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Transformation of tradition in Kenzo Tange's projects as a way of shaping contemporary Japanese architecture

Abstract. This study explored the transformation of tradition in contemporary Japanese architecture, with a focus on Kenzo Tange's works as a potential solution to the lack of national identity in modern urban spaces, particularly prevalent in post-socialist countries. Such homogenisation, as established by previous research, has negative implications for human psychology. The purpose of this study was to identify K. Tange's creative approach to the use of tradition in the context of modernity. Ukrainian, Japanese, English, American, and other sources on the history of traditional and modern architecture in Japan, including the theoretical achievements of K. Tange himself and several sources on the architect's works, were used in the study. A considerable amount of photographic material was also collected for the study. The paper described certain types of traditional religious architecture in Japan. The architecture of Shinto and Buddhism were considered as prototypes. Accordingly, the following objects of K. Tange were analysed: The Peace Memorial Museum in Hiroshima, in comparison with the Ise Shrine Complex; Kurashiki Town Hall in comparison with the main pavilion of the Buddhist temple complex; the Kagawa Prefecture Government Office Building in Takamatsu in comparison with the Buddhist wooden pagoda. As a result, it was found that the transformation of tradition in K. Tange's works can occur at four levels: the organisation of the master plan, the formation of the interior space of the building, the formation of its overall structure, and at the level of semantics. For each example of transformation, appropriate references were made to certain features of Japanese architecture or traditional Japanese worldview that were discovered during the study. In addition, an algorithm for introducing traditional features into modern architecture was presented, which, given the need to rebuild Ukrainian cities destroyed as of 2023, could help revive them while avoiding the architectural shortcomings of the past

Keywords: architectural tradition; Shinto architecture; Buddhist architecture; Hiroshima Peace Memorial Museum; Kurashiki Town Hall; Kagawa Prefecture Government Office Building in Takamatsu

INTRODUCTION

An individual vision of the world is an inherent feature of every nation, and the unique features of this vision distinguish people from each other. In this diversity of cultures, the beauty of this world is expressed in a certain way. Nowadays, as intercultural boundaries gradually disappear and globalisation becomes increasingly prominent, there is a growing interest in identifying and reviving individ-

ual local traditions in the context of modernity. This is particularly relevant in terms of achieving harmony between modern architecture and the historical memory of a particular place (Shevtsova & Linda, 2020). Research in the psychology of urban space perception confirms the negative impact of a unified architectural environment on the human psyche (Ricci, 2018). Thus, appealing to local

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traditions is an important step towards identifying the modern urban environment as “friendly”, “familiar”, and ultimately habitual, safe, and associated with pleasant feelings (Shevtsova *et al.*, 2020). At first glance, the problem seems simple: incorporating national motifs into modern architecture. However, as M. Micale (2018) notes, the direct introduction or citation of traditional architectural forms in contemporary urban development may not always lead to positive outcomes. In many cases, it appears inappropriate. Thus, in addition to the cultural factor, the functional and aesthetic components of the borrowed form deserve consideration (Pieczara, 2019). Therefore, it is necessary to establish some new methods of transmitting the architectural tradition in modern construction, to refuse direct formal or ornamental quotations, and to pay attention to the global principles of local traditional architecture.

To answer this question objectively, one can look to the expertise found in Japanese architecture. The second half of the last century in Japan also began with post-war ruin, which contributed to the rapid spread of modernist architecture. However, the architecture of Japanese modernism is known for examples of a harmonious combination of architectural achievements of the present and the past. One of the inaugural proponents of Japanese modernism in this field was the globally renowned architect and architectural theorist Kenzo Tange, who could apply and validate his approach to integrating the traditional and the modern. This paper proposes to consider the main provisions of this approach on the example of some of the architect’s completed projects.

Given the problem, the purpose of this study was to identify and consistently interpret K. Tange’s creative approach to combining the national tradition with the architectural principles of modernism. Using the methods of comparative and retrospective analysis, the study examined information about Kenzo Tange’s work based on written sources and a field survey of the objects of his authorship (study of composition, general structure and imagery of buildings, their photographic documentation, etc.) This provided a more profound insight into Tange’s authorial ideas, identified during the study. The study also employed the method of description to depict the traditional sacred architecture of Japan; the most illustrative completed projects of K. Tange were compared, and the findings were summarised using the method of generalisation.

Accordingly, the basis for analysis included the works as follows:

- The Peace Memorial Museum in Hiroshima (compared to the Ise Shrine Complex).
- Kurashiki Town Hall (compared to the main pavilion of the Buddhist temple complex).
- The Kagawa Prefecture Government Office Building in Takamatsu (compared to a Buddhist wooden pagoda).

In all the projects selected for analysis, the study considered both the composition of the building or the complex (layout and volumetric and spatial structure) and their semantics (hidden or allegorical meaning). The concept of

object composition refers to three levels of perception of an architectural object: creation of a master plan, formation of the building structure, and organisation of the interior space. The relation of compositional and semantic components is proposed to be considered as a relation of form and content. By analysing the objects in terms of these three levels of composition and the aspect of semantics, an attempt was made to identify the methods of transformation of the Japanese tradition in Kenzo Tange’s architecture.

LITERATURE REVIEW

Modern and traditional architecture in Japan, despite its worldwide popularity, is still understudied and largely incomprehensible to people unfamiliar with the culture of this country. Therefore, apart from the sources on contemporary architecture, this paper offers an insight into some of the main provisions of traditional Japanese construction.

