

THE ROLE OF CERAMIC TILE IN CONTEMPORARY ARCHITECTURE NEW EXPRESSIONS IN DESIGN

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AWARDS

- 1957 - Biennial of Sao Paulo, First Prize.
- 1971 - A. I. J. Award (Architectural Institute of Japan)
- 1978 - Isoya Yoshida Memorial Award.
- 1980 - R. S. Reynolds Memorial of America Award.
- 1981 - Honorary Fellow of A. I. A. (American Institute of Architects).
- 1986 - Mainichi Art Award.
- 1989 - Japan Art Academy Award.
- 1991 - City Planning Institute of Japan Award.

1. CERAMIC TILE AS A CULTURAL EXPRESSION

Ceramic tiles have a long history, their materials are primitive and close to man: soil, water and fire. Soil kneaded by the hands of man and with the addition of fire becomes more like nature-infused with life by man and fire. This is why I love ceramics.

Whenever I make a trip I buy ceramic and chinaware that are made in the region I visit. This is because these ceramics always express the culture of the region. When looking at these ceramics I feel as if I can see images of the history and the natural features of the land. Ceramics are like mirrors that show the natural features of the land and the human beings that live in that land. Although ceramics are now produced in factories, there lives in them -unlike in other industrial products- the warmth of the soil and the human beings of their region. The virtue and attraction of ceramics originate in their earthiness and humanity.

It is said that ceramic tiles were used for architecture for the first time in Mesopotamia in the era before Christ. Since then they have been widely used all over the world, mainly for decoration. The merits of ceramic tiles are their lasting quality, processibility, and colorfulness. For this reason they had been originally used on the surface of sun-dried bricks to protect constructions. The tiles were not only protective materials but they also played an important role that was inseparable from the ideas and space of architecture.

The popular form of decorative tiles was a mosaic that was developed in the Islamic world. A mosaic, in which numbers of small tiles were used to form a whole body, was closely related to the world view of the people in those days. A piece of tile not only protected construction but was also an essential expression that represented the depths of the architecture. With the progress of glaze, decorative tiles produced a wide variety of ideas and many characteristic products were manufactured in various parts of the world. Majolica, Delft, and Azulejo (Spain and Portugal) formed the peak of the modern decorative tiles.

These tiles are vividly expressive of the world of decoration. It can be said that decorative tiles lived most when man's lofty spirit lived to praise God through architecture which could be given life through the spirit of its maker.

2. THE GLORY OF CERAMIC TILES

Do decorative tiles today live in architecture or in cities? Do tiles still have the glory that they once had? I have doubts about the situation of ceramic tiles that are used in architecture. It is true that the production of tiles for architecture has rapidly increased recently in tandem with the range of their applications. I think, however, that it is a problem that they are consumed only in the pursuit of economic efficiency. We should consider the original purpose of ceramic tiles.

In former days ceramics even high regard were so advanced in technology, relative to their time and therefore price. Because of this, the tiles were used only for limited parts of architecture. Therefore, ceramics used in architecture were allotted for important and indispensable parts in the space construction. They were used in parts that needed decoration and had significance in the whole architectural space, such as window frames, window sills, archivolts, peaks of facades, cornices, fireplaces, cabinets, floors, etc. The craftsmen and artists who made those parts accordingly, regarded their works as their derivative and challenged the high quality and potentiality of ceramics. These ceramics and terra-cotta were highly esteemed and represented ideas and spirits that were in the depths of architectural spaces. The concept of architecture was inherent in ceramic tiles. I think that decoration is not only for some special part but it should be integrated into the whole body. That is, it represents the desire originated in man's real nature. Modern architecture, however, neglects the decorativeness to pursue rationality and tends to highly estimate those that are simple and based upon functionalism. I feel very sorry for the recent tendency which neglects the existence of architecture that represents the most human desires such as sublimity, praise, and the like. As a result of this tendency, attention is devoted only to the functionality of ceramic tiles and they are used as mere finishing materials, similar to paint - to protect the surface and to create symbolic patterns. This is a very disappointing situation. I look forward to the resurrection of the importance of decoration in architecture so that the glory of ceramic tiles can be renewed.

