

Nazarbayev University
School of Sciences and Humanities

Title

Postcard Astana:

An Image of a Modern State

Designed by World Renowned Architects

A dissertation

submitted in partial satisfaction of the requirements for the degree

Doctor of Philosophy in Eurasian Studies

By

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ABSTRACT

After the collapse of the Soviet Union in 1991, fifteen newly independent republics were formed. Kazakhstan was the only one among them to relocate its capital city and build a new one. Such a risky and expensive move was aimed at breaking away from the Soviet legacy and marking a new beginning for an independent Kazakhstan. The new capital was to become the beacon of progress and modernity on a global scale like Abu-Dhabi in UAE and Doha in Qatar. To achieve such a worthy goal, Kazakhstan had to rely on world-renowned architects such as Norman Foster who designed two of the most iconic buildings: Khan Shatyr (the “Tent”) and The Palace of Peace and Reconciliation (the “Pyramid”). Such dependency on foreign experts, however, was reflected not only in design but also in construction materials and labor force as well, highlighting Kazakhstan’s developmental challenges.

Their primary locations just behind the presidential palace and on the western end of the new administrative axis give a message of their importance to the new capital city. Using the name and prestige of Norman Foster, these projects were designed to impress the public

with their monumental scale, pure geometries, and spectacular interiors. Pyramid provides spaces for a museum, concert hall, conferences and office space while Khan Shatyr has entertainment and shopping functions. The hand and style of an architect, known as an innovative, high-tech specialist, is vividly seen in the design of these buildings both in the interior as well as exterior.

This dissertation analyzes the architecture of post-Soviet modernization in Kazakhstan by closely examining two key architectural projects: the Palace of Peace and Reconciliation (Pyramid) and Khan Shatyr Shopping and Entertainment Center (Tent). They are studied in terms of their architectural significance as an art medium to create a unified image of Kazakhstan as a modern country that aspires to become developed. So, the question remains whether Kazakhstan can construct its own world class iconic buildings without foreign help.

Thus, to answer this question, the study uses fieldwork and primary observation as its main source of data collection. Moreover, the significance of this research lies in the official and critical analysis of the post-Soviet architectural modernization in Kazakhstan over diverse Kazakh, Russian, and Western literature such as books, academic journal articles,

online magazine posts, official state websites, and several site visits to document the existing conditions of these buildings. Based on close examination of the buildings and related literature, the study found that the design of these projects and their structural elements are highly sophisticated and cannot be produced in Kazakhstan. Therefore, these findings indicate that the country needs to emphasize better training for its architects and enhance its industrial capability to produce modern construction materials and structural elements that meet high-tech requirements using its own human and natural resources without reliance on imports.

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Dedication

To my father, Yesbolat Duisebay,
Professor of Architecture at Eurasian National University
who taught me valuable lessons,
always believed in me
and served as a tremendous source of pride and inspiration.

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Chapter 1. Research Introduction

Introduction

Out of the 15 new countries that emerged after the fall of the Soviet Union, Kazakhstan was the only one to relocate its capital city and build a new one. The aim was to create one of the most modern and progress-oriented cities not only in Central Asia but on a global scale. A new representation was meant to put Kazakhstan on the map as a rapidly developing post-Soviet state open to international cooperation. That was when the country's leadership resorted to the help of internationally renowned architects from first-world countries such as Japan, the UK, and the US to design a modern and sustainable city that would create a convincing image of Kazakhstan as an independent, progressive, and fully transformed country that is open to the global community.

Such approach of hiring famous architects from developed countries is examined in one of Leslie Sklair's (2017) chapters on the Third World Modernism and Postcolonialism where he notes that "Many, perhaps most, contemporary architectural icons in the Third World have been designed by architects from the First World, some of whom are in great demand to build spectacular buildings to put some city on the map." (p.200) which perfectly points to the approach that this research takes and considers.

The thesis argues that Kazakhstan's post-Soviet modernization depended on world-renowned architects such as Norman Foster to design iconic, world class buildings to create an image of a modern and progressive state while masking contradicting realities. These buildings represent innovation and project Kazakhstan as a globally integrated nation that can be trusted, yet they often conceal conflicting underlying realities such as disproportionate development of the country where capital city Astana is draining resources for its

developments from the rest of the regions. Such an approach turns urban spectacles into a tool for asserting geopolitical relevance and modern identity. While these iconic buildings designed by Foster may visually align Kazakhstan with the developed world, they also raise a set of critical questions about the depth of the modernization process and its inclusivity.

Historically, Kazakhs are known as a pastoral nomadic society that moved from one place to another looking for grazing lands for their livestock. Therefore, permanent buildings were rare and urban planning was not a priority. (Koppen 2013, 598). For centuries, they have been using yurts, mobile homes that are easy to assemble/disassemble and carry around on horses and camels. However, their usual lifestyle has gradually changed after the tsarist Russian colonization of Kazakhstan, when imperial Russia began expanding to Central Asia (Hopkirk 1992). Kazakhstan is the only Central Asian state that borders Russia directly. Moreover, having one of the longest borders with Russia, which has no natural barriers for crossing and is primarily flat land, Kazakhstan is in a delicate position of both challenges and opportunities. Therefore, it serves as an umbrella by naturally protecting other Central Asian countries from direct Russian influence.

Russian imperial colonization of Central Asia began in 1718 and continued till 1917. (Talamini 2024) During that period, it was important for Tsarist Russia to create a foothold in the form of military outposts that would allow controlling and dominating the region with a military presence. Such military garrisons were crucial in defining future settlements. Over time these military outposts turned into trading centers for merchants. To supply the military, exchange goods, and exploit the region, it was important for colonial Russian forces to build an effective transportation system, such as roads and railways. Although this first period of

Russian imperial colonization lasted nearly two centuries, it left a relatively small mark on Central Asia, particularly Akmolinsk. (Talamini 2024, 18)

After the October Revolution of 1917, the Bolshevik party came to power, and the Soviet Union was formed in 1922, marking a new era in the development of the Kazakh Autonomous Socialist Soviet Republic (ASSR), which became part of the Union of Soviet Socialist Republics (USSR). This period, from 1922 to 1991, was marked by major industrial and agrarian development in Soviet Kazakhstan (Talamini 2024). The city of Akmolinsk had seen one of its large-scale urban transformations after it was designated into the center of the Virgin Lands campaign in 1954 and later in 1961 renamed into Tselinograd. It was the period when the city received massive investments and was rapidly transformed into a well-developed city. Its new master plan, designed by Leningrad based urban planning institute, was approved in 1962, and the city's most iconic buildings, like the famous *Dvorets Tselinnikov* was designed by Latvian architects, and *Dvorets Molodezhi* was designed by Anatolii Polianskii, who was the head of the Central Research Institute of Experimental Design at (TSNIIEP). (Iskakov 2020)

The second period of rapid city growth began after the fall of the Soviet Union. The country's first president, Nursultan Nazarbayev, moved the capital city from Almaty to Akmola in 1997. Nazarbayev invited world-renowned architects, including Kisho Kurokawa and Norman Foster, to design the new capital city and put it on the map as a modern, progress-oriented city. Therefore, it seems like Kazakhstan always had to rely on foreign experts to project modernity, which is the typical behavior for colonial and post-colonial states. First, we depend on the metropole, then we depend on developed, first-world countries to create an image of modernity.

All in all, historically, Kazakhs were predominantly pastoral nomadic societies moving from one grazing lands to another, which limited their need for stationary buildings and urban development. At the same time, archeological evidence suggests that Kazakhs did in fact have stationary settlements and permanent buildings. Although, they were very few in numbers and less widespread compared to those developed later under Russian influence. That trend intensified later after Tsarist Russia and later Soviet authorities had developed large scale infrastructure projects and urban development initiatives were introduced, contributing to sedentarization and the transformation toward agrarian and industrialized society. As a result, much of Kazakhstan's built environment historically relied on Russian or international architects. Therefore, this thesis adopts postcolonial theory in architecture as one of its theoretical basis for this research.

Historical Background

Urban planning in the Soviet Union stemmed primarily from the ideology of the Communist Party, which was clearly reflected in the vast territories of the Union. This ideology translated into a built environment characterized by centralized planning, standardized-prefabricated mass housing, and monumental architecture designed to impress and project the might of the socialist state and its communist party. It was tightly controlled by the state and clearly reflected the political and economic situation (Talamini 2024, Bekus 2017). It is important to differentiate here between the public buildings, squares, and residential construction. To begin, the public buildings and spaces clearly reflected the dominance and might of the communist party, as seen in the magnificent statues, large plazas, and administrative buildings that symbolized the communist ideology inscribed in the

buildings. On the other hand, the need for fast and cheap residential buildings required a completely different approach.

Rapid shift towards industrialization required large numbers of people to migrate from rural to urban areas, which in turn demanded massive and rapid construction of cheap housing. Resulting in the Soviet Union's mastery of the efficient construction of multi-story housing to accommodate the growing workforce. At the same time, it had to coincide with the socialist ideology of equality. Hence, the mass production of such "Lego-like Lego like" building blocks allowed for the saving of time and money on crucial resources to accommodate the ever-growing population of the Soviet Union after WW2, which desperately needed to be housed. The downside of prefabricated, standardized, mass production, however, was the identical look of the entire blocks. Even the entire cities which consisted of the so-called *microraioni* (micro districts) looked very much alike.

The time between 1953 and 1963, when Nikita Khrushchev was in power, is the time when Tselinograd received its most attention and development. Khrushchev was known to be the founding father of the Virgin Lands campaign, which was aimed at transforming the previously pastoral lands of North Kazakhstan and western Siberia to increase grain output to deal with the shortage of food. (Pohl 2012) This campaign turned the cultural and economic situation of North Kazakhstan upside down by changing its ethnic, cultural, and economic indicators.

The relatively unknown Kazakh city of Akmolinsk became the capital of the Virgin Lands campaign in 1961. Khrushchev personally came to visit Akmolinsk and proposed to rename the city to Tselinograd. Hence, the period between Stalin's death in 1953 and the

perestroika reforms of the 80's was the prime period of rapid investment and development in Tselinograd. (Dubitsky 1986) The city received massive investments in its infrastructure. The new railroad connecting the cities of North Kazakhstan was built, a new airport, a higher capacity *TES?* and so much more was done.

After Khrushchev highlighted the importance of Tselinograd, the Leningrad-based planning agency, the *Lengorstroiproject* was assigned to develop a new master plan for the new agrarian and industrial hub (Dubitsky 1986). A well-known urban planner and architect, Shkvarikov Vyacheslav Alekseevich, has led the urban planning design together with colleagues Yarigina, Knyazev, Lukyanov, and many more. (Shkvarikov 1964) The new master plan for Tselinograd was completed in 1962. This master plan has divided the city into three distinctive urban zones and is known to be linear in its development. First, there is the industrial zone which stretches along the railway in the northern part of the city. The railroad was and still is the bloodstream of the city, supplying it with the vital goods coming into the city and taking the products for export. (Bekus 2017).

Second, are the residential neighborhoods or the so-called *microrraioni located* between the railroad and the Ishim River. The influx of the workforce from every corner of the Soviet Union into Tselinograd increased the urgent demand for housing. The first street to be constructed with multistory apartment buildings was Mira Street. Experienced construction workers and engineers from Moscow and Leningrad traveled to Tselinograd to build the first prefabricated residential buildings and share their experience with local construction workers. In just half a year, the number of dwellings increased by an additional 650 and four additional-story schools in that micro district. At the same time, almost simultaneously, the main square had been actively constructed. The housing built out of

prefabricated concrete modules allowed for the quick and easy assembly of desperately needed housing units. All in all, by 1963, the Tselinograd housing area had increased by 115,000 square meters, and schools had gained an additional 2,270 seats. (Talamini 2024, 23)

Among the most iconic projects in Tselinograd were *Dvorets Tselinnikov* and *Dvorets Molodezhi*. The Palace of Tselinniki (Virgin Land Developers) was built in 1963. The design of this pivotal project was handpicked by Khrushchev personally at the National Exhibition of Economic Achievements in Moscow, where he famously stated that: “We need such a building in Tselinograd” (Talamini 2024, 25). The building was originally designed by Latvian architects as a movie theater for Riga, but was never built. According to the lead architect of this project, the building was inspired by the Finnish architects. So, both unique projects of Tselinograd *Dvorec Tselinnikov* and *Dvorec Molodezhi* were inspired in some way by European ideas and designed by Latvian architects and Moscow based architects such as Anatoly Polianski. However, the final touches to the design were made by five different design institutes based in Moscow, Leningrad, and Riga in cooperation with the Latvian State Urban Design Institute. Most of the interior, including its furniture, was made and transported to Tselinograd from Riga. (Gudro and Krastins 2019)

The second notable building for Tselinograd’s urban development was the Palace of the Youth. Its design and construction had begun in the 1960's, but it had to pause for an extensive period due to a power struggle after Khrushchev’s resignation. Construction was delayed for a long time, and finally completed in 1975. The design of the building was led by the famous Russian architect Anatoly Polyansky, who was the chairman of the architects’ union of the USSR. He was also known for the design of the famous USSR pavilion at the 1958 International World Fair in Brussels. The building was truly exceptional for its time. It

had 1200 seats with a convertible stage, a sports hall for 400 seats, a swimming pool with a diving pedestal, a library, group work-out rooms, exhibition pavilions, a large bar with a cafeteria, a banquet hall, and many more useful spaces for teenagers to spend quality time. (Iskakov 2020) The project was so good that a direct copy of it was built in Donetsk around 1975.

Next are the housing reforms brought up by Nikita Khrushchev. The idea was to come up with a low-cost and quickly assembled five-story housing widely known as *Khrushchevka*. It was the first attempt at industrial production of the concrete panels in factories that can be moved and assembled on the construction site. These housing units were no more than five floors in height, which allowed for the use of elevators that would increase the cost and time of the construction. Saving as much space as possible was also the main feature of the first *Khrushchevka*'s. Therefore, the bathroom and a kitchen were extremely small (usually 6 square meters) even in the two- or three-bedroom apartments. Each apartment had its own serial number. So, for instance, one-room apartments were as small as 30 square meters, two-room apartments were typically 44 square meters, and three-room apartments were 60 square meters. Later designs reduced these numbers into even smaller apartment units. (Meuser 2019)

Literature Review

The new capital city of Kazakhstan, Astana, has been looked at by various specialists from an array of disciplines, turning it into a truly multidisciplinary topic for discussion. Since the city is the seat of the government and an administrative center of an entire country, the first and most important interest it caused among the political scientists (Anacker, 2004;

Diener & Hagen, 2013; Fauve, 2015; Schatz, 2004; Vale, 2014). Anthropologists were interested in studying the behavior and patterns of people in an urban fabric, especially those that had just formed and rapidly developed. (Bissenova, 2012, 2014, 2017; Laszczkowski, 2011, 2012, 2016, 2022). Political geographer (Koch, 2010, 2012, 2013, 2014, 2015) and historians (Akulov, 2019; Pohl, 1999, 2007, 2013; Shelekpavev, 2018; Shkvarikov et al., 1964). However, its architecture, and especially its key projects, remain understudied. Thus, this research aims to fill this gap in the literature.

One of the first scholarly works on Astana after the relocation was written by American-Canadian political scientist Edward Schatz (2004). He had looked at the city from the perspective of a political scientist. In his work, “What Capital Cities Say About State and Nation Building,” he takes apart the relocation of the capital city and argues that Kazakhstan’s capital relocation was made for state and nation-building purposes. The author studies possible reasons for capital relocation by considering the ups and downs of relocating a capital city as it is “an expensive and risk-ridden move” (p.113). He explains that in a post-colonial context, it was important for the ruling elites to create a sense of loyalty and control. His main point was that Kazakh elites were using the country’s wealth for self-aggrandizement and personal benefits, and that the authoritarian president made the decision to move the capital city primarily for “personal prestige” rather than as a rational element of an attempt to restructure the country’s economy. Another good point for our study is that Almaty was not suitable to remain the capital of the newly independent state because it inherited the Soviet legacy. Hence, the conclusion was that the symbolic role of brand-new Astana is to leave behind the Soviet past. All in all, the Astana relocation was intended to

impress both international and domestic audiences, so the move was aimed at both outward and inward.

In his article, Schatz (2004) mentions that after the collapse of the Soviet Union, Kazakhstan was the only post-Soviet state in whose ethnic composition, the titular nation (Kazakhs) constituted less than half of the population (p. 128). Thus, one of the reasons to relocate the capital city from Almaty to Akmolinsk was to contain any attempts at separatism in the northern part of Kazakhstan, where ethnic Russians were a majority (Schatz 2004, 129). To define the country's multicultural identity and to highlight its strategic geopolitical location between Europe and Asia, the term "Eurasianism" was publicly reintroduced to the masses by ex-president Nazarbayev as a political move. Moreover, the term "Eurasian" erased any boundaries that existed between nationalities (similar to the Soviet term "internationalism") but still retained certain advantages for ethnic Kazakhs that are dominant. It was important for the president to create harmonious living between various nationalities. Hence, the term "Eurasianism" was used to balance between major powers such as Russia, China, and Western countries. Thus, using this term as a balancing act between domestic and international.

The new capital city Astana could serve as a symbol of "Eurasianism" embodying in itself various urban symbols, buildings, and ornaments that would reflect such official rhetoric of "Eurasianism". The capital city was relocated from Almaty in the south to a more central Sary Arka region. Nazarbayev's book *In the Heart of Eurasia* (2010) suggests that Astana is located not only in the middle of Kazakhstan but even in the "heart" of the Eurasian continent, giving the city even greater importance in the geopolitics of the region. Therefore,

understanding the complexities of Astana's urbanism, iconography, and architecture that represent the idea of "Eurasianism" will require an exploration among various disciplines.

The official term "Eurasianism" which Nazarbayev introduced was left mainly neglected and only a few studies conducted related to it. First, is the study conducted by Alima Bissenova "The Master Plan of Astana: Between the "Art of Government" and the "Art of Being Global" (2013). In her examination of the new capital city of Kazakhstan Bissenova discusses various changes that were made to the master plan of Astana that was initially designed by Japanese architect Kisho Kurokawa. Moreover, the study considers the architectural style of Astana, which is described by many local architects as "Eurasian" style. A mixture of styles borrowed from both European and Asian cultures.

In her work, *the Master Plan of Astana. Between the "Art of Government" and the "Art of Being Global" (2013)*, Bissenova argues that the abundance of exported natural resources and petrodollars coming back as revenue has allowed the newly rich elites (*nouveau riche*) to acquire or buy cultural capital that they lacked. Hoping that the modern architecture designed by world-renowned architects will open the door for them to enter the circle of global elites by putting Astana on the map as a modern and progressive metropolis. However, such extensive borrowing practice partly deprived Astana originality (authenticity) and allowed it to be perceived in some quarters as simply imitative and tasteless (absent of its own cultural or historical background).

The main discussion in this work was on the multiple changes or "corrections" that were made to the Japanese architect Kisho Kurokawa's master plan design for Astana. It was believed that his project could help Astana to overcome provincialism and achieve the status

of a global city. Kurokawa was a perfect choice for the master plan because he argued against Western hegemony. His main ideology was to convince people to change from the Eurocentric approach and to start looking for and drawing inspiration for design from national identity, culture, and history. His concepts of Metabolism, Symbiosis, and Abstract Symbolism were very influential. Moreover, Victor Buchli (2007) confirms the importance of Kurokawa's philosophy to the Astana project. Kurokawa's philosophy of metabolism goes against Le Corbusier's philosophy of "the age of the machine"; instead, Kurokawa was proposing "the age of life".

From her fieldwork at AstanaGenPlan Bissenova rightfully noted the problems with the "expression of national identity" in Astana's built environment. Moreover, she mentions the questions raised by leading Kazakh architect Nurmakhan Tokayev in his 2005 Correction to the Master Plan, such as "Will Astana be a distinctively 'Kazakh' city?" and perhaps more importantly "What does it mean to be a Kazakh city?" (Quoted in Bissenova, 2013). I have noticed that similar thoughts arise in Bernhard Koppens' research on Astana's architecture. He claims that the Astana project did not achieve its original goals of becoming a metabolic and sustainable city originally planned by Kisho Kurokawa. The Japanese architect has originally designed the city as a "living organism" that will naturally grow and change as the demand for it grows. However, as we could see from Bissenova (2013) the original master plan by Kurokawa was completely abandoned.

Further clarification on master plan competition and its realization can be found from the interview by Kulshat Medeuova from 2008 discussing the first decade of Astana's development through the perspective of architect Amanzhol Chikanaev. He describes the city's growth as rapid and unpredictable, with population and infrastructure expanding far

beyond initial plans such as those by Kisho Kurokawa. While some architectural projects and symbols evolved or disappeared over time, others—like the Baiterek Tower—became enduring representations of national identity.

Chikanaev emphasizes that the city's main challenge is managing growth sustainably, particularly due to ecological limits (especially water resources) and infrastructure strain. He argues for balanced urban planning, decentralization through satellite towns, and prioritizing livability over rapid expansion. The interview also highlights tensions between ambitious architectural visions and practical implementation, the influence of global architects like Norman Foster, and the need to design a city that respects both modern standards and the cultural-psychological connection of Kazakh people to open space and the steppe in which Kazakhs are used to seeing the horizon instead of concrete jungle.

In yet another interview with Liudmila Vihodchenko, Amanzhol Chikanaev recounts his experience with the international competition for the master plan of Astana, initiated by Nursultan Nazarbayev. Chikanaev describes his early involvement, his criticism of initial proposals, and how this helped prompt an international competition ultimately won by Kisho Kurokawa. He reflects on collaborating with foreign architects, influencing aspects of the plan, and later helping to revise it due to rapid urban growth and planning shortcomings (especially transport issues). Despite these challenges, he views Astana's development as highly successful—a unique global architectural project shaped by both international experts and local architects, including graduates of Kazakhstan's own architectural schools.

Natalie Koch's *The Geopolitics of Spectacle: Space, Synecdoche, and the New Capitals of Asia* (2018) is a collection of her previous works that have been skillfully put

together in a book that compares the capital cities of the authoritarian resource-rich states (Baku, Azerbaijan; Ashgabat, Turkmenistan; Doha, Qatar; and Abu Dhabi in the UAE). For the most part, the author discusses the reason behind the grand construction of the capital city and how the ruling elites benefit from such state-led projects. State-led modernization. Astana represents the government's prosperity and benevolence in contrast to other forms of state corruption and violence found in other parts of the country, such as *Zhanaozen* (2011) and *Kantar* (2022) protests in Kazakhstan that were brutally suppressed, and the overall poverty and underdevelopment of the country.

According to Koch (2018), Astana is built as a spectacular city that is meant to stand out and impress. Moreover, it is meant to be compared to other cities of Kazakhstan that lack proper development, therefore, can be considered as unspectacular. Astana represents modernity and contrasts with both neighboring poor Central Asian countries and the rest of Kazakhstan's cities, most of which lack proper development. So, the spectacle is always dependent on unspectacular others. Modern buildings designed by renowned international architects represent a radical break from the undesirable Soviet past. All in all, Koch concluded that the Astana project is an effort to claim modernity while masking a certain backwardness, an effort to be seen as modern, or an image of modernity put on display in the capital city that claims to be a false modernity.

Ultimately, Koch (2018, p. 25) challenges the claim made by Nazarbayev that “the modern Astana is Kazakhstan in miniature” Nazarbayev (2010). Nazarbayev was constantly implying that modernity and progress represented in Astana are somewhat reflective of the entire country. So, to contrast this point, she took the Aral Sea region, which is designated as the “ecological disaster zone,” to compare it to Astana and see what the residents of the Aral

think of Astana's rapid development. So, by examining Astana and its rapid development, the author was comparing the ever-growing divide between the rich and poor in a resource-rich country. Thus, buildings like the Pyramid and Khan Shatyr are the two landmark projects that internally project the ever growing divide between capital city Astana and other impoverished regions of the country such as the Aral sea region.

By comparing the oil-rich nations and their capital cities, Koch argues that the authoritarian rulers in these countries use "spectacle" to stage modernity and progress, while much of the country is full of "unspectacular" others who have nothing to do with the shiny and bright capital cities. As though these capital cities were not built for them or do not consider the needs and struggles of the poor and miserable population. She argues that these days, the authoritarian leaders are using the ancient "bread and circuses" strategy to control and manipulate the masses. Hence, instead of focusing solely on the shiny capital city of Kazakhstan, the author speaks with people from the poorest regions of Kazakhstan and analyzes their relationship to the development taking place in Astana.

Koch's analysis highlights the issue of unequal development and the disconnection between the capital city and the rest of the country. While Astana serves as a symbol of progress and modernity, the reality is that development in the rest of the country falls far short of the standards set by the capital city. In fact, many regions are still struggling with poverty, lack of basic infrastructure, and inadequate healthcare and education. Koch argues that authoritarian leaders use the capital city as a way to distract from the issues of the rest of the country and to maintain their control over the population.

Focusing on iconic projects such as the Pyramid and Khan Shatyr for the new capital city can be much more efficient and quick as opposed to systematically developing the entire country. Therefore, I agree with the claim by Natalie Koch (2018) that: “Building a monument to Lenin or Lincoln, for instance, can be quick, easy, and relatively cheap in comparison to the task of developing entire political systems that actually reflect the values of Soviet communism or American liberalism.” (p.27) As these high tech buildings designed by world renowned architects attract attention and signal economic opportunities, they contribute to rapid urbanization by attracting people from rural parts of the country. Mass migration of people leaves large portions of the country scarcely populated and the density of population living in cities increases drastically. This explains why Astana continues to attract people with its better living standards, economic prospects and visually striking architecture.

The most recent work of Gianni Talamini (2024) traces back Astana’s development and gives a very detailed explanation of its formation. The chapter helps understand the colonial past Kazakhstan endured and the Soviet territorial expansion into Central Asia. Using Astana as an example, the author demonstrates how the imperial Russian and later Soviet Union were building infrastructure projects to exploit the abundant natural resources of Central Asia, particularly Kazakhstan. Starting from the times when the city of Akmolinsk was first formed as a tsarist Russian military outpost in 1824, all the way to Kazakhstan’s independence and capital city relocation. The author wisely divided the city's major developments into three parts. First period was the imperial Russian “territorialist expansion in Central Asia (1718-1917)”; Second period was the “Soviet infrastructural development (1922-1991)” and the third and final period is the “national self-determination, conjoined with supranational hegemonic capitalism (1992-).” (Talamini 2024, 18)

None of the existing literature has looked at the objects of this study, and thus, this work intends to fill the gap that exists today in current literature. Moreover, by approaching the study of Astana primarily from an architectural standpoint, with only a certain level of integration with urban studies and geopolitical studies, this thesis intends to set a unique precedent for future works. As we have seen earlier works look at the historical development, the capital city relocation, and Nazarbayev's intentions for his personal project with the neglect to detailed examination of iconic buildings that create the aura of modernity for Astana. All in all, the development of Astana as a new capital city is a complex process that involves a range of political, economic, and social factors. While it symbolizes progress and modernity, it also highlights the issue of unequal development and the disconnect between the capital city and the rest of the country. The authoritarian rulers use the spectacle of the capital city to maintain their control over the population, while the local population often pays the price of the development process.

As a relatively new capital city of Kazakhstan, Astana has attracted various scholars from different fields and disciplines like political science, sociology, anthropology, geography, history and so on. However, none of them focused on the built environment from an architectural standpoint. Thus, by conducting my research on urban planning and architecture by using an interdisciplinary approach and using the literature that was already conducted, I hope to contribute to a broader understanding of this phenomenal city in the "Heart of Eurasia". As a newly built capital city, which is meant to be the seat of government and an administrative center for an entire country, it attracts political scientists. The major actor, obviously, who has made key decisions from the very beginning up to most recently, was Kazakhstan's first and long-standing president Nursultan Nazarbayev. He was the one

behind capital relocation and construction. Some scholars would say that the Astana project was a “One man show” or Nazarbayev’s “Pet project” because major decisions were made by one man so far. These works include but are not limited to: (Diener, A. C. 2002, Anacker S. 2004, Edward Schatz 2004; Lawrence Vale 2014; Adrien Fauve 2015).

Adrien Fauve (2015) argues that, using massive revenues from the oil and gas sectors, the authoritarian regime was building legitimacy for itself by promoting international ties and reputation in sports and education. Taking Astana cycling team and Nazarbayev University as cases, the author builds fruitful research in which even a small actor, such as individual athletes and/or western educated specialists help the authoritarian regime to support its legitimacy in the eyes of both domestic and international audiences. Not only that, but the regime also uses various international events, such as hosting the OSCE 2010 summit, EXPO 2017, the 2011 winter Asian Games, and so on, to boost the worldwide recognition of Astana as a brand. Hence, the regime is creating this façade or spectacle to present itself as a legitimate actor on the international stage.

The literature includes topics like capital relocation, nation and state building, de-Sovietization through design, modernity, and so on. Among local scholars it is important to highlight the work of Kulshat Medeuova (2023) under the editing of Alima Bissenova. Her chapter examines post-Soviet architectural eclecticism in Astana. By chronologically describing the process of search for national identity in the city’s-built environment she highlights Astana as a place of tension between local attempts to highlight the nation's historic past and pressing domination of international architects to modernize. The author's main argument is that by constructing a new capital city, Kazakhstan is shifting away from Soviet legacy and by doing so, architects are in constant search for the new expression of true

Kazakh style proudly shown in a sovereign state. However, such an approach creates a variety of styles and mixes up the overall look of Astana instead of creating a coherent national style. Medeuova highlights the important role that architecture plays in constructing this new image that is yet to come. Simultaneously mentioning the limitations of local design in terms of industrial and technological capacity that needs to catch up to modern construction requirements.

The chapter explores how local architects were consistently trying to incorporate historic motifs such as *balbals*, *kurgans*, animals, yurt elements and various traditional Kazakh elements onto buildings while deliberately avoiding Soviet era precedents. However, such an approach did not work out quite well because these methods did not create a coherent national architecture but only served as decorative elements and created a mixed image of Astana. Moreover, according to Chikanaev, design influence of “starchitects” such as Kisho Kurokawa and Norman Foster are the main driving forces of the new image that Kazakhstan projects internationally and attracts media attention together with foreign visitors. All in all, the author critiques superficial application of historic themes and a limited creative potential of local architects. Overall, according to Medeuova, Astana’s architecture reflects an ongoing, unresolved negotiation between post-Soviet legacy, global ambition, and the aspiration to articulate a distinct Kazakh identity.

However, the subtopic that is of my interest so far is image building. As some of the scholars previously mentioned, high prices for natural resources allowed the Nazarbayev regime to hire successful international scholars, famous cyclists, and world-renowned architects to help the regime create an image of a modern and progress-oriented state. However, it only turned out to be an image put out front for the public, whereas the reality is

somewhat different. Hence, for my research, I'd like to use modern architecture designed by world-renowned architects as the tools of the regime that help them build a positive image of a legitimate regime.

By studying two of the most iconic buildings that Norman Foster has designed for Astana, the thesis asks what makes these two projects so architecturally unique and structurally special. It shows the complex architectural and engineering nature of these buildings and contrasts them with the industrial and technical capabilities of the United Kingdom as opposed to those of Kazakhstan. Norman Foster is known for his high-tech buildings that are either difficult or impossible to manufacture in developing countries, which show the might of industrially developed countries like Britain. Even the Hong Kong and Shanghai Banking Corporation (HSBC) building in Hong Kong is no exception. Its structural elements were prefabricated in industrially developed countries like Japan, the U.S., and Britain, then shipped and assembled in Hong Kong. Back then, in the 1980's, when the construction took off, Hong Kong or even China did not have such industrial capacity as it has today. However, Kazakhstan still lacks any industrialization of its economy, so it will continue to rely on developed countries to create an image of modernity for itself.

These buildings can be viewed from various perspectives. One of them is their ability to create a convincing image of modern, progressive buildings in a short period of time. An image of Kazakhstan entering a new global world with a capitalist, free-market economy rather than Soviet socialism. Promising a bright future and hope of a new beginning for the country and its residents. Another perspective could be less positive and may project an illusion of progress and modernity that is masking many of the contradicting realities, such as poverty, low quality living standards, corruption, underdeveloped infrastructure, low quality

education, and healthcare, in a country that is rich in its natural resources and has one of the lowest population densities in the world. Consequently, this research aims to reflect the imported, high-tech nature of these buildings while showing Kazakhstan's inability to produce such iconic masterpieces on its own without foreign help.

To set the stage for this research, the thesis traces back the development of the new capital city from the times when it was first renamed into Tselinograd, the capital city of the Virgin Lands campaign. By doing so, the thesis shows the rich history of the city and sets a context for where the city was in terms of its socialist heritage and where it is heading now, presumably towards free market capitalism. By framing the project this way, the thesis compares the Soviet background and Soviet-trained architects with the new era of famous international architects arriving to design Astana. All in all, the thesis consists of two major parts. The first part will touch upon the historical development of the city, starting from the 1960's when it was renamed into Tselinograd. The second part will discuss more contemporary developments following the relocation of the capital city from Almaty to Akmolinsk.

Research Question(s)

As the key theme of this dissertation is that Kazakhs were historically known as a pastoral-nomadic civilization moving from one place to another in search of better grazing lands for their livestock, they did not need permanent buildings or cities to begin with. Thus, when they were first colonized and dominated by Tsarist Russia and later by the Soviet Union, they gradually took over the Kazakh lands by building military outposts that grew into permanent trade settlements and eventually became the cities we know today. Therefore,

most of its cities were planned and built by Moscow and Leningrad-based architects.

However, after gaining independence in 1991, Kazakhstan decided to shift its capital city and build a new one that would symbolize its autonomy and modernity. But, the new capital city was now designed primarily by world-renowned “Western” architects from the developed world.

Hence, by focusing on Khan Shatyr and Pyramid, which are considered to be some of the most advanced and high-tech buildings of the new capital city. They were specially designed by one of the best architects in the world, Norman Foster, who had been carrying these ideas for decades before having a chance to execute them. Thus, the thesis asks: What makes Khan Shatyr and Pyramid buildings architecturally unique and structurally special? This main question leads to several more detailed questions, such as: What was the main idea behind designing these buildings in this form and shape? How complex are they?

To address Kazakhstan’s dependency on external experts that previously were based in Moscow and Leningrad, who planned and designed most of the cities in modern Kazakhstan, and now, after gaining its independence, the country has shown its dependence on Japanese, U.K., and U.S. based architects to construct its new capital city. Creating a new image through modern architecture designed by famous architects in the post-Soviet context has been the key element in asserting itself as a globally emerging player on the international arena.

Data Collection Methods

Case study research is the most common research method in architecture, as it allows for a deep engagement with the site and the live experience of the existing building, enabling

a first-hand sense of its qualities. Site visits allow researchers to experience the building, its materials, and structure. It gives a clear sense of how design decisions affect end users and how the building responds to its context. Site analysis and drawings help deepen the understanding of the architect's thought process in designing these iconic buildings. Thus, by bridging theoretical knowledge with real-world practice this research looks at the design outcomes that will help in the advancement in knowledge of both academic and professional advancement. Fieldwork, site visits, observation. I was observing how the buildings are put together and what makes them so special. Collecting firsthand data by taking pictures, analyzing what I saw in reality, and comparing it to what I have read from the literature.

Famous Egyptian architect-anthropologist Hassan Fathy in his book *Architecture for the Poor* (1973), conducted an experiment in rural Egypt. Using fieldwork in Egyptian villages and conducting a participatory design, he was able to collect valuable data on how ordinary people live in villages. He was observing the way villagers build and inhabit their structures. Hassan Fathy was known for his advocacy of vernacular, culturally appropriate, and fully sustainable homes that local people could build and maintain for themselves. His book *Architecture for the Poor* (1973) was based on fieldwork, observation, and community engagement as the primary methods for collecting firsthand data that was used for interpretation and drawing conclusions.

By conducting a real-world experiment, the book encompasses both the design manifesto and an ethnographic case study that traces the construction of the village called New Gourna, which is located in close proximity to Luxor, Egypt. First, the author had started from conducting extensive studies of traditional Egyptian architecture, which present valuable lessons from cultural and social patterns such as gender segregation and religious

practices. Locals build homes with traditional building material, mud brick, that keeps the house cool during the hot days, even without expensive air conditioners. By engaging with the community, Fathy interviewed families about their needs and preferences, creating one of the first integrations of community input into the design process. He studied their daily routine to create layouts that reflected their lifestyle and properly located spaces such as courtyards and public areas. (Fathy 1973)

Field research and site visits are two fundamental methods of research in architecture as they allow a first-hand observation and physical and visual interaction with the place of future construction. Moreover, they inspire architects with new design ideas that later turn into innovative buildings. Thus, before starting the design process, every architect must visit the site or at least study it thoroughly. Such observations of the site include the orientation of the site relative to the sun and wind patterns, context which includes the neighboring buildings, their height, history, and style to either match or make the future building stand out from its neighbors. For example, Le Corbusier documents his findings from traveling and site visits in his book *Towards the New Architecture* and *The Modulor* where he describes in great detail sites that greatly influenced his design and theories. Another prime example of observation as a method of research is the famous American architect Frank Lloyd Wright, who believed that architecture should be in harmony with nature. With this principle, his famous work Fallingwater was designed in harmony with nature. To produce this work, he had to constantly visit the site to document the existing context.

I. M. Pei also considered his site visits together with Le Corbusier in 1935 as the most influential days in his architectural education. Another good example is Louis Kahn who was inspired by his site visits, where he observed light and shadow playing alongside and creating

memorable designs that use the natural light to create masses that play with light and shadows. *Architectural Research Methods* (2013) by Linda Groat and David Wang

By using the qualitative research method to study the decision-making of an architect, his creative thinking, and the overall design process. To explain the complex relationship between people and spaces they use, and to provide a deep understanding of the context under which certain architectural and structural decisions were made. Thus, to inform and inspire new concepts in architectural practice and enhance education by generating innovative ideas (Bryman, A. 2015)

Using holistic data collection methods to achieve maximum output (Groat & Wang, 2013; Lucas & Lucas, 2016), I have used a set of traditional research methods that came from a combination of various methods of collection: field research, site visit, first-hand observation, and documentation. Fieldwork research was instrumental to this study because it enabled data collection in the most effective and efficient ways. By visiting the site where the buildings are located, I was able to observe these buildings first-hand. Taking advantage of the fact that the buildings are located in the city center, I was able to take my time to document them well by looking closely at their surrounding context, taking pictures, making visual and physical contact with them, to try and feel what they are made of and how they are put together. Having the opportunity to go around them and get inside gave me an incredible opportunity to feel the climate inside of them, see the interior design, lighting, and overall vibe inside and outside of the buildings.

On-site personal observation has included the rigorous analysis of the surrounding context of the studied buildings and the identification of the primary points of approach to the

buildings and viewpoints. The location of these buildings at key spots has demonstrated their importance and leading position in the city's urban fabric. To reveal the connection of the form, shape and size of these buildings towards the surrounding context, I took a detailed tour and documented them by taking pictures both inside out. Moreover, the focus of this study was the circulation of people entering and exiting the buildings. The study shows that the pattern differs depending on the purpose and layout of the buildings; however, the traffic or a circulation of people in and out of the building, as well as the traffic that these buildings create in the urban fabric of the city, is of the most importance.

The detailed analysis of the surrounding context in which the studied buildings stood out allows for a focused approach towards the subjects of this study. (Baker, 2006) Primarily because of their purposeful location at the most successful viewpoints, which ensured that the buildings play a dominant role in the urban setting. Moreover, the shape and monumental size of the buildings had a unique and unrepitive place among the boring, boxy, square residential complexes of the newly built city. Construction materials also played a crucial role in creating the iconic appearance of the buildings that captivate the imagination of bystanders and spectators alike.

My observation strategies included what Hartmann & Wood (1990) would call observing buildings in their natural environment or context. Together with the building and its context, it is important to closely monitor the behavior of people who work and regularly visit these buildings. To be more specific, I paid attention to every small detail that caught my eye. Every sign or a poster, broken elements on the building, modifications that the end users made to adapt and make use of space that was not designed in the original layout of the

buildings. So, such minor changes reflect the societal transformations that lead into modifications and a variety of individual solutions.

All in all, by choosing fieldwork as my main research method, I have been observing the studied buildings in their place of construction and operation. Through direct and close observation, I was able to take their pictures from different angles and under various lights. I was able to conduct informal interviews with the people who work there. Fieldwork observation instantly became a priority choice in my methods because the studied buildings were located in a reachable place, more precisely 15-20 minute drive from the University, so not taking advantage of that would be a big mistake for this research. This method became a powerful instrument in my study because it allowed me to delve into the inner workings of these buildings, and I was able to gather primary sources of data from informal interviews and constant visits to them. As opposed to the desk research or image-based analysis that obscures the data and prevents firsthand access to the information.

As the Khan Shatyr and the Pyramid buildings are the focus of this study, their spatial, visual, and tactile experiences can be best analyzed through direct contact with them. Being able to personally-physically visit them and move through their spaces, starting from the entrance and moving your way through, gives a real sense of what the architect's intentions were. Observing the light, materials, scale, texture, and the overall atmosphere of the building. So, this kind of direct sensory experience allowed me not only to feel and experience these buildings but also to take pictures and draw sketches that captured the essence of the architectural dialogue between the buildings' design and the users who visit them every day. Thus, by comparing them with other buildings designed by local or Soviet architects, this research can show the significant differences in quality and the spaciousness

of the spaces. Being able to look at these buildings in their natural context gives this study important information on how they fit into or disrupt their surroundings, which is the newly built urban fabric of Astana.

An extensive review of the literature in three languages is yet another effective way of collecting data. Using a variety of secondary sources such as books, journal articles, official websites, publications, and essays by architectural critics who were mostly Western journalists coming to visit the new capital city and report on its development. Most of the Western critics, such as Rowan Moore (2010) who called Astana “a space station in the steppe,” referring to its futuristic buildings being out of place and standing out among the rest of the Kazakh cities. In her article, “Urban ‘utopias’: the Disney stigma and discourses of ‘false modernity’, Natalie Koch (2012) analyzed and summarized all the criticism and its justification.

Informal interviews (unstructured interviews) with people who work, use, and visit these buildings were an additional tool to collect necessary data. Using this flexible conversational research method, I was able to talk to people who work in these buildings and visit them. So, instead of using a strict questionnaire, I was able to engage in fruitful discussions that were easy to start and finish because there were no constraints in both the content of the interview and timing. By conducting such informal interviews, I was able to find out their subjective (personal) views on these buildings, but the overall relation to them was very positive; people like to visit them often, especially Khan Shatyr, as “it has its own spirit” as most of my interviewees have described it. One elderly couple (Greg and Hanna) visiting Astana, who came all the way from Europe on a motorhome, told me how surprised

they were to see the level of development of Astana, as the typical stereotype was that it is a developing country.

While conducting fieldwork, I was able to talk to the ultimate users of these buildings to be able to fully understand how they experience these spaces and what they feel about them without the rigidity of a formal questionnaire. So, the format of my interviews was more like a casual chat in a natural environment as opposed to a prepared question and answer format, where interviewees would have to pay attention, read, and answer questions in the written format, which most people do not feel comfortable with or feel like it takes away their precious time.

A series of personal interviews with Zhakupov Ruslan Yergalievich, head of AstanaGenPlan 2025; Yerdenenov Dauren Sagatbekovich, lead architect in AstanaGenPlan, author of many buildings designed in Astana, including the Hazret Sultan Mosque. Baziken Yelnar Bolatuly, head of the Urban Planning Center of Astana; Bashtan Esat, the head of the LLC “Creative Project KZ” that was the collaborating architectural firm here in Astana that worked together with the Foster and partners on the Nazarbayev Center project. As the main commissionaire and a beneficiary of the researched key architectural projects, the state that hired Turkish construction company “SEMBOL” as the general contractor, and as the projects are state-led, I did my archival research in the government organizations such as AstanaGenPlan and Astana City State Archive, Astana City Architecture and Urban Planning.

This research draws conclusions from my personal experiences as a trained architect across different settings in both Kazakhstan and the United States. Being born and raised in

Almaty and then relocating to Astana I have witnessed the rapid urban transformation of the once average Soviet city of Tselinograd into a spectacular new capital city of Kazakhstan. I have gained valuable experience first by studying at the Eurasian National University for five years and then pursuing my master's degree at the University of Miami in the United States, which informs the methodological approach of this research. It incorporates ethnographic methods in combination with photographic documentation and first-hand observation, all to find out how people interact with these grand-scale buildings and experience them. Site visits and field research help to understand how users navigate, feel, and sense these buildings, which provide valuable information on how people interact within these man-made spaces and their environment.

Theoretical Framework

This work is based on an interdisciplinary approach to the theoretical framework that combines globalization theory, postcolonialism, and theories associated with architectural representation to study the design, production, and meaning of these landmark projects in Astana. Such a comprehensive approach allows for a deeper understanding of architecture not only from a technical standpoint but also as a social and political processes that encapsulate local and global processes that run hand in hand.

First, the research uses globalization theory to place architecture within a transnational flow of expertise, capital, and design practices. In current contexts, international architectural practice operates across a global ecosystem in which international firms are advanced across regions with offices across continents. For example, Norman Foster's main headquarters is located in London, but besides that, the practice has offices in major global

cities such as NYC, Madrid, and Hong Kong. As noted by Leslie Sklair (2017), globalization is defined by the transnational capitalist class (TCC), which is defined by the instant flow of information, knowledge, and capital that shape the spatial setting of urban environments around the globe. Within this global network, architectural services become a tradable, mobile, and easily exportable commodity enabled by modern technology. Such application of modern architecture helps to explain Astana's reliance on world-renowned architects and technologies to which they have access to design and build iconic large-scale projects.

Second, this research engages with postcolonial theories to critically assess unequal power relations that exist in these global exchanges. Although Kazakhstan's case is not applicable to a classic colonial framework, it is still useful to consider center-periphery dynamics for a comprehensive analysis. Looking at the works of Immanuel Wallerstein, the famously known work on the "World Systems Analysis" that traces the rise of capitalist globalization, in which the global economy is structured into a strict hierarchy of the center and periphery. According to Wallerstein, the global system can be understood as a system in which peripheral regions depend on developed countries for expertise, technology, and capital. This view is further amplified by the concepts of representation discussed by Edward Said, who has shown how cultural production is framed by unequal power relations. When applied to architecture, this suggests that the adoption of the global style might show not only an attempt at modernity, but also highlight certain forms of dependency on dominating global centers.

Finally, the study draws on the representation and nation-building practices that are shaped by the theories of architecture. In this regard, architecture functions not only as a building to shelter and house people, but also conveys certain meanings and messages.

Buildings represent meanings tied to identity, modernity, and power. As Duanfang Lu argues, iconic projects in non-Western settings play an important role in creating national identity and projecting progress among the global community. In the case of Astana, the Pyramid and Khan Shatyr serve as symbolic landmarks that convey the country's emergence as a progressive and modern state integrated into global processes.

Considered together, these theories provide a nuanced and comprehensive framework for explaining how architecture in Astana operates at the crossroads of global forces and local ambitions. Such an approach lets us interpret these buildings not as merely design objects but as outcomes of global networks and ongoing structural dependencies within transnational architectural practice.

The data found in this research can be directly linked to the theories mentioned above. From the globalization perspective, with the Pyramid and Khan Shatyr projects designed by the British architect, and reliance on foreign expertise and technology, reflects the integration of Astana into the global architectural practice. These buildings serve as an example of the way architecture operates as part of the global service economy, where design knowledge easily moves among nations and continents. Simultaneously, postcolonial or dependency views, help to understand the disbalanced nature of this relationship, as the continued reliance on external expertise and resources points to the structural dependency. From the representation perspective, these buildings signaled the clear image of modernity, progress and global belonging of Astana to the international community. Together these interpretations reveal that while these iconic projects create an image of global identity, it also manifests into the existing tensions between domestic aspirations and foreign dependencies.

In shifting from Third World modernism and capitalism to consumerist postcolonialisms the research changed tactics in looking at the data with a different prism that offers a better interpretation of the data. Initially, this study was using postcolonial theory in architecture as a theoretical basis for this research, however, after closer examination on postcolonial theories, it did not seem suitable to this research because postcolonial period took place after the WW2 and was primarily among the European holders of the colonies. Hence, postcolonial framework is perfectly applicable to former British colonies. However, Kazakhstan's case is somewhat different as it was formally part of the Soviet Union and at least on paper, it had similar rights as other socialist republics and had its "autonomy," which was very different from the British colonies. Moreover, postcolonial theories focus on the Orientalist and colonialist attitudes towards the non-Western nations, cultural superiority by colonialists and imperialists, the Eurocentric approach to architecture, and the overall Western supremacy over the underdeveloped, peripheral nations, which is reflective in "the hierarchies of the world-system" (Akcan 2016, p.116), which is true to most of the former European colonies.