The book by G. Shevtsova (2011), for the first time in Ukrainian scientific practice, provides a detailed overview of the formation and development of Japanese construction since ancient times. In addition to this book, two publications by the same author on the importance of tradition in contemporary Japanese architecture were also considered (Shevtsova & Linda, 2020; Shevtsova *et al.*, 2020). In the books by Y. Watanabe (1964) and A. Isozaki (2006), the authors discuss the architecture of Japan in general, and the Ise Shrine in particular. S. Mizuno (1974) presented a detailed overview of one of the oldest Buddhist monastery complexes, Horyuji. In addition, the study considered a textbook on the history of Chinese architecture by S. Liang & W. Fairbank (1984).

The study examined the publications of Kenzo Tange himself (co-authored with other prominent architectural historians), which, in the context of a review of certain objects of historical Japanese architecture, outline his vision of architectural creativity in general. The article by K. Tange (1956) covers the issue of interaction between modern architecture and tradition, and K. Tange (1960) discusses the newly built Kurashiki Town Hall. The joint work of architects K. Tange & W. Gropius (1960), using the example of the Imperial Villa Katsura, describes the dichotomy of the principles of Yayoi and Jomon – the power of tradition and the energy of primitive creativity. It was also important to consider the history of architecture, namely a historical overview of the formation and ideological content of the Ise Shrine (Tange *et al.*, 1962). The research work was significantly aided by K. Kawaguchi & K. Hasegawa’s (2021) collection of rare material that sheds light on an architect’s formative years and creative pursuits.

In addition to the above, this study also examined relevant literature, such as U. Kultermann’s (1970) and M. Bettinotti’s (1997) books discussing the work of Kenzo Tange. Furthermore, it incorporates K. Kurokawa’s (1977) book, which explores the development of modern architecture based on the principles of metabolism in Japan during the 20th century, as well as K. Nute’s (1993) research on the influence of Japanese tradition on the architecture of F.L. Wright presents publications by researchers

R. Pernice (2006; 2007), describing the post-war development of Japanese urban planning, N. Ricci (2018), studying the influence of the architectural environment on the human psyche, M. Pieczara (2019), addressing the issue of adapting traditional architectural details in modern design and M.G. Micale (2018), justifying the inadmissibility of unprofessional use of traditional forms in architecture.

HISTORICAL DEVELOPMENT OF JAPANESE ARCHITECTURE

The architecture of Japan is exceptionally rich and diverse. Furthermore, due to certain historical and national specific features of this country, many examples of traditional architecture from different eras, starting from the time of the formation of Japanese statehood, are well preserved. This paper examines sacred architecture, which most clearly reflects national culture. Two religious teachings prevail in Japan, the first of which is Shinto. Shinto is an authentic religious and philosophical doctrine of Japan that has been formed over many centuries and is based on the animistic beliefs of the Indigenous inhabitants of the archipelago. The second doctrine is Buddhism, which was transferred to Japan from the continent in the middle of the first millennium BC (Shevtsova, 2011).

The prototype of a Shinto Shrine is considered to be a type of building called a *takayuka*, a granary built on piles and used to store crops (Watanabe, 1964). Such structures were common in the Neolithic and Bronze Age and occupied a central place in Japanese settlements. Over time, they acquired sacred significance. The most famous example of a Shinto shrine in the *takayuka* form is the Ise Shrine, which was equated by Western architects and researchers to the Greek Parthenon in terms of its importance for Japanese architecture (Tange *et al.*, 1962).

Buddhist architecture was brought to Japan by foreign masters and was largely borrowed from China; it was later modified and integrated into the Japanese architectural tradition. There are many examples of well-preserved ancient Buddhist temples, starting with the Horyūji monastery complex, built in its present form in the late 7th century (Mizuno, 1974; Shevtsova, 2011). However, they all share a certain structure of the complex, which consists of separate buildings and structures, or rather certain objects and zones, the role of which is defined by Buddhist religious doctrine. Traditionally, it is a pagoda, a central worship pavilion and a lecture hall.

With the advent of Buddhism, Japanese architecture continued to evolve. The periods of pronounced influence of Chinese architecture were interspersed with periods of relatively independent development, during which Chinese architectural traditions were substantially modified and acquired a Japanese national flavour. Since its self-isolation in 1641 (Shevtsova, 2011), Japanese architecture has almost completely lost influence from the continent. A new era of development in Japanese architecture began in the second half of the 19th century, when the country re-entered the world stage and began rapid modernisation in all

sectors, including architecture, actively adapting Western building traditions and styles.

Attempts to introduce traditional Japanese features into Western architecture took place in the first half of the 20th century. Thus, one of the first architects to recognise the integrity of the conventional aspects of Japanese architecture was Frank Lloyd Wright. Although he dismissed any external influences on his designs, present-day researchers suggest that the Japanese tradition had a significant impact on his work (Nute, 1993). Describing the stages of development of modern Japanese architecture, architect Kisho Kurokawa identifies a period of ultra-nationalist architecture (Kurokawa, 1977). During this time, architects based their designs on Western-style buildings and attempted to give them a national character by incorporating external elements, such as curved roofs, decorations of cornices, and the facade with national ornaments, according to the ideology of Japanese imperialist nationalism. But with the defeat in World War II, the history of modern Japan was divided into “before and after”, so this approach could no longer be used for ideological reasons. A new stage in the development of Japanese architecture began in the post-war period under the influence of Western architecture, which this time was represented mainly by architectural modernism. Kenzo Tange is one of the first and at the same time the most famous representatives of this period.

TRADITIONAL ARCHITECTURE IN KENZO TANGE'S PROJECTS

Inspired by the works of Le Corbusier (Kultermann, 1970), the artist sought to create buildings that would be in line with contemporary Western trends, noting that in many ways 20th-century architectural views coincided with the established traditions of Japanese architecture. Later, the tendency to preserve national features could often be traced in the architect's works. Kenzo Tange put his ideas into practice in urban planning, planning projects for the city of Tokyo in the mid-20th century (Pernice, 2006; 2007). He consistently embodied the same ideas in architectural objects. The first building of this kind was the Hiroshima Peace Memorial Museum complex built in the 1950s (Kultermann, 1970). Kenzo Tange has repeatedly returned to the theme of the transformation of tradition in his other projects, drawing on the cultural characteristics of the Japanese nation.