3. CERAMIC TILES IN JAPANESE ARCHITECTURE

In Japan, ceramic tiles have been used for architecture since the nineteenth century when modernization began. Compared with teacups and tableware that have a long history and tradition, tiles used for architecture have appeared only recently. Although the ceramic industry was originally introduced from China and Korea many years ago, the technology was developed in a Japanese way and transported to Europe in the great voyage era. This produced a cultural shock in the Europeans of that period. The ceramic ware of Imari, are (pictures drawn with blue glaze) of Kuresu, and china painting of herbs, flowers, and birds by Kakieson were presented with great effect in Delft and Meissen china. Although the ceramic industry developed independently in Japan, ceramics were used

only for tableware and decorations - rarely for architecture such as decorative tiles. It was after European-style modern architecture was introduced into Japan that tiles for architecture really appeared. Of course, there were a few examples where block-shaped tiles were used to cover floors in some religious architecture and temples due to the influence of Korea.

There were many reasons why tiles did not develop in Japan before modernization began. I suppose that the biggest reason was something related to the sense common to all Japanese. This sense results from the climate and natural features of Japan and is closely connected with the depth of Japanese culture.

In hot and humid monsoon climate humans become a part of nature. Most architecture is of wood and in an open style. These wooden buildings formed the unique wooden style of Japan. The Japanese nature changes subtly in one year. This phenomenon is represented as "Mujo" (transitoriness) in Buddhist terminology. The spiritual structure of the Japanese is based upon the recognition of such changes, and the spirit of symbolism to assimilate with the nature is generated. The spirit structure of the Japanese people is rooted not in eternity but also in the thought of resignation that everything given shape is constantly changing.

I think that the aesthetic sense of the Japanese is based upon the following two thoughts. One is the spirit of respect for natural things. The Japanese people tend to love purity and innocence. Although it is a kind of nature worship, the spirit to love simple, plain, ascetic, and nondecorative objects has a relationship with the idea of rationalism and modernism. Another characteristic is the spirit to respect vague situations, that is, ambiguity. We like to see things not clearly but vaguely. Because of the high humidity of Japan, we cannot discern outlines clearly. We always see foggy scenery. We cannot see individual trees in a wood or the hazy foot of a mountain. This unclearness arouses the imagination. In old Japanese paintings - especially court paintings - mists are always trailing and general views are drowned in obscurity. The Japanese think this situation elegant. This kind of elegance is also a guideline for a way of life. It is thought to be immodest for Japanese people to make self-expression directly, or to be exposed to the light of day. Of course, it is insufficient to explain the characteristics of Japanese culture by the above two aesthetic senses. I think, however, that these examples are sufficient to explain the sense of Japanese people in relation to tiles. First of all, because most Japanese architecture was built of wood, tiles were unfamiliar as construction materials. Furthermore, natural materials were assigned a high value. Materials that were closer to their natural state and needed less processing were preferred and painting and coating were seldom accepted. Because of the hot and humid climate, floors were not earthen but rather were of elevated construction. People took off their shoes and walked on floors with their bare feet. In this climate, if such materials as decoration tiles covered floors, dew would condense on the surface. Usually there is no wall inside a Japanese house, only partitions. Houses are surrounded by sliding fittings and open to all sides to provide ventilation. Only roofing tiles as ceramic materials were developed. Roofing tiles were somber silver and decorated with ridge-end tiles that were symbolic of the people's desire to protect their homes. As the material for roofing tiles, the soil from rice fields was molded and burned gently. Roofing tiles thus were given a variety, showing each locality. People in those days disliked such things that were lustrous or hard or reflected lights. This kind of thought was the reason why hard tiles were not used to form living spaces.

But with the progress of modernization in Japan, urban architecture became Westernized, mostly consisting of reinforced concrete and steel. The modernization of architecture started from houses in a semi-Western style. Japan invited architects from Europe and America to build Western-style buildings in bricks. The technology was imparted by Japanese artisans who had previously constructed traditional Japanese buildings. There still remain many Western-style buildings of that time in which Japanese technology and Western style were skillfully combined to form a unique construction style. Although ceramic tiles were of course used in those buildings, they were only for the purpose of decoration of limited parts. It was not until the beginning of the twentieth century that urbanization began and ceramic tiles began to be used widely.