Therefore, the terms globalization, capitalism, and consumerism are much more applicable to the study of the post-Soviet modernization of Kazakhstan and the iconic buildings designed by famous British architects in Astana. Leslie Sklair (2017, 201), for instance, calls it a "capitalist- consumerist postcolonialism" in which buildings and their design follow profitability. Hence, following this logic, the thesis looks at these buildings from such a perspective. To give context, I return to the historical chain of events that provide better sense when looking at it from a chronological perspective when after the dissolution of the Soviet Union, fifteen newly independent former socialist republics have entered new

political and economic relations with the rest of the world. For Kazakhstan it was advantageous in two major ways.

First, it has gained access and control of its abundant natural resources (oil, gas, coal, uranium, steel, copper, aluminum, gold and so on) that the country's leadership was able to export and sell for a good price. Second, was the fall of the "iron curtain" that prevented free interaction with the West. Thus, after the fall of the Soviet Union, Kazakhstan has gained access to global markets that were previously limited. Thus, for this research it is better to use the philosophies of globalization, capitalism and consumerism that are relatively new concepts and are concerned with the use of modern (universal) designs and contemporary construction materials such as steel, glass, and concrete. (Packard 1960; Baudrillard 1970)

Together with postcolonial and post-Soviet states, international architectural firms have also become highly globalized and connected to the rest of the world. Especially those from first-world developed countries that are helping postcolonial, newly independent states to project modernity and sovereignty. Sklair (2017, 201-202). The best example is Foster + Partners, which is a transnational architectural firm, or a transnational capitalist class (TCC) as classified by Leslie Sklair (2017, 194) that provides services in six major continents. It has offices in sixteen major cities around the world with projects all over the globe. So, to understand the buildings that Norman Foster has built in Astana, it is important to tackle this research from the perspective of globalization.

Another good example of a theory to consider is Postcolonial Theories in Architecture by Esra Akcan (Akcan 2016, p. 115).. With the development of the internet and transportation, the communication and interconnectedness between nations and continents at

large grew tremendously. Globalization became the new norm of the twenty-first century, which erased borders and any barriers between people. With such dramatic changes, the architectural practice became truly transnational when they could design buildings while being on a different continent. However, the main body of architects designing in the developing countries is predominantly white male architects from the first-world developed countries. (Akcan, 2016) This all became possible due to “the new legal arrangements, international trade agreements and advanced communication technologies.” (Akcan, 2016, p. 115) Designated by WTO, architectural services are a new commodity now.

Although Esra Akcan (2016) argues that very often architects from the Western World come to design buildings in the “East” or a postcolonial developing country, unprepared to do that properly with the consideration of historic and cultural specifics of the given context (Akcan, 2016, p. 115). I argue that they often do try to research and analyze those historic and cultural identities and cater towards them, but it is the clients who ask to design buildings in an American or Western European style, which is typically associated with tall high-rise buildings made out of steel and shiny glass without the reflection of local identity. So, to me, this obsession with tall glass buildings which filled the horizon of the major global cities just looks like an inferiority complex rooted deep in the minds of postcolonial nations. Postcolonial theories in architecture aim to design with the consideration of making projects better suited to various cultures, climatic conditions, and overall contemplation of the environmental footprint of buildings so that they do not evolve as another creation of imperial inspiration.

The postcolonial period that started after the European imperial powers weakened after fighting each other and losing a lot of resources and manpower in the long-lasting

World War 2. It was after the war that previously colonized nations began to gain independence one by one. That is how nation-states were established under the UN resolution that ensured peace and stability, preventing another large-scale conflict. The mounting pressure of nationalism that quickly changed colonial rule demanded to be visually and physically manifested in the built environment to strengthen the postcolonial rhetoric. The new way of understanding “non-Western” contexts was desperately needed to interpret a new way of design in architecture and urban planning.

Defining the postcolonial theories as the “West” and the “rest” is segregated by itself. The geographical scope of defining and separating the global world into “West” as European and North American, and its counterpart being the orientalist “East” is beforehand inclined towards exclusion. The ideology of the “West” constantly dominating over its inferior, underdeveloped “East” pushes into a hierarchical system of the world in which the developing world always lags behind the modern and developed Western world. Such a Eurocentric approach had to be challenged through postcolonial architecture, as European and North American architects dominate in the transnational architectural practice globally, setting the tone for mainstream design practice. Such European supremacy makes the rest follow their architectural trends, as they are progressive and considered advanced.

The modern belief that the West is well educated and technologically much more advanced in architecture, engineering, and construction gives it an excellent opportunity to dominate the global markets. Hence, postcolonial states hire experts, majority of whom come from developed countries, to give a modern look to their country and give it a brand-new image. To portray themselves as equal to the first-world countries, they build iconic projects that attract tourists and generate publicity. In fact, modern architecture practice is becoming

so global that some of its finest representatives have offices in most major cities. The shift from colonialist and orientalist narratives in design is evident, and the fact that international design practice is now shifting towards global, sustainable, and consumer-oriented architecture is evident in the example of the Foster projects in Astana and around the world. Capitalist for-profit architectural practice dominates the market these days; at the end of the day, architecture is mostly for the rich who can afford to hire famous architects and pay for expensive construction.

North American and European architects setting the tone in global architecture practice is not new. Their advanced economy and, as a result, high-quality education and production industries enable them to be at the forefront of cutting-edge designs. Thus, the Eurocentric approach unintentionally leads the world, which is constantly lagging behind. Challenging this dominance would require a total reconsideration of the very core of this formation, meaning reassessing orientalist narratives and colonial approaches to design. The famous book by Edward Said was original and groundbreaking when it was first published in 1978. His book was not only foundational in the humanities, but it was influential across disciplines, including architecture. Imperialist societies that depicted the Eastern World, primarily Asia and North Africa, were labeled as the Orient. (Akcan, 2016)

Said criticizes the distorted depiction of Arabs by the British and French as exotic and mysterious. The evident hypothesis of Western superiority over the perception about the Orient through the prism of cliché on which it was based. All in all, Said described how the Western scholars, artists, and writers have created an unseen barrier between the East and West by depicting the East as strange, irrational, and barbaric compared to the civilized Western societies. Said argues that these misrepresentations unintentionally create hierarchies

among nations and ultimately lead to imperialist attitudes. Ideological distortion of the developing world has created the basis for hegemony and control over others. (Said, 1978)

Over the last century, the major discussion on colonialism in architecture was between two major styles of modernism, which stem from an international style and regionalism, which is devoted to considering local culture, history, and construction materials when designing buildings. The International style, which is a branch of modernism in architecture, has a distinctive feature that we see in modern buildings of global cities. Modernism is typically designed using a curtain wall glass system that hangs as a skin of the building, all supported by either concrete or a steel frame, which makes the building lighter and brighter. Modernism is in favor of clean, straight lines, functionality, and purity of design that rejects ornamentation and decoration of the building. As opposed to it, is architectural regionalism or a vernacular architecture that uses traditional building materials such as wood, dirt, and stones. (Sklair, 2017, p. 202)

The international style of modernism has flooded the major cities around the globe, making them look very similar and difficult to distinguish. Tall glass towers have become the icons of capitalist globalization. The vernacular architecture, on the other hand, promotes the idea of using local construction materials that can be easily and quickly delivered on site, which is environmentally friendly. Moreover, it calls for architects to design projects in respect to local culture and tradition, which helps to consider local climate and adjust the design accordingly. It also promotes the use of nature as an advantageous tool to provide more natural light and natural ventilation into the site-specific, small-sized buildings. Such differences in architecture became evident after WW2, when previously colonized nations started to become autonomous and needed to create a new future for themselves. However,

the new forms of imperialism and neo-colonialism kept pursuing them through postcolonial architecture. Such imposition of development by the First World countries on Third World nations ensured keeping a tight grip on the former colonial legacy and kept them always dependent and behind the developed world. (Sklair, 2017, p. 202)

Some buildings and architects who design them can be extremely expensive. Thus, people who hire them are very wealthy and powerful individuals, such as states or companies. Architecture was designed to serve the needs of a client who benefited from it. According to most internet sources, Norman Foster is currently the highest-paid architect with a net worth of \$240 million. His skills, reputation, and exceptional talent are in high demand not only among post-colonial states who want to create a new image of modernity for their city and state, but also all kinds of corporations and private investors are looking for iconic projects from the world's leading architects. Foster is truly a genius architect who designs buildings that last and attract attention, catering to all the possible aims and objectives of clients for centuries to come. With the help of Foster and his partners, every vision that the client had quickly turns into a reality that manifests the power of architecture to convey and influence certain ideas. (Viva, n.d.)

The division of the world into three distinctive parts during the Cold War was pivotal for the future world order that we have today. The result of the Cold War between the "West" led by the United States and the "East" led by the Soviet Union has created a distinct separation between nations. The First world led by the US and its allies such as Canada, Australia, UK, Japan, Denmark, Germany and others, also called the Western block, the Second World led by the Soviet Union in the past and now by China, the so called communist bloc, and the "rest" which is considered to be lagging behind the Third Worlds which include

countries like India, African, Latin American countries and Middle East. Both First and Second World nations are more technologically advanced, having military and nuclear capabilities and the ability to fly rockets into space.

After the end of the Cold War and the collapse of the Soviet Union, the term First World has shifted to mean the countries that have democratic political systems, high living standards for their citizens, and a free market capitalist economy. Unlike socialism, where production and distribution of goods were state-controlled, the capitalist free market economy is a well-functioning system that creates fair competition to promote high-quality products and better services. Therefore, the Western bloc leads the world in most measurements such as GDP, Human Development Index, literacy rate, and the Gini index that measures income, wealth, and consumption inequality. All in all, the most industrialized and developed nations with high living standards are “First World” nations.

Western architects designing projects in the developing world are much more likely to adopt an international style that will ultimately result in iconic buildings in the area. Unlike the projects that are made in a vernacular or an architectural regionalism reflecting local culture, history, and traditional building materials. However, such traditional architecture has a good chance of becoming a good tourist attraction if promoted properly, together with the modern buildings designed by “starchitects” (Sklair, 2017, p. 204). So, whether an iconic project is understood as a representation of international style with a certain accent on regionalism or vernacular building in modernism, they are still created under the pretext of consumer-driven capitalist globalization, which is a vital ingredient to progress and modernity.

The most recent academic research on these issues is developing from scholars with Third World origins who were educated at the top North American, Australian, and European Universities. One example is the book “Third World Modernism,” originally published by the Chinese scholar Duanfang Lu, who currently works at the University of Sydney. The author explores the rapid urban development in the Global South (less developed nations that are in the south of more industrial northern states) with a high regard for its focus on modernism in architecture. The book focuses on the influence that modern architecture has in the “Third World” and its role in shaping national identity through the prism of post-colonial contexts. The author focuses primarily on the period when globalization showed its early signs between 1945 and the 1980s. The impact of modernism on architecture at large was most evident in developing Third World nations seeking to modernize. All in all, the essays of the book examine the influence that modernism in architecture has on non-Western nations.

Lu’s book focuses on three main case studies that describe how political elites in post-colonial states hire modernist architects to build their nations around modern architecture, to form national identity, and to establish the capitalist consumerist society (Sklair, 2017, p. 205). The description of works by famous Western architects such as Louis Kahn, Le Corbusier, and Eero Saarinen that are typically known to be exceptionally remarkable in the architectural circles of the West are being labeled as “chaotic, ugly, and sick” (Sklair, 2017, p. 204). Only a handful of non-Western architects from Latin America, Asia, the Middle East, and Africa have achieved appreciation and final recognition in the form of becoming a Pritzker Prize winner.

The Pritzker Architecture Prize is like a Nobel Prize, with the only difference that it is given to outstanding architects that made a significant contribution in the field of

architecture. Recent winners include Liu Jiakun (China), who won the prize in 2025 for his outstanding combination of social, environmental, and cultural aspects of human life into a harmonious creation that inspires sympathy and raises the human spirit. (*Liu Jiakun | The Pritzker Architecture Prize*, n.d.)By emphasizing the importance of the existing site and context, Liu skillfully integrates modern design with social and ecological compassion. Liu strongly believes in the role of architecture in improving ordinary people's lives, preserving the nature and cultural heritage of China. His architecture is recognized to be a perfect merge between tradition and modernity, together with his commitment to environmental protection, got him an impressive prize.

Another recent Pritzker Prize winner is Riken Yamamoto, a renowned Japanese architect who received a prize in 2024. Before him was David Chipperfield, a British architect who received the prize in 2023. He has offices in London, Berlin, Milan, and Shanghai, which makes him a true representative of transnational architecture with global commissions around the globe. Before that, in 2022, the first native African who was trained in Germany, Diébédo Francis Kéré, won the prize. His sustainable design that uses nature to ventilate, cool, and, if necessary, heat the building of a school in a poor neighborhood in Africa caught the attention of many. Only local construction materials, such as mud brick and local wood, were used to construct the building. Moreover, its roof is specially designed to keep the school naturally ventilated and prevent it from overheating. Also, the school's design was so simple yet innovative that it was built by regular people from the community who recognized the importance of education for their children. (*Diébédo Francis Kéré | The Pritzker Architecture Prize*, n.d.)

The recent diversity among the Pritzker Prize winners shows the principles of inclusion and equity that drive modern societies toward general tolerance and peace. The principles of equity, diversity, and inclusion, also known as EDI, which “is a conceptual framework that promotes the fair treatment and full participation of all people, especially populations that have historically been underrepresented or subject to discrimination because of their background, identity, disability, etc.” (*Equity, Diversity, and Inclusion*, n.d.) The realization of the world community in treating all people equally despite their race, skin color, ethnicity, religious belief, background, and social status is the key to keeping balance and world peace. For example, French colonial architecture has left a long-lasting scar on the urban environments of former colonies such as Morocco, Indochina, Madagascar, and others by redrawing the city plans according to colonial principles that often sidelined existing local urban environments. Colonial institutions and rulers have framed modernism as a convenient tool in displaying the intertwined and growing connection between the imperialist states and their colonies.

The transition between colonial legacy that gradually shifted towards globalization in architectural scholarship has demonstrated increasing diversity among scholars with various backgrounds. For instance, both Lu (2011) and Gyger (2013) describe two logical and substantial characteristics shared. First, there is a substantial contribution of women to various parts of the books. Seven out of eleven authors were women, which significantly contributed to the gender balance of the academic input. Second, a striking fact was that most of the contributors were born in Third World nations and later went to pursue their graduate education in the First World. All of them now successfully teach in First World countries.

Such a dramatic shift might soon change the world order and convert into true globalism where only consumerism and the free market will dominate the world.

The mobilization of architecture and urban planning to create consumerist societies has a tendency in capitalist nations that work for profit. The difference in urban planning between the capitalist First World that was imposing its urban planning strategies and the communist Second World's partially realized cities is strikingly different (Sklair, 2017, p. 207). Both the capitalist First World and the socialist Second World were trying to influence the rest of the Third World by building cities that were aligned with their ideology. For instance, the early Soviet attempt at impressing and eventually attracting the Third World by creating an exemplar social city, the so-called *Sotsgorod* was described in detail by Miliutin (1974). Some of its influence could be seen in the construction of Brasilia and Tanzania.

The socialist city envisioned by the Soviet architect and urban planner Ivan Alexandrovich Miliutin was concerned with the idea of serving the workers and designing the cities to cater to the needs of the working class. Hence, unlike the core principles of capitalism, which go after profit generated by the consumerist society, the idea of a *Sotsgorod* was to make a comfortable city for the proletariat. Soviet socialist cities were usually built around a certain industry, be it mining, factories, or heavy machinery, and created the cultural, educational, transport, and healthcare facilities around them. Therefore, shopping was not their primary goal, but to provide incentives for the working class to keep producing goods, products, and services. To promote equality among city residents, Miliutin was offering to use the power of urban planning and architecture that would be functional and convenient for people to commute to work and back home. Moreover, Soviet urban planning had several key rules that capitalist, car-oriented planning lacked.

First, Soviet cities were pedestrian-oriented, meaning that the walking distance between residential buildings, kindergartens and schools should not exceed 15 walking minutes. Second, public transportation had to be available for people to go in every direction be it to work, to a public park, a movie theater, or sports facilities. Private cars were rare in the Soviet Union; therefore, people were encouraged to either walk or to take public transportation. For instance, the Tselinograd master plan was initially designed as an industrial outpost; thus, the railway paved the way for city development. To bring workers into town and to take the produced goods out of it the railway was an essential part of Tselinograd. (Shkvarikov 1964, Dubitskii 1986)

Moreover, the storage facilities on both sides of the railway provided vital logistics support. After the transportation issues were resolved, the city started to grow in a linear manner towards the Esil river. To accommodate the growing number of newcomers, residential building blocks have started being built along *Mira* and *Pobeda* streets. As the population grew, there was an urgent need for public buildings where workers could spend their leisure time and access cultural and educational resources. That is how the *Dvorec Molodezhi* and *Dvorec Tselinnikov* were built. Next was the *Esil* riverside, created to provide residents with a place for recreation, fishing, and more. Finally, the facilities that were necessary for the comfortable city life, such as a new airport, a radio station, and the central heating stations, were built.

As we can see, Soviet urban planning puts the workers at the center of its urban plan. By promoting the proximity and integration of work, home, education, and healthcare, architects sought to minimize the commute from home to work and back. Promoting a sense of community and transparency was yet another agenda on the list of Soviet urban planners

because the residential area was typically designated in certain parts of the city, and the neighbors all knew each other because people did not buy their apartments; instead, they were given to them from their workplace. So, most of the neighbors were coworkers at the same workplace.

To promote the collective values and highlight the importance of communal spaces, the public buildings such as concert halls, stadiums, movie theaters, and sports facilities where people could come together and spend time fostering the sense of community that was so important for the idea of building communism, where everyone felt belonging and enjoyed equal rights. Access to nature, such as parks and green vegetation throughout the city, was a major consideration. The water presence such as large, open pools in the city centers and fountains that would give a fresh breath to cities during the hot summer days was a must have in the Soviet urban plans. Moreover, major cities tried to be planned around the river like the Esil river in the Soviet Tselinograd, Moscow River in Moscow, the Thames River in London or the Seine River in Paris and many other examples where cities were built along the river.

During the Cold War era the Soviet urban planning was trying very hard to influence Third World nations. The Soviet Union deeply believed in the power of architecture and urban planning to promote socialism to other nations geographically located far from the Union but who were willing to experiment with the Soviet Union to counterbalance the Western dominance. Some countries in Africa, Latin America, and Asia were willing to try the Soviet Union's development proposals after WW2. After gaining independence, those postcolonial countries that did not want to have anything in common with their former colonizers looked toward the socialism offered by the Soviets. Seeking modernization, industrialization, and overall economic development, former European colonies in Africa,

Latin America, and Asia, as well as East Germany and Eastern European nations, had to resort to the help of the Soviet Union. Help included rebuilding their cities, infrastructure, residential, and public buildings.

The Soviet vision of the socialist city known as *Sotsgorod* was at the forefront of the Soviet urban planning strategy. As a model for post-colonial nations, it was offering large amounts of communal spaces for interaction and the promotion of equality among all city residents. The integration of all components such as work, housing, schooling, medical care and leisure in a proximity was the main concept of the socialist city for the development of the fair working communist societies. Quickly and cheaply built prefabricated concrete mass housing for workers was the key element in Soviet urban planning. Soviet urban planners and architects provided expertise to Third World developing nations mainly on large scale housing projects and industrialization of their economies. So, the Soviet urban planning was aiming to solve both problems of employment and housing.

The Cold War era created two drastically different approaches in architecture and urban planning. Trying to win as many allies and partners as possible both the First World Western nations and the Second World communist Soviet Union tried to provide their expertise and influence to post-colonial Third World nations. For instance, Egypt under the rule of President Gamal Abdel Nasser became the Soviet Union's biggest arms buyer. Tanks, fighter jets, artillery and famous Kalashnikov rifles were purchased in large numbers. Not only that, but the Soviet Union also helped to design their cities as part of the modernization deals. The monumental, large size buildings were the trademark of Soviet architecture. To impress its viewer and to show the Soviet might, buildings were designed symbolically to show the strength and unity of the two nations.

In contrast to capitalist, profit driven urban planning where the rich and powerful separate themselves from the rest of the working poor population, the socialist urban planning tried to provide comfortable living for the working class which it considered to be a backbone of society. Segregation and marginalization of people were out of discussion in socialist cities and an equal and fair society where everything is controlled by the state was the official narrative of the communists. Above all Soviet urban planning was promoting the ideology and political values of socialism simultaneously challenging the Western hegemony. However, often the scale of Soviet urban planning was too massive for most Third World nations to undertake. Thus, some of them were left either incomplete or poorly due to the lack of funding.

In contrast to Soviet socialist urban planning, globalization and capitalist consumerism puts profit on top of the urban planning and design priorities. Astana, yet another city that was aiming to become global, fell into a pattern of consumerism and profit. A constantly growing number of shopping malls and entertainment centers with movie theaters and various activities such as dining, swimming and playgrounds for kids. Khan Shatyr is a prime example of a shopping mall and entertainment center designed to attract people to spend. Everything is for sale. Designed to encourage people to spend money rather than delivering an authentic public engagement or cultural exchange. As a side effect of capitalist consumer driven development, the displacement of low-income families from the city center (Astana is no exception) becomes inevitable. They must give way to wealthy residents and tourists who come to visit and who can afford to spend. Their needs are being catered first, and developers prioritize the upper-income consumers at the expense of low-income families who must be displaced usually to the city outskirts. Demolished old

buildings in the city center give way to newly redesigned neighborhoods with first floor commercial space for businesses and offices. All in all, favoring commercial development pushes the local population and their cultural heritage aside providing space for newly designed private property.

Chasing the profits of capitalist consumerist architecture prioritizes consumption among society and profit generation for its shareholders and owners. In such architecture buildings and spaces are designed for commercial purposes to generate revenue from leasing, renting and selling the spaces. This approach supports the consumer culture that is growing with tremendous speed. People spend and consume more than they must. Retail and commercial spaces designed in buildings turn the consumption of goods and services into a primary activity that drives people and forces them to go to work, earn money and spend them back in global centers of capitalist consumerist architecture. All in all, these buildings are designed to attract consumers and encourage purchasing behavior.

Prioritization of building's attractiveness to customers and their market value remain key in maximizing profits these days. Maximizing the economic potential of a building site or an entire neighborhood is targeted at creating a specific affluent market for potential customers preferably high-end luxury seeking consumers. If the developer wants to save on costs and maximize profits buildings and their design will have to suffer one way or the other. Reducing costs on design and construction materials will end up being "boring", "shoe box" architecture that is lost in the urban fabric. So, the truly successful and experienced entrepreneur understands that trying to save on architecture will be a bad idea. The architecture of Khan Shatyr is truly spectacular, it attracts potential buyers and offers them an amazing shopping, dining, and entertainment experience. At the time of its grand opening the

consumer experience at Khan Shatyr was off the charts because such unusually well executed tent architecture was never seen before adding to it its luxurious and immersive atmosphere was something post-Soviet people have never seen before.

Another segment of for-profit construction in Astana is apartments that are being built at a tremendous speed at every empty lot of land, sometimes taking over the space that was designated for public purposes such as parks and recreation. Even putting sustainability of the city at risk of becoming disastrous to nature such as drying up the lakes like *Taldykol* in the middle of the city where flora and fauna is in great danger. Protecting the natural environment is being constantly discussed, however, when it comes to making profits, construction companies will go on to shady projects that undermine nature. The preservation of the lake would save the natural environment for over fifty bird species including the ones that are critically endangered. During their migration from Korgalzhin National Park, pink flamingos were the constant visitors of Taldykol Lakes where they'd stop for rest and feast. So, the rich flora and fauna of the lake is in great danger as developers keep expanding to protected urban sites in search of higher margins for their companies despite the fact that it may cause irreversible consequences. ("SOS Taldykol," 2024)

Conclusion

All in all, this dissertation has demonstrated that the architectural and urban development of Astana cannot be understood in isolation from Kazakhstan's broader historical trajectory, geopolitical positioning, and integration into global systems of production and representation. From its origins in a nomadic society with limited need for permanent buildings, through the imposed urban frameworks of Tsarist and Soviet rule, to its

post-independence transformation into a globalized capital, Kazakhstan's built environment reflects successive layers of external influence and structural dependency.

The Soviet period, in particular, established the foundations of centralized planning, industrialized construction, and reliance on external expertise, embedding a model of development that prioritized efficiency, standardization, and ideological expression. While this system enabled rapid urbanization, it also constrained the emergence of locally grounded architectural practices and independent design culture. In the post-Soviet era, this dependency has not disappeared but has instead been reconfigured within a global capitalist framework, where international "starchitects" and transnational firms have become key agents in shaping the image of the new capital.

The development of Astana thus represents a critical shift from Soviet ideological production to globalized image-making, where architecture operates as a strategic instrument of nation branding, geopolitical positioning, and the pursuit of modernity. Iconic projects by internationally renowned architects, most notably Norman Foster, play a central role in this transformation by projecting an image of technological advancement, economic progress, and global integration. At the same time, as the analysis has shown, these architectural icons often obscure deeper structural contradictions, including uneven regional development, socio-economic disparities, and the continued reliance on foreign expertise and industrial capacity.

By situating these dynamics within the theoretical frameworks of globalization, dependency, and architectural representation, this dissertation has established that Astana's architecture should not be read merely as a collection of buildings, but as a material manifestation of broader political, economic, and cultural processes operating across multiple

scales. The city emerges as a constructed image—simultaneously local and global—where architecture becomes both a symbol of national ambition and a product of transnational collaboration.

The detailed examination of Norman Foster’s career further reinforces this argument. His architectural philosophy—rooted in innovation, technological advancement, and human-centered design—demonstrates how iconic architecture is produced through decades of accumulated knowledge, interdisciplinary collaboration, and continuous experimentation. His projects in Astana, particularly the Palace of Peace and Reconciliation and Khan Shatyr, exemplify the convergence of global expertise and local aspiration. These buildings are not merely imported symbols of modernity, but complex architectural achievements that embody advanced engineering, environmental responsiveness, and formal innovation.

At the same time, their realization highlights the structural conditions of their production. The reliance on international specialists, advanced materials, and external technological systems underscores Kazakhstan’s limited domestic capacity to independently produce such projects. In this sense, these iconic buildings function as both achievements and indicators—demonstrating what is possible through global collaboration while revealing the gaps that remain within the local architectural and industrial framework.

Ultimately, this dissertation argues that Kazakhstan’s architectural modernization should be understood as a transitional condition. While global collaborations have enabled the rapid production of iconic urban forms, they simultaneously expose the structural limitations that hinder the development of architectural autonomy. This tension between

ambition and dependency forms the central premise of the research and provides a critical lens through which Astana's urban transformation can be interpreted.

The findings suggest that moving beyond this condition requires a long-term, multilayered strategy focused on strengthening domestic capacity. Investment in architectural education, technological innovation, and professional development is essential for cultivating a new generation of local architects capable of engaging with global standards while producing contextually grounded and culturally meaningful designs. Equally important is the development of local industries and construction capabilities that can support increasingly complex architectural production.

In this regard, the transition from commissioning global icons to producing them domestically becomes not merely a technical challenge but a broader socio-economic and cultural project. It requires the alignment of institutional frameworks, educational systems, and industrial infrastructure to create an environment in which architectural innovation can emerge from within rather than being imported from outside.

In conclusion, Astana stands as a powerful case study of architecture in a globalized world. It reveals how cities can be rapidly transformed through strategic investment, political will, and international collaboration, but also how such transformations are shaped by deeper structural dependencies. The city's iconic buildings, while visually striking and symbolically powerful, ultimately point to a more complex reality—one in which global ambition and local capacity remain unevenly aligned.

Thus, the architectural narrative of Astana is not one of simple success or failure, but of ongoing negotiation between external influence and internal development. It is within this

dynamic and evolving context that the future of Kazakhstan's architecture will be determined. Only by addressing this tension can the country move toward a more self-sufficient and critically engaged architectural practice, capable of contributing not only to its own urban development but also to the broader discourse of global architecture.

Chapter 2: Post-Soviet Modernization of Kazakhstan

Introduction

After gaining independence in 1991, the government of Kazakhstan has utilized the power of modern architecture and spectacular urban development to assert its political legitimacy and project new identity. Rapid transformation through capital relocation have allowed the country to assert itself as a modern and progressive nation on the global stage. Thus, Astana became the most visible symbol of progress and an ambitious manifestation of the country's rapid urban modernization. City that became an architectural showcase, highly symbolic city of progress and modernity. The previous capital city Almaty was architecturally tied to Soviet history, hence, to break away from Soviet legacy and establish itself as a successful sovereign nation, Kazakhstan had to relocate its capital city and build a new one.

At first, when the capital city was just relocated in 1997, the government had to occupy existing administrative buildings that were built during the Tselinograd era. Those buildings built during the Soviet era had to go through deep renovation before housing all the government members. Later, a new master plan was proposed by local architects which was incorporated into the existing city context. However, it was rejected, and an international competition was announced. Famous Japanese architect Kisho Kurokawa has won the competition to build a completely new city center on the Left Bank of the Esil River. So, in the early 2000's he managed to make a completely new master plan that was brand new, unlike anything that was built during the Soviet times. It included sustainable design, national style in architecture and modern solutions to urban development. (Bissenova, 2014; Shelekpayev, 2020)

The new city's architectural features included all kinds of styles and was marked as "the city of the future". A mixture of futuristic designs, modernistic buildings, national and Islamic motifs are all tied together in the new administrative center of Astana. One of the first symbolic buildings built on the new administrative axis was the Baiterek Tower (2002). It refers to National Kazakh myths and legends about the "tree of life" and the sacred bird Samuryk that laid eggs on top of the tree. According to official narratives, the tree represents the rebirth of the Nation and a bright future for its people. Designed and built by local architects, the tower stands tall as a symbol of the local architects to create and maintain such marvelous structures. Next in completion on the axis was Akorda Presidential Palace (2004). It features a neoclassical design of the building encapsulates both Central Asian style with its blue dome with references to the White House in Washington DC. It was designed and built by Swiss construction company Mabetex.

Hence, the intentional shift away from Soviet legacy and the overall Russian influence even if it is only symbolic and visual provide a ground for a new beginning of the sovereign nation towards modernity and progress. Together with the international community that provided much needed expertise and industrial capability for Kazakhstan to build its iconic symbols of progress and modernity. Such rapid cooperation permanently leads to globalization and architectural, engineering and construction services are no exception. Soviet era modernism became irrelevant and could not be referred to as modern in the twenty first century. Thus, the need for famous international architects like Norman Foster who develops not only developing countries but is considered as innovative and high tech even in the developed First World countries like US and UK.

Such an approach to visually reforming the country required not only experienced architects but also the design of the buildings had to meet the modern requirements for aesthetics. To become iconic pieces of architecture that would fit into the global standards of high-tech projects, they had to use fresh forms and shapes and sophisticated construction materials such as industrially made glass and steel. In the case of Khan Shatyr, it was layers of an ETFE (Ethylene Tetra Fluoro Ethylene) envelope. (*Khan Shatyr Entertainment Centre | Projects*, n.d.) Thus, to design and construct such marvelous buildings, it takes not only well-educated and experienced architects but also a powerful industrial base to supply such unique projects with complex structural elements and building materials.

After the capital city relocation in 1997, there was a lot of work to do for architects, urban planners, engineers, and construction companies. Several foreign construction companies appeared to build the capital city. One of the most influential and big ones was “SEMBOL Construction.” Based in Turkey, the company was established in 2000, just at the time when the new capital city Astana needed the most. The company cooperates with major architects, engineers, and construction companies in all stages of the building, starting from design, build, and management. All in all, SEMBOL Construction was the main contractor linking together the client (the government of Kazakhstan) with the famous British architect Norman Foster.

This dissertation examines the historical construction of key architectural projects in Astana—the Palace of Peace and Reconciliation (Pyramid) and the Khan Shatyr Entertainment Center to demonstrate their role in creating a new representation for the country and to explore the multifaceted network of transnational specialists and organizations to make the successful construction of these sophisticated buildings possible. This study also

conducts a proper analysis of how their iconic, monumental, and representational forms are accountable for painting Kazakhstan's architectural modernization.

Through focused and critical examination of these buildings and their programs, instead of looking at their role in the urban fabric or their political implications, the construction of Kazakhstan's new image can be explained. Architecture plays a key role in producing a persuasive and unified image of Kazakhstan's post-Soviet modernization as an autonomous, reformed, and forward-looking country in the eyes of both domestic and foreign audiences. Unlike any other form of political or social discourse, architecture gives a sense of reality as it is a physical or material manifestation of all that has been said and promised to the public. It helps not only visually as some forms of art and sculpture but to feel the spaces, walk inside of them, and experience their spaciousness through light, warmth and color, texture, and various materials.

Same year when the capital city moved to Astana in 1997, President Nazarbayev addressed the nation with a new development strategy, "Kazakhstan-2030," where he outlined the long-term goal of "transforming the country into one of the safest, most stable, ecologically sustained states of the world with a dynamically developing economy." (*Strategies and Programs — Official Website of the President of the Republic of Kazakhstan*, n.d.) Hence, on its way to joining the list of the most developed countries, Kazakhstan needed a showcase city with modern architecture and a sustainable urban plan. Therefore, famous international architects such as Norman Foster became the obvious solution.

The prime location of the buildings on both ends of the main administrative axis of the new capital city shows the prominence of these buildings even though they do not house important government institutions, and it demonstrates their significance in projecting an

image of modernity that the country is striving for. However, some literature suggests that these key projects served the personal prestige of Nazarbayev. (Koch, 2012; Schatz, 2004; Vale, 2014) For instance, the pyramid was built by direct order from the president, and Foster, in his interview, specifically mentioned that “the president wants a pyramid.” (Wainwright, 2017). Moreover, the building was specially built in the neutral shape of a pyramid to house the triennial congress of world religions, which became a physical manifestation of the president’s politics of religious and multiethnic tolerance in Kazakhstan so eagerly promoted by the president.

Next, the Khan Shatyr (giant tent), whose name stems from "Khan," a historic title used among nomadic tribes of Central Asia like that of a Sultan or a King and an Emperor, all of which refers to the modern-day leader or a president. Shatyr translates from Kazakh language as a tent or a roof. So, the tent refers to the nomadic past of the Kazakh people, as tents have traditionally been used as a mobile shelter for people who moved from one place to another in search of grazing land for their livestock or to hunt wild animals. However, historically and traditionally, the tent of a Khan (King) was a place to take important decisions and meetings that relate to the future of the state, but never was it a place for entertainment and shopping like the Khan Shatyr of today. So, the only explanation that comes to mind is that of a gift by the Khan to its people.

National pride of Astana citizens skyrocketed when famous British architect Norman Foster designed these buildings for Astana. (Koch, 2012) Thanks to the revenue from natural resources, the leadership of the country was able to hire world-renowned architects to create an iconic piece of architecture and intensify national pride and international recognition. However, western journalists made a different reading of such an urban spectacle and

criticized Astana by calling it: the “Disneyland” (Niemczyk, 2010), “The space station in the steppe” (Moore, 2010), and “Nowheresville” (Gessen, 2011). According to Natalie Koch (2012), such Orientalist reading of the rapidly developing urban spectacles in the eastern part of the world is a typical reaction of the Western journalists.

Architecture as a State, Nation, and an Image Builder

After gaining independence, Kazakhstan needed to create its own national identity primarily by producing national symbols (verbal, visual, and physical, in the form of a national anthem, currency, flag, monuments, and most importantly, creating its own capital city filled with national architecture). Thus, in the post-Soviet period, Kazakhstan had to quickly overcome its dependence on Moscow by demonstrating the ability to govern itself in an efficient way. So, it had to display its capability to construct a brand-new capital city filled with high-tech buildings. However, that would not be possible without the help of international architects and construction companies.

Kazakhstan was the last republic to leave the Soviet Union, announcing its autonomy on 16 December 1991. (Olcott, 2010) Turning it into the Soviet republic that least wanted to separate and start a new independent path. Even though it gained its independence by default, its natural resources and carbon hydrates allowed for a rapid path towards visual modernization by hiring world-renowned architects. Moreover, as the capital relocation was a highly unpopular move among the domestic public (Arslan, 2014) Nazarbayev had to quickly design and construct a new capital city to convince its citizens of the right decision that he had singlehandedly made. (Schatz, 2004)

To build its own democratically elected state, Kazakhstan had to move its government from comfortable Almaty to cold and windy Akmola and temporarily house the civil servants in the existing Soviet times administrative square. So, until the new administrative center on the left bank of the Ishim River was built, the government had to adapt the old public square in the old part (Tselinograd) of the city, which was remodeled into somewhat modern-looking buildings in the 2000s.

Architecture has an important role in shaping the new imaginary among the social and public assimilation. Using impressive monumental scale, structural elements, forms, and shapes that were never seen before and spacious interiors that excite, architecture can influence the public through their sensitivity towards perception, observation, psychology, and visibility. By instigating certain emotions, architecture has an ability to manipulate the public's opinion and instill a sense of belonging to progress taking place in a nation's development. Moreover, architecture guides and controls the movement of people inside of the urban fabric and holds certain values to increase and capture imagination.

For example, seeing a giant modern-day pyramid built in the middle of an empty land that later turned into landscape design in the middle of the park for a person who just came from a Soviet background where most of the cities looked alike and his or her surroundings were full of Soviet-era building blocks is a very astonishing experience. Not mentioning the giant tent on the other side of the main axis that stands as a building from fiction movies. Even regular people without the background in architecture, engineering, or construction understand that such colossal and complex projects would not be possible without the foreign help, be it in the expertise or industrial power. All in all, certain architectural proportions and

forms, including monumental scale, are meant to impress and establish a sense of loyalty and belonging among the domestic public.

Iconic buildings are not just forms that unify the community, but they also attract the crowds and draw attention using their miraculous appearance. As Anas Alomaim (2016) puts it, "through their form, geometry, and function, architecture has the power to order, motivate, convince, deceive, spy on, or dominate the masses." (p. 7) The design and construction of Astana's iconic buildings included all these architectural moves to impress the spectators. Thus, the subsequent chapters will critically analyze and display how these buildings operate as symbolic architecture in the life of a capital city.

An image of a strong and independent nation-state requires a set of principles that would unite a large group of people into a single coherent nation despite their diverse individual identities and interests. Directed by the same laws and coexisting within a certain geographical territory, these people are willing to generate allegiance to their governing body and land. Based on the idea that symbols are objects that mean other things than they were originally meant to portray, (Marotta et al., 2017) similarly, the creation of a proper image requires the production of edifices with monumental and representative forms that are able to generate a credible image of a united, sovereign, and prevailing nation, despite the conflicting realities of its underdeveloped nature.

The architectural modernization of Kazakhstan served as a symbol of liberation from the Soviet legacy and a journey into an up-and-coming prosperous future; nevertheless, it did not provide much needed systematic political and economic modernization and mainly functioned as a visual marker. By constructing architectural structures that produce a persuasive image of modernity, the leadership of Kazakhstan harnessed the belief and loyalty

among the domestic audience, and it attracted the attention of the foreign audiences. Such buildings were designed to diminish the existence of the flaws within the state and obscure its dependency on foreign powers. Even though these buildings have little in common with traditional Kazakh culture and national identity except for Khan Shatyr's reference to the nomadic past in the form of a tent, these buildings represent modernity by using pure geometric forms together with the high-tech structural elements and architectural solutions. These buildings were deliberately designed by the architects from the developed first-world countries to produce a specific model of modernism to draft Kazakhstan's new post-Soviet identity.

Modernization and a New Image Building in Post-Soviet Kazakhstan

Kazakhstan's rapid transformation from Soviet socialism to joining the global free market economy required multiple steps of transformation. After the collapse of the Soviet Union in 1991, Kazakhstan gained its independence and international corporations have quickly started exploiting this opportunity to plunge into the country's vast, untapped natural resources such as oil, gas, uranium, coal, copper, zinc and so on. To rapidly transition from centrally planned economy to free-market economy, Kazakhstan had to reposition itself as a trustworthy and modern nation. Hence, besides political, economic, and social reforms, Kazakhstan's first president Nursultan Nazarbayev decides to relocate the capital city from Almaty to then Akmola and build a brand-new capital city with the help of famous international architects such as Kiwo Kurokawa from Japan and Norman Foster from UK.

This new capital city with cutting edge architecture was supposed to signal a new era of Kazakhstan's position on a global arena. Therefore, the reference to "Third World

Modernization” is of a high relevance in this work, as it is well known that the global tendency for the architects from First World (Developed) countries to design iconic buildings in the “Third World” (Developing) countries continue to grow, and Kazakhstan is no exception. So, the process of creating a new capital city with cutting edge architecture is not only a state and nation building process but primarily a new image building process for the entire country. Nevertheless, characterizing the limited urban growth on the Ishim's left bank as an indicator of whole-scale national progress is potentially deceptive. Kazakhstan is the ninth largest country in the world by its territory, however with its twenty million people population, it has the lowest population density in the world. Thus, developing a tiny portion of the country and claiming the modernity of an entire country is false.

State and Nation building processes started to be made right after gaining independence. For example, two years after the collapse of the Soviet Union, independent Kazakhstan still had to use the Russian ruble as its currency and only on November 15, 1993, the national currency of independent Kazakhstan went into circulation (Insebayeva & Insebayeva, 2022). Kazakhstan’s first foreign economic policy was to stay in the CIS ruble zone. However, in 1992, president Nazarbayev secretly established a decree to create a National Bank and start printing the national currency “Tenge”. However, Kazakhstan did not have its own capacity such as equipment and specialists, so the contract to print the first batch of national currency was given to a British firm. (Insebayeva & Insebayeva, 2022, p. 670)

Despite its rapid state-led transformation and ambitious urban vision, Astana remains positioned in lower tiers of global city hierarchies, with a level of international connectivity and functional integration that is significantly less developed than established global centres

such as London and emerging high-profile capitals like Doha and Abu Dhabi. Frequently compared to oil rich Gulf states like Qatar's and UAE's capital cities that hit the global charts of the most attractive cities in the world to live and invest in, both Doha in Qatar and Abu Dhabi in UAE stand out, unlike Astana. Spectacular urban development that includes the highest skyscrapers in the world, the most luxurious hotels, the best airports in the world that attract tourists from all over the world and make these places so popular to visit and live. Certainly, iconic architecture designed by famous internationals from the developed Western world play a key role in these urban miracles that are later widely published and translated in the social media spreading attractive headlines about the shiny and glossy lifestyle. Thus, the spectacle of Astana's urban development pales in comparison to Doha and Abu Dhabi though, Kazakhstan has all the necessary ingredients to create cities of equal if not better quality.

Impressive transformation of cities often involving extraordinary architecture, sustainable urban development that include green spaces like parks and recreation zones, and smart infrastructure are the most important criteria in creating spectacular urban growth. Iconic architecture usually designed by famous architects attracts a lot of attention to an entire city, revitalizing its perception and injecting a new perspective to a place. The most recent examples are Burj Khalifa skyscraper in Dubai or Changi International Airport in Singapore. Integration of a smart city could be yet another feature to enhance the living standards in the city and make life more comfortable for its residents. Use of artificial intelligence and data collection-analysis to manage traffic and utilities. Connecting cameras all around the city to AI and data centers increases security and crime prevention. Electric vehicles such as cars and buses contribute to keeping the air pollution down and CO2

emissions obsolete. Bike lanes and running (jogging) trails will lead to healthier and more productive residents. Instead of making car-oriented cities, urban planners should think about walkable, pedestrian friendly cities that put people first. So, instead of building more parking lots and increasing the number of lanes on the road, cities should focus on developing convenient and comfortable public transportation such as metro, LRT and buses for people to move around without creating traffic jams. So, creating walkable areas within the city and connecting them to efficient public transportation is the key to preventing the city from traffic, congestion, pollution and ultimately creating healthier and happier residents. Ultimately, integration of walkable, bike and public transport together with green zones, fountains, retail and more is the key to high living standards.

Natalie Koch (2018) mentions in her work how residents of Astana would become irritated when Kazakhstan is being compared to other post-Soviet “stan” countries and would prefer to be compared to Gulf nations such as Qatar and UAE. Considering other CIS countries backward and Arab nations much more prosperous with higher living standards (p. 108). This way each person has their own understanding and expectation from Astana’s rapid urban development whether it is meeting the high expectation or not is arguably the most questionable. The city is instilled with symbols and icons of modernity, nationalism and references to traditions and history which lets people judge on their own comprehension of Kazakhstan’s relevance to the world and its geopolitical position in relation to the developed world to which the country and its residents so aspire to get closer.

Spectacular cities depend on unspectacular other cities. In case of Astana, Kazakhstan, its spectacle depends on both its domestic undeveloped cities that remain untouched since the Soviet period and regional Central Asian neighbors such as Bishkek in

Kyrgyzstan and Dushanbe in Tajikistan,, whose capital cities remain poorly developed since the Soviet times, due to a lack of resources to revitalize the urban infrastructure. So, compared to less-developed parts of Kazakhstan and its less fortunate neighbors in Central Asia, Astana looks very modern and developed, but when compared to Gulf State capitals like Doha and Abu Dhabi, Astana looks and feels less developed and not as impressive. Hence, only people who have been and experienced various urban environments, both highly developed and impoverished, can truly compare the level of urban improvement in each context.

To clearly distinguish itself as not another Soviet city as most of the cities were planned and built in the postwar period by Moscow and Leningrad-based architects, most cities in the post-Soviet countries look alike thanks to a planned economy, state-led urban development, and prefabricated housing blocks, also known as *Microrayoni*. These micro districts allowed for walkable cities making the commute from home to work, from home to schools and kindergartens within a fifteen-minute walking distance. Industrial priorities of the centrally planned Soviet urban plans made the working-class *proletariat* a central figure in the cities. Their commute to work, recreation and cultural revitalization was at the epicenter of urban development. Standardized housing projects aimed at reducing the shortage of housing for workers led by the state had created monotonous building blocks that ended up making identical cities throughout the Soviet Union's vast territories.

Replacing socialist urban infrastructure with modern, up-to-date architecture and urban fabric was key in ensuring the conversion of the Soviet era Tselinograd into modern day Astana. As Nelly Bekus (2017) puts it: Ideological Recycling of the Socialist Legacy where she analyses the urban transformation that Astana went through in terms of

redesigning, demolishing and covering up the old Soviet era public buildings, monuments and public spaces to reflect new perspectives. Ideological recycling had to start from a visible, physical environment that residents and guests see and experience every day. Appropriating the urban space by nationalizing it and turning them into places of national pride and revival of national identity and modernity. Reinterpretation of the formerly developed in a socialist fashion in Tselinograd required a completely new approach to its redesign to fully integrate it into the new reality of modern, independent Kazakhstan.

Reinterpretation and adaptation of the new urban space, especially in the capital city, especially new capital city under new political and economic circumstances, require a completely different approach to urban planning and architecture as they become a direct reflection of these new systems under which the society functions. Erasing or covering up the socialist past to promote modernity and national identity under the pretext of a new political regime. Thus, Astana is being used as a tool to promote state achievements, national identity, and modernity. All in all, re-appropriating the socialist urban legacy of Tselinograd for nation and state-building purposes reflects a combination of transformation and continuity in the urban setting. (Bekus, 2017)

In its journey to progress and modernization, Kazakhstan, like many other postcolonial and post-Soviet nations, has chosen to place modern architecture as one of its main pillars to construct a positive image. Transforming the entire country's urban and architectural fabric was not physically possible due to high costs and a shortage of industrial and human resources. The decision was made to relocate the capital city to an existing framework of the previously Soviet developed city of Tselinograd and reinterpret its existing socialist city part, and construct a completely new administrative center next to it on the left

bank of the Ishim River. High oil and gas prices during the relocation of the capital city played a significant role in supporting the modernization efforts.

Built to impress both Kazakhstan citizens and foreign visitors, Astana presents the finest architectural innovations designed by famous international architects and foreign construction companies. In other words, it would not be possible for Kazakhstan to build Astana as it is now without help from outside. Thanks to globalization and high prices for natural resources, buildings like Khan Shatyr and the Pyramid have appeared in the new capital city of the Central Asian country. Iconic Astana owes its new status to a vast state-led modernization campaign initiated by independent Kazakhstan's first and long-standing president, Nazarbayev, who was the main factor behind the idea of capital relocation and state and nation-building efforts. Intended to become the country's new visit card or a postcard city for an entire Kazakhstan.

Integration of the former socialist republics with Western capitalism and free market economies has led to the creation of some of the most stunning urban projects in the history of these countries. Take, for instance, Azerbaijan's booming capital city, Baku which is now home to Zaha Hadid's most stunning project, the Heydar Aliyev Center, which stands as a stark contrast to Soviet urban planning and a new era of newly found Azerbaijan's oil-rich wealth and global transnational connections.