In his article “Creation of Modern Architecture and Japanese Architectural Tradition” (Tange, 1956), the architect notes that true architectural creativity is the search for a visible combination of a typified function with the ideal of beauty (thus, one can see that the author reinterprets the Vitruvian architectural qualities: strength, utility, and beauty). In this case, the author suggests that a standardised function is the best solution for a specific household problem in contemporary times. As for the concept of beauty, an analysis of K. Tange's creative career suggests that, at a particular point, traditional architecture was his ideal.

In another, more recent publication, *Tradition and Creation in Japanese Architecture* (Tange & Gropius, 1960),



the author discusses the issue of the architect's interaction with tradition more broadly. Tange revisits the theme of architectural creativity, but from a new perspective. He presents the concept of a dialectical synthesis between tradition and anti-tradition, which can be a constructive force for progress and a safeguard against tradition becoming a mere formality. Drawing parallels with the history of the country, the author identifies the first two historical periods of Japan as the quintessence of the embodiment of these two opposite concepts. During the Jomon period, an ancient culture of hunters and gatherers lived in harsh conditions, geographically separated and struggling against an aggressive environment. This is clearly reflected in the rough and dynamic form of the art examples of that time (Fig. 1). The second period is the Yayoi era, during which continental cultures and immigrants from Korea played an active role, resulting in agricultural growth and the formation of a hierarchical society. This era significantly altered the nature of art, as evidenced by the haniwa mound ceramics (Fig. 2), which exhibit an emphasis on smoothness and balance (Shevtsova, 2011).



Figure 1. Clay statue, late Jomon period (1000-400 BC), Tokyo National Museum

Source: author's photo

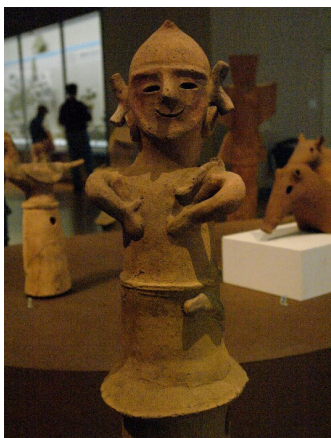


Figure 2. Clay statue of the Yayoi period, (300 BC-300 AD), Kashihara Archaeological Museum in Nara

Source: author's photo

Comparing these two periods, K. Tange considers the first to be the embodiment of the destructive energy of anti-tradition, which is formed spontaneously under the influence of aggressive external factors. The second period, on the contrary, is considered to be a force that restrains, orders, and shapes the first, i.e., the force of tradition. According to Tange, an architect's work is a combination of these two opposites. However, when defining the meaning of the traditional in the creative process itself, Tange believes that the approach of imitating traditional forms should be avoided as one that does not correspond to the ideas of modernity. In his work "Building and Project" (Tange, 1960), K. Tange asserts that tradition should serve as a catalyst, prompting the chemical process and guiding it in a certain direction, but ultimately absent in the final product. That is, as K. Tange contends, the architect's aim is to develop on the foundation of architectural tradition, while ensuring that the end result is still a product of contemporary architecture. For a more detailed analysis of the described principle, it is proposed to consider examples of several implemented projects by K. Tange.

HIROSHIMA PEACE MEMORIAL MUSEUM

The complex was built in the post-war period (in 1956) in the city of Hiroshima, which was destroyed by the atomic bomb at the end of World War II (Kultermann, 1970). The museum complex is a vivid example of a combination of the modern international style of 20th-century architecture and the embodiment of the ancient architectural tradition of Japan. The idea behind the Hiroshima Peace Memorial complex was conceived by the architect during his years of study at the University of Tokyo, when in July 1942 (Kawaguchi & Hasegawa, 2021) he took part in The Greater East Asia Memorial Competition. According to the architect, the complex was to become a place of communication with the ancestors, i.e., a place of unity between two worlds – the world of the living and the dead. The idea of the complex developed around the main axis – a high-speed motorway that would connect the holy mountain (Mount Fuji) with the holy place (the Imperial Palace). In the centre of the axis was to be placed a complex consisting of two parts located opposite each other on elevations along the highway and connected by a bridge (Fig. 3). On the right side (towards Mount Fuji), the main pavilion was to be located, the shape of which was borrowed from the main building of the Ise Shrine. The planned complex was never implemented, but the semantics of the memorial later formed the basis of the architect's next work, the memorial complex of the Hiroshima Peace Memorial Museum. Despite the significant difference between the target orientation and the ideological basis of the construction, both projects have the influence of the Japanese architectural tradition, namely Shinto architecture (Isozaki, 2006).