After the introduction of Western-style architecture, art nouveau and art deco were imported into Japan. Architecture was closely related to tiles until World War II. In those days tiles were made by artisans, not mass-produced, and showed much artistic merit.

It is in the designing of the former Imperial Hotel by F.L. Wright that we cannot forget the history of modern ceramic tiles in our country. The Imperial Hotel exerted much influence upon Japanese architecture, including the terra-cotta used in quantity both inside and outside the hotel. This symbolized the concept of the whole body of the architecture and constituted an extremely unique feature. Tiles were carved in relief and had see-through holes. Japanese tile manufacturers called them "reed screen tile" and executed those tiles after overcoming many difficulties. At the time, F.L. Wright was designing a house made of concrete blocks on the U.S. West Coast. He carved a three-dimensional relief into the surface of the blocks and endeavored to create a unique wall configuration.

F.L. Wright seemed to make the tiles for the Imperial Hotel after the same concept as he did in his house in the United States. Frank Lloyd Wright was quite devoted to Oriental philosophy and left many humane works that were of local color. His idea of origamic architecture was especially easy to understand for the Japanese and had a great influence upon Japanese architects.

Besides tiles, F.L. Wright used a porous Ooya-stone that is mined in a local region of Japan, to make a unique form of architecture. In those days the Japanese never considered that this stone could be used as an architecture material.

F.L. Wright taught us that it is important to make the best use of materials. Because the Japanese had full knowledge regarding the effective use of wood, they could easily understand his way of thinking.

In Japan, tile was thought of as imitation of brick. The size of nichogake tiles or harder tiles was based upon that of bricks. Accordingly, the tiles were used to produce an illusion of laid brick. Tiles were therefore laid on condition that downward gravity was always added to them. In this way, the misunderstanding that tiles were an imitation of bricks persisted for a long time. This was one of the causes for the fact that tiles were unfamiliar to the Japanese. Recently, however, many ceramic tiles have been used for facade for buildings in Japan. This is because tiles have functionally excellent features, such as durability, economic efficiency, color, productivity, climate-resistance, etc. I think, however, that few ceramic tiles have been used efficiently and creatively in recent years.

I believe that the potential of ceramic tile has no limit. But if the current situation continues, the progress of ceramic tiles will arrive at an impasse and will be replaced with other materials.

4. THE POTENTIAL OF CERAMIC TILES: TILE AND HUMANITY

I have tried to harmonize ceramic tiles with Japanese natural features in my works.

In spite of the fact that ceramic tiles are industrial products, they can be manufactured on order by architects. Because most of the tiles produced in Japan are sold as ready-made goods, architects usually make a choice among samples from a catalog or showroom. Although it is not always impossible to order other materials, it is a costly process and thus is less economical. Conversely, however, tiles are manufactured by smaller companies that still maintain the spirit of private potteries. An artisan's spirit still lives in these companies. And therefore these companies are very valuable for architects. The manufacturer with whom I do business is a kind of artisan and willingly cooperates with me to produce trial tiles until I can satisfy my image. I cannot construct any buildings with ready-made materials. To show the concept of architecture more effectively, I cannot neglect even a single piece of tile. If the general spirit does not dwell in every part, real architecture cannot be realized. In Japan, however, ceramic tiles have been increasingly mass-produced by large enterprises, with the result that smaller manufacturers with real craftsmanship are gradually being elbowed out of trade. Of course, the industrialization of tile is an inevitable trend and so I have no intention to resist it, but as the quality is improved, the depth and flavor that former tiles exhibited

will be lost. Although we are pursuing accuracy, smoothness, and homogeneity, tiles equipped with such features are unfamiliar to us and a sense of incompatibility arises. I feel familiar with those tiles of the handicraft period that were irregular in size and rugged and had wide joints. I yearn for the human touch that those tiles had.

Because today's industrialized tiles have no warp distortion and the state-of-the-art adhesive method has narrowed joint widths, even the butt-laying finishing method becomes possible. The surface of a wall covered with industrialized tiles thus becomes a homogeneous filmy surface and as such presents a cold and negative substance resembling metal or glass. Modern architecture is created with rationalization and industrialization as its background. It can be said that the locality and humanity of artisans and artists have been lost in this movement. That is, nature and human beings have been abandoned by architecture. Today's building industry, however, is making efforts to regain the image of nature and humanity.