As Leslie Sklair (2017, p. 9) suggests, modern architecture has been largely influenced by the recent globalization phenomena and capitalist-consumerist globalization that keeps pushing the agenda. Shaping and reshaping the urban environment in favor of those who can afford to pay and catering to their needs to consume goods and services. Certainly, such a trend creates those who get pushed aside from city centers and prime

locations within a city boundary, ultimately being marginalized. Capitalism, driven by profit, pushes architecture to create more consumerist spaces to sell products and services to willing buyers. Before the electronic revolution in 1970's, when the internet and computers did not exist, iconic architecture was the main tool of political and religious elites. (Kostov 2005) Before architects started to organize themselves into steady firms that started running it as a profitable business in the 20th century, architects and architectural designs crossing borders and even continents is a relatively new phenomenon that started occurring with the rapid development of transportation and electronic devices. So, the second half of the twentieth century turned the tables in favor of transnational architecture rather than national architecture. (Sklair, 2017, p. 10)

The Second World War and subsequent decolonization processes triggered a massive demand for new buildings and urban development and transformation throughout the continents. Large construction corporations and various-sized architectural firms started offering their services not only locally but globally. This was the start of commercial globalization. Modernization projects throughout post-colonial nation states activated a substantial demand for world-class architects that could quickly bring modernity and progress to these newly independent nations. (Sklair, 2017, p. 10)

Architects began seeking commissions beyond their local and regional boundaries, in international markets experiencing construction booms. So, places like Asia, the Middle East, Latin America, and Africa. They began setting their regional offices in these places and opening more branches throughout the globe, making a truly transnational network of global universal international designs. (Adam 2013) On top of that, architects had to adapt to the changing nature of their clientele as newly independent postcolonial nations were run by

authoritarian leaders who got their hands on the resource riches of their respective countries. In the era of capitalist globalization, architecture had to adapt to the rapidly changing use of buildings that became commodities that are meant to generate revenue by increasing consumerist spaces. (Sklair, 2017, p. 10)

Whoever owns, controls, and operates these buildings that were built using state money is taking huge profits from these consumerist spaces. However, this does not always contradict the very essence of the modern design of these buildings or their aesthetic appeal, but rather works together to improve the attractiveness and profitability of businesses that these buildings house. So, in a sense, iconic architecture must be able to blend in both the aesthetic appeal together with profit-making spaces, which became the must-have in the modern globalized architecture of the twenty-first century. Ultimately, to sell, buildings must attract customers, so aesthetic appeal is essential. (Sklair, 2017, p. 11)

Architecture receives little attention in publications devoted to globalization, power, and capitalism. Certainly, only big corporations, very rich individuals or state-sponsored actors can afford to commission expensive iconic architecture designed by famous architects. So, this creates an ever-growing gap between the rich and poor. Class difference keeps pushing the middle class out of the high-end, luxurious city centers. That is why the term “architecture caters to the wealthy” exists. It is not fully true, but mostly yes. Usually, poor people stay on the city margins in the informal settlements known as slums or favelas that usually lack basic infrastructure such as paved roads, water supply, sewage, electricity, and so on.

Capital cities have long been places for political leaders to showcase their achievements in modernizing their countries and leading their nations forward. The most

notable capital city relocations were seen in Turkey, where after the Turkish war of independence, the capital city was moved from Istanbul to Ankara in 1923. To establish a modern Turkish identity and break away from Ottoman legacy, Mustafa Kemal Atatürk decided to move the capital city, which was both a political and strategic decision to symbolize the new beginning. As in Kazakhstan, breaking from the Soviet past, the relocation of the capital city to Ankara meant a decisive and representative break with the Ottoman past, which was strongly connected to Istanbul.

Almaty had served as the capital city of the Kazakh ASSR (Autonomous Socialist Soviet Republic), part of the Soviet Union, from 1929 until it was officially moved to Akmolinsk in 1997, already an independent Kazakhstan, as the Soviet Union had already collapsed in 1991. Initially, Almaty was a settlement like every other city in Kazakhstan, but later, in 1854, it was first fortified as a military settlement by the Russian Empire and later renamed to *Verni* which translates from Russian as a loyal city. Under Soviet rule, Verni later became Alma-Ata and the capital of the Kazakh SSR. The city's connection to Moscow strengthened with the opening of the Almaty airport in 1930, allowing for the first and only direct flights to Moscow. In 1936, the Architecture and Planning Bureau developed a new rectangular city plan that helped to enhance the city's cultural and urban life. World War 2 drastically changed both Almaty and Tselinograd at the time, as most industrial and human resources of the Soviet Union were allocated to North Kazakhstan and Almaty in particular, which changed the ethnic composition of the city that became predominantly Russian. During the 1960s and 1970s, the city received a large number of housing projects that enhanced its ability to welcome more residents and boost productivity. As earthquakes posed a major challenge, newly built houses had to withstand significant damage. To diversify the

cityscape, the Soviet government tried to design buildings in different styles. So, that is when remarkable buildings from the Soviet period in Almaty began to be built. Projects like the Kazakhstan hotel and the famous Medeo sports complex took their place in this remarkable city of apples. Almaty is also a place where one of the most famous Kazakh national uprisings took place. In December 1986, the mainly younger generation of Kazakhs took their frustration to the streets and later to the city's main square, demanding to put back the Kazakh leader Dinmukhamed Kunayev and remove Moscow-appointed Gennady Kolbin.

Before the collapse of the Soviet Union, modernization of Kazakhstan through urban planning and architecture laid in the hands of Moscow which built iconic projects like the Kazakhstan hotel, Medeo sport complex and many others in Almaty as well as the modernization of Tselinograd by developing its infrastructure such as building a new railway station, airport, radio station, housing and public buildings like the Palace of Tselinniks and the Palace of the Youth both of which were the most advanced buildings at the time. However, after Kazakhstan gained independence, the country was left on its own. So, it had to build everything on its own, rather than relying on Moscow's state planning agencies to address issues related to urban planning, housing, and architecture. Hence, when building its own new capital city, Kazakhstan had to rely on two main resources. First, the vast natural resources that it sold abroad and generated so-called Petro-dollars, as well as other minerals and rare earth metals. Second, it could now hire world-class architects to design for them, and it worked. In fact, that was the way an entire globalized world functioned after the Second World War.

Importing modern architecture through the skills of high-profile architects who produce unique designs that come in the form of knowledge and skills to construct it. In the

case Kazakhstan came with international construction companies, in the case of Khan Shatyr and Pyramid, it was a Turkish company SEMBOL Construction. So, the Western definition of modernity had to be imported and paid for by Kazakh Petro-dollars. However, I argue that the buildings being built in Astana are rather products of global capitalist consumerism rather than a Western attempt to dominate the skyline of the new Kazakh capital. But, at the same time, they do not reflect any bit of National consciousness and identity, and the products and services that are being sold in Khan Shatyr and Pyramid are more Western than local Kazakh in their essence, which leads to a conclusion that capitalism and consumerism are taking over the global markets, and Kazakhstan is no exception.

These buildings were meant to enhance the country's image, both domestically and internationally, by transforming its reputation from a former socialist republic into a modern and reliable partner in international affairs. An image of progress and modernity, conveyed through iconic architecture, was important for the country and its regime to legitimize itself as the one bringing progress to the state. However, many scholars (Koch 2012, 2014, 2018 Koppen 2013, Schatz 2004) argue that developing tiny pieces of land in such a vast country does not account for systematic progress and modernity that would benefit the entire population. The fact is that these buildings do not improve the population's living standards. They only create a false perception of progress and that is their main purpose. Moreover, designed by a renowned British architect, these projects embody Western democratic ideals and transparency. The purpose of these buildings is entertainment and shopping for Khan Shatyr and exhibition, conferences and concerts for the Pyramid. They do not represent institutions that would move the country forward, both politically and economically; therefore they do not bring progress and modernity to institutions or to individuals.

After the devastating effects of World War 2, the destruction of cities that the war caused, and millions of innocent people who died, the world powers, led by the United States, have created multiple international organizations, such as UNESCO, that call for nations to accept universal standards for democracy and modernity. Such intergovernmental organizations urged the global population to confirm the principles of Western democracy that called for basic human rights, freedom of speech, and education for all. As a result, the new form of modernity brought by partially designing modern buildings that use glass, steel, and reinforced concrete became new modern symbols of transparency and openness in society. Thus, to prevent world wars from happening again, organizations such as UNESCO call for the power of architecture to use its creative effect to prevent men from thinking about fighting and killing each other. (Alomaim 2016, p.10)

The process of decolonization through architecture

The process of transforming, reclaiming, and rethinking urban space, and especially the new capital city, must involve the reflection of local cultural, historic, and national identity of formerly colonized people. Thus, new Astana is supposed to reflect such motives on the built environment of the new capital city and its formerly occupied part on the right bank. Consequently, Nelly Bekus's (2017) main point about the Ideological Recycling of Socialist Legacy was exactly about appropriating the Tselinograd part of the city and converting it into national, Kazakh by renovation projects such as the ones done for both public buildings the Palace of Tselinniks (renamed into *Astana Concert Zali*) and the Palace of Youth (renamed into *Zhastar Sarai*). Completely renovated buildings have changed both

their exteriors and interiors to erase the Soviet legacy haunting the right bank of the Ishim River to this day.

True decolonization takes more than formal political independence. The built environment of Soviet cities across Kazakhstan still serves as a stark reminder of the country's socialist past. Visually, materially, and physically reminding people every day of their colonial legacy. It will take a lot of resources in the form of investments, both financial and time-wise, to reconstruct this spatial construct that was created during the Soviet rule. Vivid architectural styles intrinsic to socialist era of Stalin (*Stalinka*), Khrushchev (*Khrushchevka*), and Brezhnev (*Brezhnevka*) have a permanent place throughout Kazakh cities. Built during the reign of their respective leaders these urban plans, public buildings and especially housing projects to these days serve as a reflection of their period. Housing projects that were rapidly built to provide vital infrastructure to the increasing population contributed to the acute shortage of housing in the postwar era. Built out of prefabricated concrete blocks, they were cheap and easy to construct on site.

Urban planning in the Soviet Union was primarily concerned with ideology of the communist party which was clearly reflected in the cityscapes throughout the vast territories of the Union. It was tightly controlled by the state and clearly reflected the political and economic situation. It is important to differentiate here between the public buildings, squares, and residential construction. To begin, the public buildings and spaces clearly reflected the dominance and might of the communist party that is seen from the magnificent statues, large prospects and administrative buildings that symbolized the communist ideology transferred onto buildings. On the other hand, the need for fast and cheap residential buildings required a completely different approach.

Urgent need to accommodate a large population and especially the need to move from agrarian into industrial state required the construction of large numbers of multistory residential buildings and to do so economically and efficiently. Rapid migration of people from rural areas to cities required somewhat comfortable accommodation of the work force. At the same time, it had to coincide with the socialist ideology of equality. Hence, the mass production of such building blocks “Lego like” allowed to save time and money on crucial resources to accommodate the ever growing population of the Soviet Union after WW2 that desperately needed to be housed.

The downside of prefabricated, standardized, mass production however, was the identical looks of the entire blocks. Even the entire city blocks the so called *microrraioni* (micro districts) looked very much alike. Some say that even entire cities somewhat looked alike except for minor differences in public buildings and squares.

More precisely, when it comes to the time between Stalin’s death in 1953 and the widely known political reform *Perestroika* in late 1980’s was the time when Nikita Khrushchev was in power between 1953 to 1963. He is known to be the founding father of the Virgin Lands campaign that was aimed at transforming the previously untouched lands of North Kazakhstan and western Siberia to increase the agricultural output and deal with the shortage of food. (Pohl 2012) This campaign turned the cultural and economic situation of north Kazakhstan upside down by changing its ethnic, cultural, and economic indicators.

The relatively unknown Kazakh town of Akmolinsk became the capital of the Virgin lands campaign in 1961. Khrushchev personally came to visit Akmolinsk and proposed to rename the city into Tselinograd. Hence, the time between Stalin's death in 1953 and the *perestroika* reforms of the 80’s was the prime time of the rapid investment and development

of Tselinograd. (Dubitsky 1986) The city received massive investments in its infrastructure. The new railroad connecting the cities of North Kazakhstan was built, a new airport, higher capacity *TEC* and so much more was done.

After Khrushchev highlighted the importance of Tselinograd, the Leningrad-based planning agency the *Lengorstroiproject* was assigned to develop a new master plan for the new agrarian and industrial hub. (Dubitsky 1986) A well-known urban planner and architect, Shkvarikov Vyacheslav Alekseevich has led the urban planning design together with colleagues Yarigina, Knyazev, Lukyanov, and many more. (Shkvarikov 1964) The new master plan for Tselinograd was completed in 1962. This master plan has divided the city into three distinctive urban zones and is known to be linear in its development. First, is the industrial zone, which stretches along the railway in the northern part of the city. The railroad was and still is the bloodstream of the city, supplying it with the vital goods coming into the city and taking the products for export. (Bekus 2017).

Second, are the residential neighborhoods or the so-called *microrraioni* located between the railroad and the Ishim River. The influx of the workforce from every corner of the Soviet Union into Tselinograd increased the urgent demand for housing. The first street to be constructed with multistory apartment buildings was Mira Street. Experienced construction workers and engineers have traveled from Moscow and Leningrad to Tselinograd to build the first prefabricated residential buildings and share their experience with local construction workers. In just half a year, the number of dwellings increased to an additional 650 and four-story schools to that micro district. At the same time, almost simultaneously, the main square had been actively constructed. The housing built from prefabricated concrete modules enabled the quick and easy assembly of desperately needed

units. All in all, by 1963, the Tselinograd housing had been expanded by 115,000 square meters, and schools had gained an additional 2,270 seats. (Talamini 2024, 23)

Some of the most iconic projects for Tselinograd were *Dvorec Tselinnikov* and *Dvorec Molodezhi*. The palace of Tselinograd of the Virgin Land Developers was built in 1963. The design of this pivotal project was handpicked by Khrushchev personally at the National Exhibition of Economic Achievements in Moscow where he famously stated that: “We need such a building in Tselinograd”(Talamini 2024, 25). The building was originally designed by Latvian architects as a movie theater for Riga but was never built. According to the lead architect of this project the building was inspired by the Finnish architects. So, both unique projects of Tselinograd *Dvorec Tselinnikov* and *Dvorec Molodezhi* were inspired and designed by Riga, Moscow and Leningrad based institutes. Most of the interior including its furniture was made and transported to Tselinograd from Riga. (Gudro and Krastins 2019)

The second notable building for Tselinograd’s urban development was the Palace of the Youth. Its design and construction had begun in the 1960's, but it had to pause for an extensive period due to a power struggle and after Khrushchev’s resignation. Construction was delayed for a long time until it was finally completed in 1975. The design of the building was led by famous Russian architect Anatoly Polyansky, who was the chairman of the architects’ union of the USSR. He was also known for the design of the famous USSR pavilion at the International World Fair in Brussels in 1958. The building was truly exceptional for its time. It had 1200 seats with a convertible stage, a sports hall for 400 seats, a swimming pool with a diving pedestal, a library, group work out rooms, exhibition pavilions, a large bar with a cafeteria, a banquet hall, and many more useful spaces for

teenagers to spend quality time. (Iskakov 2020) The project was so good that a direct copy of it was built in Donetsk around 1975.

In conclusion, after Stalin's death in 1953, Nikita Sergeyevich Khrushchev rose to power. His most important reform to urban planning was the housing reforms that took place during the 60's. The idea was to come up with a low-cost and quickly assembled five story housing, widely known as *Khrushchevka*. Following the *Khrushchevka* was an updated version of this urban planning policy known as *Brezhnevka* during the 1970s and 1980s. Usually, *Brezhnevka* was taller than *Khrushchevka*; therefore, it had to have an elevator, which made its construction longer and more expensive. In addition to an elevator, the overall size of the apartments was much larger, especially the kitchen. *Brezhnevka* also included the garbage disposal system at every floor. However, it never really worked because the trash would frequently get jammed and the trash disposal room at the ground level quickly became filthy and misused.

Khrushchevka was the first attempt at industrial production of the concrete panels in factories that can be moved and assembled on the construction site. These housing units were no more than five floors in height which allowed not to use elevators that would increase the cost and time of the construction. Saving as much space as possible was also the main feature of the first *Khrushchevka*'s. Therefore, the bathroom and a kitchen were extremely small (usually 6 square meters) even in the two- or three-bedroom apartments. Each apartment had its own serial number. So, for instance, one room apartments were as small as 30 square meters, two room apartments were typically 44 square meters, and three-room apartments were 60 square meters. Later designs reduced these numbers into even smaller apartment units. (Meuser 2019)

Brezhnevka apartments that were designed and built during the reign of Leonid Ilyich Brezhnev from 1964 to 1982. Although that time is usually described as the “Era of Stagnation” or *Epokha Zastoia* in which it is deemed that economic, political, and social policies have been under a very limited or even no progress. However, the construction of apartment buildings throughout the Soviet Union continued, and they were known as *Brezhnevka*. They were the slightly modified types of *Khrushchevka*. (Ivashchenko 2022) The main difference was the height and the presence of an elevator which was required for apartments above five stories. So, typically they ranged from nine to seventeen floors. Therefore, *Brezhnevkas* were bigger and taller than *Khrushchevka* as the demand for housing grew. These apartments were built between 1960’s to 1980’s.

The Soviet Union’s dominating pattern in urban planning and architecture is evident throughout most of the Kazakh cities. Colonization of Kazakhs through construction of military outposts that later grew into commercial hubs and then grew bigger with the construction of the railways throughout the country have created a network of Russian, later Soviet cities that remain representing the colonial past for Kazakhstan and many other nations that were forcefully subjugated to join Russia. Monuments to Lenin throughout the country served as a constant reminder of the Soviet legacy. Public squares that were places for mass demonstrations in public support of the communist party. Massive government buildings with communist icons stand tall as a symbol of colonial rule.

Usually, European colonizers would separate the local population from colonizers through urban planning zoning. However, in the Soviet Union, local Kazaks could not obtain city registration also known as *propiska* or simply could not get an apartment because they were not bought but assigned by the Soviet government. Thus, apartments were not given to

Kazakhs. Complete disregard of local culture, traditions and history. Local buildings and structures became obsolete in the face of massive infrastructure and urban development that the Russians and Soviets brought to Kazakhstan. Imposing their will and power to the local Kazakh population that was devastated and lost half of its population during the man-made famine in the 1930's. Following into a complete erasure and total marginalization of indigenous architecture which some scholars claim did not exist at all. Thus, to have a complete decolonization one must look around and critically examine what is being built and what is left from colonial legacy.

Transformation of the Soviet colonial legacy in the former Tselinograd part of the new Astana was described in detail by Nelly Bekus (2017). Former colonial era buildings were reinterpreted and repurposed to fit the new look of the capital city. Monuments to Soviet leaders were removed and, in some places, replaced by national Kazakh heroes and influential people who contributed to the formation of the Kazakh nation. Such reclamation of the oppressive symbols allowed for the increased leap forward towards the true independence from the oppressor and not only formal. Thus, not just by erasing but by reframing and subverting colonial symbols and meanings into a new rhetoric that changes the mindset and gives new meaning to a free and confident existence.

The process of image building through architecture

Modern cities, especially newly built capital cities play a key role in representing the entire country and nation. Thus, architecture built in the city centers provides a great deal of perception through visual, textual and symbolic meaning. Iconic buildings, therefore, have a

dual purpose in them. First, is to carry its primary function, which is to be a shopping mall for example, as in the case of Khan Shatyr. Second, is what its architecture – design (form, shape and materials) represent and convey a certain symbolic meaning and sends a message to the public of its general appearance. Buildings designed by Norman Foster blend in technology and sustainability in all his projects. Therefore, he not only creates unique projects, but he also reconsiders the entire typology of a building to come up with something new and fresh to the client. That is why he made a big name and a perfect reputation for himself and now his name and products he created in Astana are working hard to project an image of a modern and progress-oriented state that had erased its Soviet socialist past and looks forward to a prosperous bright future.

British architects lead the world in terms of innovation and making complex buildings look simple and straightforward. That is why he is known for converting the complex structures like airports and office buildings into relatively simple yet genius. It is the base ingredient in creating true symbols of progress and innovation that ultimately contributes to positive image-building. Post colonial states use this power of modern architecture to portray a certain image to attract attention, tourists and investment into their economy. Oil rich nations strategically use architecture as a tool to convince and manipulate the public opinion.

Ultimately, good architects respond to the issues of their age and try to solve existing problems by properly addressing them through innovative design. Similar to the academic world where research is supposed to first read what other people have done before him; a good architect must study what other architects have done before him to come up with his own unique solution to the pressing issues of his time. The core advancement in modern architecture came from industrial revolution, fabrication of materials and structural elements

in factories to be delivered to the construction site. So, the industrial revolution that first happened in Europe, specifically in the British empire, kept it at the forefront of architecture and construction to this day. In the past architects focused on crafting their skill as masters of drawing based in masonry and brick laying. So, in a sense, architects always depend on the economy and industrial capacity to produce complex construction materials.

Historically architects were called a master mason or a master carpenter but with the arrival of the industrial age these terms were abandoned because of the mass production of materials such as concrete, steel, glass, plastic pipes, ceramic tiles, faucets, and bath, toilets and elevators. Another challenge for architects was to incorporate scientific breakthroughs into their design. In other words, new technology such as lighting, HVAC, and new structural elements must be present in the design of modern buildings. The invention of new, strong and light materials such as concrete, steel and glass have started a new era of engineering breakthroughs that made large unsupported cantilevers and open spaces possible. These new materials allowed us to develop new concepts of space and build projects in height, very tall skyscrapers.

The Bauhaus movement that came to Germany in 1920 as a reaction to mass production and was based on radical workers' groups. The mood in Germany was a juxtaposition of angst and despair with hope for a utopian future. In this context, famous architect Walter Gropius founded the Bauhaus movement, that was aiming to fuse art and craft using new industrial processes and technocratic ideals. At this point, architects were learning how to integrate new technologies of mass production, glass, and steel to create a new visual language of forms. Gropius had students design for mass production and seek to express these new values of mechanization. He had a huge effect on students like Paul

Rudolph, who later became a mentor for Norman Foster. The Bauhaus has had a huge effect on culture for mass-produced, multi-family housing for Ikea.

Another large company that had a huge impact on Foster was SOM. It is not a specific architect but an architectural firm of many architects. It started as Skidmore Owings and Merrill. At one point, it was the most important architecture firm in the world. They played one of the most important roles in the development of modern architecture. Specifically, they designed the modern form of the skyscraper and some of the world's tallest buildings.

Le Corbusier, the most influential architect of the twentieth century. He was interested in reinforced concrete and use of this material in the context of industrialization. This allowed for a large uninterrupted space on the interior. Other architects took this approach and created brutalism using rough, raw and untouched concrete as the primary building material. His famous saying that “a house is a machine for living in” was the idea of mass production of housing was as important as the fact that the idea was a house whose function had been examined from the ground floor up and stripped to its essentials. This promised a new life where people could look out past pure white walls to the essential joys of light space and greenery. His famous book “Towards a New Architecture” deeply affected Norman Foster and influenced his design. This book is a manifesto of modern architecture and one of the most influential architectural books of the twentieth century. The book argues for throwing away old forms and ways of doing architecture and embracing mass production by machine. His ideas can be summarized into five main points of modern architecture. This was the vocabulary of architectural forms based on reinforced concrete construction.

Five points of a new architecture were: pilotis, ribbon windows, free plan, free façade, and a terrace garden. The pilot was a central element from which all others evolved. It

allowed the building to be lifted off the ground. Ribbon windows often meant horizontal strip windows running the full length of the building. A free plan with pilotis supporting the building's weight, allowing the interior and exterior walls to move freely as needed. The free façade allowed for all windows or curtain walls or any sort of openings based on functional requirements. Terrace gardens on the roof, concrete allowed for the roof to be a structural member that could support greenery and become an exterior space to take in earth and sky.

Famous Villa Savoy (Figure) is where all these elements are perfectly executed by Le Corbusier. It had pilots that elevated the main floor up to the second level to create a “Piano Nobile”. By using pilotis the exterior walls were not structural so that the windows could be placed anywhere. Pilot is also allowed for a free plan as no structural walls were required. In addition, pilot is allowed for a free façade and creation of free form windows of any shape and size. Finally, the roof could be flat, and a terrace garden could be placed there.

Le Corbusier painted daily and his abstract cubist like paintings which he called “purist” gave him a rich vocabulary of forms for his late architecture. Ronchamp built in 1950 is perhaps the most singular masterpiece of Le Corbusier. Like Picasso he focused his ideas on primitive forms and ancient associations. There is a tension between modernism and primitive forms. He is perhaps the second most copied architect after Mis Van Der Rohe. Stephen Hall for example has made a career from copying Le Corbusier. His Saint Ignatius Chapel is a thematic copy of Le Corbusier’s Ronchamp.

“Eurasian” Style in the Architecture of Astana

Cities serve various purposes and play different roles within a country's economic system. For instance, they can be an industrial city like Pavlodar, Temirtau, and Zhezkazgan

or they can be a good city for tourism like Almaty with all its beautiful places for sightseeing like Shimbulak and various lakes and mountains that surround the city. There are also cities specially built for particular purposes, like gambling, Konaev and Burabay could be a good example for that. Capital cities, however, have a very important and precise purpose. They are the seat of the government where all the important decisions for a country are made. It is also a place where foreign guests and diplomats will come to visit. Therefore, their architecture is something that can be read and understood through a political prism, especially in an authoritarian context.

To understand why a particular decision or events are taking place, it is important to look at the broader context. So, after the collapse of the Soviet Union, Kazakhstan has gained its independence, although technically it was the last country to leave the Union. Moreover, it was the only state among fifteen newly independent republics in whose ethnic composition the titular nation ethnic Kazakhs were a minority. (Schatz 2004) Ethnic Russians were the majority living predominantly in northern Kazakhstan. Thus, the decision to move the capital city to north Kazakhstan was partially related to security purposes to give more motivation to ethnic Kazakhs to move to the North. As Edward Schatz (2004) noted, the Astana move was to prevent any possibility for separatism.

The 1990s was a turbulent time for newly independent Kazakhstan. The economy was down, the salaries and pensions were not paid, and there was a shortage of food and goods. Hence, the time for capital relocation was ill suited. Despite that, Nazarbayev argued that the Astana project will boost economic growth and create new jobs for the region. Around the same time, he proposed the idea of Eurasianism in which all people living in Kazakhstan despite their ethnic, religious, or cultural background were Eurasian. (Vale 2008) The idea

was that people living in Kazakhstan live in the crossroads between Europe and Asia. (Schatz 2004, 130) Making the location of Kazakhstan on the once renowned Silk Way route as Nazarbayev points himself “at the heart of Eurasia” which is also a book by Nazarbayev that was published in 2010. This idea of Eurasianism was intended to create an interethnic peace and religious tolerance in Kazakhstan towards all the multicultural people that inhabited the country.

Following the geopolitical concept of Eurasianism brought up earlier by Nazarbayev, it was supposed to translate into the built environment of Astana. However, it was not clear what exactly the Eurasian style in architecture would look like. (Koppen 2013, 598) The 2001 version of the Astana master plan clearly states that the city must be “Eurasian” in its nature embodying the Kazakh history, culture and infers that it also should support the idea of the future oriented and modern Kazakhstan. (Bissenova 2013, 131) So, from the very beginning the city was officially planned as a mixture of European and Asian styles, as it is a city located in the middle of the Western and Eastern civilizations.

“Throughout history and across the globe, architecture and urban design have been manipulated in the service of politics.” (Vale 2014) Thus, the architecture of capital cities can be very political, especially in an authoritarian context. It can be used by the ruling elites as an art medium to convey certain messages and ideas both inward, towards the domestic audience, and outward, to the international community. In the case of post-Soviet Kazakhstan, I argue that the new capital city Astana and its modern architecture have been used for both domestic nation-building as well as international image-building purposes. However, the overall success of the capital city turned out to be questionable.

After the collapse of the Soviet Union, Kazakhstan was the only state among the fifteen newly independent countries to relocate its capital. According to official sources, the move was a complete necessity because “Almaty had reached its limits in all respects” (Koppen, 2013 p. 594). Among the most acute problems that Almaty faced were overcrowding, smoke, and potential earthquakes because the city stands in a seismically active zone. Hence, in case of emergency it might temporarily shatter the work of the government. All the above-mentioned reasons affected the decision to relocate the capital city from scenic Almaty to an empty steppe of Astana.

Despite the validity of the official explanation for capital relocation, the one that deserves special attention in this paper is the fact that the North and Northeast part of Kazakhstan was predominantly inhabited by an ethnically Russian population. Such disproportionate ethnic diversity on the border with Russia has created a potentially dangerous tendency for separatism. Therefore, the relocation of the capital to Akmola in 1997 served as a countermove to the possibility of separatism (Schatz 2004, p. 128) (See figure).

Historically, North Kazakhstan became populated by ethnic Russians due to the Virgin Lands campaign announced by Nikita Khrushchev to combat the shortage of food in the post war period. The campaign for the reclamation of *tselina* has drawn thousands of young individuals from all parts of the Soviet Union to North Kazakhstan. Some critics suggest that a large influx of Russians during the reclamation of *tselina* period had severely damaged the Kazakh culture and traditional way of life. The number of Kazakhs in North Kazakhstan fell drastically due to the closure of Kazakh schools in favor of Russian classes and prioritizing the needs of *tselinniks* over the needs of the local Kazakh population. Kazakh language, culture, and religion were heavily discriminated against and considered to be

backward. However, during the Soviet times people were silenced and not allowed to speak about such mistreatment of Kazakhs (Pohl 2012, p. 298).

While there were negative connotations associated with the Virgin Lands program among Kazakhs, some of them, if not most of the elder generation speak about the positive outcome that the program brought to North Kazakhstan. Indeed, Akmolinsk which was later renamed Tselinograd received large government investment. The city started to rapidly develop, and the economic impact of such massive growth was huge. The city of Tselinograd has rapidly started developing from 1960. The new master plan was adopted in 1962, and it proposed to develop the city in a classic Soviet manner.

According to Soviet urban planning Tselinograd was to develop between the Ishim River in the south and a railroad in the north part of the city. So, the city was divided into three distinct zones. First, an industrial zone was supposed to develop along the railroad for the convenience of logistics and transportation of goods and materials coming to the city and going from it by the railroad. Next, was a recreation zone for residents. It was located along the Ishim River which was used by the residents to relax and enjoy beautiful views. Finally, the residential area was located between the industrial and recreational zones. Many new apartment blocks were built to accommodate people coming in large numbers from all parts of the Union.

Besides, roads, schools, public buildings, and a new airport were built to transform the rather provincial town of Akmolinsk into a vibrant city of Tselinograd. So, together with certain problems to native Kazakhs, *tselina* brought them certain prosperity. Perhaps it was not meant to be delivered for them, but still the Soviet government tried to supply everything they could to people who were reclaiming *tselina* by hard labor. Machinery and equipment

were sent to Tselinograd, goods from all parts of the Union including Czechoslovakia and East Germany filled the shops of Tselinograd.

Sub-ethnic divisions among Kazakhs themselves also threatened the unity of the newly created state. Kazakhs have a complicated system of tribal divisions. As Schatz (2004) perfectly explains it: “Like other former nomads, Kazakhs divided into subunits (‘hordes,’ *zhuz*) and further subdivided into smaller divisions (‘clans,’ *ru*.)” p. 129. Each horde (*zhuz*) occupies a different part of Kazakhstan. Lesser hordes historically live in west Kazakhstan; the middle horde occupied the north and east parts of the country and finally the greater horde was traditionally inhabiting the south part of Kazakhstan. So, the capital relocation to north Kazakhstan would bring economic development and create an unstated alliance between greater and middle horde. Such an unspoken alliance would help to prevent any attempts for separatism among ethnic Russians living in North Kazakhstan. Moreover, the relocation of the capital closer to the middle of the country, closer to middle and lesser hordes allowed for a better control of both hordes. West Kazakhstan is well known for its rebellious past and an attempt to form its own autonomy. Since it is where most of the fossil fuels are extracted, they wanted a fair share of the pie. (Schatz 2004, p. 130)

Not only Kazakhstan was the only state to relocate its capital city among other newly independent states but also it was the only state in whose ethnic composition titular nation ethnic Kazakhs constituted the minority at the time of gaining independence (See figure 1 and 2). According to censuses at the time of gaining independence the number of ethnic Kazakhs constituted less than half close to forty percent while ethnic Russians were very close being about thirty eight percent. Most of the ethnic Russians concentrated in the North part of Kazakhstan close to the border with Russia. The ruling elites were afraid of the possibility of

separatism. So, one of the reasons the new capital city was moved to Tselinograd was to exclude the likelihood of separatism. Hence, capital relocation from Almaty to Astana helped ethnic Kazakhs to establish their presence in North Kazakhstan which was occupied with predominantly ethnic Russians.

To unite the multicultural society of Kazakhstan, the term Eurasianism was introduced. It was meant to blend ethnic and religious differences between various ethnic groups living in Kazakhstan. So, despite being Kazakh, Russian, or Ukrainian all the people would theoretically be Eurasian. Essentially people living on the Eurasian continent. (Schatz 2004, p. 130) Such terminology sounded neutral to everyone. Thus, being “Eurasian” was acceptable for all the ethnicities. The term sounded especially applicable to people who lived in Astana because the city according to Nazarbayev was located “In the Heart of Eurasia” on the silk way route connecting two distinctly different civilizations Europe and Asia. “Eurasian style” in Architecture became an answer for the multiethnic society of Kazakhstan. Since the introduction of the term by Nazarbayev, it became necessary to reflect it in the built environment of Astana. Hence, the term was even written into the very first Astana master plan principles. The master plan was first introduced by the Japanese architect Kisho Kurokawa in 2001. It suggested that buildings should have “Eurasian” character. (Bissenova 2013)

The term Eurasian was further exploited by bureaucrats from *AstanaGorArhitectura* which is the main regulatory entity for regulating what kind of buildings can be built and *AstanaGenPlan* the government agency that develops the Astana master plan. Both government organizations are responsible for the approval and regulation of the urban and architectural development of Astana. So, the chief architect of Astana at the time Sarsembek

Zhunosov was arguing that they should not restrain architects, some of which are foreign architects to follow one style. Instead, he argued that they should be given freedom of expression. Moreover, he said that: “Astana should follow the Eurasian style-the synthesis of the best, which has been accumulated in contemporary urban planning and architecture.” (Zhunosov 2008)

Zhunosov gives architects to use variety of styles available starting from European style with traditional order system such as the usage of traditionally Roman or Greek symmetry, different types of columns, rectangular windows elegantly decorated and the heavy usage of marble as a finishing material for both interior as well as exterior. Another style that is present and is being used in Astana is a so-called Russian style which takes its roots from Byzantine style with colorful onion domes used in churches and that was heavily influenced by orthodox religion. Traditional Russian *Izba* is also found in an old part of Astana on the right bank of the Ishim River.

Central Asian style is also being used in the built environment of Astana, and it is meant to emphasize the regional (local) architecture. Historically, Central Asian states had various influences such as Persian and Islamic influences that could be seen in the usage of fired bricks, blue domes, and minarets. A good example of Central Asian architecture would be Khoja Ahmed Yasawi Mausoleum in Turkistan, South Kazakhstan. It was commissioned around 1389 and featured Islamic influence with ceramic tiles widely decorated (See Figure)

The substantial influence on Central Asian architecture was made by the twentieth century Soviet modernism. Almost a century under Soviet rule did not leave Central Asia untouched. Instead, it was heavily transformed or “modernized” as Paul Stronski (2010) explores in his fundamental book “Tashkent: forging a Soviet city, 1930–1966.” The book is

on how Tashkent went through massive urban transformation to become an exemplary Soviet city for the foreigners to admire. So, the Soviet urban planners built a classic Soviet city with industrial factories and boxy apartment blocks to integrate local Uzbek people into socialist society. Uzbeks lived in their traditional villages *mahalla*.

Modern architecture as a separate style in architecture has been used in Astana by foreign architects such as Norman Foster, ASGG, SOM who designed buildings with pure geometric shapes and universal forms such as pyramid (The Palace of Peace and Reconciliation), sphere (EXPO 2017), tent (Khan Shatyr reference to nomadic lifestyle) is not just a coincidence. For instance, the architectural style that the highest paid British architect Norman Foster uses is typically called a high-tech or modernist style. Usually, he uses steel and glass in his projects. Certainly, world famous architects also pay a great amount of focus on sustainability of the buildings as well. Unfortunately, the responsible and sustainable architecture in Astana ended where it just started because the master plan by the Japanese architect Kiwo Kurokawa proposed to build a sustainable city right from the beginning. However, local bureaucrats from *AstanaGenPlan* have “modified” it three times resulting in a complete mess of the original master plan proposed by Kurokawa. The Japanese architect was so upset about the rejection of his ideas that he thought of completely abandoning the Astana project altogether. (Bissenova 2013)

The mixture of styles could be clearly seen in buildings such as the presidential palace (Ak Orda). It borrows from both western culture and has pure elements of Central Asian architecture. Its resemblance with the White House is obvious. (See figures 3,4 and 5) The Oval shape of the oval office comes from the necessity to receive officials and was presented by the architect James Hoban who won the design for the Presidential House, selected all the

way back in 1792. The White House is designed in a neoclassical style which is very typical for Washington D.C. On (Figure 5) we can see the south elevation with the oval portico looking at the south lawn. The overall design of the White House was inspired by Roman architecture with its six symmetrical columns in an ionic style. These columns are raised on a square plinth and form an ensemble of the portico.

I understand the decision of George Washington to build a White House in a neoclassical style inspired by an ancient Roman philosophy and architecture because the culture, political system and education of the United States is based on an ancient Greco-Roman root. Moreover, the building was designed and constructed more than two centuries ago. So, what I do not understand is why would the Kazakh president want to construct a presidential palace in the twenty-first century in a very similar way with the only difference of putting a blue Central Asian dome on top of it? I think that Kazakhs have nothing to do with ancient Roman culture and why repeat the past anyway, why not construct something completely new? The lack of culture and education leads to dire consequences.

The mixture of styles in Astana is thus supposed to indicate the multicultural, international face of the city, underscoring that it is open to the interplay of culture, ideas, and the spirit of creativity as a modern Eurasian city should be. Beyond that, since architects are strongly tied to their investors/ developers, it reflects the diversity of investors working in Astana and their tastes. (Bissenova 2013, p.137-138)

The above block quotation is perfect, and it helps us to smoothly transition into the topic of western criticism of Astana being strange, tasteless, and out of place.

Architecture is like a traditional cloth that people wear to identify their national belonging. Therefore, very similar to traditional clothing that people from different cultures

wear, architecture displays the multicultural facet of the society. However, in the case of mixed style of architecture in Astana people do not usually wear different styles of cloth all at once. If they do, it looks strange and tasteless. I assume that is the reason for western observers' criticism of Astana as tasteless.

Western observers visiting Astana (mainly journalists) left the city with the impression that it looks surreal mainly in a negative way. I assume that it was because of the indiscriminate use of styles in architecture. The so-called "Eurasian style" in the architecture of Astana that gave the architects the right to borrow various elements from different styles and mixing it together created a mixture of different styles and even made the city look unusual or even strange. It turned out to be neither modern nor authentic Kazakh or Central Asian, neither did it become Russian. Certain Frankenstein made of unmatching parts that look like a mess. So, to me it is no surprise that western observers criticize it for being imitative and "copy catting" with nothing authentic in it.

Natalie Koch (2012) called the architecture of Astana a spectacle played by the ruling elites to show modernity and progress. However, she argues that modernity is "false" and that it is meant to mask many of the contradictory realities of an authoritarian state. The Astana project is frequently described as ex-President Nazarbayev's pet project and the entire city as being devoted to him. Often, Western scholars call Astana and its ambitious projects a "megalomaniac" tendency of an authoritarian leader. (Koch 2012) So, in my understanding of Western criticism is that Kazakhstan's new elites whose wealth was acquired in the last twenty to thirty years are considered to be "new money" instead of "old money," which is inherited from one generation to the next. So, the scholars (Bissenova 2013, Koch 2012)

argue that to show themselves as modern and cultured, they build these grand, modern buildings to appear modern instead of being truly modern.

Western people read Astana as a “Utopia” and a *potemkinskaya derevnia* which was put up as a shiny façade that covers poverty and corruption underneath. I agree with them because all the effort to build Astana was directed to create only an “image” of a country by using the names of internationally renowned architects and their reputation on the global arena. However, the rest of Kazakhstan remains in a decrepit condition. Most of the cities in modern Kazakhstan are doing far worse than Astana and need urgent repair and modernization. Since Astana is taking up the lion’s share of the country’s resources, it is not fair regarding other regions.

I believe that all the western criticism of Astana comes when they see the shining capital city in a dazzling comparison to other cities such as Arkalik, Temirtau, Ekibastuz, Aralsk all of which are in a disastrous condition without any government support. These cities are ignored and forgotten by the state because all eyes and cameras are focused on Astana. The capital city has received various nicknames by western guests. Daisy Carrington from CNN (2012) titled her article as: “Astana: The world’s weirdest capital city”. She claims that looking at Astana is so weird because it looks like it grew out of nowhere in an empty steppe of Kazakhstan where very little surrounds the city. Hence, according to her it looks like a mirage. She claims that buildings look futuristic and each of which has its own unique nickname such as a “lollipop – Baiterek Tower”, large tent – Khan Shatyr, Pyramid, a concert hall in shape of a flower, a circus building that reminds of an unidentified flying object and many more. Indeed, all these buildings are not bound together with a certain

thematic design. Each of them looks like a separate entity that has nothing to do with its surrounding context.

In 2011 Keith Gessen published his article in the New Yorker titled “Nowheresville”. While I was reading it, I was trying to understand why exactly he called it “Nowheresville”, but I could not find a reasonable explanation for such a critical name for Astana. The journalist simply describes his visit and stays in Astana and how he explores the city. Surely, he talks about new buildings designed by Norman Foster and other famous architects, but he is not making any valid point about the buildings. Hence, his article is rather descriptive than analytical.

Similar story with Rowan Moore from the Guardian. In 2010 he published an article calling Astana: “The space station in the steppes.” So, to understand what he is trying to say I read it thoroughly. Perhaps the most outstanding piece in his article that somehow explains why he called Astana a “space station” is:

To look at, Astana is so strange that it has one grasping for images. It's a space station, marooned in an ungraspable expanse of level steppe, its name (to English speakers) having the invented sound of a science fiction writer's creation. It's a city of fable or dream, as recounted by Marco Polo to Kublai Khan. Except it's not quite so magical: it's also like a battery-operated plastic toy, all whirring noises and flashing colours, of a kind sold by the city's street vendors.

Moore stresses how strange it is to look at the city that is made of different colors that do not match and how the buildings that are designed without the consideration of surrounding context. The author also mentions how surprising it is to see this modernistic city that grew

artificially in the middle of the barren steppe. Moreover, his reference to a plastic toy suggests low quality of the built environment both visually as well as materially.

Lancaster (2012) in his national geographic article took this point further and called the capital city a “Tomorrowland.” He also said that most of the buildings in Astana look exotic and out of this planet. Without a unified design of the master plan architects designed buildings in Astana without adhering to one style. Therefore, each building turned out to have its own look without the consideration of surrounding context. Thus, the result turned out to be that each building has its own nickname such as “Seven barrels”, “Chupa Chups”, “Cigarette lighter”, “Grain silo”, “Egg building” all these buildings located on the main axis between two of the Norman Foster’s famous buildings of Pyramid and Khan Shatyr. As John Lancaster (2012) puts it himself: “The results are eclectic, visually arresting, and not to everyone’s taste. But love it or hate it, Astana is here to stay.”

Niemczyk (2010) wrote an article in German language “The Disneyland of the Steppe.” Unfortunately, I cannot read German but from the title I can guess that his criticism of Astana is very similar to previous comments that Astana is lacking its own identity and being simply imitative. Hence, to western visitors Astana looks artificial. Unlike European cities that grew naturally but for an extensive span of time, it took them decades if not centuries to develop into a coherent city that we know and like today. So, partially the problem of Astana is that its construction was fast-tracked by Nazarbayev. Most of the important projects had to be built in a very condensed period. Projects such as the Presidential palace, the Baiterek tower, Pyramid, Khan Shatyr had to be built in almost half of the time that these kinds of projects usually require. Being built in twenty-five years, the quality of the built environment in Astana certainly suffered. Hence, twenty-five years for the

construction of a new capital city is a very short time compared to some of the European cities that took decades if not centuries to develop.

All in all, the criticism of the western visitors is not groundless. It is true that visually the left bank of the Ishim River where all the major construction took place looks messy and strange. They are surprised to see the newly built capital city that looks like an amusement park rather than a city that is the seat of the government and should have looked more seriously for example like Washington D.C which has an impressive look of an administrative city. Inspired by ancient Greco Roman philosophy and having a neoclassical style of its architecture the capital city of the United States stands as a symbol of power, might and greatness of a world dominating power. Its architecture has a distinctive Roman and Greek feature such as tall columns, symmetry, calculated proportions, and large pediments. Neoclassical architecture of Washington D.C pays a tribute to ancient Greek and Roman leaders, philosophers, and thinkers to whom the U.S has a deep root and whose culture and traditions make up a basis for the culture, governance and education in the United States. The usage of stone and marble deserves a separate paper on its own, but I just wanted to mention that they make a main construction material in the facades of public and administrative buildings of Washington D.C. Moreover, the height limitations are what separates the capital of the U.S from the rest of the cities. Although, the country is known for its tall buildings, and it was a home to the first skyscrapers in the world.

Even our neighboring country Turkmenistan did better than us in terms of keeping its capital city classy. Ashkhabad might not be the best example of modern buildings but at least it follows a certain design guideline that requires architects to use white marble for the exterior cladding of the buildings. It creates a solid and unified look of the city. This

requirement might stem from hot weather conditions, but it gives the city a coherent, united, and solid look. Unlike Astana that uses all colors of the rainbow in its design which makes the above criticism of foreign visitors are justified comments.

The architect behind the entire Astana project, Nursultan Nazarbayev argued that despite the claims from both domestic and international audiences that Astana is a utopia Nazarbayev answered in his book *Kazakhstanskii put'* (2006). He said that: "We built the city from scratch, and we went through all the struggle and pain associated with the capital relocation. It was a dream. Now, it is a *chudesnii gorod*, the pride and the heart of Kazakhstan." (Nazarbayev 2006, p. 350) Certainly, for a leader who comes from a Soviet background it is a huge achievement. However, if he would patiently wait for architects and contractors to do their job and stick to the initial Kurokawa master plan then the outcome would probably be much better. Moreover, corruption is another issue that led to the poor quality of the built environment in the city.

The book which was introduced in 2010 documents the large amount of work Nazarbayev, and his team has accomplished in such a short amount of time. In addition, Nazarbayev shares his personal views on the capital relocation, many obstacles he had to overcome and the rapid construction of the city. He compares the Kazakh capital move to the great capital relocations that took place around the world. Most notably, Nazarbayev compared his move to Peter the Great's relocation of the capital from Moscow to Saint Petersburg in 1711. This move was known to address the modernization of Russian society where drastic measures were taken by the Tsar. He went as far as forcefully cutting the beards of the *boyars* to show them the European way of life. Sent their children to study in Europe and made them wear *kamzols* instead of traditional *kaftans*. This drastic move was

also known as “the window to Europe”. (Nazarbayev 2010, p. 50) However, after the October revolution in 1917 the capital was moved back to Moscow in 1918 due the risk of the enemies taking over the seat of government. (p. 57)

Another case that Nazarbayev discusses in his book is Ataturk’s relocation of the capital from Istanbul to Ankara. To modernize Turkey general Mustafa Ataturk relocated the capital city from Istanbul which historically was the capital of the Ottoman Empire to a relatively underdeveloped city of Ankara. (p.59) From these two examples we can see that Nazarbayev is trying to justify his decision to move the capital city. Moreover, it is seen that the rulers were primarily concerned with modernization of their state.

In conclusion, the term “Eurasian” might work well as a political instrument in housing the multicultural society of Kazakhstan under one roof. However, when it comes to reflecting that official rhetoric in the built environment of the capital city the so called “Eurasian style” in architecture that is a mixture of styles, creates a messy and tasteless city that does not follow a one style. Instead, it borrows everything both from European and Asian cultures and ends up being imitative. However, despite such negative outcomes the ruling elites continue to build the city in a chaotic manner justifying it by saying that it reflects the multicultural, multiethnic, and multi-confessional society of Kazakhstan. Hence, the architecture of the new capital city of Kazakhstan does not have an emphasis on the national architecture justifying it by the absence of architecture in Kazakh history. Therefore, the architecture of Astana became faceless without its own spirit, without its own distinctive style. It became one of many pointless global cities that do not impress its visitors because it lacks its own distinctive features that should be catching the eyes of foreign visitors. The new capital city will not impress its visitors with its old, European style architecture or its long

outdated Soviet buildings. So, I believe that the ruling elites and bureaucrats should have been consulting the experts in urban design and architecture right from the beginning. They should have left the very first master plan principles put together by renowned Japanese architect Kiwo Kurokawa. Then, the city would have been praised and recognized all around the world. Unfortunately, that did not turn out to be the case and the city with its “Eurasian style” became simply imitative and tasteless.