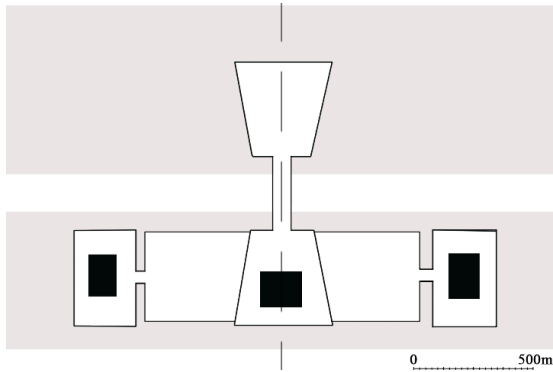


Figure 3. Schematic plan of the Great East Asia Memorial Complex

Source: developed by the author of this study

In this case, it is worth referring to the aforementioned example of ancient Japanese Shinto architecture – the Ise Shrine. According to one of the Japanese chronicles, the sacred complex in Ise was built around the 3rd century. Although architectural historians date the appearance of the sanctuary to the 5th-6th centuries (Shevtsova, 2011). The shrine consists of two parts located at a certain distance from each other: The Naiku Shrine and the Geku Shrine. The complex is unique in that, according to Shinto beliefs, it must be rebuilt every 20 years so that the deity living inside can constantly receive a new, “untainted” home. The reconstruction takes place on the adjacent territory near the sanctuary, and the architectural form and design of the new building stay unchanged. This ritual expresses the desire to get rid of the so-called “taint”, which in the context of Shinto is associated with blood and death (Shevtsova *et al.*, 2020). This tradition has survived to this day and is one of the features of ancient Shinto architecture. Due to constant reconstructions, the authentic appearance of the sanctuary stays unchanged and has no time distortions. Accordingly, it is still possible to observe the oldest traditional techniques of Japanese architecture in the Ise Shrine.

Analysing the sacred complex in Ise in his article “Ise – Origin of Japanese Architecture”, Kenzo Tange highlights several features inherent in Japanese architecture in general. Thus, one of the major features that clearly characterises the Japanese tradition is a smooth, flowing connection between the interior space of a building and its environment. On the contrary, the Western worldview has always sought to separate a certain space from its external space, completely isolating it using architecture (Tange *et al.*, 1962). Other specific features of the Ise Shrine are the horizontal development of the complex in the plan, as well as the division of buildings by functional purpose. Kenzo Tange believed that the reason for this approach was, on the one hand, the lack of technological experience of the builders of the time, and, on the other hand, the religious requirement that some buildings of the complex be separated. An example was given of an ancient Japanese settlement, where dwellings for unmarried men and women, pregnant women, etc. were to be separate buildings (Tange *et al.*, 1962).

The division of buildings by function was also typical for sacred complexes. Both the Naiku and Geku sacred complexes located on the territory of Ise consist of one main building and two secondary buildings symmetrically located along the main axis of the complex. One of the most prominent features of the Ise Shrine that distinguishes it from others is also the symmetrical structure of the general plan and the development of the complex along the main axis (Fig. 4; Fig. 5).

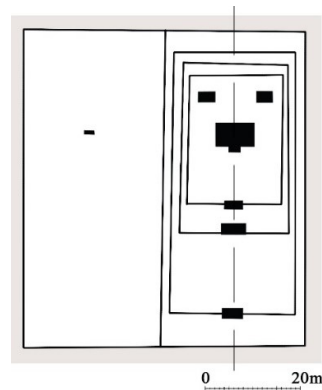


Figure 4. Plan diagram showing the main axis of the Naiku part of the Ise Shrine

Source: developed by the author of this study



Figure 5. General view of the Naiku of Ise Shrine

Source: author's photo

When analysing the architecture of the Peace Museum complex in Hiroshima, it becomes apparent that the traditional forms of the Ise Shrine are borrowed at the levels of the general plan of the complex and the structure of its buildings. The complex is located in the central city park and has no clear separation from the latter. Similarly, the complex is formed in a horizontal direction: it consists of three main buildings (one main and two secondary), which are symmetrically, but with some differences from the Ise Shrine, located along the main axis of the complex. Referring to the idea of constant renewal of the Ise Shrine, one can trace in the idea of the memorial complex a powerful message to future generations that even a city that has been burned to the ground can be reborn and continue its life.

The main axis of the museum complex is also similar to the axis of the Ise complex, but at the same time it is



interpreted as a reference to the traditional funerary culture of Japan: stretching from north to south, it symbolises the connection between two worlds: Higan (literal meaning “the other river bank”), the world of the dead, represented by the so-called Atomic Dome, the ruins of the Hiroshima Products Exhibition Hall located on the opposite side of the river, and Shigan (literal meaning “this river bank”), the world of the living, represented by the revived city on the other side of Hiroshima’s main street, Peace Avenue (Kawaguchi & Hasegawa, 2021) (Fig. 6; Fig. 7).

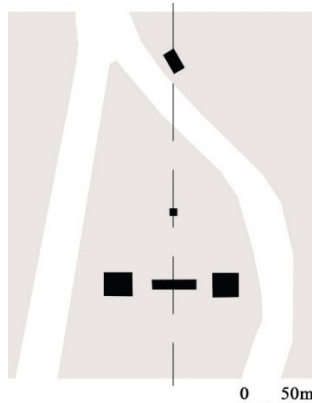


Figure 6. Plan diagram showing the main axis of the Peace Memorial Museum complex in Hiroshima

Source: developed by the author of this study



Figure 7. General view of the Peace Memorial Museum complex in Hiroshima

Source: author’s photo

Another important feature is that the central building of the museum is raised above ground level (Fig. 8; Fig. 9). This is conditioned upon the use of ancient granaries called takayuka, which later became the prototype of Shinto shrines, as an example of the construction of granaries. According to the Japanese perception, it is also a reference to the type of ancient imperial warehouses or temple storehouses (specifically, the Shosoin Treasure House in Todaiji Monastery in Nara (Watanabe, 1964; Shevtsova, 2011)). One of the main functions of this type of storage is to store temple relics or ancient family heirlooms. Drawing a parallel between the storage buildings and the museum, it should be noted that the latter probably plays the role of relics to

the various testimonies of the terrible catastrophe that occurred in the city during the atomic bombing.



Figure 8. Shosoin Treasure House at Todaiji Monastery in Nara

Source: author’s photo



Figure 9. Central pavilion of the Peace Memorial Museum complex in Hiroshima

Source: author’s photo

According to Kenzo Tange, another important feature of the Japanese tradition is the presence of a symbol that reflects the essence of a particular space (Tange *et al.*, 1962). The role of the symbol of the memorial is assigned to the concrete crypt, which is located in the centre of the complex. It has the form of ceramic houses of the dead, the so-called haniwa, which refers to the ancient Japanese tradition of burial mounds (Fig. 10; Fig. 11). Thus, the symbol makes it clear that one of the main ideas of the complex is to create a place of remembrance for the dead.



