akgül

Jury: Güzden Varinlioğlu, Ulaş Yaman

Free-form architecture has become more prevalent with the new digital fabrication methods in guiding the direction of contemporary architecture. 3D concrete printing (3DCP) is one of the methods that have a potential for architectural freedom, with benefits of reduced construction time and decreased labor dependency due to no formwork requirement, ease of

construction of complex geometries, and low cost. 3D concrete printing technologies will enable recycled and nature-friendly materials in printable concrete components, which cannot be used with traditional construction methods, and will enable a sustainable environment to be designed. Despite these benefits, it is still not standard in the construction industry because of the lack of fundamental research on the thermal and energy performance of the 3D printed structural elements. There is even less study investigating the performative analyses of an actual 3D printed concrete building. However, the architect aims to maximize the comfort conditions of the users while designing functional and visual perfection. To mitigate this gap, as a part of this research, an experiment has been conducted by on-site monitoring data using infrared thermography to investigate the thermal and energy performance of the first 3D concrete printed house in Turkey, located in the ISTON Factory. Simulations with different cross-sections, material selection, and forms were generated using the data acquired from the building. Based on this scenario results, performative optimization recommendations are presented. An integrated workflow with thermal (ANSYS) and energy performance (EnergyPlus) simulations and a design method for sustainable 3D concrete printing are proposed through the study.