Astana Master Plan by Kisho Kurokawa

In 1998 when the government of Kazakhstan was officially relocated to Astana, they had to move into previously renovated Soviet era administrative buildings. These buildings were in the former Lenin square where the bronze statue of Lenin was replaced by famous Kazakh poet and composer Abai Qunanbaiuly. The renovated Tselinograd master plan was designed by local Kazakh architect Kaldybay Montahaev. However, Nazarbayev wanted something more, something of a global scale that would be recognized and talked about as the greatest Kazakh achievement in the newly independent era led by him. Therefore, in 1998 the Kazakh government held an open international competition to design a new master plan for Astana. (Shelekpavev, 2020)

Twenty-seven projects from fourteen different countries have officially entered the competition. Despite being awarded only a third place, renowned Japanese architect Kisho Kurokawa was announced as a winner. Multiple factors have played in favor of the winner such as his international prestige, the fact that he was being backed by the Japan International Cooperation Agency and the new design principles that he proposed to implement in the

Astana project. Such an international competition to design a city master plan was unprecedented in the history of Kazakhstan. (Shelekpayev, 2020) During the Soviet times most cities in Kazakhstan were designed either by Moscow or Leningrad based urban planners and architects that were putting a big emphasis on socialist urban planning practices.

As a new chapter in Kazakhstan's post-Soviet rebranding strategy that puts architecture and urban planning at the forefront of creating a new self-representation on an international arena to make a statement of a new sovereign and modern Central Asian country emerging. The newest and trendiest urban planning solutions were embraced by the Kazakh government that was looking forward to leaving behind its Soviet socialist legacy. The aspiration of the new Kazakh government was to attract tourists and potential investors by boosting the country's image with a brand-new capital city designed by a famous Japanese architect. By organizing an open call competition, Kazakhstan showed its openness to a new reality of joining capitalism and free market economy which was forbidden during the Soviet times.

Usually those who oversaw the projects and had a final say preferred to handpick the most suitable designers according to their own personal choices behind closed doors. However, an open call international competition was a bold move for the Kazakh government. Despite such openness and transparency most of the archival sources suggest that the choice of the winner was based more on political motives rather than a professional judgement of the architectural and planning qualities of the proposal. (Shelekpayev, 2020, p. 2)

For instance, in the master plan competition for Brasilia in 1957 only local architects were invited to participate and the committee members consisted of both local and

international judges. This shows the level of confidence the country had in its own professional architects, some of which were the Pritzker Prize winners like Oscar Niemeyer and Paulo Mendes da Rocha. However, the competition was won in 1957 by French-born Brazilian architect Lúcio Costa. From above the masterplan was inspired and made in an aeroplane shape that was growing in popularity and was the jet age. Also, the master plan may seem like a flying giant bird.

The master plan of Brasilia was strictly and schematically separated into multiple administrative sections. Main government buildings were located at the cockpit section of a plane symbolising forward thinking and progress that the right leadership of the country will bring to the rest of the economy. The fuselage section of the main axis houses public buildings that form the linear park along the main axis. (*Brasilia Master Plan | My Favourite Plan | UDG, 2020*) Housing complexes are located at the two wings on each side of the “plane” running through them are roads that connect to highways. Each neighborhood measures 300 by 300 meter blocks that form around the courtyards. Each housing block has its own school within a walking distance and the height of houses do not exceed seven storeys.

The then president of Brazil Juscelino Kubitschek made a daring promise to people that he would deliver “50 years of economic and social development in five years”. So, partially he did something incredible by building the new capital city designed for half million people in less than four years. Two famous architects from Brazil Lucio Costa (author) and Oscar Niemeyer worked side by side to finish the project on time. The iconic National Congress Palace building and the stunning cathedral were created thanks to Niemeyer’s modernistic approach to architecture and the symmetry and clarity that Costa has

brought to the master plan. All the efforts were worth it because in 1987 UNESCO has appropriated the World Heritage Site status to Brasilia and the city was internationally recognised. (*Brasilia Master Plan | My Favourite Plan | UDG, 2020*)

Astana takes its history back to 1830's when it was first founded as a military outpost of Tsarist Russia. After that the city had its slow but steady growth until the 1930's. Beginning 1930's Russian railway expansion to Central Asia and later wartime evacuation of heavy industries promoted the city's further industrial and demographic growth. (Shelekpayev, 2020, p. 4) However, the very rapid and planned urban development of Astana (then Akmolinsk) began only after it was declared an administrative centre of the Virgin Lands campaign in 1950's. To alleviate the food shortages after WW2 Nikita Khrushchev decided to harvest the previously none-arable lands of North Kazakhstan. In 1950's the city already had a distinctive pattern of growth that was growing naturally beginning from the town's natural liveline, the railroad which divided it into industrial and residential zones.

In 1957 the first proposal to improve the city transportation and the district distribution was first approved by the Kazakh government. However, this short lived program was swiftly changed into a greater plan for Akmolinsk which was viewed by Khrushchev as becoming the showcase city to promote his Virgin Lands campaign. Thus, in 1962 Khrushchev has changed the name Akmolinsk into Tselinograd (*Tselina* meaning untouched or a virgin and *Grad* meaning the city). In 1962 the architects and urban planners from Moscow and Leningrad were tasked to design well functioning Tselinograd master plan with clear cut zoning divisions into a clear industrial, residential, public and recreational zones for people to be productive in working and living. (Shelekpayev, 2020, p. 4)

According to the 1962 Tselinograd master plan, the city was supposed to grow naturally from the railway (industrial zone) towards the Ishim River (recreational zone) with housing, public and administrative buildings in between. In 1987, Kazgiprograd, a Kazakh urban planning institution revised the 1962 master plan but left it unchanged. (Shelekpavev, 2020, p. 4) When Nursultan Nazarbayev had decided to relocate the capital city from Almaty to Astana in 1994, the town was not ready to undertake such massive and drastic development. Thus, in 1995 before relocating major government institutions to Astana, it was decided to organize a competition among local architects to design a new capital city master plan. An architectural firm from Almaty has won the competition to elaborate the new master plan in 1996. According to initial analysis the major issues the new capital was facing was harsh climate with strong winds, heavy snow and floods. Certainly, architects did not dare to speak openly about looking elsewhere to relocate the capital city, they did mention the unfavorable climatic conditions of the new place.

The main concern for the government was to find new pieces of land to expand the growing demand for building sites in order to accommodate the newcomers from Almaty government institutions and the army of civil servants. The master plan designed by local architects suggested that the city center remained within the Right bank of the Ishim River, between the railway and the river. They have noted that the city expansion towards the Left bank will result in constant floods and deteriorating conditions for buildings making it difficult to build them in that area. (Shelekpavev, 2020, p. 5) Moreover, Kazakh architects came to a conclusion that building on the Left bank will most likely disbalance the coherent structure of the city grid.

Eventually, local architects proposed only a partial building on the Left bank that would make it only a symbolic place to visit and limited traffic. However, that diminished the government plans to convert the left bank into a new impressive and highly representational administrative city centre (Downtown). Moreover, building the Left bank on an empty land from scratch was supposed to cheapen the cost of construction. These contradictions have led into the rejection of the master plan offered by the Almaty based firm and the government launched a new, this time an international competition to design a brand new Astana master plan was announced and the famous Japanese architect Kisho Kurokawa has won.

Nazarbayev has commented on constant urban planning changes as “we needed the best possible practice for the development of Astana.” Based on 1995 competition, seventeen projects have entered, however, none of them met the requirements that we were planning to implement. Therefore, given the circumstances and urgent need for a new, more elaborate master plan, the decision was made to organize an international competition that would take previous comments into consideration and come up with an innovative design. What Nazarbayev was really looking for was a completely new design that would be drastically different and much more advanced than its Soviet predecessor. He wanted the new capital city to stand out as a symbol of the new, independent and modern era. Unfortunately, Soviet trained, local architects were slow to swiftly respond to the rapidly changing environment that was shifting from socialism to capitalist consumerism and therefore, required a completely new approach. (Shelekpayev, 2020, p. 6)

In March 1998 a new, international competition to design the Astana master plan was announced. The then mayor of Astana Adilbek Dzhaksibekov was in charge of organizing the competition and putting together a team of experts to assess the projects and nominate

winners. Participants had to submit their works as separate one by one meter sketches accompanied with letter explanation of the ideas and elaboration of the design. Each participant had received a copy of the place for the design and was encouraged to use modern design tools such as digital drafting and 3D computational models. The prize money for the winners included \$50,000 for first place, \$30,000 for second place, and \$20,000 for third place respectively. (Shelekpayev, 2020, p. 7)

From May till August 1998, only within three months architects had to come up with the new design for Astana master plan. The selection committee consisted of seven experts from Kazakhstan and three foreign advisors from Russia, Turkey and the US. Unlike other capital city relocation competitions like Brasilia, the Astana jury members did not have any famous architects assessing the competition entries. Thus, it may seem that the jury members were there more to legitimize the final choice that Nazarbayev will make. Despite all the shortcomings, the competition attracted a good number of entries. Forty one firms from twenty different countries have registered for the competition. However, closer to the end of registration, the jury selected only twenty seven projects as suitable for the rules of this competition.

Twenty seven projects were officially presented to the public, nine of which were Kazakh firms and “Ak Orda” the previous winner for 1995 master plan being among them. Firms from former Soviet republics were also participating Russia, Latvia, Belarus, Ukraine, Uzbekistan, Kyrgyzstan have all submitted 9 projects. Two projects from Italian architects were received and Australia, Germany, Japan, Poland, Bulgaria sent one proposal each. Certainly, the quality of the projects differed drastically and the experience of the firms was at various levels. Moreover, the general instructions and initial site information distributed by

the organizing committee was also lacking crucial details such as the costs, traffic, climate and surrounding context. Despite the lack of information very few participants have actually visited the future construction site which leaves room for various miscalculations and discrepancies. (Shelekpayev, 2020, p. 8)

From the very creation of Astana and even with the final “corrections” to the master plan, the city was planned not as a single, stylistically coherent city but as a mixture of styles. Even the third principle of abstract symbolism written into the first master plan was abolished by the 2008 correction to the master plan. However, this principle was an attempt of the Japanese architect to highlight and develop truly Kazakh style in architecture. According to this principle described in the 2001 master plan the city should be built using pure geometric forms that are present in national Kazakh ornaments. (Bissenova 2013, 134) Certainly, this approach was not ideal, but I think it was a good start and if taken further and developed in detail it could have been a successful start in creating a neo-Kazakh style in architecture.

However, this concept was destroyed by 2008 correction to the master plan and as the then Astana chief architect Sarsenbek Zhunusov explained the reason for getting rid of the abstract symbolism principle was to give more freedom to foreign architects and let local Kazakh architects be inspired by their design and according to him only then Kazakh architects would be able to come up with their own authentic ideas. (Bissenova 2013, 137) However, I disagree with such a statement because it shut down any form of development for the progress and any attempt to research to create authentic Kazakh style. Hence, this move only gave way for another city that became a victim of globalization.

Thus, I believe that the issue of eclecticism which is a mixture of styles and a practice of borrowing architectural styles from all the possible civilizations be it Western, Central

Asian, and Eastern are not prohibited or even welcomed stems from the regime's political agenda of trying to please and comfort major ethnic groups living in Kazakhstan. The first building designed by famous British architect Norman Foster is a physical manifestation to the interethnic peace and religious tolerance. The Palace of Peace and Reconciliation in Astana has a universal shape of a pyramid. It was opened in Astana right behind the presidential palace in September 2006. (Koch 2014) The importance of this project to Astana could be seen from the opening ceremony that was attended by four Central Asian presidents, an international concert was hosted with the World Stars such as Montserrat Caballe and many other Italian opera house singers. (Pyramid 2012, 107)

As Bissenova (2013) noted, Kazakhstan was trying very hard to build the image of Astana as a global and modern city by heavily borrowing "cultural capital" from well-established institutions and professionals from abroad. However, the people responsible for the city development especially in *AstanaGenPlan* and *AstanaGorArhitectura* are overusing this appropriating practice from the developed world. So, even though they hire world-renowned architects to create the image of a modern city, it is unfortunately losing its own national identity. Due to its imported nature and irrelevance to local history, tradition, and culture it looks out of place and does not truly resemble Kazakh architecture. But then the question is what is authentic Kazakh architecture?

Historically Kazakhs were a pastoral nomadic civilization so, they had not had architecture and urban planning traditions.

German scholar Bernhard Koppen (2013) mentions that historically Kazakhs did not have a common practice in architecture and urban planning due to their pastoral nomadic lifestyle. Hence, most of the cities in modern Kazakhstan were developed, planned and designed by either Soviet or Russian architects and urban planners. (Koppen 2013, 598) Moreover, prior to Astana, Kazakhs never in their history had a capital city that they could historically call their own as they had been built or managed by the Soviet leadership. For instance, the very first attempt at creating their own state with a capital city in Semipalatinsk was made by the Alash Orda liberation movement between 1918 to 1920. After that unsuccessful attempt, the Soviet regime appointed Orenburg as the capital city of KSSR between 1920 to 1925. Kyzyl – Orda was also a capital city from 1925 to 1929 until finally Alma – Ata became the capital city for a long time from 1929 to 1997. All the above-mentioned cities were appointed and built either by the Tsarist Russia or later by the Soviet Union. (Koppen 2013, 594)

According to Koppen (2013) that is the reason why one of the first iconic buildings of Astana built in 2002, the Baiterek Tower refers to an ancient myth rather than to a national Kazakh architecture. It was difficult for architects to come up with an idea for an authentic Kazakh style, so they have decided to link the design to an ancient Kazakh myth about the golden egg that was laid by the *samruk* bird on top of the baiterek tree. (Koppen 2013, 599) According to this myth, the egg symbolizes the continuation of the Kazakh generation. However, the dangerous dragon was trying to destroy the egg when brave Jertostyk came to rescue and killed the furious dragon. (Winkler 2006) Therefore, one of the very first buildings

located in the middle of the new administrative city center refers to a tale rather than to urban paradigms or neo-Kazakh architecture.

Conclusion

All in all, the architectural and urban development of Astana demonstrates that the built environment of post-Soviet Kazakhstan cannot be understood in isolation from broader processes of nation-building, political consolidation, and global integration. Following independence in 1991, architecture emerged as one of the most powerful and visible instruments through which the state sought to assert legitimacy, construct a new national identity, and reposition itself within the global arena. The relocation of the capital from Almaty to Astana in 1997 created both the symbolic and physical conditions necessary for this transformation, enabling the realization of ambitious architectural projects that would have been unimaginable in the Soviet period.

The new capital city designed by a famous Japanese architect and iconic buildings designed by renowned British architect Norman Foster played a crucial role in post-Soviet modernization of Kazakhstan. Using the name and prestige of these architects, Kazakhstan was able to project itself as a new player on the global arena that is modern and open to foreign investment. Landmark buildings such as the Pyramid and Khan Shatyr have attracted both domestic and international audiences as symbols of progress and modernity brought by Nazarbayev's regime. However, there was also certain criticism from Western journalists, who argued that these developments do not represent the "real" Kazakhstan, pointing instead to the country's uneven development and structural challenges.

Architecture thus became the most visible and concrete form of highlighting Kazakhstan's path to modernization after its independence. The relocation of the capital city provided an additional platform to experiment with bold and unconventional architectural forms, allowing leading architects from developed countries to showcase their expertise. The desire to present Kazakhstan as a progressive and globally connected state encouraged the adoption of cutting-edge design, advanced materials, and innovative construction techniques. As a result, landmark buildings such as the Pyramid and Khan Shatyr became key drivers of architectural modernization, projecting an image of economic growth, technological advancement, and prosperity.

At the same time, the development of Astana reflects a deeper structural condition shaped by dependence on external expertise. The realization of these iconic projects required not only visionary architects but also transnational networks of engineers, contractors, and suppliers capable of delivering complex high-tech solutions. This reliance on foreign knowledge and industrial capacity highlights a critical paradox: while architecture has successfully projected an image of independence and modernity, its production remains embedded within global systems that limit local autonomy.

Furthermore, the political dimension of architecture in Astana is central to understanding its significance. As many scholars of political science have pointed out, the architecture of capital cities is inherently political, particularly within centralized or authoritarian contexts. Under the leadership of Nursultan Nazarbayev, architecture was mobilized as a tool to materialize ideological narratives, including interethnic harmony, religious tolerance, and national unity. The Palace of Peace and Reconciliation, for instance,

serves as a physical embodiment of these values, hosting international congresses of world religions and symbolizing Kazakhstan's role as a mediator between cultures.

At the same time, the broader urban landscape reflects the ideology of Eurasianism, expressed through the blending of European, Central Asian, and global architectural styles. While this hybridization has produced a visually striking and globally recognizable cityscape, it has also resulted in a fragmented architectural identity. The rapid importation and adaptation of foreign styles has, in many cases, hindered the development of a coherent national architectural language. This process, driven by efficiency and political ambition, has often prioritized symbolic impact over locally grounded innovation, creating a dependency that extends beyond construction into the realm of design thinking itself.

Moreover, architecture in Astana functions not only as a representational tool but also as a mechanism of social and psychological influence. Monumental scale, unconventional forms, and technologically advanced structures are designed to inspire awe, reinforce state narratives, and cultivate a sense of belonging among the population. These buildings do not merely house functions; they communicate messages, shape perceptions, and contribute to the construction of a collective imagination of progress and modernity.

Ultimately, the case of Astana illustrates that architectural modernization in Kazakhstan should be understood as a transitional and deeply complex process. While global collaborations have enabled the rapid creation of iconic urban forms and elevated the country's international profile, they simultaneously expose the structural limitations of domestic architectural capacity. The challenge moving forward lies in transforming this

dependency into an opportunity—leveraging global knowledge while fostering local expertise, education, and innovation.

In conclusion, Astana's architecture represents far more than a collection of visually striking buildings. It is a material manifestation of the country's aspirations, contradictions, and evolving identity. It reflects a nation navigating between past legacies and future ambitions, between global integration and local self-definition. The tension between these forces remains unresolved, but it is precisely within this tension that the future trajectory of Kazakhstan's architectural and urban development will be shaped.

Chapter 3. The Palace of Peace and Reconciliation (Pyramid)

Introduction

The Palace of Peace and Reconciliation (Pyramid) was one of the first buildings in the new capital city to be designed by world renowned British architect Norman Foster. This iconic building became the symbol of modernity and progress in the post-Soviet period of an independent Kazakhstan. Universal and pure geometric shape of a pyramid which is very difficult to construct with such a rich program^[1] inside and challenging to execute both technically and structurally. Building the Pyramid in Astana involved many challenges such as inviting highly qualified engineers, importing construction materials and facing harsh climatic conditions of the second coldest capital city in the world.

The Pyramid was built in 2006 and was inspired by the ancient Pyramid of Giza. The universal geometric form of a pyramid is well known and accepted around the world. Therefore, it was well suited to the promotion of tolerance and peace among the various religious and ethnic groups coexisting on the vast territory of Kazakhstan. Such a monumental structure located on an open space with a presidential park and right behind the presidential palace “Ak Orda” was meant to impress. Like the Great Pyramid of Giza being designated as one of the seven wonders of the world that is widely recognized around the globe.

This chapter discusses how the pyramid was designed by the leading British architect Norman Foster to improve Kazakhstan’s image on an international arena as a modern and progress-oriented state that is shifting away from its colonial Soviet past. With the help of famous international architects Nazarbayev was promoting the new capital city as well as newly independent Kazakhstan as a modern and sovereign state that is more than capable of

governing itself. Moreover, the building serves a role of projecting an image of innovation and advancement both to the domestic as well as to international audiences. Its purpose of the palace of peace and reconciliation signals the tolerant and peaceful nature of the regime.

For the first time in 2003 Kazakhstan accommodated the Congress of Leaders of World and Traditional Religions in Astana. The event was so successful that the president decided to turn it into a permanent meeting that took place once every three years. However, the proper building was needed for such a special occasion. Thus the commission of a Pyramid to a famous British architect. The building not only accommodates the world religious congress, it also houses the 1,500 seat opera house, office space and a museum all of which are located inside of a pure geometric shape of a pyramid. (Aronson, n.d.; *Palace of Peace & Reconciliation | Projects*, n.d.)

The proportions of the building are also carefully calculated so that the symmetry and size are perfect. It is 62 metres in height, 62 by 62 metres at the bottom. The overall structure of the building is made out of steel and reinforced concrete. The rest of the details are clad in stone with glazing in a triangular shape and special glass elements made by the artist named Brian Clarke. The building is organized around a large atrium which provides natural light throughout the building all the way to the opera auditorium. Glass elements that have been used both on the exterior as well as the interior of the building provide penetration of the natural light. The conference room located at the very top of the pyramid is supported by four inclined pillars called the “hands of peace”. The delegates can access the top of the pyramid either by the elevator or by multiple ramps that offer easy access to the chamber. (Aronson, n.d.; *Palace of Peace & Reconciliation | Projects*, n.d.)

The weather of Astana is very harsh, drastically changing from 35 degree celsius in the summer to -35 degree in the winter season. So, such climate posed various challenges to the construction of the building that had to be completed for the next meeting in 2006. Incredibly, the entire construction process was completed in less than two years partially because of the use of prefabricated structural elements that were assembled on site. (*Palace of Peace & Reconciliation | Projects*, n.d.)

Initial Idea to Design a Pyramid Shaped Building (Geometry and Form)

Initially the idea of building in the shape of a pyramid came from a Kazakh architect who won the first competition to design it. However, due to lack of experience and the need to attract international publicity the decision was made to proceed further with an international competition among transnational architects including celebrity architects. In 2002, president Nazarbayev personally initiated a competition where architects from all over the world were invited. (Pyramid 2012) Nazarbayev liked the idea of constructing a building in the form of a pyramid but the idea behind it was to attract international prestige and recognition. So, the architect had to be a well known, prestigious specialist with a global reputation. The competition design guide required architects to comply with the design of the building in the shape of a pyramid. Eventually, famous British architect Norman Foster entered the competition and proposed to redesign the building in the shape of a high-tech pyramid and won the competition. (Koch, 2012)

According to an American dictionary a pyramid is: “a solid shape with a flat, square base and four flat, triangular sides which slope inward and meet to form a point at the top.” (*Pyramid*, 2025) Hence, due to their perfect geometry and mathematical precision, pyramids

have been perceived as sacred and were shrouded in mystery. Part of the mystery comes from the fact that people can clearly see the outside part of the pyramid but rarely can they understand the interior part which is convoluted, mysterious and frankly scary. However, the intention of Foster was to make it open and clear to the public. Such an effect was achieved by placing a large glass on top of the pyramid that lights the interior with plenty of natural light making it pleasant and open to the public. Additional glass windows are placed closer to the ground level to provide natural light to the museum space of the pyramid.

According to Foster, the pyramid symbolizes rebirth of the Kazakh nation and sends a powerful message to the world that a new modern and prosperous country is emerging on the global arena. Moreover, the four equal parts of the pyramid send a message of Kazakhstan's equal and friendly attitude towards all the nations and people living on the planet despite their ethnic belonging and religious beliefs. Like the Great Pyramid of Giza, Astana is claiming its role and importance on the world stage through cutting edge architecture of the time. Moreover, "the Hanging Gardens of Astana" at the top of the pyramid draws parallels with the Hanging Gardens of Babylon yet another built marvel among the eight wonders of the world. Therefore, the pyramid of Astana is somewhat claiming this modern-day wonder designed by the British, constructed by the Turks and sponsored from the Kazakh oil and gas revenue. All in all, the combination of cultures and history in one symbolic building is amazing because it resembles the ancient Egyptian pyramid with the ancient Hanging Gardens of Babylon located on the territory of modern Iraq. Built out of glass and steel that were nonexistent in the past is all a part of the truly wonderful and unbelievable power of architecture and engineering. (Wainwright, 2017)

The Pyramid building looks shockingly simple compared to other iconic buildings designed by Norman Foster and other famous architects to impress the public. However, that simplicity is justified by its neutrality which is not mentioned or used in any religion. However, there were many rumors about its relation to the so-called “world government” or a shadow government that rules the world through its proxies around the world. No matter how interesting or speculative it sounded, it is very difficult to prove such theories in practice. Yet, Frank Albo, wrote a book on this theory which is called “Astana Architecture, Myth and Destiny” where he challenges the idea of Astana being the capital city of “illuminati” and describes the Pyramid as its main symbol. (*Frank Albo, n.d.*)

The triangle as the basic shape of the pyramid was chosen not only as the strongest shape in the structural integrity but also to support the famous saying “less is more” underlying the importance of using simplicity as a basis for complex objects that attract the eyes with its visual perfection. Such principle is found in many spheres of life including architecture where the sophisticated decorative elements are the style of the past that long outlived their relevance in the contemporary world. The concept of minimalism can be applied to the design of the pyramid. The concept in modern architecture that the clarity and simplicity lead to the creation of a perfect design is borrowed from nature. Keeping design simple originated in the architecture of modernism that advocates for straightforwardness and incorporation with the environment.

The theory of minimalism originated from people realizing that ornaments and decorative elements are in fact spoiling the purity of clean lines and simplicity. As one of the most influential architects of the twentieth century German American architect Mies van der Rohe (1886-1969) famously said: “Less is more”. He was known for his primary role in the

rapid development of the modernism style in architecture. Mies had a unique chance to work alongside the giants of modernism Le Corbusier and Walter Gropius. His well-known aphorism “less is more” is still widely used among architects even if they are unaware of its origins. Mies’s famous buildings include the Seagram Building (1958), IBM building (1973), and the Chicago Federal Center (1974) all of which are highly dependent on glass and industrially manufactured steel structures. (*Less Is More*, 2021)

In contrast to “less is more” is the famous reply by the anti-minimalist American architect Robert Venturi (1925-2018) who legendarily said that: “less is a bore”. Arguing that stripping buildings off their beautiful decorative elements to their bare essential components is a crime. In contrast, Mies and other modernist architects argued that the ornamentation of buildings is heavily distracting the viewers from the real beauty that is hidden in its structural rationality and in general an extravagance is unethical. (Keskeys, 2016) In his famous book on architecture that became one of the best books in architecture “Complexity and Contradiction in Architecture” originally published in 1977 where the author Robert Venturi argues against the purism of modernism in favor of the complexity brought to light by the postmodernist movement.

During the 1960’s functional modernism was at its peak when Robert Venturi introduced his book *Complexity and Contradiction in Architecture* that challenges the idea that buildings should be simple and straightforward. So, Venturi was encouraging architects to take on complex and challenging designs to make buildings lively and attractive. Essentially Venturi was promoting the diversity in architecture by using ornaments, decorative elements, and bright colors that stand out. Non straightforward architecture that is not afraid of using unusual forms and shapes intertwining them in nonlinear ways are all

signs of the postmodernist movement in architecture led by Robert Venturi. (*Is Architecture Complex and Contradicting?*, n.d.)

Ultimately, the Pyramid building was inspired by its universal symbol of stability and power. Visually a wide base provides a strong foundation leading up to a central point where an all-seeing eye of a strong leader is located. Moreover, a pyramid shape can also represent a hierarchy, like social order or a corporate structure where the majority support very few at the top of the social structure. Stability is better than shaky structure, in other words, a stable regime is better than a shaky one.

Architecturally and structurally pyramids are very stable structures that are good for equally distributing loads and bearing the weight of the entire building. Moreover, this shape is best for resisting strong Astana winds and heavy snowfall. The pyramid designed by Norman Foster combines innovation with the most ancient structures standing to this day symbolizing grandeur and timelessness. The building was designed by using a golden ratio with a base and height measuring sixty-two meters each which gives this building its perfect proportion. The form of the building being in the shape of a modern pyramid is usually presented as neutral or a universal form and shape that resonates with everyone.

Therefore, it is religiously neutral. It is formed by connecting a polygonal base with four distinct triangular faces that join at the top of the apex. The geometry of the pyramid consists of the square base that consists of four straight lines of equal length and four equal 90 degree angles; this shape culminates into an apex point on top creating a clean pyramid shape. In the world of politics or corporate structure, social hierarchy, the pyramid shape is very generous at the bottom but gets thinner at the top. That's like life or a career gets harder at the top, less room at the top. Only one can be at the top.

Three Distinctive Levels of the Pyramid: Underground, Ground, and Sky

The clear division of the Pyramid into three distinctive parts gives a sense of high symbolism that is present in the design of the building. Vertical division into an underground world, earth and sky is clearly seen both on the façade and interior of the building. Such division can be also interpreted as the country's past, present, and its future aspirations. Like ancient pyramids, Foster divided the building into three distinctive levels: underground, earth, and sky. The design of the building clearly reflects the overarching theme in many religious practices and beliefs where humans must endure a long and difficult journey from darkness to light. The interior clearly demonstrates that with the choice of color and finishes.

The underground part of the building where the opera house is located is painted into black and dark colors to give the feeling of complete darkness and the absence of natural light. Certainly, there are no windows or any kind of glazing whatsoever, thus no natural light coming in, which creates a strong feeling of darkness as intended by the architect. The opera house is in red color which is a perfect match for black. It creates a powerful combination that is often used in strong contrast to each other. It catches the attention and creates a powerful visual impact. Red color is often connected to passion and energy, while black color can represent power and mystery. Such combinations of red and black colors have been used for centuries, and it remains popular to these days as it gives a sense of classical elegance. Such a combination creates a dramatic interior. (Wainwright, 2017)

The concert hall seats 1302 (one thousand three hundred and two spectators). The interior is colored into burgundy and gold tones. The ceiling of the opera is the floor of the atrium above and it has a "sun-window" which reflects natural light into the interior through special reflectors that are built into the sun-window on top of the concert hall and on the

conference hall floor. The stage is equipped with the most advanced technical support such as lighting, acoustics and special effects that make some of the most complex staging and productions possible at a convenient level. The pit in front of the stage can accommodate up to seventy instrumentalists and is made up of 2 separate platforms that can change levels according to the performance. On top of everything mentioned, there are nineteen dressing rooms to support artists in their uneasy journey towards the arts performance. (*The Palace of Peace and Reconciliation – Tours to Uzbekistan & Central Asia*, n.d.)

The level above where the museum and exhibition halls are located is distinctively separated from underground levels with glass windows visible from both outside and inside of the building. Moreover, it is painted into white (bright) colors which makes the space very well illuminated and full of natural light that comes from windows located on the level just above the ground. This is the level where the atrium is, and it also provides plenty of natural light into the space flooding the place with natural light coming both from top of the pyramid and windows on four sides. If we look at the building from the side section cut, we will be able to see that it consists of multiple different sized pyramids that comprise one strong structural form. Diagonal columns are clearly visible from atrium space and can give a sense of stability and endurance that they provide as a structural support of an entire building. So, that makes two layers of structural support of the building. One is an outside layer and second is an interior (smaller) structural pyramid.

The top of the pyramid is designed into a blue and yellow glass that symbolizes freedom and unity referring to the national flag of Kazakhstan. It was specially designed by Foster's long term collaborator, British artist Brian Clarke. (Steen, 2006) Sunlight that penetrates the decorative glass part at the top of the pyramid lets the natural light penetrate

inside the building going all the way through a large atrium into the opera theater on the underground level. The opera house is painted into a bright red color and symbolically located underground. However, the colors of the interior change as the level goes up. So, the ground level has bright white colors, and the top floors are in blue and green. As Foster himself puts it: "As you ascend up the pyramid you ascend up into the light,". (Steen, 2006)

Foster wanted to give his pyramid a sense of lightness as opposed to the ancient Egyptian pyramids that look massive and heavy. His idea was to design it in such a way that it appears to be floating above the ground. (Steen, 2006) To create this effect, the main structure of the building is positioned above a large mass of soil that is used to create a landscape design. Therefore, the main and service entrances to the building are all in the underground level, as well as the opera house. Therefore, the interior of the ground level is using black color to symbolize the underground part of the pyramid. All in all, the pyramid does give a sense of a lightweight structure that looks though it came from space and landed in its place. So, the desired outcome of the architect is achieved.

The atrium space also known as the "Cheops atrium" is a two thousand square meter open space that combines four different galleries that are located above the concert hall. Currently these galleries serve as an exhibition platform and small-scale museums for world religions, all the different ethnicities living on the territory of Kazakhstan, and they hold pictures, various awards given by the important people who visited the Palace of Peace and the overall achievements of Kazakhstan in making peace and harmony among different nationalities and religious communities. One of the exhibitions in the atrium hall presents national suits. Twenty-one national costumes are presented in the museum as a symbol of unity and peace between all the different nationalities living under one "shanyrak". The

atrium hall is the biggest floor in the building totaling two thousand square meters. The floor is covered in white and grey marble which is a stark contrast to the underground concert hall level which is finished in black and dark tiles all around the space. White colors of the atrium symbolize purity and nobility which deeply resonate in Kazakh culture as the tone of great respect. The white is the color of purity, new beginning, innocence and respect (*«Atrium» Hall*, n.d.)

At the bottom of the main atrium is the decorative circle element partially made of glass which gives a symbolic natural light to the opera. Architecturally it gives a sense of clarity and order by being right in the middle of the atrium and providing a meaningful point of guidance. Moreover, it is the place where a much larger round table can be set up to host a big number of delegates because most of the times the cradle of peace cannot host many people, it is in fact, very limited. In this case again it is symbolically a round table. All the participating members are set to have conversation, meeting and discussion around the circle. This way none of the participants feels superior or inferior to one another. This tradition historically comes all the way from the times of king Arthur's round table where he sat with his knights demonstrating that all the participants have equal status. Unlike conventional rectangular tables where members seat according to their rank.

There are two main exhibition spaces inside the pyramid. The first one is devoted to major ethnicities that coexist peacefully in Kazakhstan. It displays human scale mannequins dressed into national clothing of the diaspora they belong to standing in pairs of man and a woman all in one space peacefully demonstrating their ethnic belonging through their national dress. Though the faces and skin color are just blank, making it recognizable only by what they are wearing. The second exhibition represents major religious groups that freely

practice their religion. Various religious items are on display such as the outfit of religious leaders such as Christian cassock and vestments, Christian icons, Muslim attire, Buddha and Shiva miniature statues, online tours to famous mosques, churches and temples around the world, an interactive map of Kazakhstan with key locations of sacred places.

There is also a small installation devoted to the time when Kazakh people helped those in need during Stalin's ruthless deportation of thirteen ethnic nationalities between 1937 and 1951. (Pohl, 2000) The Soviet government forcefully moved Chechens, Ingush, Germans, Koreans, Finns, Crimean Tatars, Balkars, Karachays, Kalmyks, Meskhetian Turks, Kurds, and Greeks from their established regions of settlement. All of them are represented in the exhibition space of the Pyramid. The overall number of deported groups exceeded two million people. These people were mostly exiled to Kazakhstan, Siberia, Central Asia and the Urals. The main justification for their deportation was the fear of the Soviet leadership that these groups might be disloyal and could betray at any moment of the German invasion. (Pohl, 2000)

The very symbolic exhibitions of religious tolerance and inter-ethnic peace clearly demonstrate Kazakhstan as a safe and broad-minded country that welcomes everyone who is in need or who wants to live and work safely and happily under the protective and benevolent regime of Nazarbayev. Therefore, the Pyramid building stands as a physical and visual representation of Nazarbayev's administration policies and portray Kazakhstan as a safe home to all nationalities and religious beliefs that strive to set an example to the rest of the world as a peacemaker and progressive society. Therefore, the power of architecture is used to support the idea and create a positive image of the regime and overall country both domestic and international as an open-minded and liberal part of the global community.

Above the atrium level is a “hanging gardens of Astana” or a winter garden where live plants from both local as well as exotic places are presented. Located along the spiraling staircase that leads to the “Cradle” on top of the Pyramid. A mixture of artificial and natural plants are seated along the wide staircase. The culmination in the interior of the pyramid is certainly the hands of peace and the doves of peace serving as the roof to the conference hall on top of the pyramid. The glass top is painted in the colors of the national flag and decorated with a hundred and thirty doves that fly around peacefully. Hence, making the mosaic decorated with 130 doves that symbolize all ethnic groups peacefully living under one roof in tolerant and peaceful Kazakhstan that respects every single individual despite their religious belief and ethnic belonging. Moreover, the blue sky and yellow sun colors of the glass mosaic on top of the pyramid which was created by the British artist Brian Clarke is highly symbolic because it was specially made to match the colors of the national flag of Kazakhstan. (*Foster + Partners*, n.d.)

On top of the pyramid the four inclined pillars called “the hands of peace” are holding perhaps the most important space in the building, the conference hall. It is where the heads of the World and Traditional Religions meet triennially. Hence, just below the apex, the place where four corners of the pyramid come together, under the glass roof decorated with 130 flying doves and the glass painted in blue and yellow is located the “Cradle of Hope” which is a hanging conference hall held by “the hands of peace”. This open platform is symbolically hanging in the air above the central auditorium. This rounded table is specifically designed in a circular shape to place every member of the congress in an equal position in their importance. Similar to the UN's Security Councils conference room, it manages to position all the participants in an equal format, so that no one feels deprived. After all it was meant to

be such a place that brings together conflicting parties to resolve all the issues and make peace and harmony among all and that was the main idea behind building this palace. Thus, like the aims and missions of the UN Security Council, the Palace of Peace and Reconciliation puts making peace and building tolerance among all religions and ethnic groups its main priority.

On the very top of the Pyramid is located the “Besik Hall” or the “Cradle” that offers a 360-degree view of the capital city. This unusual name comes from the fact that the round table located at the very top of the Pyramid and specially designed to host the leaders is structurally supported by large diagonal columns which looks like though the round table is being “cradled” by these supports. Symbolically supporting meetings that take place at the top as if parental hands are holding its child to grow strong and independent. From the top of the Pyramid which is fully glass, the views open to three hundred and sixty degrees of Astana. The presidential palace, two bridges, residential complexes and a scenic park with various trees and fountains surround the pyramid. The blue glass top of the pyramid symbolizes the sky, and one hundred and thirty doves depicted flying are all the different nationalities living in peace and harmoniously coexisting on the Kazakh land.

The conference round table at the top was specially designed to host the triennial conferences of the world religions. However, the space at the top turned out to be too small to host all the delegates coming to participate. So, most of the time, the conferences are hosted in the atrium area where more people can be accommodated. The glass top of the pyramid was decorated by the famous British artist Brian Clarke. He portrayed a hundred and fifty doves flying peacefully under the warming sun of Kazakhstan reflecting the national flag of

Kazakhstan that depicts an eagle proudly flying in the sky and under the sun that symbolize strength and freedom.

Structural Innovation of the Pyramid – Diagonal Grid

Despite being one of the simplest and oldest forms of architecture on earth, The Palace of Peace and Reconciliation in Astana catches the eye of those who see it. Mysterious people from the outside always wonder about what is inside? In the case of the pyramid in Astana, it is certainly one of the most complicated structures inside because it combines many different functions in one form that starts as a square shape on the bottom and becomes narrower at the top until it finally turns into a point on the top. Architecturally it is certainly very difficult to fit the canteen, large foyer, full scale opera house, library, museum, atrium, administration, people's assembly fund of Kazakhstan, an international center for culture and religion, modern art center, office space, dining hall, the "cradle" hall on top.

A lot has changed in the design and construction process of pyramid shaped buildings since the times of The Great Pyramid of Giza, one of the eight wonders of the world. After centuries of progress and advancement in architecture and engineering, Foster had presented the marvel of architecture and modern engineering embodied in a high tech pyramid – palace. Mysterious from the outside for those who see it for the first time, also very secretive on the inside, especially on the underground level where dark and black finishes are used to decorate the interior. The pyramid is one of the most stable forms known to humanity, this architectural and structural masterpiece was a remarkable achievement thanks to a system called a diagrid structure.

By definition provided by Ian Volner, a diagrid is “a framework of diagonally intersecting members formed with elements like metal, concrete or wooden beams.”

(Dissecting Diagrid - Structure, High-Performance Building - Architect Magazine, 2011)

This type of structural system is becoming increasingly popular in buildings that are very tall or have a large span. (Baldwin, 2017) Norman Foster has used this system in some of his famous buildings such as “The Gherkin” building in London, officially known as the Swiss Re Tower built in 2007 and the famous Hearst Tower in Midtown Manhattan also designed by Foster in 2003. To strengthen these buildings architects and engineers use diagrids which makes them extra safe and earthquake resilient.

Structure frames are usually used to take the structural support outside of the building. Therefore, they are clearly seen on the exterior of a building and if used correctly they may reflect ascetics and appealing perception. In such a case, structural elements that support the building such as columns, beams and trusses will be gone making room for usable area and making an open space setting possible. The building envelope then becomes integrated into the exterior structural system, the so called exoskeleton that supports the entire building from outside as opposed to the classic way of having an interior core and columns that use up the functional area. Such exterior integration gives a powerful visible sense of support and strength of the building. (Baldwin, 2017)

Forming a rigid exoskeleton was the key to the design of the pyramid because that would allow for such an unusual form of the building and reinforce its structure without compromising its strength. Therefore, a steel diagrid became an excellent solution for such extraordinary design. Moreover, it was natural for a pyramid shape to take the triangle shape as a basis and visually it looks compelling to intersect metal frames making them stronger

and ascetically appealing. In fact, diagonal grids require less steel which makes an entire structure cheaper and lighter, unlike conventional frames. For example, Hearst tower in NYC designed by Foster uses twenty one percent less steel rather than typical design. (Dunlap, 2004)

The diagonal grid became the signature move in most Norman Foster buildings as it made visually appealing elevations as well as adding structural integrity. With this technique his famous buildings became dynamic and much more vibrant compared to its competitors and the surrounding contexts of these buildings. Functionality is another reason why Foster gives preference to the diagonally intersecting metal structures as they not only add physical strength to the building but also allow for column free interior adding to its usable area or profitable square footage. Therefore, the diagrid is not just a decorative element but an essential structural component of the building that works to improve the environmental performance and adds to the structural integrity of the building.

Foster uses the diagonal metal grid structures in most of his famous buildings for several reasons. First, is that the diagonally intersecting metal framework provides more structural efficiency compared to traditional vertical or horizontal solutions. Moreover, the load distribution is much more evenly spread among the structural elements. Such design allows using less construction materials and therefore, the overall weight of the structure reduces up to thirty percent leading to efficient use of materials and reducing the construction cost. Structural efficiency became the priority in the design of Norman Foster as it significantly reduces cost and makes the frame lighter and stronger. This sort of approach is especially important in the unique shape of buildings like the Pyramid where the upper floors

need more interior space as the shape of the buildings dictate the decrease in size of usable area.

Second is the aesthetic appeal of beautifully designed diagonal grids. They create a sense of dynamism and movement on the exterior of the buildings. People are used to seeing vertical, horizontal lines on the buildings that were for centuries designed based on the Greco-Roman system of order that dictates the design to be symmetrical and proportional governed by the rules of the golden ratio. Thus, the design created by Foster using the diagonal grids is a breakthrough in architecture, engineering and construction of modern buildings. Visually grids make buildings look futuristic because they are rarely seen by the public due to their complex design and difficulty to build without proper specialists and industry that is capable of producing complex curvatures and sophisticated elements. Intersecting patterns and unusual angles create a distinctive visual effect significantly adding to the Pyramid's iconic appearance.

Third is the sustainability and environmental considerations as Norman Foster is well known for his profound commitment to sustainability and innovation. He is the biggest supporter of energy efficient and environmentally friendly designs that minimize the impact of the buildings to nature. Ever growing concern on global warming, climate change and pollution forces us to design buildings wisely considering their footprint and usage of recyclable materials as buildings are known to be one of the main contributors to climate change. Foster and partners always emphasize green building solutions that help to incorporate energy saving, solar shading, natural ventilation and the overall eco-friendly approach to features. Strong emphasis on making buildings green by using the renewable

energy sources and technologies that reduce building's carbon footprint makes his firm leading architectural practice in the world. (*Foster + Partners*, n.d.)

One of the very first buildings that boosted Foster's career was the building of the Hong Kong and Shanghai Banking Corporation (HSBC) designed and built in Hong Kong in 1985. This building did not have distinctively diagonal patterns on its façade, but it did show early signs of angled elements present on the exterior of the building. Moreover, it was the first experimental building to take the interior structure outside of the building to create a grand atrium and free up the space for opening the large areas to transform them into usable square footage. Such an innovative approach allowed for better flexibility as using diagonal components assisted in the optimization of internal space. HSBC building serves as the testament to Foster's virtuousness in finding new ways to design modern buildings that respond to the challenges of the ever demanding and growing requirements of the time.

Fourth is the constant integration of technological innovations into the design of the buildings. Diagonal grids are not merely decorative elements that look good, but they are also well calculated integration between the glass and steel that blend in harmoniously. Furthermore, such smart integration greatly contributes to the energy efficiency of the building by letting more natural light into the building and letting the natural ventilation go through various stages that heat and cool the air inside of the building. Bold use of new materials and methods of construction put mister Foster on top of architectural lists guaranteeing his work is not only visually striking but also very functional and efficient.

Final and one of the most important elements of Foster's projects was human-centered design. Foster made sure that the users of the final product received high quality of life and space. Therefore, creating a sense of community inside of the large buildings and

encouraging interaction between inhabitants is the priority in the design. Comfort inside the buildings is another priority for the design as engineers make sure that the climate inside the building allows for comfortable life inside the human made space where air flows naturally creating a pleasant atmosphere for its inhabitants. By improving the user experience these projects aim to promote social engagement and help people to find common ground.

Moreover, this can be seen in the projects that erase the boundaries between public and private, accessible and open to people who want to connect both with history as well as the future of the buildings. (*Foster + Partners*, n.d.)

Although Foster has previously used a diagonal grid system in some of his previous buildings, the pyramid promises to be the most successful use of this system. When the diagrid is used as a simple triangle shape it becomes very efficient and effective against lateral, horizontal and vertical loads. Therefore, as the triangle is the basic shape that forms a pyramid shape, its use makes the buildings very rigid and stable. Let alone making an entire structure stronger, diagrid also gives a pyramid a more finished and beautiful look. This basic structure with a triangular profile of the building effectively creates a three-dimensional grid structure that evenly distributes the loads in all directions. The design of the building was so efficient that it resulted in one the lightest structures of its kind and allowed for a very quick construction process that lasted only twenty-one months from the conceptual design to construction completion. (Aronson, n.d.)

Steel Structure that Expands and Contracts

In fact, the structure of the building turned out to be so lightweight that the engineers had to consider the rapidly and dramatically changing weather conditions in Astana when the

temperatures can drop to negative 40 degrees Celsius during the winter and rise to 35 degrees during the summer heats. Such drastic change in the temperature makes the steel structure move by expanding and contracting depending on the temperature outside. Thus, an entire structure is designed to shift and play on special joints. The calculations made for the thermal expansion of the steel frame reveal that the yield strengths of the pyramid are almost twice as high as the other steel structures. Therefore, the pyramid was made to expand and to contract freely depending on the weather conditions in Astana. (Aronson, n.d.)

The idea of allowing the steel structure to expand and contract freely comes from bridge engineering. Bridges that have a long span have a similar problem when the metal structure constantly contracts and enlarges due to thermal expansion. The solution was to install an expansion joint on one end of the bridge to make it more flexible to contractions and expansions caused by the fluctuating thermal stresses throughout the seasons. Although such design solutions are seldomly used in the design of the buildings, engineers from Buro Happold seized the opportunity to try new solutions and it turned out to be very successful and proven to be working well. This solution has ultimately allowed the pyramid to “breathe” in the periodic temperature fluctuations. This way the building is alive and starts to move and breathe just like the human body. (Aronson, n.d.)

Another unique solution that has been used in this building is its diagonal elevators. Conventional elevators only move up and down strictly in the vertical position. However, the standard lift would not work in the pyramid building that tapers towards the top, breaking every known way of moving people up on the vertical surface. Since, most important spaces of the building’s programs are in the middle of the building (core) it was important to keep it clean and out of any structural and engineering elements. The opera house, main atrium,

museum, and the vertical garden with the cradle of the peace are all located in the middle of the building excluding the possibility of locating the lift shafts in the middle of the building to make them conventional solutions. Engineers had to come up with new solutions by placing the elevators alongside the diagonal structure of the building. Certainly, placement of the elevator cores alongside the sloped walls is an unusual solution that is more expensive than a traditional solution, however, it greatly improves and benefits the architectural and structural integrity of the pyramid. This decision further improved the resistance of the pyramid to lateral loads. (Aronson, n.d.)

Foster and Partners

The Foster and Partners are such a powerful design firm because it houses all specters of specialists that are necessary to design and build an advanced, high-tech building. Like a small size research university firm, it conducts research on advanced construction materials, structural elements, new engineering solutions, environmental studies, landscape architecture, interior design and many other fields of the built environment. By working in teams that communicate and share knowledge on a regular basis the team can make decisive design solutions that will ensure the integrity and well-rounded approach to a final product in a form of a unique, top of the edge building that stands out in the urban context. All in all, innovation and sustainability in the design philosophy of Norman Foster stand at the core of their work. Thus, Foster and his team always look for the ways to make a positive contribution to the environment at large and in turn the final product in the form of the modern buildings that are ahead of their time.