Figure 10. Arch over the concrete crypt of the Peace Memorial Museum complex in Hiroshima

Source: author’s photo



Figure 11. The shape of the haniwa house

Source: author's photo

Given the target orientation of the complex, all borrowed details can be divided into three semantic groups. The first one includes borrowings from the sacred architecture of the Shinto religion, the second – images and forms of traditional funerary rites; the third – the idea of preserving monuments, expressed in the borrowing of the form of a treasury-reliquary. However, all of these traditional borrowings acquire a new meaning: the principle of rebuilding the architecture of Sinto is the future revival of the city, traditional funerary images are a memorial to the victims of the bombing, and the treasury is the preservation of the monuments of the disaster. It is also interesting that the architect later returned to similar ideas in his later, completed work dedicated to the victims of the Second World War – Memorial Plaza for Students Who Perished in the War. This project retains the idea of the main axis and the symbolism of space.

KURASHIKI TOWN HALL

The town hall (now the City Art Museum) was built in 1960 in the ancient city of Kurashiki. At the time of completion, the building became the dominant feature of the city space. According to the architect's plan, it was to determine the trajectory of further development of the city on a new scale (Kultermann, 1970). The building is an example of architectural brutalism, but at the same time its structure and composition embody the techniques of Buddhist architecture.

Buddhist teachings were brought to Japan in the 6th century (Shevtsova, 2011). Unlike the Shinto religion, whose shrines were closed and often not fully accessible to ordinary pilgrims, Buddhism professed the equality of all segments of the population, and thus had a slightly different structure of complexes from the very beginning. Therefore, Buddhist adherents needed to build new types of buildings and architectural complexes that would meet the needs of the new religious movement. The builders were invited from countries where Buddhism was already widespread. This is how Buddhist monastery complexes with a clearly structured architectural environment appeared in Japan. The main buildings of the Buddhist complex were a pagoda, a central pavilion and a lecture hall. The pagoda was intended to store sacred relics. The central pavilion housed Buddhist statues and was the main place of visit

for pilgrims. The lecture hall was intended for classes, as Buddhist monasteries in ancient times also served as educational institutions (Shevtsova, 2011).

The construction of the main pavilion of the Buddhist monastery was based on a post-and-beam system, the building usually had a rectangular plan. The gaps between the supporting structures were filled with clay or boards. The composition of the pavilion was symmetrical, the number of intercolumns was odd, so that the main entrance was always located in the centre. The top of the building was covered with a heavy tiled roof, the load from which was transferred to the pillars by means of complex multilayered cantilevered capitals – kumimono (Shevtsova, 2011). As a result of this roof structure, a rather wide cornice was formed, which later became one of the characteristic features of Japanese architecture in general (Fig. 12). In addition, an inherent feature of Japanese Buddhist architecture is the two-tiered building of the main pavilion (Fig. 13). It is believed that this feature was inherent in the Chinese architecture of the Tang Empire (VI-IX centuries) (Liang & Fairbank, 1984), and it was then that it came to Japan. This design has taken root in Japan to such an extent that over time it has been actively used even in Shinto architecture.

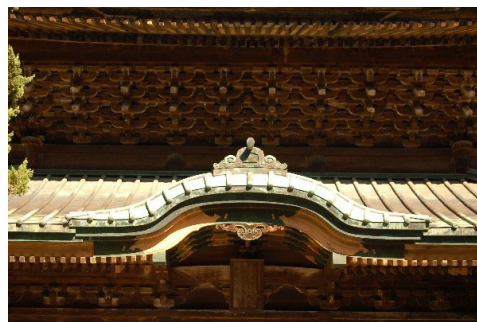


Figure 12. Cornice and structures of the second floor of the central pavilion of Kenjoji Monastery in Kamakura
Source: author's photo



Figure 13. General view of the central pavilion of Kenjoji Monastery in Kamakura
Source: author's photo

The structure of the interior space of the Buddhist pavilion directly depended on the structure of the building and consisted of two main volumes: the “moya” – the



central core of the building and the “hisashi” – the gallery that covered the central part on four sides. “Moya” was spatially separated from “hisashi” by an elevated ceiling level, which was formed by the superstructure of the upper tier. “Hisashi” had a slightly lower ceiling (Fig. 14; Fig. 15). A statue of Buddha was located in the central part of the pavilion, thus emphasising the role of the central part as the sacred core of the entire complex.

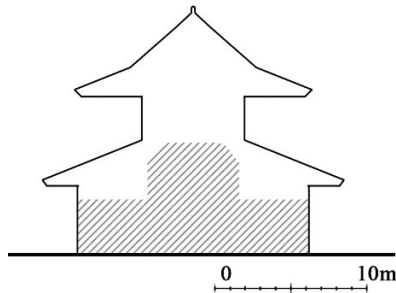


Figure 14. Spatial division of the building of the central pavilion of Kenjoji Monastery in Kamakura

Source: developed by the author of this study

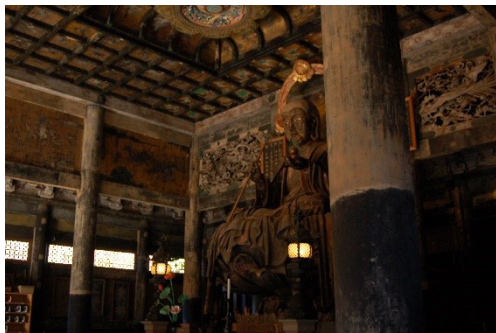


Figure 15. A general view of the “moya” part of the central pavilion of Kenjoji Monastery in Kamakura