I notice, therefore, that there still remains a chance to make nature and human beings exist in the process of the industrialization of tiles.

Softening of tiles

To produce tiles that match Japan's climate, I think that it is first necessary to soften tiles. The softening of tiles seems to obtain a softer image. The temperature of tiles for architectural facing is high and their surfaces are extremely hard. It is therefore natural that an outer wall covered with such hard materials looks hard. The Japanese do not prefer hard and cold things. We like those that are as soft as soil. Additionally, visual softness is welcome. But because the temperature falls below the freezing point in winter in some regions of Japan, the baking temperature cannot be lowered thoughtlessly. Perhaps only stoneware tiles may be usable. I avoid using glaze as much as possible and try to employ a natural, lustrous surface. Not only clay but also baking powder such as schanotte can be mixed in tiles. These compositions can be seen on the surface of tile, which matches the sensibility of Japanese who love natural things, I also have designed scratched tiles by sandblasting the surface. Although the scratching method is a traditional method, this use of sandblasting creates a different effect. This sandblasting method removes surface hardness, as well as strength by scraping tiles.

The softening of tiles also has a relationship to joint width. One of the reasons why the surface of former tiles looked soft was that their joints were wider than those of today's tiles. The hardness of tiles is reduced by the softness of joints. This creates shadows that are made by the unevenness of the joint surface and tile surface.

I tried to use softened tiles for the Setagaya Museum. I made a hole in the center of a square stoneware tile and enlarged the joint area of the concrete. The technically difficult point is that tiles might fall off outer walls. So I drove tiles into precast concrete and fixed the precast concrete to outer walls. In this case it was necessary to fix tiles in the molding boxes. For this reason I used metals to attach to the tiles' square holes. In this way I solved the problems of both design and technology. I also scraped the surface of the tiles with sandblasting to achieve a softer image. The tile has a natural feel and matched the aesthetic sense of the Japanese. The tiles were designed to symbolize the concept of the Setagaya Museum that was designed to emulate the kind of living space found in a home.

Breaking light

I was also thinking of a method to make uneven tiles. It is important in Japanese architecture to have depth. Natural materials such as soil, wood, and stone acquire a good feel by being weathered. Because tile is a stable material, it is necessary to take some means to attain depth. I think the secret of depth lies in light and shadow.

Japanese are not familiar with high-colored scenery. Vivid colors do not match the Japanese landscape. Architecture that is integrated into the natural light is preferred in Japan. I thus thought

that outer walls should be designed to break the light. By breaking sunlight on the uneven surface of a wall, the wall attains an appearance of depth. A wall is a device to visualize the changes of nature. I put this idea into practice for the first time on the outer walls of a graveyard of a religious man. I used porcelain glazing tiles that were almost the same size as the holed tiles employed for the Setagaya Museum. The circumference of the tile was convex and the inside was concave. The concave part was blue, a reflection of the sky and the circumference was white.

This architecture represents an image of “nandara” which indicates a view of the world of Buddhism. Each tile symbolizes a microcosmos. The concept of that graveyard was based upon the teachings of the religious man and each detail has a meaning and symbolic representation. Since then the concept to break light has been the motive of my works, including the Urasoe City Museum, the Mabuchi residence, the Morimoto residence, the International Japanese Cultural Research Center, the Takaoka Technodome, and my office. I pursued the technology necessary to realize depth and the significance of existence in this architecture.

Future theme

I have researched and have practiced with many kinds of tiles. My future theme is to find a method to reconnect architecture with art. I believe that ceramic tiles will play a major role in this. To recover the glory of tiles that enjoyed their best days in Europe and in the Islamic world, it is necessary to revive the decorativeness of tiles in architecture. Tile is excellent in artistic efficiency, functionality, durability, and economic efficiency. It is, furthermore, an important material scientifically and technically. Tiles have a vast potential. They are gentle to the earth's environment, resource-saving, and a recyclable material. I believe that ceramic tile will become an increasingly important material for future cities and architecture.

El papel del azulejo y del
pavimento cerámico en la
arquitectura contemporánea.

Nuevas expresiones en
el diseño.