Being one of the most contemporary and highly technological buildings in Astana, the Pyramid significantly contributes to the image of Kazakhstan being “green”. However, only one building in Astana Talan Towers designed by US based architectural firm SOM (same firm that designed Burj Khalifa) can boast about having a LEED (Leadership in Energy and Environmental Design) Gold certificate. LEED is a green building standard developed in the United States by the Green Building Council. Such certification is established to promote environmentally friendly buildings that contribute to making the planet a clean and safe place to live. LEED considers building’s water and electricity consumption, recyclable and sustainable construction materials and methods, localization of construction materials to make transportation as short as possible. Moreover, environmentally friendly and sustainable buildings are even promoted to consider the health and well-being of its construction teams and occupants.

Both projects by Norman Foster the Pyramid and Khan Shatyr significantly contribute to energy efficiency. Foster and Partners are well known for their approach to “green” and sustainable design. Hence, in the Pyramid project Foster has utilized the use of natural light to make the interior space as bright as possible and to use the sun’s heating ability. Foster has created an environmentally conscious building by installing an energy efficient feature on to the project. The only sustainability issue with both the Pyramid and Khan Shatyr projects was that their design was so unique and cutting edge that their construction materials could not be made locally. Therefore, they had to be made and transported from Europe which is a very long distance from Kazakhstan which does not make them sustainable. Using local construction materials gives the project authenticity and energy efficiency in the local

climatic conditions. Moreover, transporting materials from long distances means burning fuel and contributing to carbon dioxide emissions.

The Pyramid building is designed in such a way that it self-regulates the sunlight and air ventilation system inside of the building. The building is close to earning the LEED certification but the fact that its construction materials were imported from far away makes it difficult to score high to earn sustainable points. By actively reducing the building's energy consumption it contributes to ecologically friendly design. Large glass panels on top and four sides of the Pyramid help to maximize the penetration of natural light into the building where it is wisely directed further into different spaces by a carefully placed system of mirrors that reflect it in the directions that are needed. This clever optical system makes the circulation inside of the building much more pleasant and effective. Therefore, the pyramid building is yet another example of Kazakhstan's push towards energy efficiency even though the country is one of the biggest exporters of fossil fuels globally.

Ancient Egyptian Pyramids

Originally built in Egypt, the ancient Pyramids had an enormous cultural value that translated over time. These structures are some of the oldest and most mysterious monuments of ancient civilizations. People are still amazed about the construction of these colossal megastructures as they surpass the construction methods of their time. In fact, Pyramids are the only ancient structures among the eight wonders of the world that still stand in their original form, shape and size to these days. Ancient pyramids were used to bury powerful figures like pharaohs. Pyramids had a highly symbolic function in society especially they

carried a significant religious and cultural role as the main purpose of this marvelous structure was the entombment of the pharaohs who ordered to build them in advance.

Architecturally and visually pyramids effortlessly connect the earth to the sky by bridging and linking them forming a bond between the underground world of the dead with the sky world of the angels. Pyramids start at the bottom as a solid, monolith structure that lacks any architectural elements and then elegantly merge onto a single point at the top connecting to the sky. Ancient Egyptian mythology believes that pyramids send the souls of the dead into the sky. First, the pyramid rises confidently from the ground, later it blends with the blue sky becoming infinite. Emerging straight from the ground the form of a pyramid rushes dynamically straight into an atmosphere dissolving in time and space. The pyramid looks very impressive due to its heavy bottom and a rising point at the top.

It is still to these days difficult to imagine how Egyptians managed to build these gigantic and sophisticated structures without modern equipment and heavy machinery. They are still a mysterious ancient civilization to most people who even assumed that the aliens from space have built them. From ancient times pyramids were considered sacred places for worship and communication with the gods. The lower parts were usually devoted to the burial platforms, and the upper levels were designated for tombs whereas the top of the pyramid was used to make sacrifices and pray for victory, prosperity and happiness. It was believed that the gods are sitting somewhere inside of the pyramid, so people should make a sacrifice and pray, making pyramids highly symbolic and religious buildings. (@aithor, 2024)

Ancient pyramids were very heavy because they were built out of huge stone blocks that were carried from nearby stone quarries. By stacking one stone to another the structure

grew, becoming smaller to the top. This method of stacking stones one another has stopped with the invention of metal structures and curtain walls in the twentieth century. This modern construction method made the outer wall of the building much lighter and more efficient which made construction faster, cheaper and much more efficient. Thus, the curtain walls were self-supporting and much lighter than stone.

The very first architectural concept of the pyramid was closely linked to the burial ritual and the worship of the sun by physically bringing people closer to the sky. Thus, understanding the form of a pyramid in a contemporary society means looking deep into historic discourse that was surrounding this mysterious structure for centuries. Thus, understanding why and how pyramids were built is the key to interpreting the meaning of these structures to those who participated in their construction and to those who later worshiped and prayed in them.

The stacking, positioning, and the alignment of huge stone blocks on top of each other to form a pyramid is still to this day a mystery to engineers. The precision with which these large stone blocks were stacked is unprecedented. The architectural and engineering precision in calculating and measurement of Ancient Egyptian builders is jaw dropping. Without the modern technology that can measure and align with laser precision it is fascinating how Egyptian architects managed to precisely place each stone to form a perfect pyramid. The tools that they have used are still unknown. Some experts predicted that the Egyptians have used copper to work with quartzite and granite. However, copper is not a good material to work on stone because it is too soft for that. Thus, both the construction technique and the tools that were used to build ancient Egyptian pyramids remain undiscovered. Many different theories have arisen about how the pyramids were built. No matter what kind of speculations

may be around the pyramids, their precision and perfect geometry is clear. The precise angles of the exterior cladding which started from the ground were violated only when it came to the entrance door and ventilation openings. For example, each stone block that was used to construct Pyramids weighed between 13 to 73 tons and consisted of roughly 1,260,000 to 2,300,000 stones totaling the overall weight of above five million tons. So, imagine pushing, pulling, dragging, lifting and placing these enormous stone blocks each weighing around 2.5 tons. And the Great Pyramid of Giza needed 2,300,000 of limestone and granite blocks to form the marvelous structure that we know today. (@aithor, 2024)

Maya and Aztec pyramids were often used as religious temples whereas Egyptian pyramids such as Giza, were used as tombs for pharaohs serving as a bridge between the Earth and sky bringing them closer to gods. Moreover, the pyramid's four equal triangular sides that make up a pyramid form symbolize Kazakhstan's multi-vector political stance that treats everyone both domestically and internationally equally, providing a base for peace and harmony.

Structural innovation of ancient pyramids relied on the perfect stacking of stone blocks that ultimately created incredibly stable and heavy monuments that passed the test of time. The unique technique of stacking the blocks to each other distributes the weight evenly throughout an entire building making it stronger than a fortress. Such clever weight distribution can be seen from later structural innovations like domes and arches that are actively used these days. Moreover, the precise geometry and proportion of ancient pyramids laid the foundation for the golden ratio that was used in architecture for years to come. Some of the most famous architects of the twentieth century like Le Corbusier and Frank Lloyd

Wright were inspired by the geometric perfection of pyramids and they have later applied them in their design principles.

The spatial orientation and symmetry displayed in the perfect alignment with the four directions on the compass rose. Such alignment is still used these days to place a building on site and in an urban context. Thoroughly aligned buildings will take advantage of the sun and wind patterns, consider the surrounding context and neighboring buildings to make the space comfortable and energy efficient. Moreover, the social and cultural importance of the building plays a huge role in the placement of the pyramid on an open public area that should be visible in a dominant manner from every direction which gives it a monumental and a central position in an urban context. In the case of the Astana pyramid it can be clearly read that the building is prominently located on the site that is surrounded with a park on the back and a public square in front which gives it a principal position in an urban context.

Built to project power and eternity, pyramids have long been perceived as grandiose structures that symbolize order and divinity. Such monumental architecture is meant to express the concept of religious and cultural connotation by social and political elites. Built thousands of years ago, ancient pyramids served as sacred and religious places to worship and bury influential figures such as pharaohs. Still to this day people admire them and go to visit them personally, boosting the tourism in Egypt. They stand tall as a striking achievement of mankind and a man-made wonder of the world turning them into a social and religious masterpiece that attracts people from all over the world. Often perceived as a passage to afterlife and memorialization of certain individuals through ritual and glorification, pyramids still stand strong and powerful as a testament to the power of architecture to promote an immortal existence throughout centuries.

Glass Pyramid of Louvre Museum in Paris, France

Another prime example of famous pyramids besides the Egyptian pyramid of Giza is the glass and steel pyramid of Louvre by famous Chinese-American architect I.M. Pei. The new glass addition became the symbol of modernization and a magnet for tourist attraction. The main entrance to the museum covered with the high tech glass and steel pyramid became a sensation and hit the world news attracting millions of tourists to Paris. These days it is impossible to imagine the Louvre Museum without its glass pyramid which became an iconic image and a true symbol of the museum. The museum is strongly associated with the glass pyramid entrance, so, when the Louvre Museum is mentioned people immediately think of the glass pyramid designed by I. M. Pei and that is the true power of architecture. In a sense it is like a “Bilbao effect”. (*A Pyramid for a Symbol - Cour Napoléon & Pyramid*, n.d.)

The design for an extension to the museum was commissioned by the then president of France François Mitterrand in 1981 and in 1983, Ieoh Ming Pei was appointed to design it. The main idea of an architect was to improve the circulation of the visitors by creating a direct underground entrance to all three wings of the museum and covering it with this signature glass pyramid. The underground entrance fulfilled multiple functions at once and brought together the ticket office, shopping and a connection to an underground metro all to welcome and provide a comfortable experience for the visitors. (*A Pyramid for a Symbol - Cour Napoléon & Pyramid*, n.d.)

The monumental character of the Pyramid has faced much criticism at first. As critics thought that the modern style of a glass pyramid is unsuitable for a classic French museum. However, I. M. Pei argued that he was inspired by the museum and French themes that go all along the architecture of the museum. As he explains, he was more concerned with the

landscape design and the overall look of the museum (context) rather than focusing on an individual building. So, an architect created an overall thematic view of the main entrance which was inspired by the French motives and if looked in context one could see that a glass pyramid together with adjacent triangular shaped pools and mini pyramids create an exclusive pattern that work together. (*A Pyramid for a Symbol - Cour Napoléon & Pyramid*, n.d.)

Positive Image of Kazakhstan

The Palace of Peace and Reconciliation was designed and built primarily to support and symbolize the peaceful and tolerant nature of the first president Nazarbayev's political agenda of multiethnic and interreligious peace and tolerance. However, besides that the building has also contributed to the social needs of the new capital city. Built to become the cultural center of Astana, the pyramid houses a large conventional auditorium, museum of all religions and ethnicities living and prospering under the leadership of Nazarbayev, a large opera house and meeting rooms with office space all of which clearly meet the requirements of cultural capital. Kazakhs were historically known for their hospitality and care for other nations and ethnic minorities. Therefore, the pyramid was meant to support this image of a peaceful and tolerant nation. (Aronson, n.d.)

Relatively little known to the international arena, Kazakhstan has made a significant contribution to its international image by building a new capital city designed by world renowned architects. The same year in 2006 as the pyramid's construction was completed in Astana, the movie Borat made its debut on the international stage and made heat by portraying Kazakhstan as a backward and intolerant country that is isolated from global

interactions. Interestingly enough, this movie gives Kazakhstan an international recognition, though, not in the positive way but ironical and that was completely fine because as Nazarbayev pointed out about it as: “any PR is a good advertisement” and especially as it was free for the government and did not cost a dime as it was spending millions of dollars to promote the positive image of the country globally.

After the movie, Kazakhstan has experienced an unprecedented number of tourists visiting the country to see it for themselves as it was an untapped destination and an exotic place to visit. During the Soviet times, it was nearly impossible or very difficult to visit Kazakhstan as it was a part of the Soviet Union. The new capital city became the showcase of Kazakhstan’s independence and prosperity on the global arena, especially after famous architects designed it and millions of petrodollars were poured into international image building campaigns. Astana master plan designed by the Japanese architect Kisho Kurokawa, pyramid, Khan Shatyr, and Nazarbayev Center designed by renowned British architect Norman Foster, EXPO 2017 designed by the US firm ASGG, Talan Towers designed by the US firm SOM, all greatly contributed to a positive image of the country as a modern and progress-oriented nation.

Grand Opening Ceremony

The symbolic importance of the Pyramid can be clearly seen from its lavish opening ceremony. Important guests from all over the world had come together to celebrate this marvelous structure, the epitome of architecture and engineering advancement. Officially the building opened its doors to the public on September first, 2006. Presidents of four neighboring countries Emomali Rakhmanov (Tajikistan), Islam Karimov (Uzbekistan),

Kurmanbek Bakiyev (Kyrgyzstan), and the host of the event, Nursultan Nazarbayev (Kazakhstan) had personally participated in the ceremony. Moreover, celebrities such as the opera singer from Spain Montserrat Caballé, Russian ballet star Anastasiya Volochkova, and many other performers from Italian opera were invited to perform at the ceremony. In addition, an international festival “World Stars” dedicated their performance to this event in Astana. (Pyramid 2012) Such focus on the Pyramid clearly demonstrates its importance to the overall image of the new capital city and to ex-president Nazarbayev personally.

To demonstrate his dedication to the principles of interreligious tolerance and interethnic peace, Nazarbayev was personally interested in converting the congress of world religions into an annual meeting. The peacemaking initiative came directly from Nazarbayev as he was striving to create a dialogue between world religions and act as a third party between conflicting groups or even countries. (Pyramid 2012) First congress was successful and fruitful, so the leaders of world religions decided to come together in Pyramid every three years to discuss pressing issues around the world and try to solve them through discussion and finding compromise in Astana. (*Non-Profit Joint Stock Company «International Center for Interfaith and Interreligious Dialogue*, n.d.) Kazakhstan was granted a rare opportunity to serve as the host country and the Pyramid will become a permanent venue for the triennial meeting of the leaders of world religion.

Criticism of the Pyramid

The biggest downfall of most projects in Astana is their poor quality of design and construction. Because they were built with very tight deadlines their quality leaves much to be desired. Hence, they do not match the official propaganda in the media about the city

becoming like the new global city like Dubai, Abu Dhabi or Doha. In contrast, the new architecture of Astana was criticized on western media for being spectacular and unrealistic at the same time. (Koch, 2012) New Astana is often referred to as a “Disneyland”, “Tomorrowland”, or a “Potemkin village” that is displaying false modernity that is not backed by the real and systematic economic, political and social reforms that would display proven growth.

In the Sydney Morning Herald article by Michael Steen (2006) there is a lot of criticism of Foster and Nazarbayev. First, his problem was the very tight deadline posed by the client (Nazarbayev). He ordered the building to be finished in just two years. However, a building of this complexity and scale usually takes around six to eight years to construct. Second, was the quality of construction which dramatically suffered partially due to tight schedules and partially from corruption. Furthermore, Hugh Pearman, the editor of the Royal Institute of British Architects' monthly RIBA Journal has accused Nazarbayev of building grand monuments to promote himself, while the people of Kazakhstan are living in poverty. Moreover, the author has criticised the “Soviet dictator” for spending millions of dollars on shady projects like the modern replica of “Stalin skyscrapers” in Moscow referring to the “Triumph of Astana” building. (Steen, 2006)

In the Guardian article from 2017 titled “Norman said the president wants a pyramid”: how starchitects built Astana” Oliver Wainwright heavily criticizes the famous British architect for working and helping Nazarbayev to “build his trophy city”. (Wainwright, 2017) The primary location of the building right behind the presidential palace demonstrates its importance to Nazarbayev. As Michael Steen named his column in the Sydney Morning Herald published in 2006, “Kazakh President’s ‘backyard’ pyramid”. (Steen, 2006) In the

column Steen was inferring the authoritative nature of the client who dictated to Foster what shape should be the building and what goes inside. Moreover, the completion schedule was very tight. What usually takes a project like this to be completed in six to eight years, Nazarbayev wanted it in two. Foster basically had to squeeze in a 1500 seat opera house in the basement and design an impressive atrium in the middle which could provide natural light all the way from the top of the building all the way into an opera area underground. (Steen, 2006)

Conclusion

The Pyramid was built to physically represent Kazakhstan's tolerance to different religious practices and remind of the importance of peace among many ethnic groups harmoniously coexisting in a country they all call a home. The building was meant to stand out in its surrounding context to symbolize the unbreakable spirit of Kazakh people that went through all the hardship and still came out victorious because of their broadminded and kind nature towards different people coming to Kazakhstan. All kinds of nationalities with various backgrounds came to Kazakhstan either by their own will or by force but Kazakhs have accepted all of them with an open arm. Thus, the pyramid building serves as a reminder of the importance of modern architecture to influence people and direct them in the right way.

More than one hundred and thirty nationalities peacefully coexist and mutually understand one another on the territory of modern Kazakhstan. Therefore, the country and its leadership are aiming to maintain this stability and order among its residents to avoid any discrepancies that may arise and shatter the peace within its borders. With this building, Kazakhstan sends a powerful message both inwards towards its multinational and

interreligious society and outwards towards its neighbors and international community of its peaceful policies that aim to harmoniously move towards prosperity and economic growth.

According to most sources, Nazarbayev is behind the capital relocation to Astana and its new architecture designed by world-renowned architects. This move was made to promote Kazakhstan as a new friendly and reliable player on the emerging global arena. The prestige and reputation of Norman Foster was crucial in portraying the new capital as a modern and forward-looking city that is emerging from the ashes of colonial Soviet legacy into a new era of its independent and prosperous future. All in all, it shows the power of modern architecture to influence the positive perception of a country and convince the public of its democratic and progressive will. Buildings like a Pyramid quickly become the main theme for publicity and heated discussions of the idea behind the construction of such monumental and highly symbolic buildings like the Palace of Peace and Reconciliation in the form of a pure Pyramid. By initiating a triennial congress of World Religions, Nazarbayev put himself as a peacemaker and had a good chance of winning the Nobel prize for peace.

Chapter 4. Khan Shatyr Entertainment Center (Tent)

Introduction

The massive construction of the shopping malls and entertainment centers in Astana is due to the harsh weather conditions that change rapidly in such climate and very cold winters with heavy snow force residents and guests of Astana either stay home or spend time somewhere outdoors. So, entertainment centers and shopping malls turned out to become favorable places for people to spend their leisure time besides work or school. Thus, to entertain the public and keep people busy buying and consuming goods and services the construction of capitalist shopping malls with entertainment centers is booming in Astana.

After nearly seventy years of existence as part of the Soviet Union that kept socialism as its central pillar where all people were relatively equal and had no class division with social control of the means of production where people did not have access to quality goods and services despite having means to purchase. Thus, after the collapse of the Soviet Union, socialism collapsed and the new, free market – capitalist economy had arrived. Thus, in the new reality that Kazakhstan had plunged into with its new grip on its own natural resources that it could export for dollars, the purchasing power of its citizens had slowly started to grow. To cater to the growing demand to purchase and consume, the number of shopping malls and entertainment centers grew exponentially.

After the success of Norman Foster with the Pyramid project in Astana, he was commissioned to design an impressive shopping and entertainment center in the shape of a nomadic tent that houses everything under one giant pavilion that was never seen before. The fast-track design and construction process began right after the completion of the Pyramid project in 2006 and took only four years to complete. Incredible complexity and tight schedule made it very challenging to construct and demanding to complete. Unusual

structural elements and construction materials had to be produced in Europe and delivered into construction sites in Kazakhstan within a very limited period. Once complete, this building was supposed to put Kazakhstan on the world map as such buildings do not exist anywhere else in the world.

The symbolic significance of the building to the new capital city of Kazakhstan is enormous as its cutting-edge design represents progress and modernity. As the country was celebrating its newly acquired sovereignty from the collapse of the Soviet Union and shifting from socialism to capitalism. Such a rapid shift from isolation to joining the global community allowed Kazakhstan for the first time to govern itself and decide on its own fate by hiring world renowned international architects to design its new capital city. Previously, when Kazakhstan was part of the Soviet Union, most cities were designed by Moscow and Leningrad based architects including Tselinograd which had an enormous importance during the “Virgin Lands” campaign initiated by Nikita Khrushchev in 1954 and onwards.

In this chapter I take apart the second project designed in Astana by famous British architect Norman Foster to understand its significance to the new image of Kazakhstan and its architectural and engineering complexity to understand why Kazakhstan is not able to design and build such projects on its own and when will it be able to build such iconic projects on its own. And answer the question of whether the modern architecture designed by famous architects represents the nation and its ability to execute this man-made engineering marvel. Deeper research into the complex architectural, engineering and construction intricacies of this building to ultimately find out how complex this building is and is it possible to design and build such iconic buildings without the foreign help?

Norman Foster's distinctively different approach to public buildings when it came to Khan Shatyr show that he was not afraid to experiment and executed his long-carried idea into a reality in a new Kazakh capital city that was not afraid of experimenting and provided a platform for such daring projects like Khan Shatyr and Pyramid. As this chapter demonstrates, Foster was long inspired by the exceptional ideas of Buckminster Fuller who wanted to cover parts of Manhattan with the tent-like geodesic dome but due to financial and technical constraints could not turn such projects into reality.

The importance of the building to the new capital could be seen from ex-president Nazarbayev's personal involvement (Figure) into a construction process and eventually grand opening ceremony. Presenting himself as an architect and a grand creator and builder of Astana, Nazarbayev in the interviews has mentioned how he drew the concept ideas and would give them to architects. Norman Foster was no exception, Nazarbayev gave him both concepts, drawing them by his own hands and showing what exactly he wanted. Particularly the pyramid shape and a tent shaped Khan Shatyr. Promoting himself during the Khan Shatyr's opening ceremony, Nazarbayev continued how he visited the construction site every month and personally expected every detail of construction. (Figure) Claiming to observe the construction process personally and even making corrections to the construction process.

The Grand Opening Ceremony of the Khan's tent was spectacular. The main theme at the ceremony was a historic and cultural past of Kazakh people associated with pastoral nomadic past. Horse riding, yurts, warriors on horses, various acrobatic elements being performed on horses, overall horses being the main element of the ceremony. Thus, tying together the high-tech modern architecture in the form of a nomadic tent to Kazakh people who inhabit the steppes of Kazakhstan. With its unique architecture Khan Shatyr stands out

among the rest of newly built buildings in Astana, let alone old Soviet building blocks erected during the Tselinograd development. Marking a radical break from the Soviet socialist past into a new Western capitalism and wealthy consumerism. (“Tallest Tent in the World Opens in Kazakhstan,” 2010)

Symbol of Progress in Kazakhstan

Khan Shatyr is not just another building with entertainment and shopping in Astana, it is a symbol of progress and visionary politics that the ex-president of Kazakhstan, Nazarbayev, has prepared for the country. Many specialists participating in the design and construction of Khan Shatyr strongly believe that it is the symbol of new Astana and perhaps the symbol of an entire country. Therefore, it shows the importance of the building to the overall image and prestige of the country and its ruler. As a technological advancement it is a biggest leap forward towards sustainable and energy efficient buildings. All in all, Khan Shatyr marked a new era in the construction of tensile structures using the Texlon ETFE film. This advanced type of structure is the newest addition to the skyline of Astana. (*Vector Foiltec. Pioneer of Texlon® ETFE for the Building Industry*, n.d.)

Icon of Consumerism and Capitalism

Moving from Soviet socialism to an independent capitalism and consumerism (newly found Kazakh natural resource wealth). The rapid change of environment from Soviet socialism to global capitalism required a completely new approach regarding the built environment of the new capital city. Therefore, hiring an architect from a developed part of the world seemed natural especially considering the newly found Kazakh wealth which paid well for the opportunity to create an image of prosperity. Inspired by the nomadic culture of Kazakh

people and using a very complex tensile structure the British architect created an extraordinary building that catches the eyes of anyone who sees it. As such Khan Shatyr quickly turned into an icon of consumerism and capitalism at its finest.

After being under Soviet rule for over seventy-one years, Kazakhstan has finally managed to use its natural resources for its own benefit. To change the look of the country which was full of Soviet era socialist housing and urban planning, the decision was made to focus on building a completely new capital city with modern architecture. Therefore, architecture designed by famous international architects became the solution for projecting rapid development, positive and a new image of progress and modernization. Moreover, the idea behind building Khan Shatyr was to provide a warm and comfortable place for people to play, shop and enjoy the tropical beach and water during Astana's harsh winters.

Initial Idea Inspired by Buckminster Fuller's Geodesic Dome

Khan Shatyr has seven floors. Ground floor is an indoor parking space, floors one and two are retail space selling designer brand cloth, food courts are located on the third floor, and fourth floor is occupied by theme parks for kids, various entertainment and a movie theater. Finally, the icing on the cake is a sky beach with three different swimming pools, sand and a tropical paradise in the middle of a “snow desert”. On top of everything is an energy efficient tent protecting customers and staff from harsh Astana weather conditions inspired by the conceptual ideas of Buckminster Fuller.

The initial idea of an architect was to create “a world within” which essentially is a mini city within the city. (*Khan Shatyr Entertainment Centre | Projects*, n.d.) An enclosed space with its own microclimate that would provide a pleasant environment all year round.

However, due to the limits in budget, the building turned out to become only “the world’s tallest tensile structure that entertains” according to its structural engineers (Buro Happold with its main headquarter in London) (“Khan Shatyr Entertainment Centre,” n.d.) It is 150 meters high with a 200 meter elliptical base that totals in a staggering 100,000 square meters of enclosed space.

Initially Foster was inspired by his friend and mentor Buckminster Fuller, an American architect who was the pioneer of geodesic dome. His idea was to create an enclosed world using the thin shells mounted on triangular structure that distributes the load evenly among an entire structure which makes it very strong and resistant to external forces. One of Buckminster Fuller’s radical ideas was to cover part of NYC with a gigantic dome to create a self-sufficient microclimate within part of Manhattan. Overall, geodesic domes are an eco-friendly and energy efficient solution because they use the sun heat and lighting to save energy on heating and lighting. Moreover, they can be built using recyclable materials and quickly and efficiently constructed without using heavy machinery and equipment. (This House, 2025)

Despite all the advantages that the geodesic dome offers, the chief structural engineer from Buro Happold, Mike Cook decided not to use the geodesic dome and proposed to go with the tensile structures. He explained that the well-designed dome had to be compressed which is a very effective way of using the material but there is still a risk of deflection due to the weight of snow, rain or wind. A dome is a perfect structure to cover a large space or even to cover over an entire neighborhood. However, for it to be a strong and resistant structure it had to have thick and heavy metal tubes to support the dome against bending over and

eventually collapsing. As most of the construction materials for Khan Shatyr were imported to Kazakhstan, their weight had to be as light as possible.

Norman Foster was inspired by works of Buckminster Fuller who pioneered the concepts of self-containing environments. Thus, the first idea to cover a large habitat space with the material like ETFE belongs to an American architect Buckminster Fuller (1895-1983) who was the mentor of Norman Foster. While working for mister Fuller, young Foster was inspired by his works and especially the favorite “geodesic dome” designed by Fuller for the Expo 67 in Montreal, Quebec, Canada. However, in 1976 a fire was sparked by the welding workers which severely damaged the bubble which was made of transparent acrylic that was not fire resistant at the time, but the lesson was learned and after decades of development a new material of ETFE was introduced and used in the Khan Shatyr project. (*Khan Shatyr Entertainment Center - Cool ETFE Facade Dome Structure*, n.d.)

Richard Buckminster Fuller (1895-1983) was a famous American architect, the inventor of the geodesic dome. “Doing more with less” being his motto, Fuller invented and popularized the geodesic dome. The true international recognition came to Fuller after the EXPO 1967 in Montreal where he presented the large-scale Biosphere constructed as the US pavilion for the 1967 Expo in Canada. Designed by Buckminster Fuller, the pavilion was later turned into a museum. The collaboration between Shoji Sadao and Buckminster Fuller has created some of the most unique conceptual projects of the time. Together they came up with the idea to cover Manhattan with the hypothetical dome in the 1960's. The three kilometer in diameter dome was supposed to protect the midtown part of Manhattan from snow, rain, wind and other natural falls that may occur. It was supposed to create a pleasant microclimate inside of the dome and ensure safety and comfort of the inhabitants. Moreover,

Fuller argued that using the geodesic dome over Manhattan would reduce its energy consumption by over twenty percent. However, this concept remained more or less fictional than reality. Only after fifty years Norman Foster was able to turn it into reality in the Khan Shatyr project covering a large chunk of land with the tent that proved itself to be more effective than a dome structure. (This House, 2025)

Fuller was trying to efficiently solve problems to improve society and the way people live. Developing solutions through means of design, Fuller was trying to “do more with less”. A comprehensive approach to design and machinery enabled Fuller to explore various details that could be improved. So, the idea of a modular home that could be easily produced on an assembly line just like a car for mass production. This type of conceptual house was widely known as the Dymaxion house. Fuller knew that efficiency is the key and the limited resources that the planet has to offer should be used wisely. Thus, Fuller was one of the first architects to be concerned with sustainability issues. However, the true recognition Fuller has received for the invention of the geodesic dome. Lightweight and cost effective structure allowed it to cover over a large area of land without any additional support systems such as columns and beams.

The geodesic dome efficiently distributed the weight of the structure and any other additional loads evenly among an entire structure. Such a strong design allowed the dome to withstand harsh climatic conditions such as storm, rain, strong winds, heavy snow and sun heat. Looking at nature and learning from it became crucial for Fuller to improve the design. Moreover, his philosophy did not stop there because he was truly thinking on the scale of humanity and how to save the planet which showed signs of running out of resources as early as in the 1950's. Saving the environment by keeping it untouched and saving as many natural

resources as possible was the main concern for Fuller. He firmly believed that the world is a highly interconnected network of web that works as one. Therefore, as an architect he was not only concerned with buildings and housing (dymaxion house) but also with how people move (transportation) dymaxion cars.

The idea of the dymaxion house was developed by Fuller in the early 1920's. He saw conventional house building as inefficient and wasteful, so he proposed to mass produce the dymaxion houses, ship them and assemble them on site. Prefabricated houses were supposed to be well thought out with all necessary electrical, plumbing and other engineering fixtures built in. In a sense, this house was easily transportable and moved around like a modern yurt. People in the US move around between states looking for jobs, thus, Fuller wanted them to keep their houses with them wherever they go. Learning from nomadic people that were moving from one place to another looking for grazing land for their livestock had a profound effect on an architect and inspired him to design a modern prefabricated house in the form of a yurt. (This House, 2025)

The word Dymaxion stemmed from three words Fuller used: the most dynamic, maximum and tension. Making these houses portable, durable and as efficient as possible was the key aim that the architect was working towards. Keeping the weight of the house as low as possible was another challenge. Thus, Fuller was using lightweight materials such as aluminium and tension cables. Some of the prototypes were already mass produced in aviation factories during WW2. Aluminum panels were covering most of the exterior surface of the house. Thousands of houses were ordered during that period but due to the architect's perfectionism he kept postponing the production process. (This House, 2025)

The geodesic dome design arranges its structure around triangles that are placed in such a way that allows for even distribution of stress. Practically, such a lightweight structure could cover large areas without any additional support opening up the interior space for supportless open air. Industries that desperately needed large covered areas quickly understood and implemented the geodesic domes for their purpose. Wide range of usage such as radar stations, exhibition halls, storage facilities and even futuristic houses. Fuller's name became so synonymous with the geodesic dome that people have started calling him "the dome man". Suddenly everyone wanted to use the geodesic domes for their purpose starting from its wide usage in the military to environmental activists because it could be assembled quickly and transported easily due to its lightweight. Moreover, its strengths are to withstand wind and snow loads without collapsing.

Fuller's concept of tensegrity, the term that stems from words tension and integrity. Tensegrity structures combine rigid struts under compression with flexible cables under tension to create stable self-supporting frameworks. Sometimes they look like floating sculptures of rods and cables that can stand on their own almost magically because visually they look like a very lightweight structure that supports itself. Similar principles of strong structure can be seen from and learned from nature. For example, human bones and muscles interact between each other forming a strong tension and integrity structure. So, Fuller understood this principle early on and used it for his design principles. Although tensegrity remained somewhat specialized, it has had a noticeable footprint even in engineering, robotics, and modern art. Every architectural model using wire and rod sculptures is using this principle of tension and integrity.

Frei Otto - The Founding Father of Tensile Structures

Famous German architect-structural engineer Frei Otto (1925-2015) who specialized on the lightweight tensile and membrane structures had a doctorate degree in tensioned constructions which he earned in 1954. (*Biography: Frei Otto | The Pritzker Architecture Prize*, n.d.) His famous creations include the Munich Olympic Stadium of 1972 and the lightweight tensile canopy structure for the German Pavilion for the Expo 67. While teaching at the Washington University he met Buckminster Fuller in 1958. (Peltason & Ong-Yan, 2017) They both pursued the design, research, and further development of tensile structures that was later fully embraced by Norman Foster.

The tensile structure by famous German architect Frei Paul Otto for the Munich Olympic Stadium 1972 was a massive leap forward in the industrial usage of large span tensile structures. The futuristic canopy of the stadium set Germany at the forefront of modernity and a new postwar image of a forward looking country. Here again, learning from nature was key for Frei Otto design. Similar to tree leaves in nature that provide protection from sun, wind, and rain, the tented roof of the stadium was supposed to provide the spectators with comfortable observation of the sporting events. Visually stunning weightless web better known as cable net construction was inspired by aviation and its lightweight structures that allow for seamless structure to take off. Thus, both architects, Frei Otto and Norman Foster can be seen being inspired by flying which was made possible by incredible engineering and lightweight structures. (20th Century Time Machine, 2016)

Early on in his career Frei Otto was inspired by the tent construction as it was commonly used among many different civilizations across the globe. Even in the modern world tents have a variety of uses, improving the lives of people thanks to the mass

production of textiles. The smallest form of a tent being an umbrella to canopies and large tensile structures that hover over entire neighborhoods. Application of tensile stress reduces the need for extra materials and makes an entire structure lightweight and easy to assemble. The first big commission came to Otto when he was working on the development of the largest tensile structure of the time for the German pavilion in exposition for Montreal to cover more than 8000 square meters of space. The final product which became a prize winning sensation that resembled the spider's web was more visually fantastic than real.

The subdivision of the circular roof of the Munich stadium into nine sections with cable nets each around 60 meters wide and 80 meters long. The cable nets were supposed to form a roof by being suspended directly from eight points holding the edge of the sections. Cables were to make a strong and rigid frame by being pre-stressed and positioned inside of the section to bear the load. Tensioned in opposite directions, cables enable very strong and rigid structure that can be bent and made into the desired shape and form. Massive foundations had to be anchored to the ground to support the masts that were erected to support the prefabricated cable nets that could be pulled up on them. Mounting the cables on bearings made tilting of the masts into necessary positions possible. (20th Century Time Machine, 2016)

Once fixed into position, main cables will divert the tensile forces into the ground. As usually happens the schedule was very tight. So, the construction began even before the drawings were completed. With enormous pressure, the Olympic site had to be ready within three years. Difficult weather conditions, especially early snow has impeded the construction work. Despite the difficulties 600 construction workers began building the shell of the main stadium and by Spring additional 3300 people have started working on laying the foundation.

Foundation was one of the main structural elements to absorb the tremendous forces created by the sail-like canvas roof that catches the wind that creates huge pressure on the rest of the structure. Different types of foundation were used to anchor the roof, masts and cables that were keen to powerful forces of nature.

Engineers working on the roof statics had to design every element of the futuristic tent to make sure that the height and angles were perfectly aligning. Weight and inclination of the pilons, curvature of the nets, mesh size, and other details had to be produced in precise details so that the production of these elements could begin. The team of Frei Otto made a small scale wire model for stimulating the stresses that the roof would have to withstand. Without computers and digital simulation back in the 70's calculation of the possible stress was a herculean task. To evaluate the data, the team had to solve an equation with more than 10,000 unknown factors. For the first time, the team of Frei Otto have resorted to the help of first simple computers. Back in the days computer simulation was very expensive. So, the calculations for the Munich stadium alone cost two million marks.

The production of steel and cable for all the roofs will cost a stunning one hundred twenty million marks which was the record number at the time and three times more expensive than the original estimate. The scaffolding for the edge cables were erected, the masts were mounted on ball joints so that they could be tilted into the correct position when the main cables were tensioned. The movable bearings would also enable the masts to react flexibly later to changes in the tensile load caused for example by snowfalls. More than 100,000 meters of cables had to be woven into nets with a flexible node every 75 centimeters. With such an unusual pattern Frei Otto really made an architectural history. With each newly woven grid the masts and hung in place turnbuckles enabled the shape of the roof to be

regulated. This way, piece by piece, the complex puzzle started to take shape until in November 1971 the entire spider's web was completed. The entire operation had been carried out without a single problem or delay. (Songel, 2020)

The roofs had not cast any shadow so a covering sheet of acrylic glass was chosen. Fitting them into place required precision work from the roofers because the sheets had to be shaped while remaining watertight. Rubber buffers had to be positioned between the cable net nodes and the roof membrane. Joints had to be sealed with neoprene strips and the tent was urgently completed three months before the games were to begin. Hence, after intense construction, in August 1972 Munich showed itself to be worthy of hosting the games especially with its picturesque roof that immediately found its worldwide recognition. Even after the Olympic games were over, people still loved and used the buildings as an urban recreational area. In fact the park later became one of the biggest leisure facilities in Europe. In 1997 the entire site was classified as a historical monument.

Tent construction remained Frei Otto's passion as he continued making and experimenting with models that were inspired by nature. Organic shapes that were based on spider's web. Such design based on nature teaches us humans to save both on energy and materials is known as bionic architecture. Frei Otto thought of himself as a minimalist in the best sense of the word. The Arabic desert gave him a great space to realize his visions. Near the holy city of Mecca he built an avant-garde conference center in the shape of a huge umbrella that protected faithful people from sun heat. Moreover, the indoor sports stadium he built in Jeddah is based on a bedouin tent. The Olympic stadium in Munich that turned into a park is seen by many as a gift of a century to the people of Munich. It has become a landmark

of this international city with the heart. Through his unique tent roof Frei Otto created the symbol for the future that it so richly deserves. (Songel, 2022)

Challenging to Design and Build

The completion of the project was delayed for two years due to a very tight schedule as the time was the biggest pressure. The project started in December 2006 and took four years to complete. More reasons for delay included the complexity of the design which took architects and engineers more time to design and test the initial project models and drawings before sending them to a construction site. Moreover, difficult weather conditions such as harsh Astana winters with strong wind, snow, rain, and freezing temperatures were creating unnecessary difficulties to the construction teams. (Shinde, 2021) Despite all challenges Khan Shatyr was partially opened on July 5, 2010, symbolically it coincided with Nursultan Nazarbayev's 70's birthday.

A large concrete foundation was made to support the concrete ring that served as a basis for the retail space and swimming pool on top. The building was so heavy that it required the concrete piles to be drilled in the ground to withstand the pressure of the weight. 9 kilometers of steel rebar and 188,000 cubic meters of concrete was poured into a foundation and lower levels. Nigel Dancey, the principal architect behind the design acknowledged that the construction of Khan Shatyr was one of the most challenging projects that he ever worked on.

The most challenging part in the construction was the deadline for completion and a tight schedule as a result. The construction could not stop, as a result it had to keep on going during the winter when the temperature drops below 30 degrees Celsius when it becomes

very difficult to work, and the poured concrete loses its curing (hardening) qualities. Surely, this can be fixed by adding special chemicals to help slow down the process of curing which in turn helps to avoid cracks and surface discoloration, but it dramatically raises the cost of construction and slows the process. (Erçin & Nurumova, 2020)

Next were the steel pillars in the middle of the building. Their purpose is to support the entire tensile structure. Made of 2000 tons of steel and 150 meters tall the triplet structures were very challenging to put in place because such structures were very heavy and oversized objects to lift off the ground to fix in a vertical position. According to Selami Gurel consulting engineer who was responsible for solving difficult construction stages he was the one who proposed the triplet structure rather than the single column which would be placed vertically. However, the British engineers rejected the idea and tilted it to fifteen degrees making it tilted.

Making the triplet tilted gave it an asymmetrical and complete look partially because it was located at the western end of an administrative access. Moreover, the tripled design made it much more stable to various loads from different sides of the building, especially the strong winds that blow from different directions. Selami Gurel proposed to assemble the triplet on the ground and then in one bold move lift it with the help of powerful hydraulics to a position. However, the problem was that such a massive crane was not available in Kazakhstan. So, it had to be either rented and imported from developed countries that possessed it or to use a handmade crane that could lift the heavy structure. (*Construction of Khan Shatyr - Google Search*, n.d.)

Lifting the triple was a whole of a challenge on its own because the element was extremely heavy and oversize. (Figure) Thus, the construction of a temporary massive

supports needed to strengthen the lift. After which the steel cables were attached to both ends and the mighty structure was slowly lifted and fixed on its position firmly. Such an unusual method of construction was never done before, so it was extremely risky. The entire metal structure was produced and manufactured in Turkey and shipped to Kazakhstan in many different parts to be assembled on the construction site.

The giant ring on top of Khan Shatyr which is 20 meters in diameter is meant to hold the steel cables that support the tensile structure. On top of the ring is a spire that takes away the thunder and aesthetically gives the building a complete form. The entire triple is 150 meters long and was lifted by 16 hydraulic jacks that were rented for millions of dollars and brought from Switzerland. (Figure) They could lift the structure 50 centimeters each time until it finally reached its position. The pin joints that were holding the triple attached to the base plate on the floor were under extreme pressure. Finally, when the load was transferred from lifting cables to the structure itself was the moment of relief. (*Construction of Khan Shatyr - Google Search*, n.d.)

High tension cables were supposed to be attached to the compression ring on top of the tripled which was another challenge for the team of climbers. (Figure) The weather conditions especially during the winter storms posed a threat and was highly risky for climbers to mount the structure. (Figure) Engineers from Happold state that it is unfair calling it a tent because in fact it is a well-designed and highly tensioned construction. But no matter what you call it, it needs some kind of roof to protect from sun, wind, rain, snow and other weather conditions that may occur. Cables are 38 mm in diameter and the length of cables ranging from 95 to 140 meters long. (Figure) Each cable weighs up to 2,5 tons and they must

be tensioned in pairs so that they can be held together by metal blocks every seven meters preventing from wrapping to each other. (Erçin & Nurumova, 2020)

To make the entire structure more stable to various loads such as heavy snow, engineer Mike Cook came up with the idea to make the detail of the compression ring movable so that they can have room for compression and expansion. The joint that connects the compression ring to cables can move up to thirty centimeters from one side to another. In fact, upper support columns were not attached to the ring giving it the room for movement. To make sure that the upper support does not fall apart, cables had to be stretched as tight as possible to keep it in a rigid and tense condition. Therefore, Alex Cook and his team had to use the hydraulic machines to pull cables and fix them in a tensile position.

To decorate the interior of Khan Shatyr, painters have used 13,000 liters of white color, 17,000 electric lamps were installed to give light inside the building, and the teams of carpenters were urgent to complete the retail, food court and bar areas inside of the building. Hundreds of plants are growing well inside of Khan Shatyr thanks to its ETFE covered roof-façade. The building is full of all kinds of entertainment such as tropical beaches and aquapark, Turkish hammam and sauna, spa, movie theater, theme parks and video games for kids to play. Brand cloth, food and drinks, everything for people to feel the joy and comfort provided by their benevolent president.

Complex Structural Elements Used in Khan Shatyr

The structure of the building consists of three major elements. First, are the three hollow-steel columns at the center of the building. They connect at the very top of the building and create a powerful point of support. The second element is a suspended net of

steel cables that start spreading from the oval concrete basement and go all the way to the top of the building. The third and final structural element is a sophisticated layer of ETFE cushions that are constantly inflated with the air that is delivered to them through the circumferential cables.

Steel cables inspired by suspension bridges. Engineers from Buro Happold have found the solution which they borrowed from suspension bridges. So, the tensile structure of Khan Shatyr was inspired from the structure of suspension bridges that hang its road on cables supported by massive metal supports. Thus, borrowing the idea from suspension bridges and using it for a tent structure was a brilliant solution. All it needs is to rotate the bridge for 360 degrees and you will get the tent with the tensile structure. Thus, the tension is the main concept for the structure of Khan Shatyr and it is the most efficient way of distributing the stress among all structural elements. According to Foster the tensile structure was five times more effective in terms of how much steel was needed in accordance with how much space it was able to cover. (*Khan Shatyr Entertainment Center - Cool ETFE Facade Dome Structure*, n.d.)

With such a convincing advantage of a tensile structure over the geodesic dome, Foster decided to use the form of a tent as a final solution for the concept and design idea. Thus, Foster ordered his architect Nigel Dancey to work on the idea of designing a tent structure. A tent with a spire on the top was very much welcomed by the architect because it will become symbolic and resemble the lighthouse attracting the eyes of people. Within a short time, a team of architects designed the inclined tent and located the sky beach on top levels which corresponded to the president's desire to give his people summer vibes all year round.

Vector Foiltec is a company that specializes in the design, production and installation of Texlon ETFE products worldwide. The company has completed more than 1700 projects worldwide most notable of which are the “Water Cube” National Aquatics Center for 2008 Beijing Olympic Games, Ocean World Water Park in Hong Kong, China, Allegiant Stadium (NFL) in Las Vegas, USA and many more amazing buildings around the world. With the holistic approach the company performs an entire cycle of services starting from design, delivery and the final erection of an entire structure. Leaders in the industry Vector Foiltec is always ready to take on challenging projects like Khan Shatyr in Astana or Eden Project in Cornwall, UK, a sustainable botanical garden that required a material that would allow for UV penetration for plants to grow as if they were in a natural habitat. (*Vector Foiltec. Pioneer of Texlon® ETFE for the Building Industry, n.d.*)

It took Vector Foiltec more than one year to design the roof of the biggest tent structure which consisted of 836 transparent ETFE cushions consisting of multiple layers and filled with air to keep the building cool during the summer heat and warm during the winter storms. Due to complexity of architectural concept of the building which takes an inclined form and have a distinct spire on top each cushion have a different shape and size which made a design and production process extremely difficult because each of them had to be located on precisely its own place otherwise it won't fit and ruin an entire puzzle. The 20000 square meter puzzle of ETFE panels required precision. The trick however, was to install them when the weather was warm in Astana. The ETFE panels were delivered to Astana from Beijing with each one labeled and coded to its own precise place in the puzzle and they are folded to be ready for installation.

Made from ethylene tetra fluoro ethylene (ETFE), a material that is basically made of plastic. It is highly resistant to corrosion and can withstand high and very low temperatures. It is highly transparent and can easily transmit the sunlight which makes it a very energy efficient and convenient material to be used in buildings. Three layers of this film create a pillow like panels filled with air to provide better insulation. This material is a hundred times lighter than the glass and it is self cleaning because nothing sticks to it. Moreover, the material is very resilient to weight pressure, so one panel could hold the weight of five grown up men. It does not burn and it can take any form, shape and size. Those are all its advantages over all other modern construction materials. The only problem with the ETFE is that it does not like to be installed in cold weather like winter in Astana. (*Khan Shatyr Entertainment Centre | Projects*, n.d.)

Despite the fact that the ETFE panels should not be installed in the cold winter season, the team of mountain climbers lead by the site engineer Matt Wilson have started to install them in winter because the deadline for completion was tight. During cold the material becomes much less elastic making it difficult to stretch and put in perfect position to fill the air inside. So, it takes longer to perform the installation unlike if it was done during the summer. To stretch and push it into an aluminum frame which typically takes 10 to 15 minutes during the summer, it takes more than two hours during the winter cold. Due to time constraints set by the client the teams of climbers had to work faster and more efficiently.

Turning the air supply on to inflate the ETFE panels for the first time was a very dramatic experience because some of the panels were damaged during the installation in the winter cold. Each panel relates to the air compressor that pumps the air into the cushions. The system is controlled by the computer that pumps the air under low pressure. Ventilators pump

60,000 cubic meters of air into panels like an enormous air ship which takes roughly seven hours to be fully pumped. The pressure in every cushion has to be proportional to all others making the overall look of the building nice and smooth. (“Khan Shatyr Entertainment Centre,” n.d.)

ETFE (Ethylene Tetra Fluoro Ethylene) is a plastic material designed to withstand corrosion and various high temperature changes. Moreover, such transparent material allows for the penetration of abundant natural light into the interior of the tent. Despite looking like a regular plastic bag that people are used to, ETFE is fire resistant material that is very difficult to burn, and it also can take heavy weights and various natural forces like wind and hail. All in all, this material was chosen for its environmentally friendly and self-cleaning qualities because be it snow, rain or any other objects that might land on it, its nonstick properties allow it to stay clean and transparent. Therefore, the effect of covering a large space with ETFE resulted in a pleasant microclimate and a festive atmosphere.