Source: author’s photo

Analysing the building of Kurashiki Town Hall, one can notice the author’s use of the characteristic features of Buddhist architecture at the level of the structure and interior space of the building. The building is made of reinforced concrete and also has a post-and-beam system, but the architect used concrete panels and glass as a filler for the interframe spaces. It is also interesting that the building bears a certain resemblance to the ancient Japanese log temple storehouses built according to the takayuka principle (Fig. 8), but according to Tange himself, this idea was not his original creative intention but came to life spontaneously (Tange, 1960). The visual image of the storehouses arises from the combination of pylons protruding from the corners and the elongated rectangular shape of the façade itself. The texture of the façade, formed by longitudinal and end concrete rods, also emphasises this similarity. It resembles the walls of a storehouses made in a horizontal log construction technique with a characteristic angular joint (Fig. 16; Fig. 17). The analogy with Buddhist architecture can also be observed in the symmetry of the building’s

façade in general, which is emphasised by the central entrance in the middle and the division of the lower volume of the building into an odd number of spaces.



Figure 16. External corner connection on the facade of Kurashiki Town Hall

Source: author’s photo



Figure 17. Exterior of the Kurashiki Town Hall

Source: author’s photo

The interior space of the Kurashiki Town Hall, according to the spatial organisation of the Buddhist pavilion, is also divided into two main volumes. The central part of the building unites the space of two floors (Fig. 18; Fig. 19) and serves as a lobby for visitors, which is also similar to the central part of “moya” and, according to its function, acts as the semantic core of the building. Two galleries of the entrance groups on the north and south sides of the hall serve as “hisashi”. The main volume of the first floor is intended for visitors, while the second floor houses the main working premises of the city centre institutions.

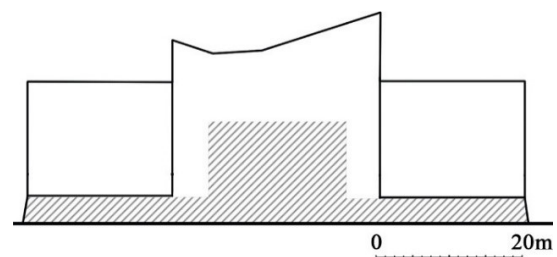


Figure 18. Spatial division of the interior of the Kurashiki Town Hall

Source: developed by the author of this study



Figure 19. General view of the central part of the interior of Kurashiki Town Hall

Source: author's photo

The building is encompassed by a series of external galleries formed in the gap between the main load-bearing structures brought outward and the entrance part recessed inward (Fig. 20; Fig. 21). This element can also be perceived as a continuation of the "Hisashi" part of the exterior.



Figure 20. External galleries of Kurashiki Town Hall

Source: author's photo

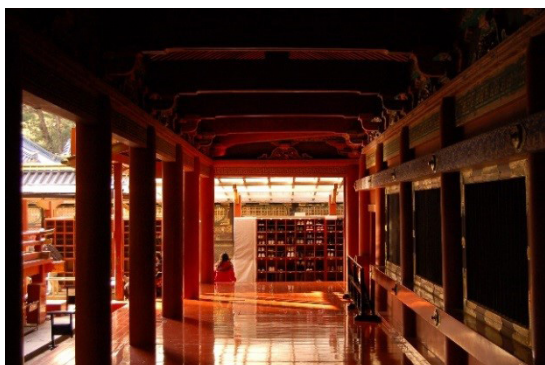


Figure 21. The galleries of the main pavilion of Toshogu temple in Niko

Source: author's photo

Thus, upon entering the city centre through the main entrance, visitors are greeted with an experience similar to that of visiting an ancient temple. They pass under a wide

eave and through an ordinary entrance, only to find themselves suddenly in a grand, central space with a balcony for speeches situated on the second floor. This balcony compositionally echoes the location of the main semantic centre of the temple – the face of the Buddha statue. Looking for an answer as to why the architect selected this solution for the town hall in Kurashiki, it is important to note that Buddhism, which in its doctrine did not differentiate between social classes, initially introduced the principles of equality to the land of Japan. Buddhism also had a profound influence on the tea culture of Japan, which, in times of internecine strife between individual rulers, became an expression of the idea of national unity (Tange & Gropius, 1960). Therefore, in this instance, the application of Buddhist architectural principles may be construed as a manifestation of Tange's aspiration to highlight the significance of the urban centre as a democratic institution that is all-inclusive, diverging from the pre-war Japanese state institutions that were inapproachable and exclusive.

THE KAGAWA PREFECTURE GOVERNMENT OFFICE BUILDING IN TAKAMATSU

In the project for the Kagawa Prefecture Government Office Building in Takamatsu, Kenzo Tange takes a slightly different approach. At the time, the project was criticised for its excessive stylisation and inconsistency with the architect's main idea (Kultermann, 1970). One of the main features of the building is the use of structural techniques of a wooden Buddhist pagoda on the facade. This feature refers too directly to the architectural tradition of Japan, which is probably the reason for the criticism.

In its original form, the idea of a pagoda originated in India. The oldest monuments date back to the 4th-3rd centuries BC, when they had the shape of a hemispherical stupa. When Buddhism came to China, the design of the pagoda absorbed local architectural traditions and took the form of a multi-tiered tower. Such towers were built of brick, wood, or both. The buildings possessed unoccupied indoor spaces on each floor, which, besides serving a religious purpose, were utilized as monastic libraries, storehouses and at times as watchtowers (Shevtsova, 2011). With the spread of Buddhism in Japan, the design of the pagoda is changing again. The main material is wood, and almost the entire interior space is occupied by structures and a central core pillar (the so-called "shin-basira"), with a small free space remaining only on the ground floor. Thus, in Japan, the pagoda again loses any practical significance and actually becomes a sculptural structure (Shevtsova, 2011). The structural basis of the pagoda is made up of four pillars placed on the ground floor, called "shiten-bashira" (Mizuno, 1974) (Fig. 22; Fig. 23). The name literally means Four Heavenly Kings: deities who guard the cardinal points. Another characteristic feature of Japanese pagodas is an odd number of tiers, the most common being three or five tiers, and in ancient times there were also multi-tiered pagodas with 7 and 9 tiers (Shevtsova, 2011).