*The role of ceramic
tile in contemporary
architecture.*

*New expressions
in design.*

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Museo Setagaya
The Setagaya Museum



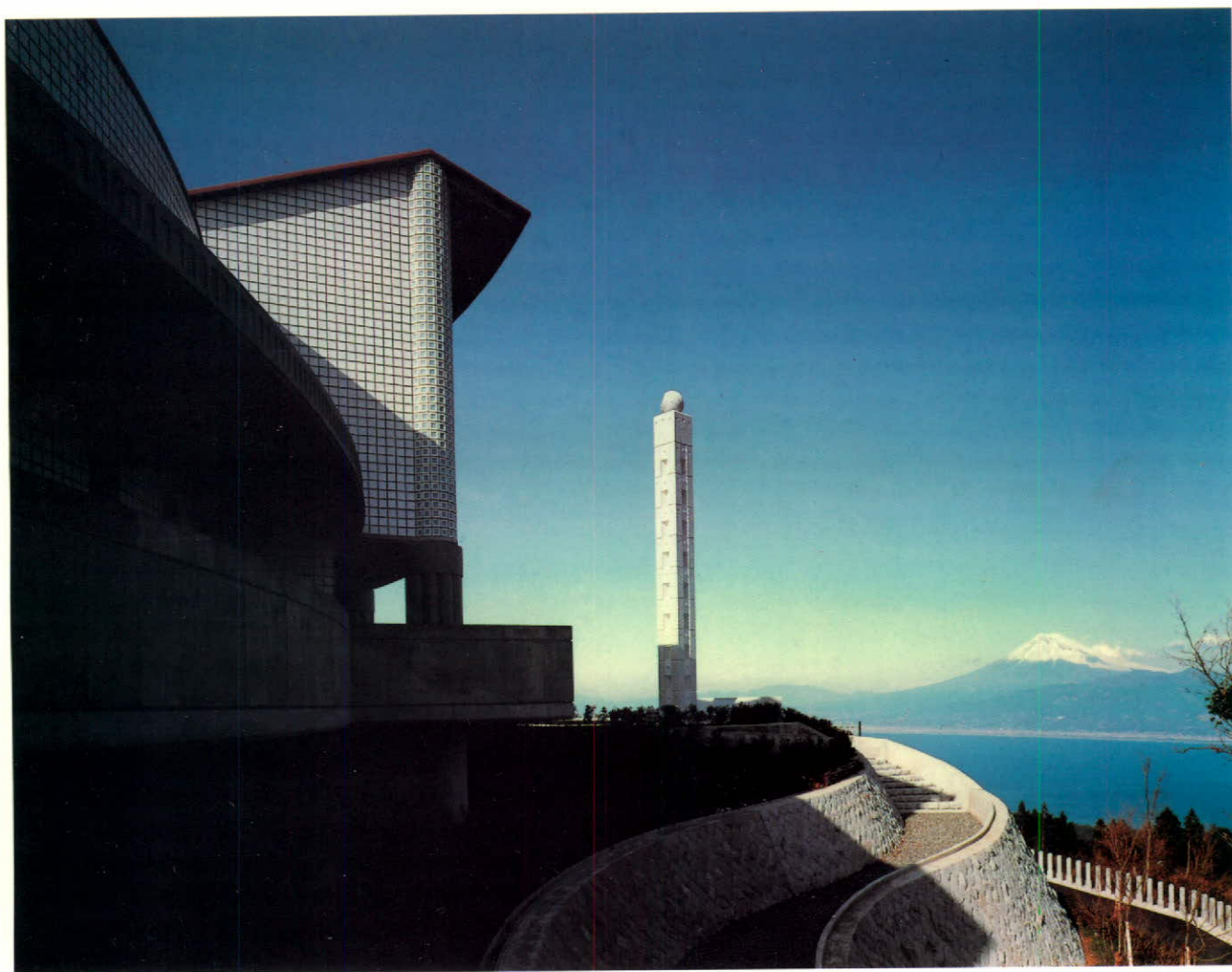


Museo de la ciudad de Ichinomiya
The Ichinomiya City Museum









Cámara mortuoria y santuario para el fundador
de Houseikai
*Burial chamber and sanctuary for the founder
of Houseikai*