Use of Tensile Fabric in Various Structures

Building with textile goes back thousands of years from yurts made out of animal skins to the Roman shade structures installed at the Coliseum designed to protect from sun and rain. However, the inclusion of the technical fabrics within mainstream architecture has a more recent history. (ArchitenLandrell, 2012) In the 1960’s German architect Frei Otto pushed the boundaries of membrane technology and opened new possibilities of what can be achieved with tensile fabric. Twenty years later, Architen Landrell was founded with the aim of building technically advanced and aesthetically beautiful fabric. The fabrics technology has advanced, design and engineering has become computerized. Manufacturing techniques

have improved vastly but the original philosophy has remained the same. (ArchitenLandrell, 2012)

Only a few methods of construction can compete with the impression given by the lightweight tensile structures. They bring style, curvature, translucency and clear large span to the building schemes. Architects and designers who feel passionate about fabric architecture deeply understand the possibilities of tensile fabric. The materials that are used for this purpose are constantly in development especially when sustainability and performance issues become more and more important. Demanding high quality from the technical fabrics requires using biologically based woven, cotton and canvas materials that were used to create first fabric structures. Now they have been replaced with some of the world's most technical man-made fabrics to achieve lasting permanent fabric architecture.

Modern coated fabrics have similar ascetic properties but offer significant performance advantages such as increased strength, ease of cleaning, printability, solar shading and acoustic characteristics. Modern coated fabrics will also resist the absorption of atmospheric moisture resulting in much longer lifespan and better dimensional stability. Generally, two types of structural coated fabric and mesh fabric are used. Structural coated fabric consists of woven base cloth made of warp threads that run the length of the roll and fill threads across the width. This base cloth is then covered by a protective layer on both sides. Coated fabrics can be characterized by the fact that the woven or knitted base cloth provides the structural strength of the fabric and coating provides weatherproofing, color and required technical characteristics such as UV resistance, flame retardancy and the welding ability. In contrast, mesh fabric is made up of coated cloth with spacing in between the thread bundles. In some meshes the threads are coated before weaving.

Due to the openness factor of meshes they are primarily used as shading or light diffusing fabrics. Some laminated meshes are available which provide a weatherproofing finish with high level of light transmission. For external use the coated fabrics most commonly used are PVC coated polyester, PTFE coated glass cloth, and silicon coated glass cloth. All of them offer different qualities for strength, life expectancy, durability, translucency, maintenance, flame retardancy, printability and most importantly the cost. The optimum material for any project can be specified according to the needs of the client. PVC coated polyester works well when measured in terms of its strength. Moreover, it is easy to dismantle, print on, does not require frequent maintenance and is cost effective. However, it does not last as long and has a much lower light transmission than other fabrics.

In contrast, PTFE coated glass cloth has durability, strength and flame retardancy. However, it is not suitable for demountable structures and it is one of the most expensive fabrics offered on the market. That is one of the reasons PTFE coated glass cloth is often used in harsh climates like Astana. Its ability to withstand high levels of UV, sand abrasion, snow and sand storms. For projects like Khan Shatyr where light transmission is important silicon coated glass cloth comes into play. It offers many of the same properties as PTFE coated glass cloth but silicon has the additional advantage of little maintenance and high translucency. Architectural fabrics will be changing a lot in the near future. Advances in photovoltaic technology allow for integration into tensile fabrics that will be producing electricity largely contributing to energy efficiency. Moreover, they will be made self-cleaning, recyclable and better thermal control.

The forms of tensile architecture can be a flat tensile membrane but the key to strength and stability in tensile architecture lies in the principles of double curvature.

Anticlastic curvature is where the curvature is in different directions at 90 degrees to each other. When the fabric is locked into an anticlastic curve as it would be seen in traditional shaped tensile structures the use of a very thin membrane material becomes highly efficient that can only carry a load in tension. Sinclastic method is when a convex or a concave surface on the curvature surface and the material is in the same direction. Tensile membranes can create the most complex, dynamic and fluid shapes, however, four geometric forms the hyperbolic, the conic, the barrel vault and the inflatable.

The hypar is the traditional sail-like form which is often seen as synonymous with tensile architecture. A true hypar is a quadrilateral tensioned at four points two of which are high and two low to create opposing curves. The theory of the hypar is often applied to other polygonal shapes and complex undulating forms can be realized with multiple high and low connection points. The conic or an umbrella form also adopts double curvature to give it strength. In this case the loads are spread horizontally around the full fabric form and vertically from the apex to the base. Although featuring double curvature in much the same as the previous forms the barrel vault can only be created with an inner steel aluminium or timber structure tensioning the membrane in place to create the curves. In the case of all three of these shapes the opposing anticlastic curvature allows the fabric membrane to withstand downward loads caused by wind pressure or snowfall and the uplift caused by wind suction.

Iconic design fabric architecture that made a big statement around the world include London's Millennium Dome, Denver International Airport, Ashford designer outlet all of which include iconic tensile fabric structures to grab the attention. The fabric is incredibly useful within building design because it brings bespoke dynamic shapes to otherwise rudimentary structure. It also provides a good platform to create a brand image as well as a

focal point. The entrance canopy at the venue in Bristol is a great example of how a tensile fabric structure can be practical while creating an eye-catching centerpiece that conveys a corporate identity and transforms otherwise regular building into something a little more special. Its size and depth provide coverage for cinema goers and passers by to shelter them from the inclement British weather. In addition, its eye-catching sculptural form and color changing lighting make it stand out against the other boxy buildings. Whether it is an entrance canopy, an artistic sculpture or a piece of point of a sale material the principle is the same tensile fabric structure that allows creativity and practicality.

Solar control such as curtains and blinds are the traditional ways of using fabric to control light transmission but they are not the most exciting or the most creative. Architects look for more interesting ways to introduce light into a space. For example, controlling, diffusing and reflecting the direct sunlight through reflectors and diffusers deeper into a building replacing and supplementing daytime energy combining a practical application with an aesthetic element is a key benefit of using tensile fabrics. For example, BBC offices that use lampshade style structures are formed using a lightweight framework and stretch fabric that diffuse the direct sunlight and provide soft illumination for the space below. When the sun goes down the same fabric structures can achieve startling results with uplights or backlighting and in addition to this functionality the aligned forms are a visual feature in themselves.

Using fabric structures will offer qualitative acoustic improvements into any space that has lots of hard, reflective surfaces. Acoustic meshes are now available that have been specifically engineered to absorb sound waves and reduce acoustic reverberation. These fabrics can be used in suspended structures such as kites or roughs as tension screens or as

wall and ceiling linings. If drastic acoustic improvement is required, then, additional acoustic quilting can be added behind the fabric. (*Tensile Fabric Architecture*, n.d.)

Fabric structures are not known for inherent insulation. A single layer of any of the technical fabrics will cover unheated spaces effectively but offer no insulating property. However, by using multi-layer membrane systems it becomes possible to improve thermal performance and even meet the strict thermal regulation requirements. Multi-layer systems generally consist of a thermal multi-foil layer sandwiched between inner and outer tensile membranes which gives the required U value but has the drawback of rendering the membrane entirely opaque. More recently products such as nonogel have been introduced into the market which allow for some light transmission to be retained but can be prohibitively expensive. Alternatively, good levels of insulation can be achieved by creating an air inflated cushion where additional layers of membrane trap pockets of air that result in high values of insulation.

Lighting of the architectural fabric changes the look and feel of the building depending on the situation at the time of the day and the time of the year. For example, Khan Shatyr can change colors depending on the events during the night. Moreover, the fabric is environmentally friendly fabric that can be reused and recycled, therefore making this material's environmental impact far more smaller than the traditional building materials. PVS silicon and PTFE can all be recycled and made into second generation products. Tensile fabric structures can also be easily relocated. For example, when the inverted conic structures installed at the Millenium Dome were no longer needed, they were relocated to an airport in Trinidad.

Tent Structure in Various Nomadic Cultures

Historically Kazakhs are known to be using yurts as their primary dwelling. Yurt is still considered to be a round form of a tent. The structure of a yurt consists of a wooden door frame, wooden rafters that go all around the yurt providing walls (*kerege*) and connecting to the bent latticework that go all the way to the top and connect with the compression ring called “*shanirak*”. The crown at the top of the yurt is typically self-supporting which allows for a spacious, open space interior. Yurt is a true marvel of structural engineering because its elements are working together as a one coherent body providing firm support of an entire dwelling. Moreover, depending on the size of the yurt, it takes only between 30 to 90 minutes to assemble.

Designed in the shape of an inclined tent which looks though it was shifted due to the harsh wind that swung its center point it resonates to the historic and traditional culture of nomadic people who lived and still live in a harsh, windy, steppe environment. However, these days when the construction of Khan Shatyr is completed and people can enjoy its amenities, the building represents a new way of life for the newly found Kazakh wealth. Therefore, the building not only reflects the traditional pastoral nomadic way of life for Kazakhs and offers an exclusive echo of the nomadic past but also, demonstrates the prosperous and wealthy present in which people enjoy entertainment and luxury goods from all around the world.

The most basic type of a shelter, the tent was widely used among nomadic cultures across the globe. Central Asia, Mongolian, Turkic, Arabic, Bedouin cultures, Native Americans, Indians were all using some type or form of a tent in their livelihood. The tent perfectly serves the needs to protect from natural occurrences such as wind, rain, snow and

sun heat providing the perfect shelter that can be quickly and easily assembled and disassembled in a short period of time. Moreover, it is light and thus it could be easily transported on camels and horses from one place to another which was essential for survival of nomadic cultures.

Modern Use of a Tent Structure

Tents were also very successfully used in the military campaigns. Even as far back as the Roman Army that used leather tents. Cone shaped with the hole at the top for smoke exhaust, the tent has proven itself as a very convenient, practical and lightweight structure that can be transported and assembled at any place. Therefore, these days' tents are used in a wide range of activities starting from recreational use such as camping out in nature to the US army which is the biggest user of portable tents today. Tents in the US army are typically used as sleeping barracks, dining halls, meeting and recreational facilities, and security checkpoints.

Usually, tents are used as portable, temporary structures to provide shelter for a limited number of people. However, modern tensile structures have various uses and range of application. These days tents are used to cover large public areas such as retail space, arenas, and various types of venues. The seating areas on stadiums such as the Munich Olympic stadium and airports such as Denver International airport that are covered in white Teflon roof. However, Khan Shatyr has beaten all the records of how many people a single tent can accommodate and now proudly carries the name of the "biggest tent in the world".

Creating a Perfect Microclimate Inside the Plastic Tent

The main challenge when designing this unconventional building was creating a pleasant environment for the people inside of the building while the temperature outside may fluctuate between -30 during the harsh Astana winters to 30 during the hot summer days. The breakthrough solution that the engineers from Buro Happold came up with was to constantly supply air through the air vents located inside the tubes that are connected to the layers of ETFE. (“Khan Shatyr Entertainment Centre,” n.d.)

To reduce the energy consumption and make Khan Shatyr an energy efficient building, the engineers resorted to the circulation of the interior air. They have decided to filter the air and condition it to 19–24-degree Celsius conditional to the season and constantly supply fresh air from the retail units to the central space and from there to the underground parking where it should be around 5 degrees Celsius. Thus, by constantly circulating existing air and either cooling or heating it to the necessary temperature, the building needs less fresh air supply. (“Khan Shatyr Entertainment Centre,” n.d.)

During the design phase engineers had run various simulation models for the energy and air flow. The computational fluid dynamics analysis (CFD) allowed for rigorous analysis of the building physics which made the design improvements possible. Moreover, the thermal modelling together with an aquifer thermal energy storage (ATES) system provided constant flow of cooling and heating. Such phenomenal work conducted by the team of HVAC engineers resulted in an optimal internal environment and a comfortable space for customers and people who work in the building to enjoy it despite the season outside. (“Khan Shatyr Entertainment Centre,” n.d.)

To prevent the building from becoming a giant greenhouse that overheats because of the sun, ETFE layers are covered with silver dots that help to reflect the sun heat and keeps the building from overheating during the hot summer days. Moreover, the building is designed like a chimney effect where the fresh air gets sucked into the building from below and the hot air exits on top. The ring on top of Khan Shatyr has a regulatory vent that can be adjusted according to needs to control the climate inside of the building. The opening on top of the tent opened and closed as they needed. When it is windy outside, and the air is cool passing by it will naturally suck the warm air from the building by naturally ventilating it. Naturally the warm air which is lighter than the cool air goes up and evaporates into the air outside. (Figure)

On the higher altitudes the wind blows stronger than it is on the lower levels. Thus, it takes away the warm air that comes out of the chimney on top of Khan Shatyr. Special ventilation shafts located on the concrete bottom of the building naturally suck in cool air which naturally ventilates an entire building and then it warms up and naturally goes up the tent and exits through openings on top. Engineers have decided not to air condition everywhere, only specific places inside the building. Thus, even on the hottest summer days, it is cool and comfortable inside. On the other hand, during the cold winter storms, the tent will serve as a gigantic transparent blanket keeping the interior safe from cold winds and collecting the warm sunlight trapping it inside. Despite the weather outside it will always be bright inside because the film is transparent, and it naturally lets the sunlight inside which also traps the heat and keeps it inside. The excess heat that is produced in the sky beach can be recycled and reused again especially on the ground level at the car park during the winter keeping it around 5 degrees Celsius.

Built as an oasis in the middle of a harsh steppe where the temperature drops below 30 degrees Celsius, Khan Shatyr offers an exclusive experience of shopping, entertainment and on top of everything a tropical paradise with year-round beach, palm trees, swimming pools and crystal-clear sand imported directly from Maldives. However, as every market driven competitive economy, only a select few can afford the unparalleled experience of shopping, dining, and enjoying the paradise like atmosphere at the “Sky Beach Club” located on the top floor of Khan Shatyr.

Teams from Foster and Partners and Buro Happold have arrived in Astana to finally contemplate in person the biggest tent in the world that they have created. The sky beach on top floor is covered with its own ETFE roof separate from the main tent to provide its own microclimate. Thus, during the harsh Astana winter people can enjoy year-round tropical beaches with pools and aquapark. Aquapark has its own climate which is accordingly higher than that of the main atrium thanks to a smart design and environmentally friendly approach. Using natural sources of energy like sun building is heated during winter and vice versa when its summer heat building uses natural air flows to naturally ventilate the building and cool it down.

Conclusion

An architectural masterpiece by a famous British architect draws attention immediately after seeing it. High-tech buildings in an important location of Astana stand tall as a symbol of newly found wealth in Kazakhstan. The skillful use of tensile structure and ETFE plastic material made this iconic building invincible to high and low temperatures of Astana, making it a wonderful place to spend cold winter days of Astana on top of a sky

beach. Its innovative design that was carried for decades became possible to build only after all the technological advancements were made. The tent's tensile structure, which is supported by the giant triple in the middle and uses cables to support the ETFE material, provides a comfortable shopping and dining experience to its visitors despite the harsh weather outside. The climate-controlled environment beneath the translucent ETFE roof defies what architects and engineers can create.

The symbol of progress and modernity designed by leading British architect Norman Foster was made possible due to dedication and hard work of a highly educated, trained and experienced team of architects, engineers and construction workers from all over the world. First ever to be built, such a massive tensile structure is unique in all senses. Does this complex building reflect Kazakhstan's true potential to Construct World Class Iconic Buildings?

According to the world news media outlets, "the ninth largest country in the world, Kazakhstan, is all set to showcase its potential to the world." (Shinde, 2021) However, the only ability it shows is the ability to pay for an expensive project because the design and engineering part were made by the British architects and engineers, the general contractor was the Turkish construction company, and only the low skill labor force was the contribution that was made by the Kazakhstan side. Moreover, international coverage of Astana gave the project various hyped up names such as the "space-age entertainment center", "World's biggest tent" national geographic. Going as far as "one of the most revolutionary buildings in the world" located in the "ice desert". (Shinde, 2021)

Its shape as a modern-day nomadic tent in the "heart of Eurasia" not only reflects Kazakh culture but also translates cutting edge technology into an iconic architecture. Its interior is

brehtaking, one that captures imagination and gives credit to human ingenuity. Khan Shatyr is not just another shopping mall of Astana; it is a remarkable landmark that represents the potential of modern architecture to impress. Moreover, Foster skillfully put together sophisticated elements like culture, technology and form into one coherent masterpiece as Khan Shatyr stands tall as a reminder of a true power that architecture poses. Marriage of technology and cultural identity gave a visually striking result in the form of a giant tent that is seen by many as a symbol of modern progress.

Chapter 5. Norman Foster Phylosophy:

Integration of Sustainable, Innovative and High-Tech Design

Introduction

This chapter looks at the famous British architect who was responsible for the construction of key projects in the middle of the new capital city of Kazakhstan, Astana. His role as the main figure in shaping the new image of Kazakhstan in the transitional post-Soviet period was remarkable. Foster designed two of the most prominent buildings in Astana giving it a new appearance of a global city that emerged from the ashes of the former Soviet Union. Tracing back his professional career to understand how he became one of the best architects of the twenty-first century required a deep-down analysis of his incredible journey starting from his childhood, university and professional life. Thus, understanding his tremendous path of evolving both personally as well as professionally is very important to this research. Norman Foster's career path helps to explain and answer the research question of what makes these buildings architecturally unique and structurally special.

Foster's profound influence on developing transnational practice had a lasting impact worldwide and Kazakhstan is no exception. His projects in Astana have created a long lasting image for the city as a Central Asian hub for modernity. Having a huge impact on reshaping the skyline of the capital, by designing his advanced projects in the heart of Astana, Foster has left a long lasting mark of a legendary craftsmanship and determination to the built environment. His use of diagonal grids to create a strong frame for the Pyramid demonstrates advanced methods in structural design. Moreover, the bold courage to design a building in such difficult shapes and forms as the pyramid and tent gives us the understanding of professionalism and the ability to take calculated risks. The construction of both projects would not have happened without the coordinated work of many different specialists such as structural, electrical, HVAC engineers, climbers, project managers, skilled construction

workers and artists most of whom were mainly from Europe. So, it was a collective effort to make Kazakhstan look good despite its inability to construct such iconic projects on its own.

The program of both the Pyramid and Khan Shatyr is packed with spaces with different purposes such as the opera concert hall, exhibition and office spaces, congress meeting spaces and roundtables all perfectly wrapped together under one roof of a pyramid. It is very hard to bring such spaces together under the pyramid structure, especially since each floor of the pyramid is constantly reducing the square footage of each floor. With such a comprehensive form that reduces its area towards the top it is easy to make mistakes and difficult to make engineering calculations. So, what Foster was able to achieve is simply an incredible job of the best architect in business.

Diagonal or an inclined elevators, also called funiculars that take passengers in a diagonal direction as opposed to conventional vertical elevators is yet another knowhow that Foster have used in the pyramid project. Largely used in mountainous places where the slope is high and loads of cargo or people need to be transported up and down the inclined elevator or a funicular is the main solution. The principle of its work is a cable that drags the cart up on the railway through a steep gradient. The inclined elevator is a type of a cable railway where a cart is dragged upwards using the cable to drag the cart filled with people or cargo on a railway. Steep hillsides that are limiting access of goods or people are commonly equipped with inlined elevators on tracks. (“Inclined Elevators to Overcome Any Slope,” n.d.)

Tracing his life from early childhood to becoming one of the best architects in the world despite all odds, overcoming adversity, he follows his passion of drawing and exploring. Tirelessly learning from the best, he ultimately becomes the best architect himself.

Constantly looking for ways to improve. An architect who has been given every possible prize in architecture, especially his win of the prestigious Pritzker prize in 1999 for an innovative approach to architecture which recreated the design approach to the built environment. His deep care for the environment and sensitivity to the context made him one of the first pioneers of sustainable development as buildings are the main source of environmental issues. He starts every project with the idea in mind not just to follow the mainstream blueprint in design typology but to innovate and bring something absolutely new to the table, be it placing air conditioners in the basement instead of the roof to make space for natural light and ventilation. (*Norman Foster | The Pritzker Architecture Prize*, n.d.)

An architect who has been dominating the industry for seven extensive decades and made a fortune together with legacy. Recently, corporations such as Apple, JPMorgan Chase, Hyundai, Bloomberg, Saudi National Bank and many others have been hiring Foster to design an office building that would reflect their philosophy and become a landmark. An architect who not only was successful in realizing his ideas around the world but also someone who has made a fortune doing something he loves and is good at. As Michael Bloomberg puts it himself: “a billionaire who wanted to be an architect and an architect who wanted to be a billionaire.” (Parker, 2025)

At the age of ninety Foster is unusually fit as throughout his career he mixed the mental work in the studio with physical exercises such as cycling, skiing and piloting various flying machines. According to the British establishment for his amazing achievements in architecture, Norman Foster became the Lord Foster of the Thames Bank in 1999. Such a high title was received on Queen's Birthday honors. Previously Foster had been knighted and received the title “Sir” in 1990’s. Over time Foster has built an impressive production line

that designs dozens of projects throughout continents annually. The range and diversity of the projects is very impressive from infrastructure projects such as train stations and bridges to public buildings such as airports and public libraries.

Growing up in an Industrial Suburb of Manchester

Norman Foster, a leading architect of the twentieth century grew up in an industrial part of Manchester. Since childhood he has liked to draw with pencil, notably he is a left-handed artist whose fate was determined by his desire to keep drawing and creating. The painting called “Coming out of a Factory” demonstrates the city of Manchester which was made just before Foster was born. The painting demonstrates the depressed condition of this industrial British city. So, Norman was born in a depressed, industrial city of Manchester. He was the only child of his modest parents. His mother was a homemaker and his father worked at a pawn shop. They could give him love and care but they could not provide him with proper education, intellectual, artistic or even financial support for him to attend university. So, all young Norman could afford to do was drawing. (*Norman Foster | The Pritzker Architecture Prize*, n.d.)

He was born in a neighborhood where no one had gone to the university. When he turned sixteen and finished school, something many did not even complete, most looked for a job and he did the same. He found work as a janitor at the town hall where he stayed for two years. But, deep down, he knew that he wanted something more. At eighteen of age, he had to do his military service spending two years in the Navy as a radio operator, all the while thinking, “I want to get out of Manchester.” Engels once said that the quickest way out of Manchester was alcohol, but for him, drawing was the quickest path out. For his parents this

was a real crisis. They thought having a job at the town hall was fantastic, a huge social leap. Being a public employee was something they could not understand why he did not want to return to. He goes to a career guidance office, something created after World War 2 to help soldiers find new job placements. They give him some good advice: “You need to pursue an artistic career.” Artistic? A job? (*Norman Foster Biography - Google Search*, n.d.)

Foster believes he was tremendously fortunate both architecturally and personally. Being optimistic and always looking forward is the key quality of an architect that never stops and always looks for new opportunities to design and create. As a child, Foster has always been interested in buildings, and he has always been interested in moving objects such as locomotives to watch them move and pass by. Special locomotives with name plates made him wait for hours to find and observe the very special ones. As a child in Manchester, he would look for magazines that revealed the inner workings of objects that move and have a dynamic. All the things that excited Italian futurists at the beginning of a century that in many ways have also inspired other architects such as Le Corbusier who was genuinely interested in flying machines and devoted an entire book to it. Moreover, it was one of Corbusier’s books called towards the new architecture that juxtaposes classical architecture with fast hydroplanes. (*Norman Foster*, n.d.)

He manages to get into an architecture office but only as an accounting assistant, leveraging the administrative skills he had acquired at the town hall. But at night he takes the drawings home and copies them, drawing tirelessly. After a year, he timidly knocks on his boss’s door and says, “Mr. Berrisley,” which was the name of his boss, the chief architect of the office, “I want to go to university.” Berrisley responds, “But you can’t go, you do not have any drawings.” Norman replies: “Yes, I do have drawings.” Berrisley, surprised, asks

how that is possible, and Norman confesses that he has been taking the drawings home at night, returning them early in the morning, and copying them at home. The next day, Norman brings in a portfolio of his drawings, and immediately, the architect recognizes his talent. His boss moves him from the accounting department to the design office. (Barker, 2025) They give him a drafting table and a copy of what was then the equivalent of the Noifer, used by architects and he is assigned to work on a project.

Finally, gets into University – drawing becomes his passion for drawing. Not long after, this young man, coming from a working-class family in a neighborhood where no one had ever gone to university or even considered studying seriously entered university. There are two schools he can choose from. One offers him a scholarship and covers his tuition, but it is not the best. He says, “I want to go to a better one.” His county authorities say they won’t pay for a scholarship there, but he responds, “It doesn’t matter; I’ll pay for my studies by working.” He finds tough jobs that pay the most in the least amount of time, unloading trucks and similar tasks. He enrolls in the university and pays for his studies. (Barker, 2025) His parents could not even dream of affording. In school, drawing becomes his signature skill. Much of the money he earns comes from winning drawing competitions.

Foster starts making money from winning drawing competitions. They organize drawing courses, to help other students to draw and scale. Generally, in the more conventional schools of the time, these were classical or Georgian structures, but he says, “No, no,” and even revolutionizes this by even starting to draw vernacular architecture, in this case, a windmill. Also, the drawings he creates every summer, using the money he earns from drawing competitions to travel and see as much architecture as he can across Europe.

He tirelessly explores and studies works of famous architects like Le Corbusier, Alvar Aalto, Mies van der Rohe and Frank Lloyd Wright.

One of his drawings Le Corbusier's "Ronchamp" where he explores and studies everything he can from famous Le Corbusier, Alvar Aalto, and those masters that came before him because architecture is created by societies, by culture, by sensitivity, by clients, and by demands, but also by other architects. That's why we have to connect them with the masters of the twenty-first century but often the masters of the twentieth century will appear as essential references to understanding the twenty-first century. That's why we can not understand Foster without knowing that he drew Le Corbusier, that he sketched Alvar Aalto, and later went to America to study the works of Mies van der Rohe and Frank Lloyd Wright. He finishes his study after five years and earns a scholarship to go to the United States which was his dream at the time. This scholarship was usually reserved for students from Oxford and Cambridge. So, he was the first student not from those universities to win it.

Foster wins the scholarships to study in the United States and goes to Yale University. In fact, he doesn't just win one scholarship, but two: the Fulbright and the Henry scholarships. In the end, he chooses the Henry scholarship. Why? Because the Henry scholarship came with a green card, allowing him to work in America. With the Fulbright, he could only study; it covered his tuition, but he was not allowed to work. So, he applied for both, got both, and chose the one that would let him work in America, which reveals his mindset. He goes to America, not just to study, but to experience a new world from the ground up. (*Norman Foster Biography - Google Search*, n.d.) He chooses the most unlikely place for this: Yale University, a bastion of privilege where traditionally only the affluent classes of America attended. But what happens? At that, Yale is a hotbed of extraordinary

talent. The most recent buildings were designed by Louis Kahn, the director of the architecture school is Paul Rudolph, and Serge Chermayeff and James Sterling are regular instructors.

He learns from the best professors in America that are at Yale – Paul Rudolph the director of architecture school. The professors at Yale at that time are the best in America, and young Foster finds himself in a school that is very different from what he was used to. The school he attended in Manchester was a 9 to 5 affair, but Yale, Yale is 24 hours a day, 7 days a week non-stop. Paul Rudolph, the director, is a singular, charismatic figure with a crew cut, a somewhat military appearance, gay, and a tireless worker. He calls students to meet at three in the morning and expects them to work all the time, even through the night. Norman works tirelessly, but during the first critique, Rudolph tells him, “You haven’t worked hard enough.” For a young man like Norman, this is devastating. He wonders, “What do I have to do to measure up? What do I have to do? What can I do?” In the end, he rises to the challenge, imitating Paul Rudolph’s drawings at first, because he still has not developed his own style. (*The Architecture of Paul Rudolph - Google Search*, n.d.) He draws well, but he does not yet have his own language, so he imitates Paul Rudolph. In the picture we see him presenting a project to a jury, a project he drew in the style of Paul Rudolph.

But the most important thing about Yale is that of the three Britons who arrive, one of them is Richard Rogers, with whom Norman quickly becomes friends. They couldn’t be more different. Richard Rogers, who, as a side note, is the architect of the Barajas Airport and likely a familiar name to many, comes from a completely different social background than Foster. Rogers is from an upper-middle-class family; his father is a Florentine doctor with a British passport, settled in Italy, and Jewish, married to an Italian woman. They returned to

Great Britain shortly before World War 2, fleeing, as one might expect, from the persecution Jews were facing across Europe at the time. Rogers comes from an intellectual, artistic family. His uncle is Ernesto Nathan Rogers, a famous Milanese critic. Despite this rich background, Richard is dyslexic, unable to draw or sketch, but he has social connections and the ability to navigate in a different sphere. (“Team 4,” n.d.) Immediately, they form a team called “Team 4,” consisting of Foster, Rogers, and their two girlfriends, who soon become their wives.

Together Richard Rogers, Norman Foster, Rogers with his wife, and Wendy Cheesman. The four of them form Team 4. Initially, Team 4 was less about Rogers and more about the other sister, who was actually the only one with a formal architecture degree and the only one legally allowed to practice. Nevertheless, they created a small team of four and set up an office in London, in Wendy’s apartment. Because of this, Norman doesn’t stay in the United States. Although he discovered and was fascinated by America, seeing it as the country where he wanted to live, a country far more open to social mobility than the Britain he came from, where social stratification was severe, and the ability to move between classes was extraordinarily limited, so he was convinced by Rogers to return. “Let’s set up an office,” Rogers says, “and see how we do.” So they establish Team 4. (“Team 4,” n.d.)

The first commissions, as is often the case with a young firm, come from relatives. In this case, it is from the parents of Rogers’ wife. Rogers’ father is an advertising executive and an art collector, a man with money. He owns some land in Cornwall, where he enjoys watching sailing races from a pine forest. He commissions a small retreat from which to view the estuary, where the sailing races take place. This becomes Team 4’s first project and Norman Foster’s first work. It may seem like nothing, a small cabin, almost like an airplane’s

cockpit, but it is like a primitive hut that encapsulates Foster's entire career. Everything that defines Foster's work is already present in this first structure, which appears to be almost nothing, yet is everything. It's both highly technological, made entirely of concrete and glass, and deeply organic, like a glass seed buried in the underbrush, or a boat nestled in this milky forest. Something where, if the forms come from Wright, the lineage that follows from here will be Miesian, glass, steel, transparency, lightness. Much of Foster's later career can be traced back to this first work. It's all here, in this initial project. ("Team 4," n.d.)

Second commission and a big commission with the leap from conventional, wet architecture, built with mortar and bricks, to dry, to prefabricated architecture, an industrial architecture that is not built but manufactured. Immediately after, they are commissioned to build a vacation home for Rogers' parents. Following that, they are asked to design a small residential development, which is well represented in this drawing by Foster. However, the project does not get approval, and it does not move forward. But they do manage to build a few houses, like the Skybreak House, which quickly gets published in magazines. Stanley Kubrick even chooses it as a location to film *A Clockwork Orange*. They start to gain recognition, people begin to take notice of Team 4, these young guys who have come back from America, are starting to make waves. And then comes the big commission, a large factory for Reliance Controls. This is the moment when technological advancement is booming in Britain, and they make the leap from conventional, wet architecture, built with mortar and bricks, to dry, to prefabricated architecture, an industrial architecture that is not built but manufactured. It's a neutral container, essentially a concrete slab topped with a lightweight metal shell, what they call the Umbrella Building.

This was the end of Team 4. Such an approach is very much in line with what was being done in America at the time, not only by the Eameses and others around the Case Study House program but also by people like Craig Ellwood. It's the Californian approach to architecture, transplanted to Britain. The building ultimately embodies elegance and simplicity, a beauty in its reduction of architecture to almost nothing, that it achieves instant success, garnering many awards and much recognition. However, commissions do not follow. So, four years after its founding, Team 4 dissolves, and each member goes their separate way. A few years later, Rogers and his wife will team up with Renzo Piano to win the Pompidou Center competition, but Norman stays with Wendy. He stays with Wendy and starts a firm they somewhat grandly name Foster Associates. (*Foster + Partners*, n.d.)

Overcoming adversity as Foster and Associates started without work and wanted to leave to the US where at the time the construction was at its peak. It's just the two of them, but "Associates" gives the impression of a much larger company. For 18 months, they work without a single commission, all while staying true to their design philosophy. They entered competition, like the one in Newport, and made proposals of all kinds. In the picture you see him drawing, notice what he is drawing. Foster is always drawing, constantly. Even when he is talking to you, he is drawing. He is incapable of conveying something without drawing it, without using the tip of his pencil. His drawing this, he is sketching the projects they were working on at the time. A factory in Cincinnati, a warehouse for Pirelli. None of them get built, none materialize, until suddenly, an opportunity arises. What is likely the most decisive moment in his career happens just then. The young couple is on the verge of leaving for America, they have thrown in the towel, thinking there is no work here, and they need to

return to America where there are opportunities. (*Norman Foster Biography - Google Search*, n.d.)

Project that wins him recognition: Fred Olsen Building. Where he mixes blue collar workers with white collar workers. Something unheard of before. But just before leaving, they meet Olsen, a Norwegian shipping magnate with a fleet based at the London docks. He wants to build a center for his employees and asks Norman to design it. Norman takes in the project. One version of the design, and this is what was ultimately realized. In a tough area of the docks, he does something absolutely unheard of at that time, not only in those docks but for a long time in British industrial culture; he mixes the secretaries with the dockworkers, what they call the white-collar and blue-collar workers, meaning the office workers and manual laborers. This approach is only possible because there is a Scandinavian behind it, with a more egalitarian vision of the world. This vision allows Foster to create a remarkable glass building, featuring a single reflective façade, a technical achievement and a minimalist refinement, in line with his philosophy of making the structure almost nothing, yet embodying a socially progressive, egalitarian project. (Viva, n.d.)

Fred Olsen Building made Foster popular and made him a specialist in Workspaces. Series of Office Buildings one after another. Unfortunately, the building does not last long. The docks are constantly evolving, and the structure is eventually demolished to make way for other industrial uses. However, from this project emerged the seeds of his great buildings from that era. And all that remains of it is Ben Johnson's painting, capturing the distorted reflections of cranes and ships on the Fred Olsen's building. But, as I mentioned, this project would lead to others. The next three major clients Foster had all went to see the Fred Olsen building. They were amazed and said, "That's the architect I want." The importance of a

single work, sometimes it's because it gets published, but other times, it's simply because the client wants to see it in person. They go, see how it works, and then decide, "I want that architect to be mine." At that time, of course, in the 1970s the era of counterculture. The counterculture was expressed in two main ways: pneumatic and geodesic. Foster doubled in both. The pneumatic came into play when he was asked to create a temporary office space in Garra. (Viva, n.d.) By then, he had already become a specialist in workspaces. He was commissioned to design an office building, but he needed to create a temporary space for the employees while the building was being completed. So, he housed them in this pneumatic tent.

Design together with his mentor Buckminster Fuller. The temporary tent actually ends up being more successful than the office building he constructs afterward, does it not? Or the geodesic version, which he creates with the guidance of his mentor at the time, Buckminster Fuller. Together, they design the Climatoffice, a large sphere, a vast dome covering a series of technical trays, the interior of this space, as you can see, reflects that innovative approach, blending advanced engineering with architectural vision. And he creates it with his admired mentor, Buckminster Fuller. In the picture, Norman attentively listens to him. Fuller is an incredibly important figure in his life. Among all the Americans he admires, and there are many, from Rudolph to the Eameses, Fuller stands out the most. Why? Because Fuller was the most visionary and the one capable of thinking beyond architecture, beyond the traditional boundaries of the profession. And then, one after another, he received three significant commissions from clients who visited the Olsen building. (This House, 2025)

Key Projects that have Brought Foster International Recognition

IBM Office Building. The first is from IBM, not just any building, but a major project for 700 employees, set in a park. He designs a box where the desire to create almost nothing is pushed to its extreme. The boxy building almost disappears, where does it stop? The reflection causes it to blend in, and in the end, the box vanishes into the landscape. Seven hundred people inside, and yet, in the end, it feels like nothing. A paper-thin glass skin. This design clearly reproduces the experience of the Fred Olsen building, but with even greater minimalism and technical sophistication. These large glass panels are barely held in place, in a way that the structure almost dematerializes. From the outside, all we see is the glass skin, the structure that holds the building together is invisible. It has disappeared, leaving only a precise glass surface that, through reflection, merges the building with the surrounding nature.

Ipswich insurance company building was the second commission and it was more complex, a more challenging problem because it's an office building for an insurance company that wants to move out of London. London is uncomfortable, noisy, so they decide to relocate to Ipswich, a small town in the northwest, taking all their employees with them. They needed a new building, and they commissioned Foster to design it. Once again, he uses a glass wall, but this time it's curved, reminiscent of Mies van der Rohe's famous 1922 skyscraper design. This building is not just a technological feat. It's also a contextual achievement in how it integrates into that medieval town, using this ovoid floor plan. But it's also, once again, a statement of confidence in industrial democracy. At the heart of the building, it blends work and leisure. The building is traversed by a large atrium filled with natural light. There are stairs that descend, connecting to the indoor pool for the employees.

The restaurant on the rooftop is connected to the leisure areas, creating a seamless flow.

(*Works of Norman Foster - Google Search*, n.d.) The gloomy, standard offices that were the norm in Britain at the time are replaced by a bright, cheerful office space, complete with a pool, a restaurant, and a terrace where work and leisure blend together.

A museum at a new university was yet another challenge that Foster accepted with an open arms and developed a new typology for it by mixing the use of traditionally separate structures. This museum at a new university in East Anglia, designed by Denys Lasdun, features those distinctive diagonal forms. The patrons of this project, the Sainsbury family, would later become almost like adoptive parents to Foster, filling a role that his own parents couldn't. The Sainsburys commissioned him to design a museum to house their extensive art collection at this new university. Traditionally, up until the 1960s, there were two types of universities in England: Oxford and Cambridge, with their elite status and neo-Gothic or Gothic buildings, and the Redbrick universities, which were generally seen as lesser institutions. The 1960s saw the creation of new universities, and in this one, surrounded by lawns and set in an environment that speaks of a more orderly world, the Sainsburys wanted to leave their art collection and, at the same time, establish a school of art. Instead of separating the school and museum, Foster proposed to place everything under one roof, all under one roof. (*Works of Norman Foster - Google Search*, n.d.)

Such an unusual approach to each project guaranteed the client the best possible outcome within the given range. At Olsen, he brought manual workers and office staff under one roof; at IBM, people and machines; in the Willis Faber building, work and leisure were combined. Here, what he brings together is education and art objects, aiming to remove the sacred aura from the art objects. And so, as you can see, it's simply a large box with facilities

integrated into that kind of double skin. But inside, everything blends together. It's an effort to reinterpret the concept of a museum, completed around the same time as the Pompidou Centre. (*Works of Norman Foster - Google Search*, n.d.) While the Pompidou, being in Paris, received more attention and ultimately became the more widely known model, both projects share the same goal: desacralizing art. The Pompidou does this by placing artworks inside what looks like a giant refinery, while in Foster's case, the art is housed alongside the people who work there, next to classrooms, within a small labyrinth, all enclosed within a large box.

Reconsidering every building type

As with all of Norman's projects, when he approaches them, he reconsiders the very essence of the building type. If he is designing a museum, he thinks about museums as if they've never existed before. If he's designing a skyscraper, he imagines it as if skyscrapers had never been built before. If he is creating an airport, it's as if airports were a completely new concept. In the end it's true. On one hand, it desacralizes art, but on the other, it creates a temple for the technological age, with the same gravity and presence as the Parthenon atop the Acropolis. So, while it desacralizes art, it simultaneously re-monumentalizes it through the monumentalization of technology.

HSBC (Hong Kong Shanghai Bank) was a fundamentally new approach to office tower design. But, certainly, it was completed at the same time as the Pompidou Centre, which became a universal success. The Pompidou is, above all, about structural expression, as well as the expression of its systems. The Pompidou not only has its structure on the outside but also its services, with those large colored tubes. Inevitably, this work by his former partner, Rogers, along with Renzo Piano, influenced Foster and made him change his

approach. The works we've seen so far, perfect, minimalistic boxes, transform into expressive structures. (Team, 2024) He moves from focusing on the skin to focusing on the bones, starting with this building: the Hong Kong and Shanghai Bank, something truly extraordinary. The Hong Kong and Shanghai Bank decided to build a new headquarters for a fundamental reason: to send a message to the Chinese leadership that even though it had been agreed that Hong Kong would pass under Chinese sovereignty, they were not leaving, they were staying in Hong Kong. The way to convey this message was by constructing a new headquarters and investing a significant amount of money, signaling their commitment to stay.

It was a bold decision, especially since many at the time were fleeing Hong Kong, saying, "Hong Kong is passing under Chinese sovereignty, let's move to a friendlier capitalist environment, who knows what will happen to us?" But HSBC said, "No, we are staying." And there was a second bold move: after a competition, they entrusted the project to an architect whose tallest building so far was only three stories high. (Team, 2024) Yet they dared to commission him to design a skyscraper. As always, the clients are crucial because it takes courage to trust young architects with limited experience, especially with no experience in high-rise buildings. They gave him the project, and it became Foster's most celebrated building, still, today, it is likely the one most deserving of a place in architectural history. The building incorporates ideas from the Pompidou, like the expressive external structure that physically and muscularly shows how the building is supported, unlike those earlier skins that said nothing.

However, it does not go as far as Rogers and Piano, because the building systems are not exposed externally. It's not a building filled with external pipes; only the structure is

expressive. The result is a building of extraordinary beauty. The sketches and the various structural solutions could provide material for a long discussion. Some of these concepts and functions were explored but ultimately not materialized. What does materialize is an idea Foster would later use in projects like the Reichstag and elsewhere: the concept of capturing natural light through mirrors and bringing it into the building. The mirror becomes a tool for illumination and, ultimately, for infusing the space with vibrancy and life. Natural sunlight, constantly changing with the clouds, is very different from the uniformity of artificial light. And the floor plan, especially the floor plan, was revolutionary. In most skyscrapers, it was clear that the layout was like a tree: a central core with a ring of usable spaces around it, and the façade, usually load-bearing. But here, that is not the case. The load-bearing elements, along with all the circulation, services, and communication elements, are moved to the perimeter, leaving a vast open space at the center that can be arranged at will.

This approach, compared to the traditional office layout with a central core and ring of offices, introduces the concept of the open-plan office, or a “landscape” office which is a more egalitarian office layout where everyone has access to natural light. And of course, there is the grand atrium, this spectacular atrium, illuminated not only from the sides but also by the mirrors that capture sunlight. The building, being so complex, took much longer to complete, becoming what you might call Foster’s prime project at that time. Consider that many of his earlier buildings were completed in incredibly short time frames. Reliance Controls, the last building by Team 4, was designed and built in just 10 months. Fred Olsen, Foster’s first significant building after forming Foster Associates, was designed and built in 12 months. But this one, this was a major work. It took until 1986 to be completed.

Renault Building is yet another brilliant solution that took a very different approach to the design. By that time, the same desire for structural expressiveness was manifesting in other buildings as well, such as the building for Renault in Swindon. Interestingly, it's the same location where Reliance Controls was built, which you may recall was a simple box with those minimal tie rods. In contrast, this Renault building is entirely different, almost circus-like in its expression. It showcases the ability to express the structure through large masts, making the building's support system a prominent and dynamic feature. Everything hangs from these masts, and the building is brought to life with vibrant colors, further enhancing the sense of dynamism and energy in the design. Fifteen years later, he returned to the same industrial park, and it's as if he's made the transition from Brunelleschi to Bernini, from the early Renaissance to the Baroque. He's moved from his first work, which was pure, restrained technology that we could call classical, to a more exuberant Baroque-like technology, as we see here.

This marks a more Baroque phase in his work, and from this point onward, everything will either decline or ascend, but certainly in a different direction. By then, of course, his firm had become a powerful entity with significant commissions. The office had grown considerably, prompting a move to a new headquarters. And they design the furniture for the new headquarters with the same mindset they applied to Renault. These pieces of furniture, created in 1981 for the new office, reflect that same innovative approach. They are designed with the same attention to detail, structural expressiveness, and a blend of functionality and aesthetics that had characterized their architectural projects. Five years later, this design approach would lead to the development of the Nomos system for Tecno, which became commercially available. Many might have seen it in various offices as it still is in production

today. The Nomos system, with its distinctive blend of functionality and sleek design, is a direct evolution of the concepts Foster and his team developed for their headquarters. But that expressionist intent begins to soften, becoming more refined and subtle over time.

Stansted Airport turned out to become an exemplary design for traditional airports as it was deeply reconsidered and made way more attractive for people to be inside of a giant open space. When Foster was commissioned to design an airport, a dream project for someone who loves airplanes so much, his expressiveness is reduced to the bare minimum, if you'll excuse the redundancy. Foster has a deep passion for aircraft. Early on, he flew gliders, then helicopters, later propeller planes and eventually jets. When he turned 75, he made a list of all the planes and gliders he had piloted, and it came out to 75. He found this coincidence so remarkable that he commissioned 75 models, one for each aircraft or helicopter he had the pleasure of flying. So, being asked to design an airport was the best commission he could receive. This project was the third airport in London, Stansted. He develops it as a vast horizontal piece, yet built with the regularity of these structural "trees," masts that rise up, creating a rhythm throughout the space. Yes, with the Sainsbury Centre, Foster aimed to change the concept of the museum, and while he only partially succeeded, let's be honest, here at Stansted, he decided to redefine the airport, and he succeeded completely.

Reinventing airport design was a key to a successful career as it boosted Foster's reputation to a sky high level. As before Stansted, all airports had their machinery on top of the roof, resulting in a massive surface with machinery above, and of course, everything was lit with artificial light. Foster's genius at Stansted lies in placing the machinery underneath, allowing for a lightweight roof and the reintroduction of natural light into the airport spaces. This might seem trivial now, but it's one of those ideas where you wonder why no one

thought of it before. It was truly a revolutionary change, and so logical and clear that from Stansted onward, all airports were built this way, with the machinery below and a light, luminous roof above. For example, the Madrid-Barajas Airport follows this concept, with everything below and a bright, airy roof above. In the end, this love for design is evident in the structural “tree” at Stansted, perfectly designed in every detail. The building services are seamlessly integrated into the four posts that form each structural tree, which is then repeated modularly throughout the airport. This approach not only showcases Foster’s attention to detail but also his ability to create a harmonious blend of form and function, making the entire structure both efficient and aesthetically pleasing.

These spaces feel incredibly light and airy, where there is still a hint of that structural expressiveness in the trees, but it's much more subdued, much more refined. This tempering is further emphasized by the choice of colors, everything is white, silver-gray, with nothing else to distract. This restrained palette contributes to the overall sense of calm and sophistication in the space, allowing the structure to speak for itself without overwhelming the senses. When you see these exterior porticos, where the structure is expressed so clearly and pedagogically, it's easy to understand why it was so successful. The way the structure is laid bare, yet elegantly designed, not only serves a functional purpose but also communicates a sense of order and clarity that resonates with both professionals and the public. This transparency in design, both literal and figurative, is what made Stansted Airport such a landmark achievement. Looking up, this is the airport, a diffuse clarity that almost makes it disappear, blending seamlessly with the sky. The light filters in so gently that the structure feels weightless, as if the entire building could simply dissolve into the air. This ethereal

quality is what gives Stansted its unique character, creating a space that is both monumental and almost imperceptible at the same time.

A gift to Buckminster Fuller, Foster's long time mentor and a dear friend whom he admired and learned from. It was an important moment in Foster's life. In 1982, he decided to give himself and his mentor, Buckminster Fuller, a gift. He designs two houses for both of their families, one in Great Britain and one in California, two geodesic homes. That same year, Foster receives the RIBA Gold Medal, and Fuller comes to London to deliver the tribute to Foster. However, Fuller passes away 10 days later in California, just days after praising Foster in London. The houses were never built, a premonition of the difficult times ahead. Foster tries to fill the void left by Fuller with Otl Aicher, the great German graphic designer who created the Rotis typeface, and whose work became the foundation for Foster's entire graphic identity. In the following years, until Aicher's death 10 years later, he became Foster's second figure of reference. But Foster has always needed these figures of veneration, and they all share a common trait, radicality, a determination to push things to the extreme, first Fuller, then Aicher.

The next stage was heritage buildings which Foster had never encountered before. And around that time, after the trilogy of the buildings we've seen, those with skin, and the trilogy we've just seen, those with bones, comes another trilogy: the trilogy of heritage buildings. Until then, Foster was seen primarily as a technological architect. In fact, the Hong Kong and Shanghai Bank gave rise to a new label: high-tech. These architects were seen as high-tech, seemingly making the monumentalization of technology their sole purpose. They weren't thought of as architects with a sense of the city, a sense of what exists, or a sense of heritage. However, with the competition for the BBC, all that changes. He dedicates three

years to it. The BBC is an incredibly complex and enormous organization. Working with the BBC was very difficult, and working with that client for three years was a significant challenge. They give him a fantastic site in the heart of London, right across from Nash's All Souls Church, an iconic church that everyone will recognize when they see it drawn.

Questioning and challenging conventional buildings to Rethink, Redesign, and Reinvent them is a key approach that Foster takes before starting any project. By questioning and challenging conventional buildings and by having a degree of determination, conviction, enthusiasm and passion, a good architect can make a difference to the world that we all live in. Rethinking, redesigning, and reinventing otherwise conventional buildings that were a traditional way of designing buildings. To do that, it is important to go back to basics and examine the roots and question the principles that have started the entire movement. Hence, it is important to analyze and take apart what was done previously to improve it and make it better.