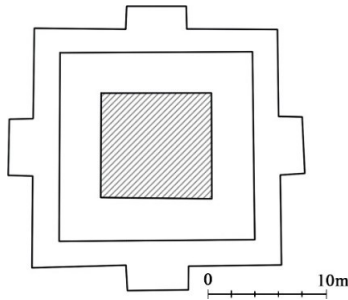


Figure 22. Schematic of the structural core of the five-tiered pagoda at Kofukuji Monastery in Nara

Source: developed by the author of this study



Figure 23. General view of the five-tiered pagoda of Kofukuji Monastery in Nara

Source: author's photo

Tange based the Kagawa Prefecture Government Office Building on his previous project of a similar purpose, the former Tokyo City Centre building (Kultermann, 1970; Kawaguchi & Hasegawa, 2021). Created according to the principles of post-war modernist architecture, the building once became a symbol of building a new open democratic society. But unlike its predecessor, the Kagawa Prefecture Government Office Building is also a vivid example of the use of the so-called “wooden technique” in concrete architecture (Kultermann, 1970).

The use of traditional principles in the architecture of the Kagawa Prefecture Government Office Building is mainly limited to the building structure. The building consists of nine floors surrounded by open galleries. The galleries are formed by extending the transverse beams and, accordingly, bringing the floor ceiling outwards, which creates a visual resemblance to the rhythmic repetition of the widely spaced eaves of a Buddhist pagoda. Similar features can be observed in the building's layout. In the centre is the structural core, which is the main support for the floors around it and is also the main functional communication of the building. Thus, the structural system of the administrative centre can be correlated with the structure of a pagoda (Fig. 24; Fig. 25), which also develops around a central core.

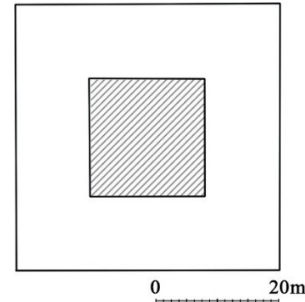


Figure 24. Schematic diagram of the structural arrangement of the Kagawa Prefecture Government Office Building in Takamatsu

Source: developed by the author of this study



Figure 25. General view of the Kagawa Prefecture Government Office in Takamatsu

Source: author's photo

In general, the metrical composition of the building's façade refers to the systematic and orderly design of Japanese pagodas, but also, due to its proportions, some researchers believe that it is inspired by traditional Shinto “mikoshi” – ritual festive stretchers made in the form of a small temple (Kawaguchi & Hasegawa, 2021). The architect actively uses traditional elements in the interior design of the building – imitation of traditional interior elements, monochrome paintings, etc.

In contrast to the previous two projects, where visitors were mainly presented with conventional spatial solutions, Kagawa's building architecture relies on the construction level. Tange employs existing traditional wooden techniques as a foundation, replicating them in reinforced concrete, which forms the frame structure of the building. Thus, by effectively using modern building materials, Tange manages to preserve the traditional image of a multi-storey building that is familiar to the Japanese.

K. TANGE'S METHOD OF TRANSFORMATION OF THE TRADITION

According to Kenzo Tange, tradition in the hands of an architect is a form that guides the creative process, it has no value in itself. Similarly, disordered, unrestrained creativity does not bring fruitful results. With this approach





to design, the architect achieves a visual combination of the building's function with the traditional ideal of beauty (Tange, 1956). In other words, he manages to combine modern construction requirements with a contemporary concept of beauty, which itself is derived from traditional art and architecture.

The methods of transformation of the Japanese tradition used by Kenzo Tange are the result of a profound analysis of the Japanese architectural tradition. In an attempt to systematise the identified methods, they can be

conditionally divided into four levels: master plan development; building structure development; organisation of internal space; and semantics (Table 1). Borrowings at the level of the master plan are clearly reflected in the design of the Peace Museum complex; at the level of the interior space – the Kurashiki Town Hall; at the level of the structure – the Kagawa Prefecture Government Office Building in Takamatsu and the central building of the Peace Museum complex. Each of the projects also embodies certain semantic images related to the function of the building.

Table 1. Features of traditional architecture according to the planning levels of the project

	Hiroshima Peace Memorial Museum complex	Kurashiki Town Hall	The Kagawa Prefecture Government Office Building in Takamatsu
Outdoor space	<ul style="list-style-type: none"> – shapes of burial mound artefacts – principles of forming the architecture of Shinto – principles of shaping temple storehouses 	<ul style="list-style-type: none"> – a formal imitation of a log cabin storehouses 	<ul style="list-style-type: none"> – distant associations with the form and planning structure of the Japanese tiered pagoda
Construction	<ul style="list-style-type: none"> – structural elements of an ancient temple storehouses (piles, etc.) 	<ul style="list-style-type: none"> – frame with infill, traditional for the construction of the central Buddhist pavilion 	<ul style="list-style-type: none"> – construction of a Japanese tiered pagoda with a central pillar and wooden frame construction technique (post-and-beam system, wide eaves overhang, tectonicity)
Interior space		<ul style="list-style-type: none"> – use of the increased interior space of the Buddhist pavilion 	<ul style="list-style-type: none"> – the central structural core around which the centre's layout develops
Semantics	<ul style="list-style-type: none"> – the image of the resting place of the dead, which was traditionally expressed in haniwa mound ceramics – a symbol of the city's revival, which is expressed in the idea of a permanent tradition of rebuilding the Ise Shrine – the idea of preserving memory, which was traditionally expressed in the form of a takayuka granary (later – temple storehouses) 	<ul style="list-style-type: none"> – the idea of social equality, traditionally expressed in the architecture of Buddhist temples and related tea architecture 	<ul style="list-style-type: none"> – the idea of transparency and social equality of a democratic society, which is expressed in traditional forms of Buddhism and in the overall transparency and rhythmicity of the structure