The exhibition of Foster's entire work collection had to be made public as he collected an impressive portfolio of works that needed to be put on display. From 10 May to 7 August 2023, the Centre Pompidou in Paris held the largest Norman Foster retrospective, curated by Frederic Migayrou in collaboration with the Norman Foster Foundation and Foster + Partners. Covering nearly 2,200 square metres, the exhibition covered the entire journey of Norman Foster's work over the last six decades. The Norman Foster exhibition brought together nearly 215,000 visitors, with 2,800 visitors per day. There is only one Centre Pompidou which is really a culture mixing pot and an iconic structure which was designed by Foster's close colleague. So, the building itself has a close association with his generation.

Being present at the inauguration of the building Foster together with the architects made a very special connection to him.

Frederic Migayrou who was the curator of the Foster exhibition at Centre Pompidou was first introduced to Norman Foster through books. Later, he was contacted by Norman Foster directly and unexpectedly asked for a meeting at the Tadao Ando exhibition. He came with Elena Foster and Migayrou made a full visit to the exhibition. At the end of the visit it became clear that Foster intends to do something like this. So, Migayrou and Foster began looking for ways to put together an exhibition. Hence, the Pompidou exhibition turned out to be about breaking down the barriers between the different disciplines such as visual arts, film, photography, painting, sculpture, architecture and design. The exhibition that was created for that venue is similarly about design in a broader sense. So, it was about issues of the city master planning, about artifacts, vehicles, flying machines, their beauty and about function. All the common denominators that bring these different aspects of design together create a synergy between the mission of Centre Pompidou and the exhibition that was created for that venue.

Foster's ability to learn and evolve as each new project requires a new approach

This project marked a turning point, showing that Foster could engage with historical contexts and heritage while maintaining his innovative spirit. It's a landmark that most people are likely to see in London when going down Regent Street. He conducts countless tests, thousands, in fact, to get it just right. He creates 400 models, each one a different alternative for the BBC headquarters, all of them striving to find the best way to integrate into that historic London site. In the end, the project isn't realized, but that doesn't matter because the

experience and knowledge the firm gained in working within a city and engaging with historical contexts were invaluable. Until then, most of their work had been in industrial parks, creating stand-alone buildings without references or history surrounding them. Now, they were ready to start working with history. Subsequently, they completed two buildings that, in my opinion, opened the door to a new chapter in Foster's career. On one hand, there's the Maison Carre in Nimes, as you know, a Roman temple.

The Rome library project was commissioned by Foster to design a kind of media library, called the Carre d'Art, on a site where a neoclassical theater had once stood before it was destroyed by fire. He has to work within the same volume, so the challenge is: how do you dialogue with something like this? Foster, who had been up to that point, as I mentioned, primarily a technological architect, suddenly transforms into an urban architect. He understands that the site must be considered in its entirety. He redesigns the entire square, the access points, and the surrounding streets, integrating his work seamlessly into the fabric of the city. In the end, he constructs a building that isn't just a direct translation of the hexastyle temple with its Corinthian order into modernity, but one that is full of subtle references. Instead of six columns, there are five; the entrance is on the side, reflecting how it integrates with the city. It's modern, but in a quiet, understated way, almost without declaring itself as such. And, of course, there's the significant reinterpretation of the classical temple. With Foster's increasingly refined and minimalist language.

The building reflects his ability to distill classical references into a modern context, using clean lines and simplicity to create a dialogue between the ancient and the contemporary. The building is conceived like an iceberg, with only a portion visible above the ground, the only part that could occupy the space, while the majority of the program is

situated underground. However, it's still filled with light, thanks to a sequence of skylights, similar to what Foster had done in Willis Faber or in the atrium of the Hong Kong and Shanghai Bank. This clever use of light transforms the subterranean spaces, making them feel open and connected to the surface. This design allows natural light to reach down to the lower levels, ensuring that even the deepest parts of the building are bathed in natural light. This thoughtful approach not only enhances the user experience but also maintains a connection to the outside world, even underground. The building certainly garnered significant visibility for many reasons. The mayor of Nimes was the owner of Cacharel, a man skilled in publicity strategies. Just as Cacharel democratized high fashion, this project democratized culture, making it more accessible. It was an extraordinary moment.

Shortly after, Foster undertakes a much smaller but highly significant project in London, the Royal Academy. He had been elected an academician two years earlier, and in 1984, he was asked to remodel the Royal Academy to accommodate new exhibition galleries. He approached this task with such sensitivity that his usual architectural language almost fades into the background. The new galleries are almost anonymous, blending seamlessly into the existing structure without drawing attention to themselves. The only significant intervention he makes is a sort of cut or passage between two existing buildings, creating a subtle yet impactful connection that integrates the new spaces with the old. By creating this cut, he enhances the value of the existing facades, adding a glass elevator and staircase, doing almost nothing, yet this surgical, minimalist intervention at the Academy is seen by everyone because it's in London, because it's the Royal Academy, and because everyone goes there for exhibitions and events. It becomes his calling card. From that moment on, Foster is recognized as an architect with the legitimacy to intervene in historic environments.

In 1986, the Hong Kong project was completed, and the entire team returned to the office. They had a huge team in Hong Kong, with all of Foster's key partners, including David Nelson and other important associates, involved in the Hong Kong adventure. When they returned in 1986, it's clear that a larger office was needed. They design and build it themselves, right on the Thames River bank. The top floor is Norman Foster's residence, the penthouse. There are a few floors for rental, and the lower levels house the entire office. The office was conceived as a large open space, reflecting Foster's vision of industrial democracy and communal workspaces. This period marked significant achievements, but it was also a time of a great tragedy. Shortly after selecting the site by the Thames for the new office, Wendy, his wife, was diagnosed with cancer. She passed away three years later, in 1989. Wendy wasn't just Foster's wife; she was also a partner and played a crucial role in the office. Her loss profoundly affected Foster, both emotionally and professionally. It was a devastating blow that impacted his life on many levels. The office was now capable of tackling large-scale projects, such as those at King's Cross in London and La Sagrera in Barcelona. They were now engaged in major urban planning initiatives, marking a shift from individual buildings to the broader scale of urbanism. This expansion into large-scale urban projects demonstrated the office's growing expertise and influence in shaping entire cityscapes.

And yet, they also find themselves involved in smaller, more intimate projects, like the American Air Museum. This museum, near Cambridge, houses American aircraft from World War 2. It's a beautifully designed building that thoughtfully accommodates these historic planes, blending Foster's architectural vision with a deep respect for the aviation heritage it showcases. The floor plan of the museum, and you can see how the aircraft are

arranged within the space. The layout is carefully designed to display the planes in a way that highlights their significance while maintaining the building's aesthetic integrity. In the picture you can see how the aircraft are housed within the museum. The design carefully considers their placement, ensuring that each plane is showcased prominently while maintaining a harmonious flow within the space. The arrangement allows visitors to appreciate both the engineering of the aircraft and the architectural beauty of the museum itself. And the exterior expression of the building.

The Swiss Re Tower, familiarly nicknamed "the Gherkin" by Londoners, marked Foster's reconciliation with his city. He had been building all over the world but had done very little in London. However, from this point on, he began constructing numerous projects in London. There is a term "Foster's London" that has emerged in the last ten years. Among these, the most recognizable, beautiful, and successful is undoubtedly the Swiss Re Tower. It's a skyscraper that feels like an extension of the concepts he explored with the Fuller Climatroffice, but elongated. Or like those geodesic homes he designed, one for Fuller and one for himself, but stretched to give them this iconic form. And it seamlessly integrates into the London skyline with a completely recognizable profile in the city of London. The tower's distinct shape and innovative design have made it a landmark, symbolizing both the modernity and the historical continuity of London's financial district.

Foster's global expansion went as far east as the biggest Central Asian country, Kazakhstan. At the same time that Foster was reconciling with his city, his global expansion took him to some of the most unexpected places, including Kazakhstan. He built the Palace of Peace and Reconciliation, a pyramid-shaped building designed to promote global harmony and understanding. This structure, with its striking form and symbolic purpose, stands out as

a unique contribution to Kazakhstan's architectural landscape. He also constructed a large recreational space under a vast tent-like structure called Khan Shatyr. This massive transparent tent houses an array of entertainment, shopping, and leisure facilities, creating a year-round oasis in the harsh climate of Kazakhstan. Projects that have yet to be realized in Moscow, such as another colossal building demonstrate Foster's continued ambition and his willingness to take on grand, complex designs in some of the world's most challenging and prestigious locations. The Russia Tower, also of tremendous dimensions, attempts to secure a competition for Ground Zero in New York.

Learning from the Best and Inspired by the best: from Le Corbusier and Frank Lloyd

Wright

As a child Foster would be excited and enthused about various machines and their moving parts so he would often sketch them on paper moving at a fast speed. Foster considered books to be a more glamorous world than the real world surrounding him. So, some of his favorite books included "Towards the new architecture" by Le Corbusier and "In the nature of materials, 1887-1941 the buildings of Frank Lloyd Wright" by Henry-Russell Hitchcock. Also, the architectural review magazine which first started publishing in 1896 London and introduced Foster to the landscapes of South America designed by Oscar Niemeyer, a famous Brazilian architect. Being far removed from the outside world of architecture and living in Manchester Town Hall because Foster left school at the age of 16 and then doing national service for two years. However, Foster always kept sketching and dreaming about all the things that excited him.

Foster's passion for architecture developed from an early age and continues to these days. Discovering a possibility of becoming an architect, studying to become an architect, discovering the school of architecture and design studio was no longer considered to be no longer work for Foster because he enjoyed it so much. Work is something that an individual goes to earn money to take care of a family and pay the bills. So, in that sense, discovering architecture that excited him, and it was something he was ready to pay to do and eventually he got paid to do it which was remarkable. Growing up in an industrial suburb of Manchester Foster would usually ride a bicycle into the countryside to see traditional buildings. Growing up and later, Foster was never into team sports and mostly did individual bicycling and an annual cross-country skiing marathon with 12,000 other people. Moreover, he does marathon bike rides with friends which are incredibly social activities. However, apart from that most of his cycling is solitary and highly therapeutic.

Foster's Love for Moving Objects

The relationship between him and a machine, be it a bicycle or a ski is quite special. Foster uses the time on a bike not only to escape from routine but also to think and cross examine. So, in one sense it's a release and a change of place but it is also an inner discovery when he really finds time to reflect and reload because most of the time Foster spends with teams and going to the building sites and engaging with very interesting people. Talking to clients in need of a building and having a dialogue is central to the design process. Later in the career, Foster started flying high performance sail planes which is solo flight. Covering vast distances at high speed without an engine. Solar planes driven by nature. Foster has gone

to pilot many different flying machines such as helicopters, microlites and fast jets all around 75 different types of flying machines.

According to Foster, man-made objects make this world a better place. As architects find a very close link between art painting, sculpture, architecture, design, aircrafts, automobiles and locomotives that seamlessly blend in and make a world much more exciting place to be. Therefore, Foster was able to connect the important links between individual buildings and infrastructure of public spaces and their overall connection to transportation, bridges and terminals. The urban glue that binds them all together and that is not to say that Foster is not passionate about architecture because he is totally driven by it, but the bigger picture is arguably even more important. The master plan and the concept that ultimately make up the built environment in which people live and experience every day. All the urban fabric in which human beings exist and that determines the quality of life in the same way individual buildings make a huge influence on life. Finding Foster's building among the complexity of infrastructure creates a sense of simplicity and weightlessness that strikes people. Very similar to flying, which is a very complex process yet, it looks very simple and light.

One of the main features in Foster's design is the incorporation of public space into his projects. The essence of lightness in buildings that touches the spirit are those that turned out to become the best creations. When it comes to infrastructure, as a designer, Foster goes beyond architecture and the interest in infrastructure has influenced architecture of the individual buildings. So, every single masterpiece created by Foster includes some sort of public space integrated into it or as in the Reichstag building where public space became the central concept, even though clients never asked for it. The interaction created by architects

between urban public space that penetrates buildings manifests itself in the integration between an individual building, city, its infrastructure and public areas that are gently integrated into the design of the buildings, greatly influencing the architecture.

Re-examination of a conventional building type to come up with a better one

Buildings have a story to tell, a dominant theme that it will reveal. How it was made and the major interpretation of it. For example, a conventional congress hall or a shopping mall airport can re-examine that building type and come up with something different but different not just for the sake of being different but different for a good reason. So, a conventional tower usually has a central core, and a main task of a good architect is to question long established rules and norms and to come up with something fresh. For example, the HSBC tower in Hong Kong was presented for the competition with a completely new approach to office tower design and could have been easily rejected by the committee.

HSBC building in Hong Kong was a prime example of a new approach to tower design. Designed by Foster, the project proposed a completely new approach to tower design. It did not have a central core as most of the conventional towers, instead it used that space to create a central atrium that visually connected people inside and provided better natural light and gave the sense of a great opening that ultimately converted into a much better space for the people to be in. Core structural elements that hold the tower were shifted outside to give free space in the middle. For example, Stansted airport in London designed by Foster also questioned the conventional idea of a terminal which was supposed to be a sandwich of space and the roof that had a lot of ventilation ducts with their air handling plant on the top to cool the air. Moreover, lots of electric lighting because of the lack of natural lighting that

produced the heat load of lighting that consumed a lot of electricity and was not very nice considering that it created a very claustrophobic space.

Another good example of reconsideration of traditional building type was conventional airports. That is why previous conventional airports had such a bad name. When Foster reconsidered classical airport design and put all the air handling at the bottom, underneath to open space above for natural light and sunlight. So, because of that, for most of the time electrical lighting was not needed and suddenly, the airport turns into a place that is joyful that would uplift the spirits and suddenly becomes popular with the most important people who become paying customers. Also, with these changes in the design, airports become more energy efficient. Thus, such well designed airports tell multiple stories. One about energy consumption and one about people enjoying the space, another one about how to design a building.

The Reichstag project became the iconic symbol of lightness and transparency. Looking at Foster designed buildings one can find repetitive features such as a feeling of lightness and transparency of his buildings which is peculiar only to him. Sometimes they are spiritual like the Reichstag building that in a way lifts the burden of history. So, philosophically confronting history by keeping the graffiti and civic vandalism, the marks left by the red army soldiers on the masonry, attacks by bullets and shells that left scars on the building. Somehow transforming and lightening it by also involving the public and politicians in a transparent and accountable fashion by creating the public space at the top. The ability for the public to have a meal or a coffee on the roof or terrace of Reichstag is quite unique and never was done before. Right now, this practice is very popular among tourists and people stand in long lines to visit the popular tourist destination that the Reichstag has turned

into. However, back in the days, during the design proposal the Reichstag project was very contentious because the politicians kept arguing about the public going on to the roof of the government building that is the seat of the German Bundestag and walking around or even staying to have a coffee. Also, after some time passed and the building became popular among tourists, a lot of people wanted to go there which raised another question of why did not Foster make it bigger?

Despite the complexity, Looking for Simplicity.

Airports are extremely complex structures that include infrastructure and engineering challenges that need to be addressed properly. Every project that Foster does, despite the complexity of it, he is looking for simplicity that contains the complexity. Searching for legibility and a simple analog experience in a digital world. So, a building type like an airport is extremely complex in terms of what happens behind the scenes. There are so many baggage movements and security checks that stay behind the scenes so that ordinary people that travel do not see them. So, the challenge for an architect is to distill the complex process down so that the final users of the building could get the greatest experience they could. Moreover, these buildings are of an enormous scale such as Beijing Daxing International Airport which is the largest single building airport in the world costing a whopping 12 billion dollars.

Apple headquarters was yet another project that was innovative but incredibly complex in its nature. A very large single structure circular building such as an Apple headquarter designed around a big green park by Norman Foster is yet another large-scale building that is hiding all the complexity within. A campus like that would typically be up to

30 different buildings and all the movement between them would be similar to the Beijing airport. On the contrary, airports that grew over time must move the baggage between terminals which complicates the already complicated process of moving people around. Therefore, for Apple headquarters, it was decided to make it as a single circular building wrapping around the green park that opens better commute and leisure time for the people who work there. So, the building dramatically improves the work and life quality for the employees who can now easily access and interact with their colleagues at the other side of the building. Huge Park in the middle of the building lets people jog, cycle, or walk in a healthy, green environment that is pleasant to be in. The main idea behind the new Apple headquarter was to create a family entity. So, it is a very large building for a large family that prefers to stay under one roof like an artificial sky instead of going from one building to another through a maze of asphalt roads, cars and trucks.

The question remains what is good architecture and what is not? A good answer for that can be hospitals where it is important to have greenery, fresh flowers, grass and trees for patients to recover. Obviously, it is human nature that people are interested in the tallest, longest, and biggest but for every one of those there will always be something that has a heart and soul like a small size domestic projects that redefine what is good architecture and what is not. So, creating a space that reassures people of trust and harmony through warm materials like wood and natural stones, landscaping with trees, grass and flowers. For example, in hospitals, fresh flowers and greenery is extremely important for patients to recover and feel well. So, integrating the green space within and outside the building creates value and lifts the spirit.

Ultimately, architecture is about human values. An architect must be a good listener to cater the needs of the final users. It is about human values, integrity and respect which sometimes could be difficult to articulate but when a building resonates in a certain way it may have an integrity of structure and form. For example, hospitals are also very complex buildings like airports so that the design could turn into something very complicated that might scare people away. However, it does not have to be such a frightening experience which is the task of a good architect to design a building to accommodate and accept people with open arms. Certainly, to achieve such a level of mastery and confidence, an architect must take responsibility for his team and ultimately be a good listener. To hear many different voices to the needs of a designed building to respond to. By respecting the process of making the nobility of making sense of quality is an attitude of mind. It is not how much money is spent on a building but rather three main resources that are money, time and creative energy. So, it's the attitude of how an architect uses those resources as wisely as possible. Some of the greatest buildings in the world have been achieved in the face of economic hardship when overnight they have been created as miracles in a short amount of time very quickly. At the same time, some of the worst buildings in the world have had money thrown at them and they have turned out to be surprisingly awful.

Design becomes a tool to address the bigger picture. For example, the Dharavi urban project in Mumbai that required the relocation of impoverished neighborhoods to lay down the basic services and infrastructure such as water supply, sewage, electricity and roads to the local communities. However, bringing a bulldozer and wiping out everything was not an option because it would destroy the lives and existence of the local population that lived there for years. So, the solution was to present the local population with an alternative that

enhances the quality of their life without compromising on their trade, income and lifestyle. Respect for naturally grown urban structure that became an essence of the local settlements. Certainly, such unregulated informal settlements have their darker side such as crime, unsafe construction and inadequate access to infrastructure. Developers and architects should always remember that people have settled in these areas, and they have congregated in those neighborhoods primarily because they offer greater hope and prosperity. So, the challenge of transforming such places lies in addressing the needs and wishes of those who will be eventually using those spaces. Thus, human oriented alternatives should be applied when dealing with such projects instead of calling for a big bulldozer and raising it to the ground and then transporting those communities into other modern buildings. No matter the size and the importance of the buildings that Foster and partners design, they are always excited for the new projects be it an airport, tower, office or small size community buildings. Architects should be addressing the bigger issues that concern billions of people every day and architects could solve those issues through innovative design instead of simply working for the rich clientele. Providing for the people in need through making even small contributions in that direction is quite satisfying.

Foster is known as a high-tech architect as technological advancement is what drives progress. The city being about density and concentration have certain lessons to show. So, the public spaces like parks, dense communities, high rise buildings all have an appropriate place and are not lost in a sea of neglected space. So, it is all about keeping in mind and designing buildings with a bigger picture in mind. One of the elements that drives architecture forward is technology. The history of humanity coming out of the cave into a dwelling is a story of technological advancement that led into a comfortable and modern life for people today.

Innovation in high-tech buildings made architects think twice before being able to properly use the technology because it can both be harmful and aggressive but at the same time if used correctly it can lead into a very comfortable and modern building. So, it is all about using it wisely, like medicine as it can both cure and poison if improperly used.

Technology is what makes modern buildings comfortable, and the job of an architect is to use it in humans' advantage of humans. Answering the needs of the building users without technology is very challenging. Protecting the occupants from rain, wind, snow, sun, baking heat and freezing cold with the technological response. So, the challenge is to turn technology to our advantage and make it work for us in the design process and ultimately when the building is ready for people to occupy it. Foster's passion with locomotives led him to multiple exhibitions where he was able to see all the miniature details that were precisely created to build this massive, powerful transport. He could feel every small detail created with love and so, he finds beauty in every single element put together to create a living machine. Another attraction of Foster includes flying machines such as sail planes that flow in the air inseparable from nature and human beings. Timeless machines that go beyond the style of a certain time.

Conclusion

All in all, this study has demonstrated that the architectural significance of Norman Foster cannot be reduced to stylistic innovation alone but must be understood through the broader trajectory of his personal, professional, and intellectual development. From his working-class upbringing in industrial Manchester to his education at Yale and the establishment of a global practice, Foster's career embodies a continuous process of learning,

adaptation, and reinvention. His rise illustrates that architectural excellence is not merely a product of talent, but of persistence, exposure to diverse influences, and the ability to critically reinterpret existing paradigms.

Foster's work is defined by a consistent methodological approach grounded in questioning and rethinking established building typologies. Whether designing offices, museums, airports, or large-scale urban projects, he approaches each commission as an opportunity to redefine its fundamental principles. This has resulted in an evolving body of work that transitions from minimalist "skin" architectures to expressive structural systems, and later to highly contextual and historically sensitive interventions. Such evolution reflects not only technical mastery but also an increasing awareness of architecture's social, environmental, and urban responsibilities.

Central to his architectural philosophy is the integration of advanced technology with human-centered design. Such approaches demonstrate that technological innovation, when applied thoughtfully, can significantly enhance spatial quality, environmental performance, and user experience. From the ability to fill the pyramid form with complex function to the light-filled structural clarity of Khan Shatyr, his architecture consistently balances efficiency with comfort, and engineering precision with social inclusivity. This synthesis of technology and human values is further reinforced through his holistic design approach, which seeks to create buildings that are not only visually compelling but also environmentally responsive and socially adaptive.

His use of diagonal grids to equally distribute the weight of the Pyramid and the use of tripod together with the ETFE film in Khan Shatyr demonstrate his vision for the aesthetic

of the building and its engineering precision. Pure geometric forms and modular shapes in his design have proven to create a visually stunning effect that went beyond just individual buildings but also had a direct influence on an entire urban development. Foster emphasizes the importance of socially and environmentally responsible urban development plans and individual projects that would anticipate and properly respond to such demands. Moreover, Foster's recognition as the best architect also comes from his forward-thinker that keeps people, environment and cutting-edge technology always closely interconnected.

Norman Foster's entire philosophy and all rounded approach to the design process comes not just from ascetically attractive buildings but from his ability to look at the design process differently. His ability to combine an eye-catching design with eco-friendly, socially adaptive and technologically advanced methods gives him an advantage over other architects. His legacy will leave an incredibly transformative mark on modern architecture and urban development around the globe.

As for Kazakhstan, to break free from foreign reliance and harvest its own local talents, it is important to provide high quality education and further design experience to its domestic young architects. Such a multilayered approach that will emphasize the importance of the world-class education will ensure the readiness of Kazakh architects to the international exposure which is the vital element of becoming the best in business. Technological innovation is yet another important factor in creating great architects that could provide for an ever-increasing demand for world renowned architects in Kazakhstan. In terms of the implication for future research that would be it.

Over his professional career Foster has acquired an impressive portfolio of unique projects. He had made a worldwide sensation with the biggest name in the history of architecture. Working tirelessly to his dream and passion over architecture he was known as a high-tech architect who creates iconic buildings around the world. His personal name and prestige as a well-recognized brand brought Astana and Kazakhstan general international coverage in the media and made people talk about the rapidly developing country in Central Asia. His iconic projects in the primary locations of the new capital city make a huge difference in the urban landscape of Astana. Attracting both domestic and international tourists from all over the world. His enormous contribution to the development of world architecture plays a crucial role in building his legacy.

Equally important is the collaborative nature of Foster's practice. The realization of complex architectural projects depends on the coordinated efforts of multidisciplinary teams, including engineers, designers, and specialists across different geographical contexts. This transnational mode of production has enabled Foster to achieve a global presence, while also highlighting the structural conditions under which contemporary iconic architecture is produced. In the context of Kazakhstan, this dynamic becomes particularly evident. Foster's engagement with the country, initiated through the invitation of Nursultan Nazarbayev, reflects both the ambition of a newly independent state to project a modern global image and its reliance on external expertise to realize such aspirations.

Foster's projects in Astana, most notably the Palace of Peace and Reconciliation and Khan Shatyr, exemplify this intersection between global expertise and local ambition. Commissioned without competition, these projects signal a high level of trust in Foster's

ability to deliver iconic, world-class architecture. Their successful realization, supported by international teams of specialists, underscores the complexity of their design and construction, while also revealing the limitations of domestic capacity at the time. The Pyramid's structural clarity, achieved through its diagonal grid system, and the innovative use of ETFE technology in Khan Shatyr demonstrate Foster's ability to merge engineering precision with bold formal expression.

However, these buildings should not be understood merely as isolated architectural achievements. Rather, they are the culmination of decades of experimentation, innovation, and accumulated expertise within Foster's practice. They function as material expressions of a broader architectural philosophy rooted in technological advancement, sustainability, and human-centered design. At the same time, they have played a significant role in shaping the urban identity of Astana, contributing to its emergence as a recognizable global city and attracting international attention to Kazakhstan.

In this sense, Foster's work represents both the possibilities and the limitations of contemporary architecture in a globalized world. While his projects demonstrate the heights that can be achieved through innovation, collaboration, and visionary thinking, they also highlight the structural dependencies inherent in their production. For Kazakhstan, this duality points to a critical challenge: the need to transition from reliance on foreign expertise toward the development of local architectural capacity.

Achieving this will require sustained investment in architectural education, technological innovation, and professional practice, enabling a new generation of Kazakh architects to engage with global standards while developing contextually grounded solutions.

Only through such a multilayered approach can Kazakhstan move beyond commissioning iconic architecture toward producing it domestically.

Ultimately, Norman Foster's legacy extends far beyond individual buildings. His work has redefined architectural practice by demonstrating the importance of innovation, interdisciplinary collaboration, and responsiveness to broader societal challenges. His contribution to Astana's development has not only transformed the city's skyline but also positioned Kazakhstan within global architectural discourse. As such, this dissertation concludes that Foster's architecture should be understood not merely as a collection of iconic forms, but as a critical framework through which the processes of modernization, globalization, and architectural dependency can be examined and understood.

Illustrations



Figure 1: Night view of the main administrative axis where on both ends the Pyramid and Khan Shatyr are located. The illustration demonstrates the shiny spectacle these buildings provide to demonstrate their success, and the Pyramid reflects its reference to ancient Egyptian pyramids that its form takes inspiration from. Between Pyramid and Khan Shatyr, we can also see some of the most important buildings of the new capital the presidential palace and Baiterek tower.



Figure 2: Main entrance to the Pyramid. Photo by the author 2025



Figure 3: Context of the Pyramid from the Independence Square and the Kazakh Eli monument (East side) This picture clearly shows the dominant position of the Pyramid which was made possible by elevating it above the ground level with additional soil elevation (Photo retrieved from Franco Albini archives 2016)



Figure 4: Context of the Pyramid from the Samuryk fountain complex (West side) (Photo retrieved from Franco Albini archives 2016)

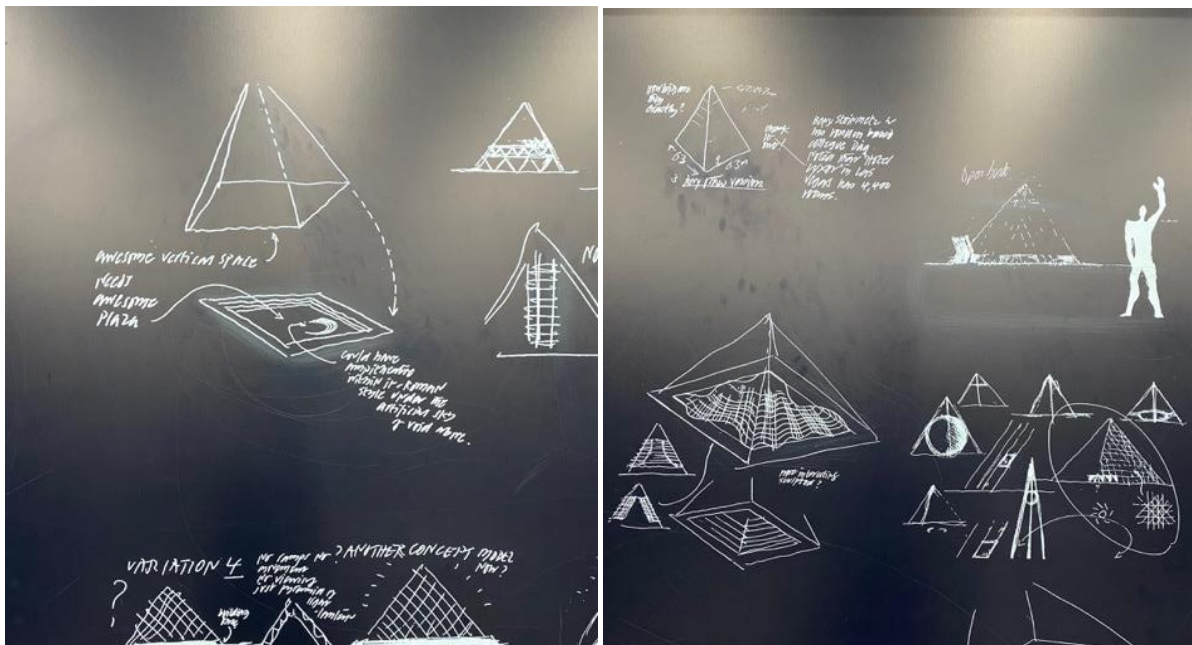


Figure 5: The design process, Norman Foster hand drawings. Photo by the author 2025

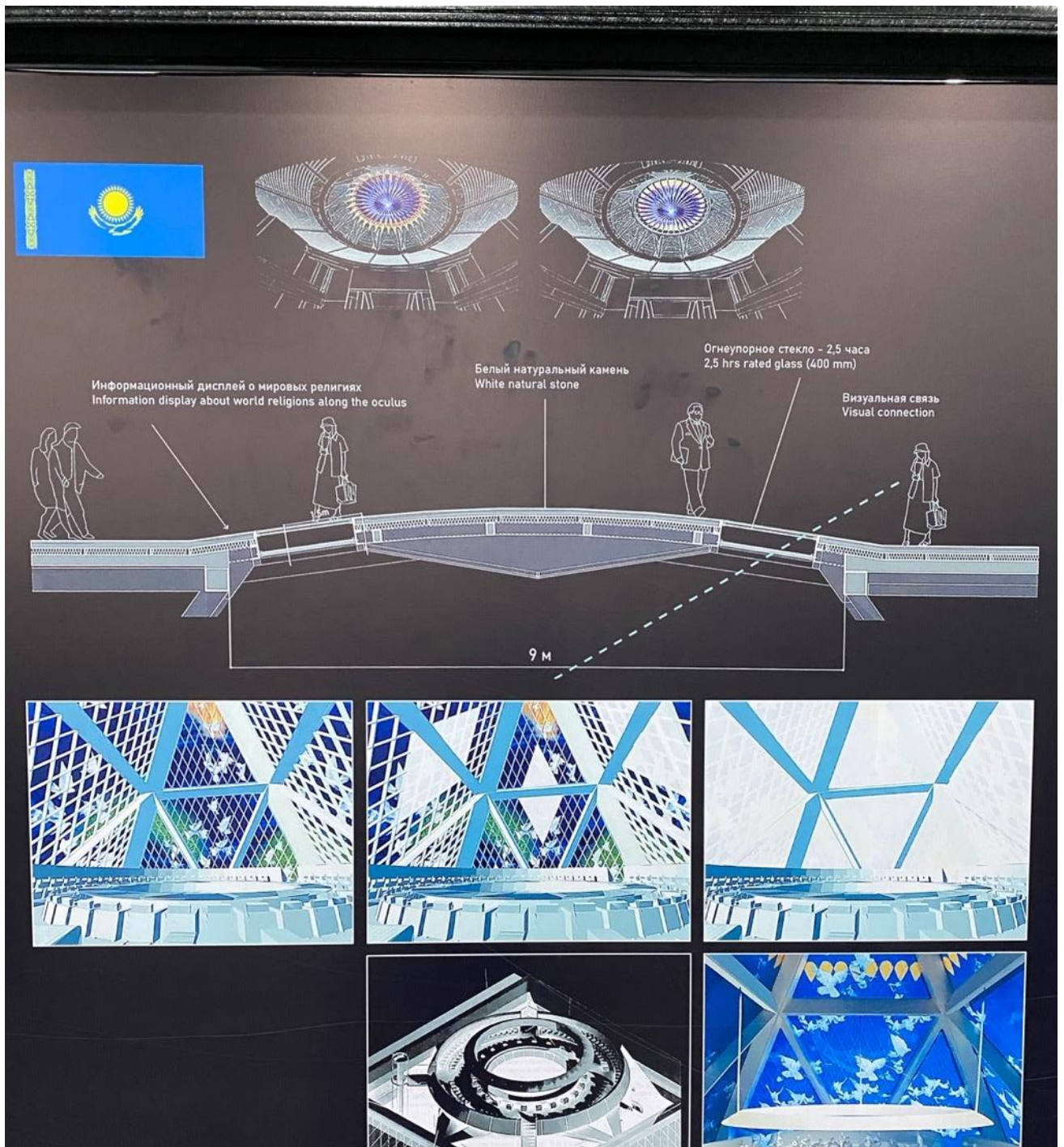


Figure 6: Computer aided design for the Pyramid project in Astana by Foster and partners London. Photo by the author 2025

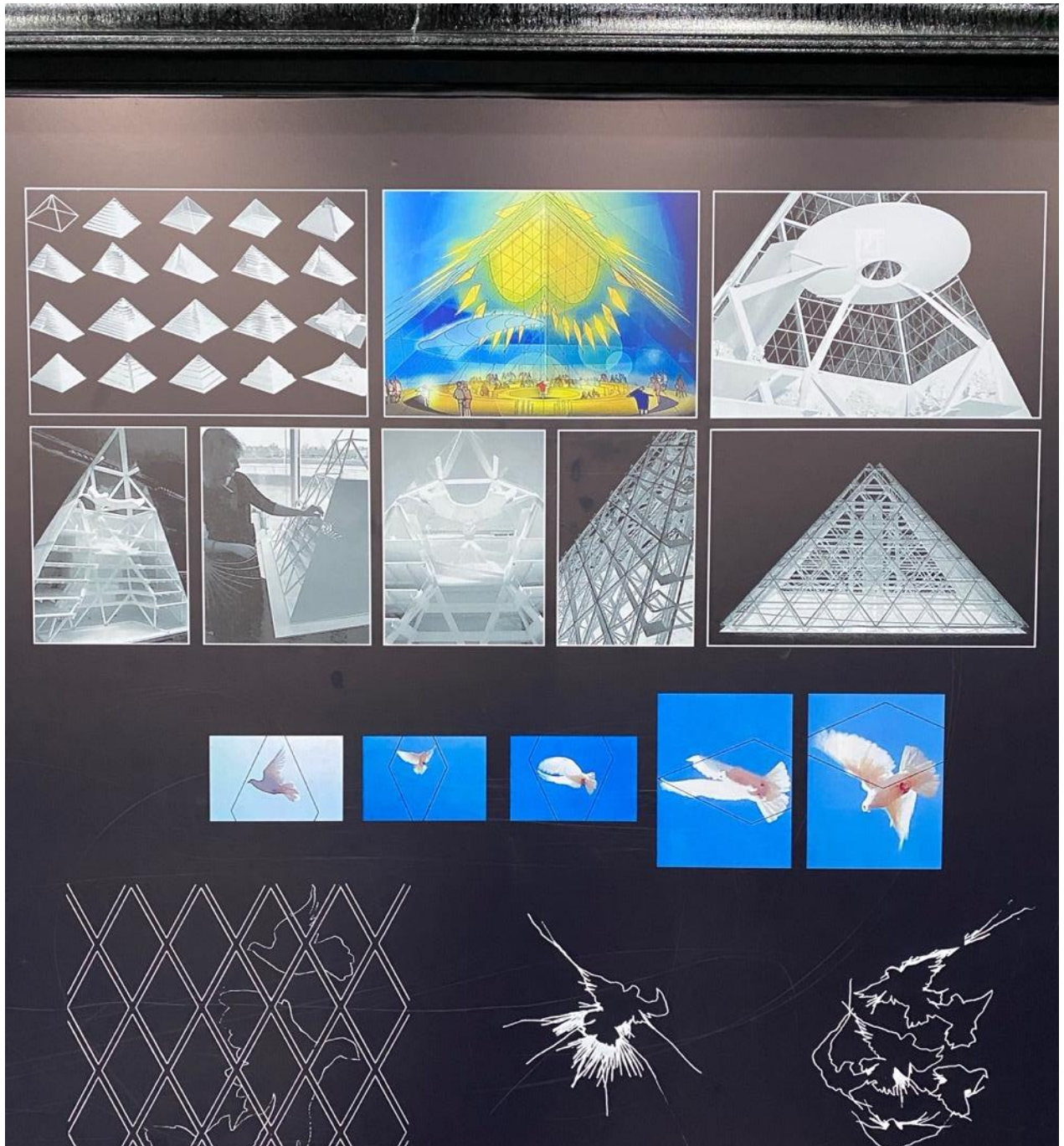


Figure 7: Imprinting of the peace pigeons on to the glass top of the pyramid. Computer aided design for the Pyramid project in Astana by the British artist Brian Clarke London. Photo by the author 2025

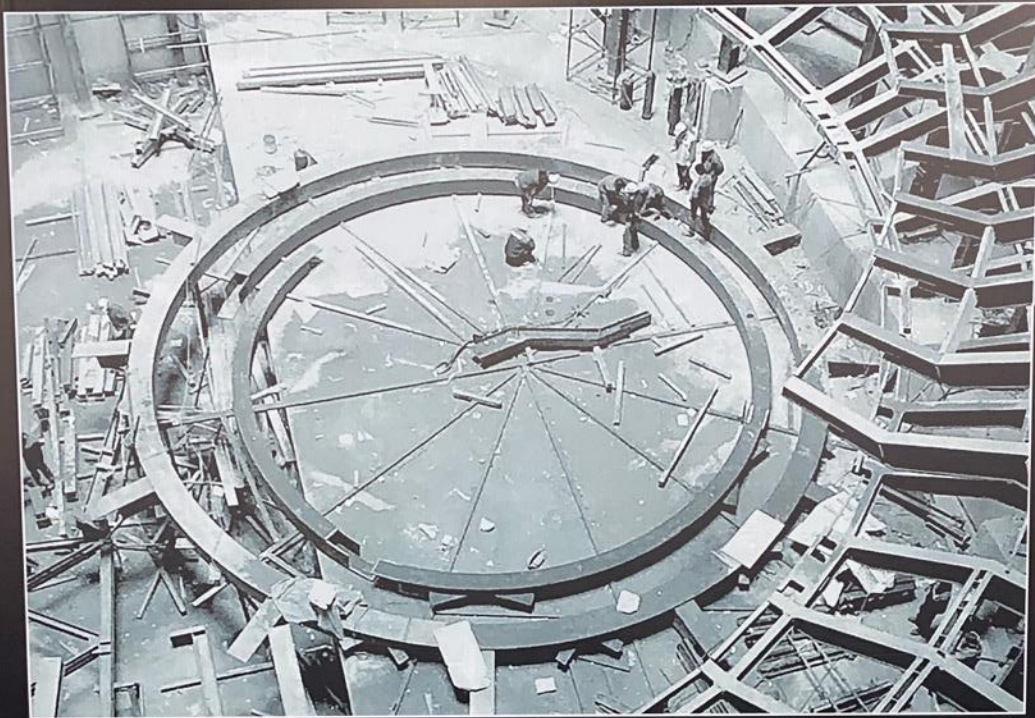


Figure 8: Construction process. Assembling the “Cradle of the world” made of steel structure prefabricated in Britain and assembled on site in Astana. Photo by the author 2025



Figure 9: Construction process. The uplifting the “Cradle of the world” made of steel structure prefabricated in Britain and assembled on site in Astana. Photo by the author 2025

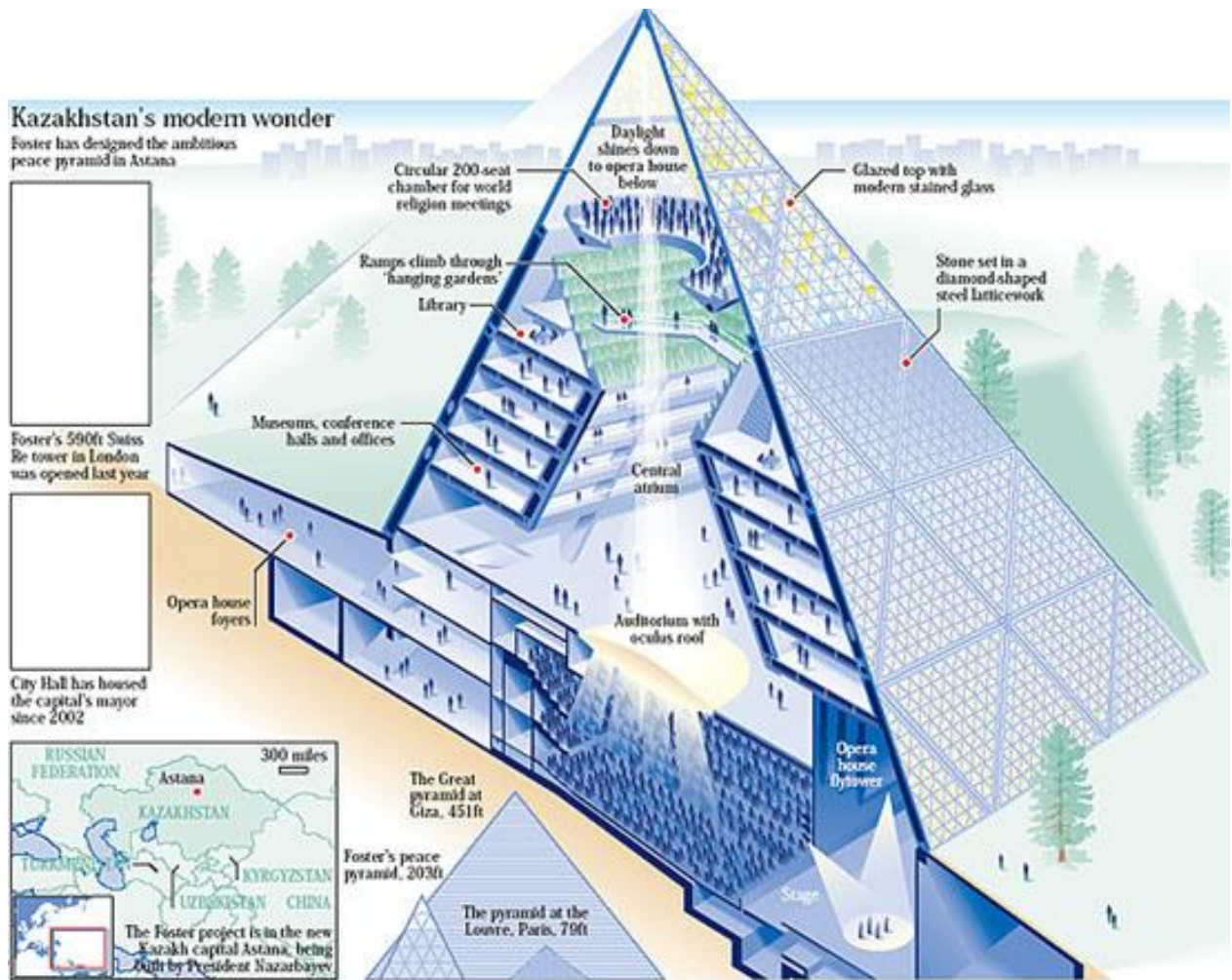


Figure 10: Schematic design picture that demonstrate the interior complexity of the Pyramid where the central core is full of natural light that comes directly from the top of the pyramid which was made of glass. On the bottom is a size wise comparison of the three most famous pyramid structures.



Figure 11: Vertical section of the Pyramid that demonstrate all the existing levels and floors together with the structural support that reflect the concept of a diagonal grids that makes the structure strong pyramids within.

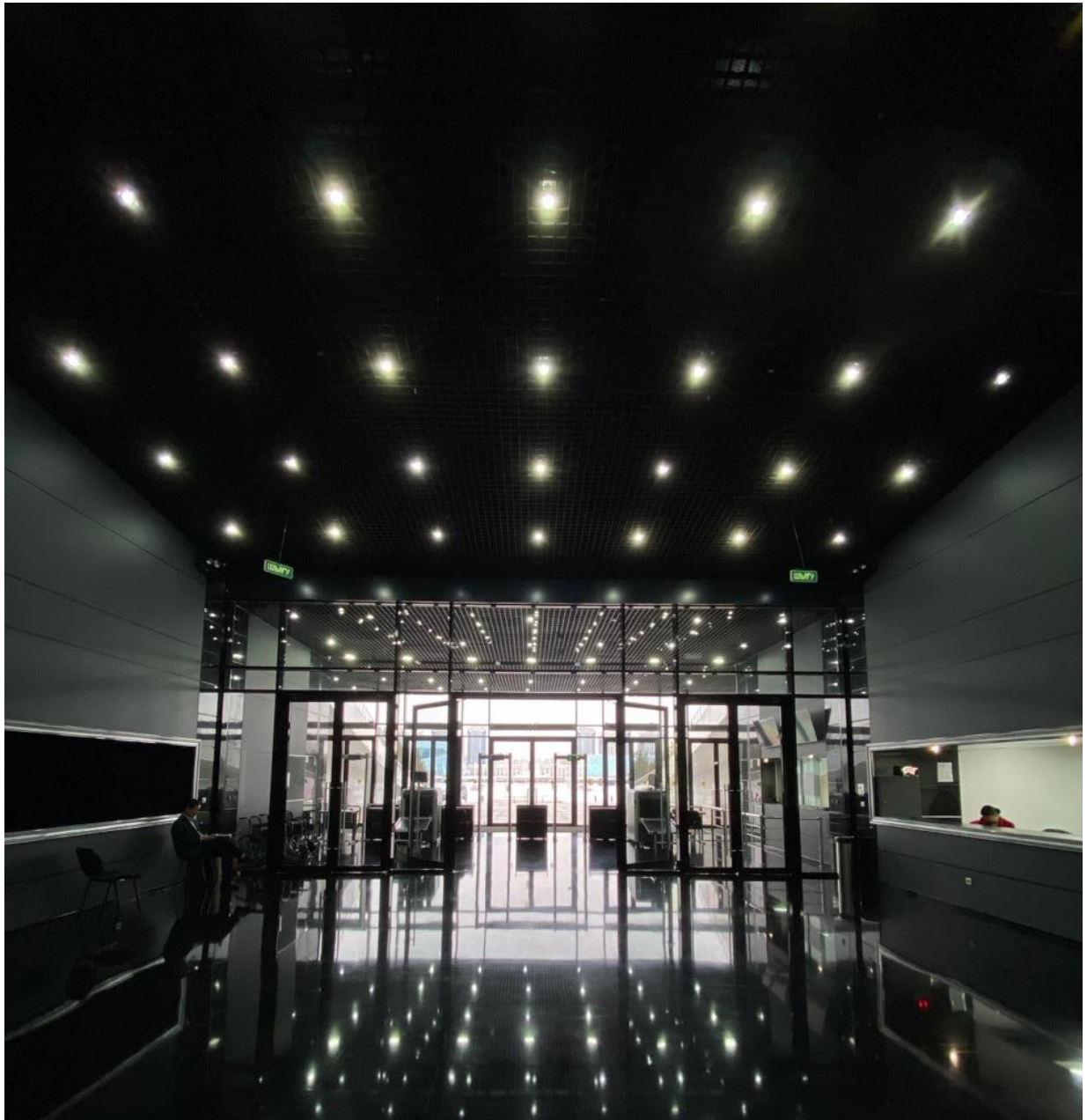


Figure 12: Pyramid Main entrance hall and opera lobby in black and dark colors that symbolize the underground world. Photo by the author 2025



Figure 13: Pyramid, opera lobby that opens right after the main entrance and cloak room in black and dark colors that symbolize the underground world. Photo by the author 2025

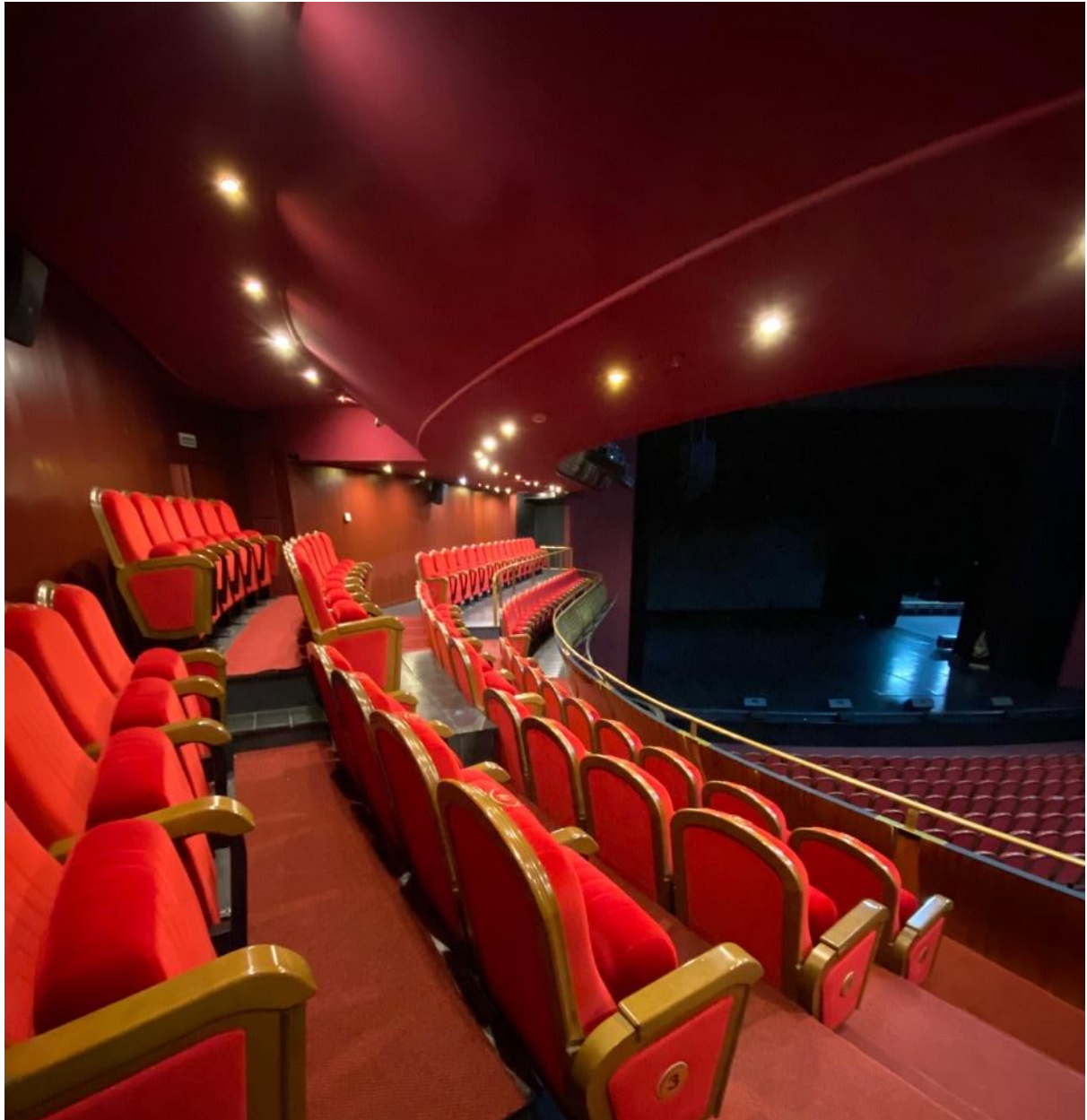


Figure 14: Pyramid, opera seats in burgundy colors. Black and red colors mix up very well creating a symbolic meaning. Photo by the author 2025



Figure 15: Pyramid, opera seats and rooftop that opens to a natural light. Photo by the author 2025



Figure 16: Pyramid, this picture demonstrates a clear separation between the ideological underground world and the reality of the human world which is full of natural light coming from windows located on all four sides of the pyramid. It is the level where the main atrium and exhibition halls are located. Photo by the author 2025

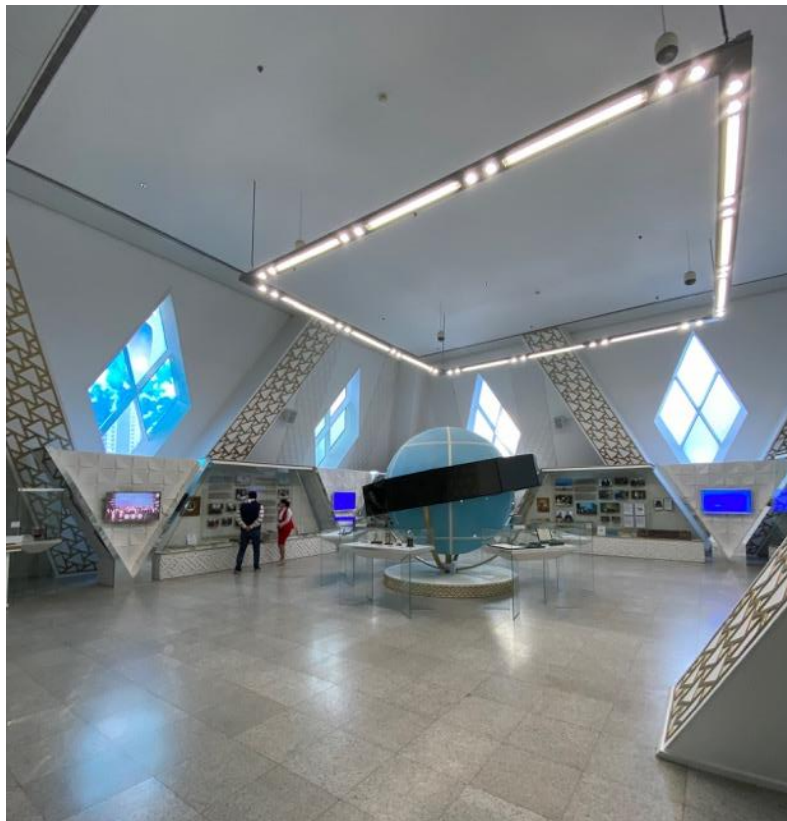


Figure 17: Pyramid, exhibition hall where the historical events are depicted. It is full of natural light coming from windows located on all four sides of the pyramid. Photo by the author 2025

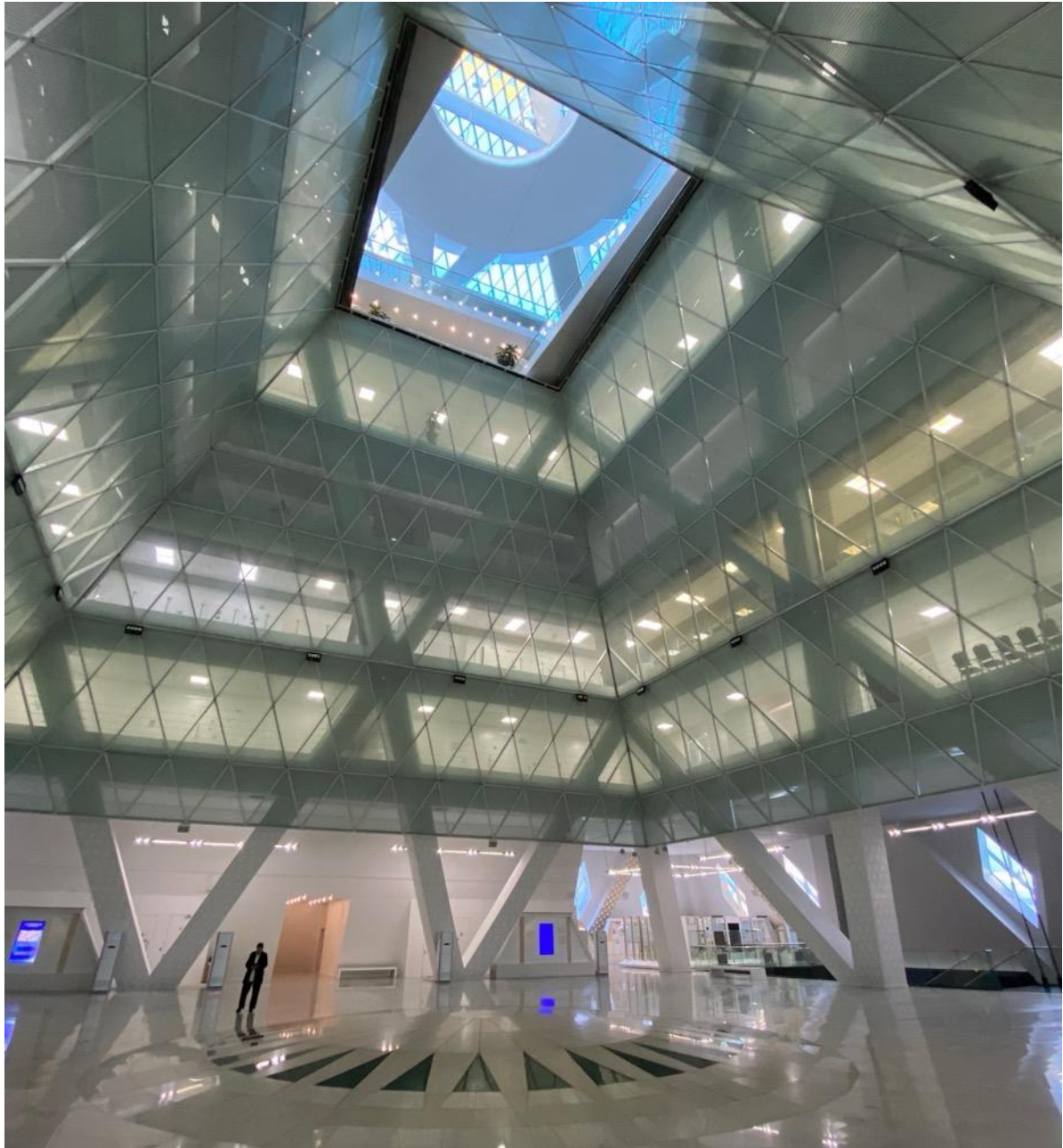


Figure 18: Pyramid, main atrium hall where usually big conferences take place as the upper-level conference hall called the “cradle of the world” cannot accommodate large number of guests. Photo by the author 2025

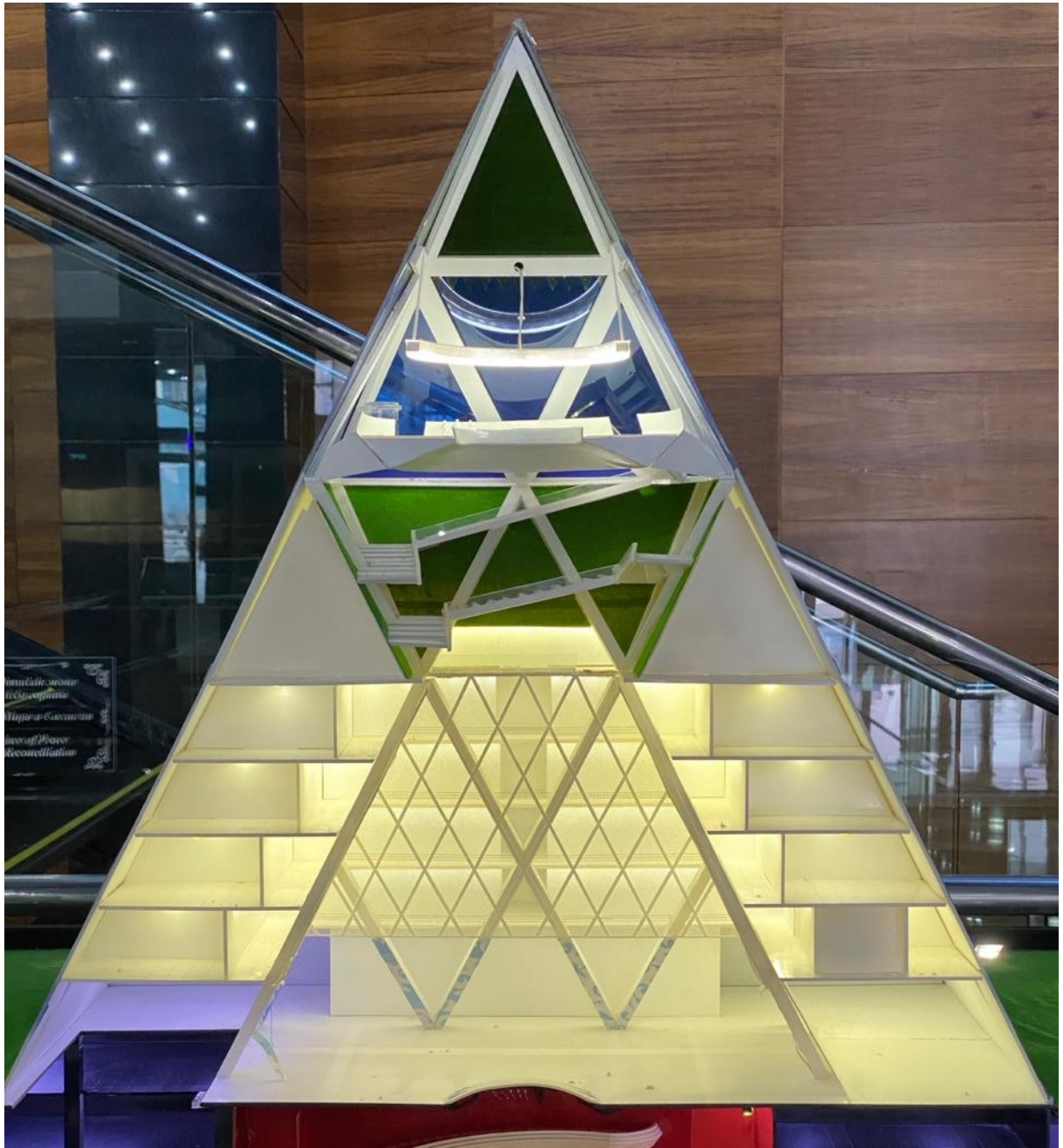


Figure 19: Physical model of the Pyramid, side section that shows the interior working of the building. Structure, levels and vertical circulation. Main atrium, winter garden and sky studio located at the top of the pyramid. Photo by the author 2025

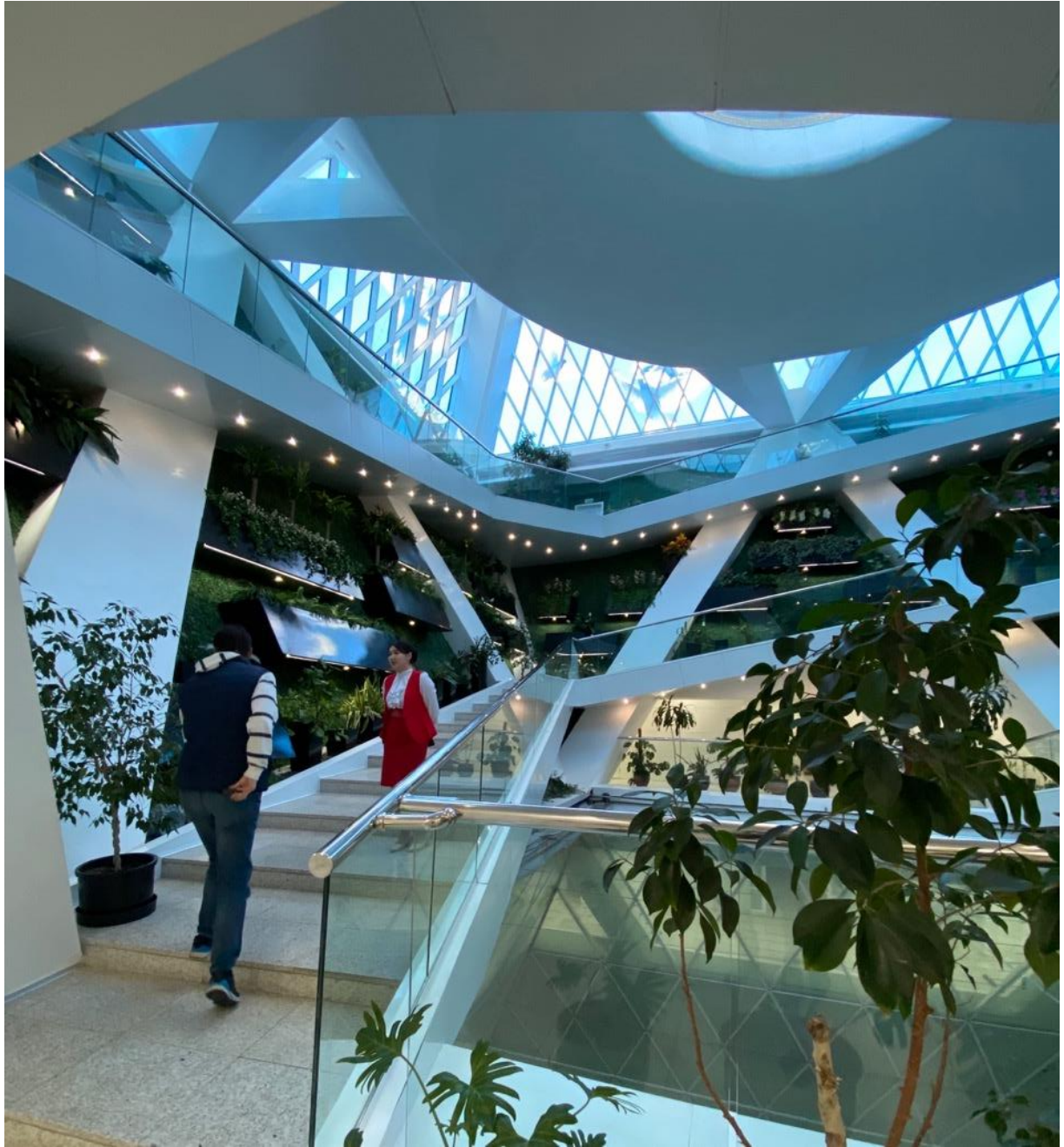


Figure 20: Winter garden leads to the top of the pyramid through a maze of staircases and incredible structural complexity that create this amazing open space with the lash of greenery. Photo by the author 2025

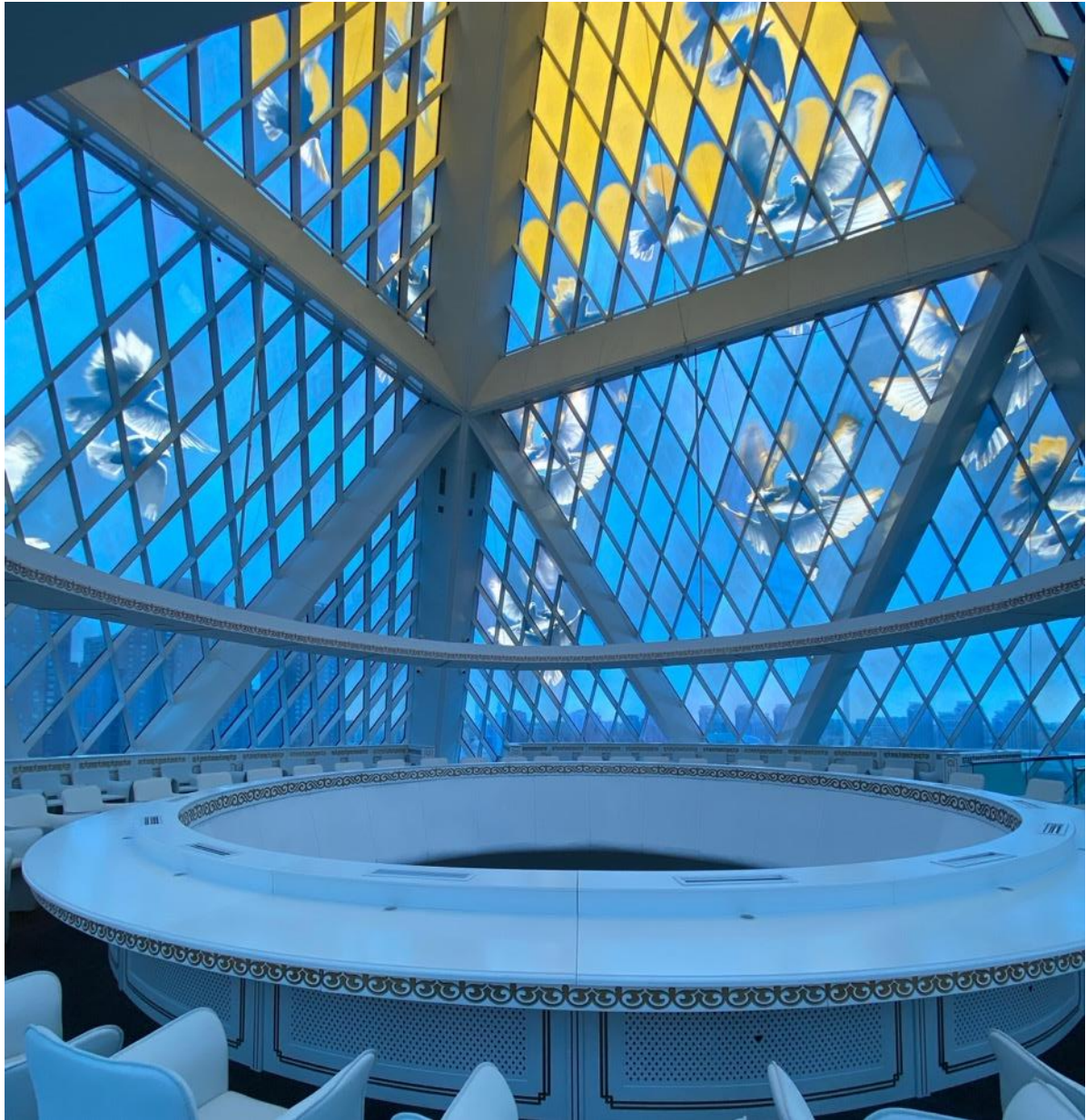


Figure 21: Specially designed round table for the religious conferences also called “the cradle of the world”. Photo by the author 2025



Figure 22: Physical model of the Pyramid, side section that shows the interior working of the building. Structure, levels and vertical circulation. Dark underground level with red opera hall in the middle. Photo by the author 2025



Figure 23: The main structure of the Pyramid is a diagrid which is a structural system composed of diagonally intersecting metal, concrete, or wooden beams. Diagrids reduce steel usage, improve load distribution, and increase design flexibility. Structural analysis

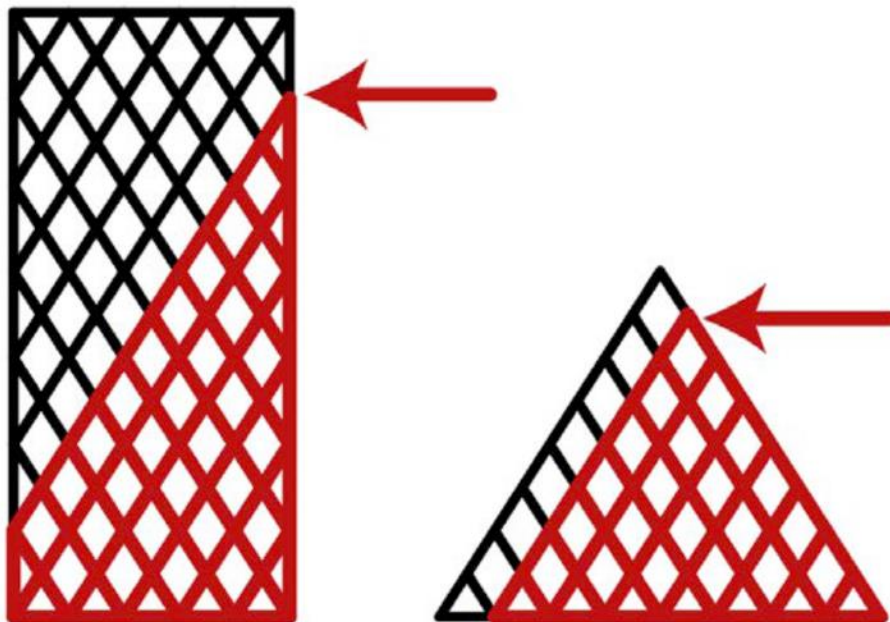


Figure 24: This diagram demonstrates the applied lateral load to the ground. Unlike rectangular diagrid, the triangle is much more efficient in distributing the loads across its structure and passing it to the foundation. In the rectangular building, half of its structural elements remain unused making it inefficient. Structural analysis

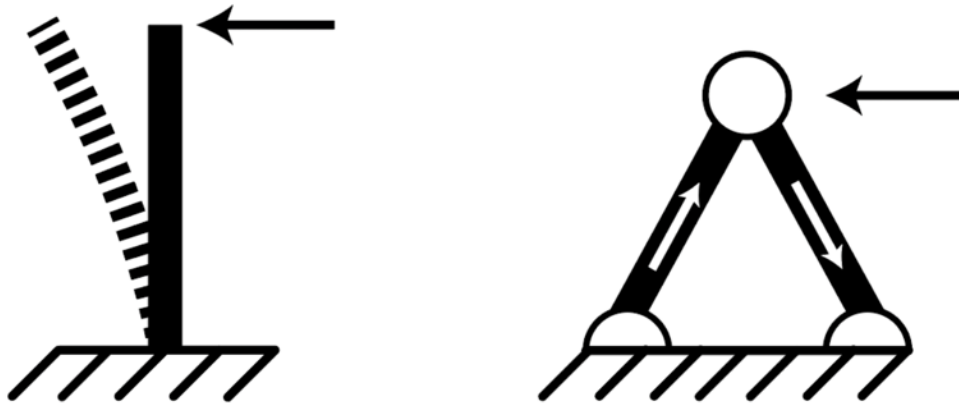


Figure 25: Diagram that illustrates how a diagrid structure is much more efficient in distribution of loads compare to a traditional tubular structure. Straight columns must bend to resist lateral forces, whereas diagrids can resolve lateral forces axially. Structural analysis

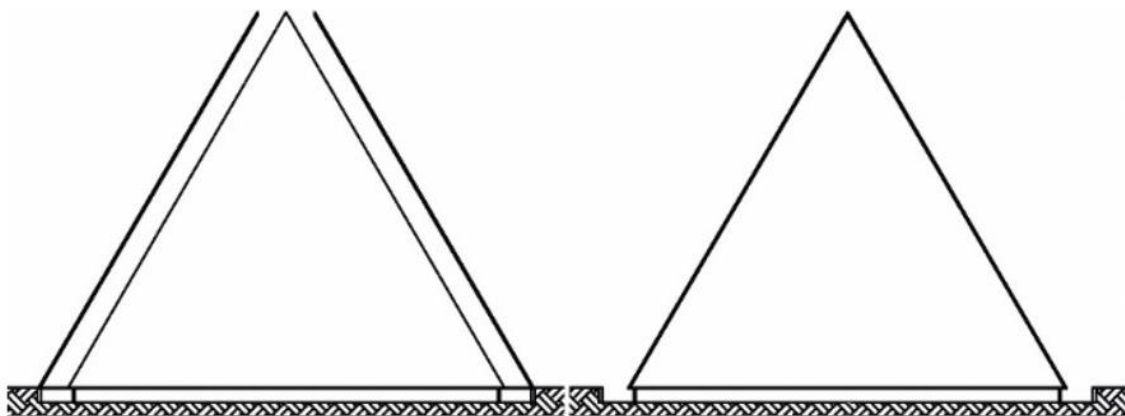


Figure 26: Diagram that demonstrates the pyramid's expansion in summer and shrinkage in winter due to its steel structure. Expansion and compression process analysis



Figure 27: Photo by the author during the winter shrinkage of the Pyramid structure (2024)



Figure 28: Photo by the author during the winter rain and snow fall drainage system of the Pyramid (2024)



Figure 29: Khan Shatyr main entrance which is located on the west end of the Nurly Zhol Boulevard. Photo by the author 2025



Figure 30: Buckminster Fuller presenting his utopian idea of the covered city. Fuller's digital archive



Figure 31: Part of a Manhattan covered by the dome to create a pleasant environment by Buckminster Fuller. Fuller's digital archive



Figure 32: Buckminster Fuller presenting his idea of a geodesic dome. Fuller's digital archive



Figure 33: Buckminster Fuller sharing his experience about the inner workings of a geodesic dome with Norman Foster. Fuller's digital archive



Figure 34: Famous geodesic dome project for the Expo 1967 in Montreal, Canada by Buckminster Fuller

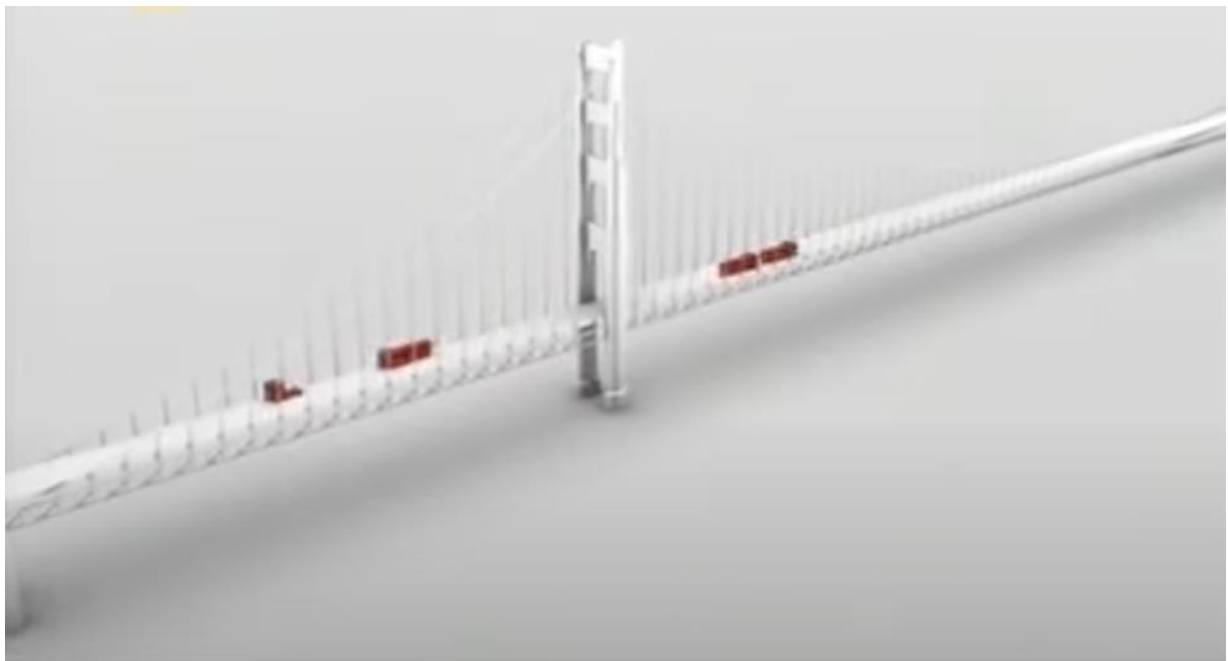


Figure 35: The idea of a tensile structure for Khan Shatyr comes from tensile bridges that hang on metal cables. Digital diagram and analysis

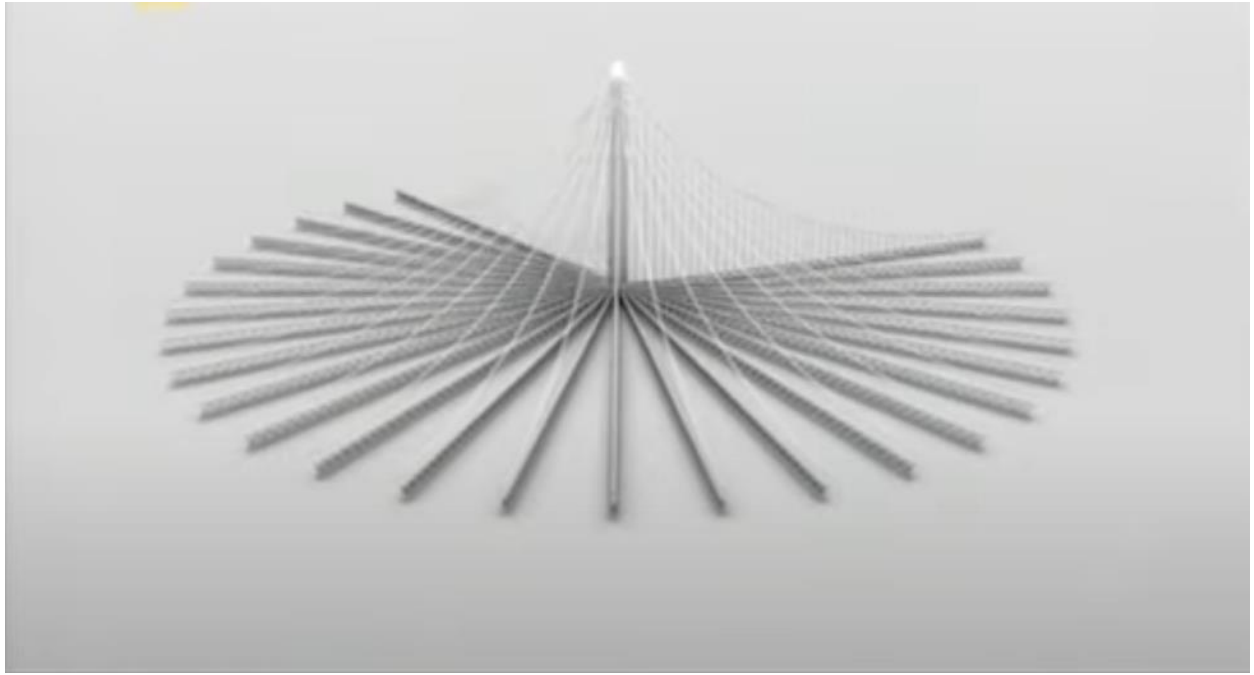


Figure 36: By rotating the tensile cables in 360 degrees architects and engineers were able to achieve the giant tent effect. Digital diagram and analysis

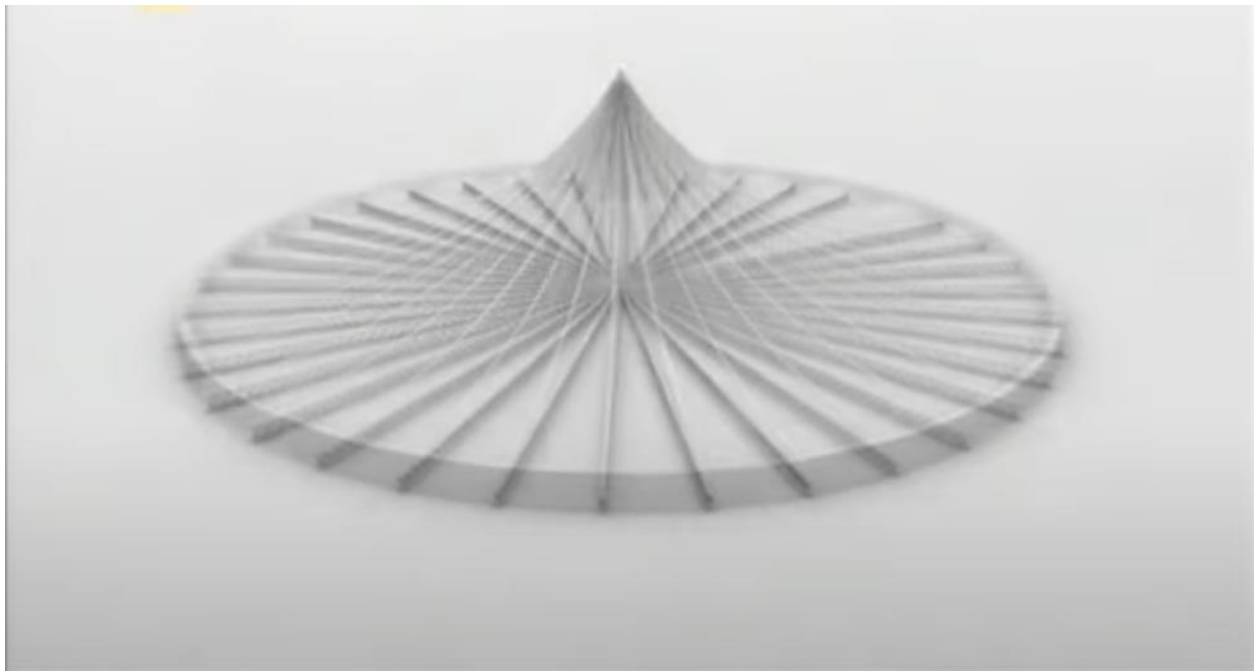


Figure 37: By rotating the tensile cables in 360 degrees architects and engineers were able to achieve the giant tent effect. Digital diagram and analysis



Figure 38: Amazing view inside of the biggest tent in the world. Steel tripod holding the weight of an entire metal cable and ETFE. Photo by the author 2025



Figure 39: One of the legs of a tripod that is firmly fixed to the concrete foundation by steel nuts and bolts. Photo by the author 2025



Figure 40: The moving leg of a tripod which was the main leg when it was mounted into place by hydraulic cranes. Photo by the author 2025



Figure 41: This giant tripod was specially designed and manufactured in U.K. to be shipped and assembled in Kazakhstan. Photo by the author 2025

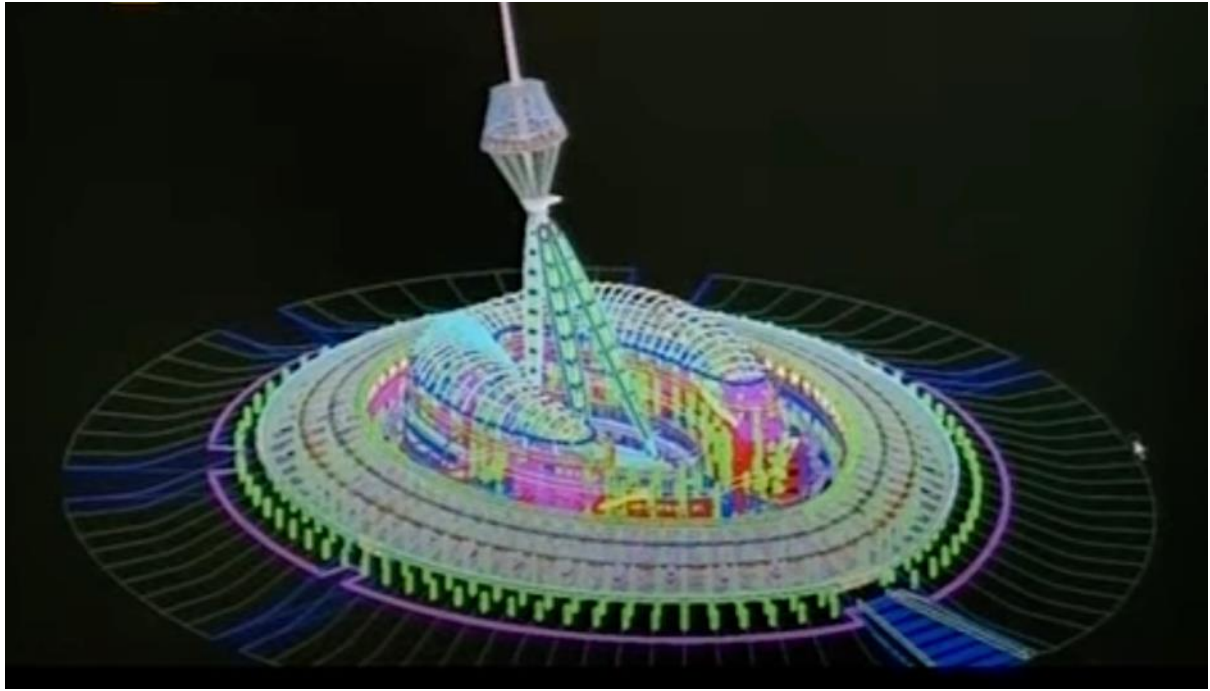


Figure 42: Khan Shatyr computer model that tests the lateral and longitudinal loads. Digital model that analyses loads

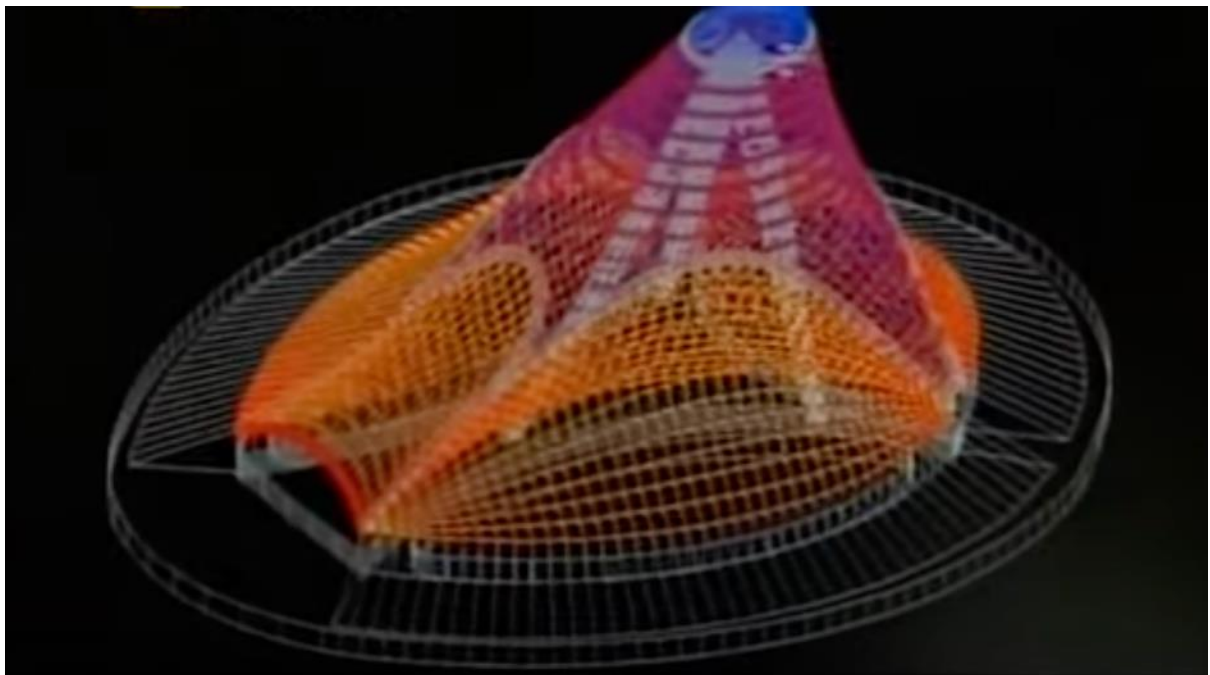


Figure 43: Khan Shatyr computer model that tests the tensile structure. Digital model that analyses cable tension



Figure 44: Khan Shatyr computer model that help visualizing the lifting of a steel tripod. Online documentary



Figure 45: Khan Shatyr construction process of lifting a steel tripod and mounting it into place. Online documentary



Figure 46: Khan Shatyr construction process of lifting a steel tripod with hydraulic press and mounting it into place. State archive



Figure 47: Khan Shatyr construction process of mounting steel cables onto a tripod. Online documentary

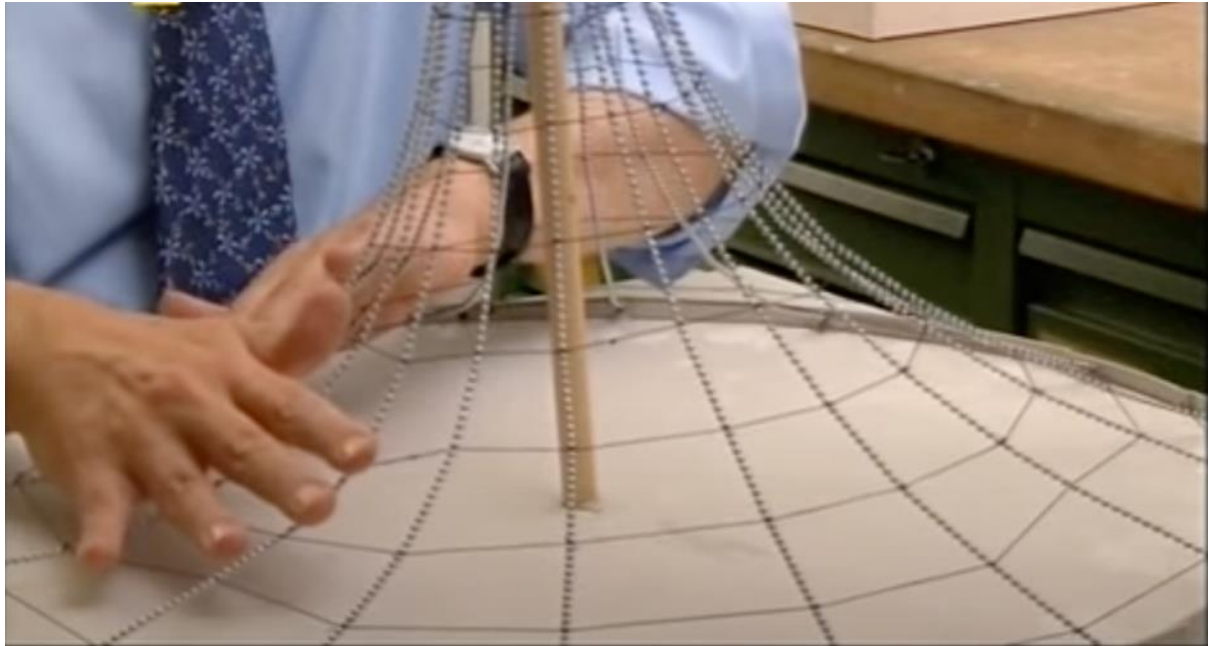


Figure 48: Engineers testing a small physical model that was built to assess the potential loads that the tent will have to carry in the future. Structural analysis from an online documentary



Figure 49: Climbers are mounting steel cables during the construction process. Construction site documents



Figure 50: Steel cables for Khan Shatyr that were manufactured in Germany have arrived on to the construction site in Astana. Picture from construction documents



Figure 51: Construction process. Steel cables (spider web) have been mounted on to Khan Shatyr. Construction site documents



Figure 52: Steel cables attached to the concrete platform. Air vents and air supply to the ETFE layers to keep them filled with air. Photo by the author 2025

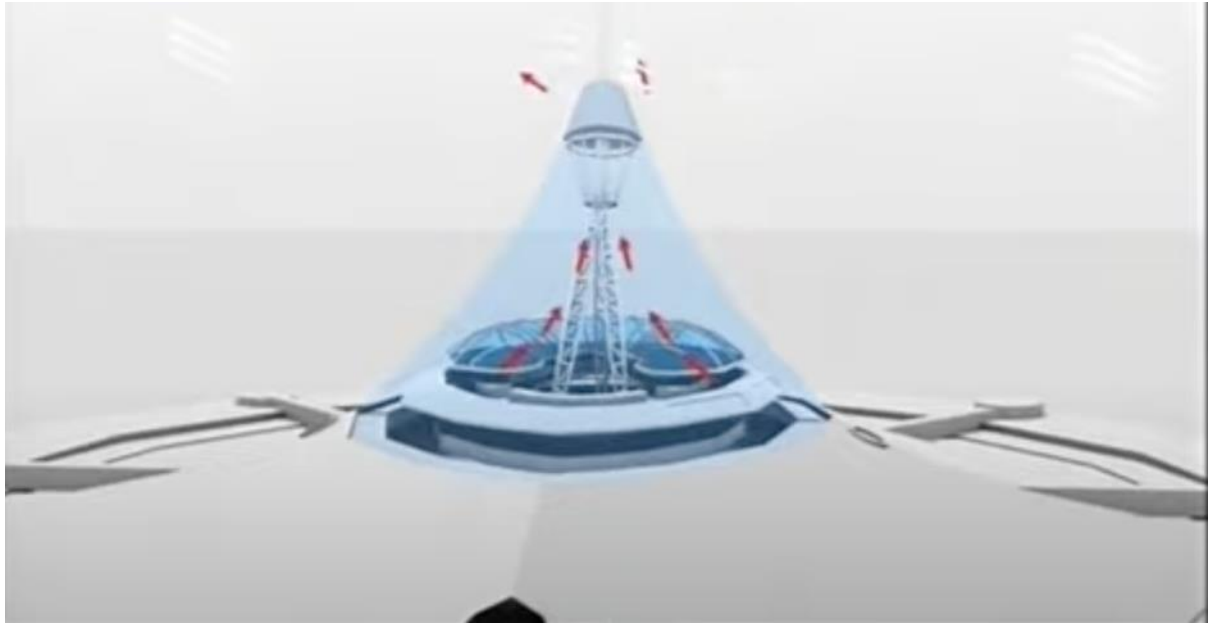


Figure 53: Ventilation system designed to keep the air fresh and comfortable throughout the year. Ventilation analysis



Figure 54: Additional pedestrian entrances to Khan Shatyr. Photo by the author



Figure 55: Cargo entrance to Khan Shatyr in the back of a building on the western side (photo by the author)



Figure 56: Parking entrance and exit from Khan Shatyr (photo by the author)

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