Source: developed by the author of this study

Thus, in the projects presented by K. Tange, one can clearly note the interconnectedness of traditional architectural forms and principles with the main ideological content of the building. The author also demonstrates the possibility of preserving even the constructive methods of the past by translating them into construction from modern materials. This shows that K. Tange's method of transformation is not limited to external resemblance to individual examples of traditional architecture or their interpretation but is mostly just a tool for expressing the author's creative ideas in the context of contemporary architecture.

CONCLUSIONS

Analysing Kenzo Tange's creative approach, his algorithm of borrowing traditional forms can be presented as follows: determining the general planning solution of the object in accordance with the requirements of society; searching for a traditional form that would embody a similar idea; adapting the traditional form to the modern needs of society.

The ideas behind the construction of the Museum of Peace complex, which are embodied in traditional forms,

are 1) creation of a place of honour for the dead; 2) formation of a symbolic space reflecting the idea of rebirth; 3) creation of a place to store documentary evidence. The first idea is embodied in traditional funerary images (the idea of the interconnection between our world and the world of the dead, Higan-Shigan; the clay burial house of Haniwa); the second – in the forms of sacred architecture of Shinto (the structure of the master plan of the Ise complex), the third – in the form of a traditional takayuki warehouse. Traditional images are adapted through abstract interpretation and modern reinterpretation of traditional forms.

The building of Kurashiki Town Hall embodies the need to create a place for a large number of people to gather in a traditional form, emphasising the idea of a democratic institution. It is reflected in the adaptation of the shape of the interior volume of the Buddhist pavilion. In implementing this idea, the author rejects almost all elements of the pavilion's exterior design, focusing solely on its interior volume.

The main requirement of the Kagawa Prefecture Government Office Building project was to create a modern city centre that would meet the requirements of the new



social order. Taking the planning structure of Tokyo's city centre, which was based on a typical post-and-beam system, Tange simultaneously refers to a similar traditional Buddhist pagoda structure. Tange borrows only the general design principle, adapting it to the conditions of modern construction.

Tange's approach to traditional forms is pragmatic; for him, tradition in architecture is a form that loses its functional content, loses its meaning. In his projects, K. Tange imbues the traditional form with a fresh and contemporary content. However, at the same time, his approach is not from form to content, not from tradition to function. Instead, the function manifests itself through a specific traditional form, retaining only what is pertinent and useful in modern conditions. Admittedly, the modernist architecture exemplified in the works of K. Tange discussed in this article may no longer be relevant, but the approach he pioneered stays universal and has been adopted by subsequent generations of Japanese architects, even those working today.

This paper considered one of the possible methods of interaction between a contemporary architect and the architectural tradition of the past. Notably, the transformation

method described in this paper is not exhaustive and that there are other methods that would also be interesting to explore. It is worth considering the possibility of the author's parallel use of different, even ideologically opposite approaches, which can be traced to some extent even in the projects presented in this paper. It would also be interesting to explore and compare the works of other Japanese architects, ranging from his contemporaries to well-known architects of the present, with K. Tange's projects.

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CONFLICT OF INTEREST

None.

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Трансформація традиції в проектах Кендзо Танге як шлях формування сучасної японської архітектури

Анотація. Статтю присвячено розгляду питання трансформації традиції в сучасній архітектурі Японії на прикладі робіт Кендзо Танге, як можливої спроби гармонізації сучасного міського простору, характерною рисою котрого, особливо у постсоціалістичних країнах, є типовість і відсутність характерних національних ознак, що за результатами досліджень сучасних науковців має негативний вплив на психіку людини. Метою роботи було виявлення творчого підходу К. Танге до використання традиції в умовах сучасності. В роботі використовувалися українські, японські, англійські, американські, та інші джерела з історії традиційної і сучасної архітектури Японії, включаючи теоретичні напрацювання самого К. Танге та декілька джерел присвячених роботам архітектора. Для дослідження також було зібрано значну кількість фотоматеріалу. В статті було викладено опис окремих типів традиційної релігійної архітектури Японії. В якості прототипів розглядалися архітектура Синто та буддизму. Відповідно до цього було проаналізовано наступні об'єкти К. Танге: меморіальний центр миру в Хірошімі, у порівнянні з храмовим комплексом Ісе; будинок муніципалітету в Курашікі у порівнянні з головним павільйоном буддійського храмового комплексу; будівля префектури Кагава в Такамацу у порівнянні з буддійською дерев'яною пагодою. В результаті, було виявлено, що трансформація традиції в творах К. Танге може відбуватися на чотирьох рівнях: організація генплану, формування внутрішнього простору будівлі, формування її загальної конструкції та на рівні семантики. Для кожного прикладу трансформації було наведено відповідні відсилки до окремих виявлених в ході роботи рис японської архітектури або традиційного японського світосприйняття. Також, було представлено алгоритм впровадження традиційних рис у сучасну архітектуру, що в умовах необхідності відбудови зруйнованих станом на 2023 рік українських міст, могло б стати допомогою у можливості відродження їх з уникненням архітектурних недоліків минулого

Ключові слова: архітектурна традиція; архітектура Синто; архітектура буддизму; Меморіальний центр миру в Хірошімі; муніципалітет в Курашікі; Адміністрація префектури Кагава в Такамацу