Always New Performance Based Design

Ise Shrines as a Model for Future Architecture

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Abstract: In Japan, a radical experiment has been going on for more than one thousand years: wooden structures are built and dismantled every twenty years in an ongoing renewal process without a known beginning or end. We will look into the Ise shrines not as buildings but as genetic sequences or generative lines of code. As living organisms that change through time, that... emerge, age, decay, emerge... living organisms that have an exact understanding of their importance and impact in a much wider system. A renewable system carefully planned for long term resilience. A large widespread system that expands through all Japan. A system that has a long term strategy that resists becoming part of other global systems. A system that trades short term benefits for long term security. A system that changes and adapts through the years sometimes trying to be forgotten, sometimes trying to be embraced by the population. Ise in its humble scale and lack of ornamentation is as relevant for our future as it was thirteen hundred years ago.

Keywords: Ephemeral architecture; system; generative architecture; permanence.

1. Introduction

I know not what is within. But I am in tears of gratitude. Sigyo XII Century

The Shinto Priests were told to build shrines that would last forever. They relied on wood based construction techniques and the available material was the Japanese cypress Hinoki. How can permanence be designed with such an ephemeral material? It is easy to understand processes from nature such as growth, de-growth, decay, renewal, generation, symbiosis, and so on. It is far more difficult to implement them as architecture. In the West, architecture is understood as permanent. Structures are built as solidly as possible. It is considered that the greater the mass of a building, the longer it will last. Today we can see the ruins of the Parthenon made of its original stones - even though it was rebuilt multiple times (Ford, 1997). In Ise, the wood’s natural lifespan and processes of growth and decay are not only accepted but are embraced as part of the design. A design that looks into processes from nature and integrates them into a renewable system.
A system that becomes a performance stage for characters, visitors, nature, architecture and absent entities to perform seamlessly together. A system designed as a veiling mechanism. A mechanism that enables us to see just enough, that lets us project our own expectations about what we cannot see. A system where the physically built presence is not the most important. A system designed above all to contain charged voids and important absences.

We live in a finite world with an overgrowing population. Architecture has a high influence on our quality of living. It consumes vast amounts of the earth’s limited resources. It is expensive, of slow execution and its execution requires a large number of people. Architecture has to be thought as something that lasts a long time. That ages, that has a surrounding that also ages and changes. Architecture is always part of a wider interconnected system. One should not produce a building without thinking about the wider consequences of the systems that all the parts of the building belong to. Systems that together allow for the existence of human beings in a delicate balance. Climate related long term catastrophes, over population, uncontrolled consumption, disregard for humans and non-human’s environments, food and water supply constraints, artificial intelligence, massive migrations, cultural tensions, raising inequalities, extremist groups and unannounced acts of random violence are unprecedented challenges that are all connected. Looking at Ise as an example, we can find lessons in careful design, extreme long term planning, management of a complex systems, and user centric strategies.
2. Architecture as a genetic sequence/generative line of code

There are two main shrines in Ise: Gekū and Naikū. Every twenty years new shrines are built next to them. For a brief moment in time the old and new shrines coexist. A ritual of passage where the resident gods together with sacred objects are moved from the old shrines to the new ones. After this ritual, the old shrines are dismantled leaving empty plots (Tange, 1965). The shrines have already been rebuilt 62 times and the next rebuilding will be completed in 2033. They cannot be compared to traditional western buildings. They are sets of instructions designed to achieve permanence through ephemerality. The shrines might look like exact copies of the old ones, but they are not (Isozaki, 2011). Minor changes are made, as in a family tree, a genetic code or a generative software that allows only minor variations. For instance, it is believed that there used to be only two fences around the shrines instead of four (Horiguchi, 1973). The new shrines are not exact copies of the original, they are also not replicas - understood as inferior copies. This process supposedly started around 4 BCE, but the first documented version of the shrines is from the late 7th century. Documentation of the origin cannot be found. This erasure of the origin is another reason to consider the last built as the only possible original. By not knowing exactly when the process has started we have to accept it as a continuum. A shrine that was new before our existence and will be new after our existence. The most recent built is simultaneously the original and new. The repetition of relocation and rebuilding preserves identity over time (Inagaki, 1976).
3. Embracing Ephemerality

The Shrines are based on the design of ancient rice granaries - Elevated platforms with thatched roofs that guarantee that the rice is kept dry. The wooden posts made of Hinoki are sunk directly into the ground. The construction is made without nails or glue. Only minimal waterproofing is applied to some exposed log ends but overall the wood is left untreated. It is known that already in the 7th century, this construction method was anachronic (Isozaki, 2011). In Japan, there were already palaces and Buddhist temples with stone foundations and ornamental brackets supporting heavy tiled roofs. By not having thatched roofs and avoiding contact between wood and the ground’s natural humidity, this building technique allowed more permanent structures. We can only assume that using this less permanent methods was a decision. Not only for a more archaic ethos but also an acceptance of the Hinoki’s limited lifespan, growth and decay. An embrace of impermanence.

4. Buildings as Living Structures

As in traditional rice granaries the shrines roofs are thatched. The shrines walls are made of piled logs that naturally have small gaps between them. In autumn when it starts raining the roofs become soaked and heavy. This weight forces the gaps in the walls to close leaving the interior sealed and dry. When spring arrives the roof becomes dry and light again. The heat reduces the humidity on the walls making wood contract and gaps appear again, allowing ventilation. The shrines not only change every twenty years, they also change every season.

On the way to the shrines, we can see Tamagushi - small branches from sakaki trees decorated with shide possibly made of white silk. These branches - still with green leaves - are hanging, sometimes from the living Hinoki - trees, sometimes in the new activated life of the Hinoki - fences. One cannot but associate the juvenile branch next to the full grown tree with the new and old shrines that will for a brief period in time be present next to each other. The shrines are not only wooden structures with no monumental scale or elaborate ornamentation. They are designed as living structures with a deep understanding of the seasonal changes of the Hinoki. The material’s limited lifespan is not only accepted; it is part of the design process that includes rituals to exaggerate its ephemerality.

5. A Renewable System

The shrines are not only designed as living organisms, they are part of a wider interconnected system. In Ise there are 125 Shinto shrines built around the two main shrines. Every twenty years Naikū and Gekū are dismantled and their parts distributed to a network of shrines all over Japan. 18000 shrines belong to this network (Motegi, 2006). From the 125 shrines in Ise, around 16 are rebuilt every twenty years together with the wooden bridge on the Isuzu river and Torii gates. Another 46 shrines are rebuilt every forty years. The Hinoki is present not only as building material for shrines, bridges and gates but also in the trees around shrines - sometimes supporting shrine fences - and other elements such as spoons for washing, food storage boxes, and so on. This process requires twelve thousand Hinoki logs, most of them cut from 200-year-old trees (Hvass, 1998). The shrine secretariat Jingu Shicho manages the 200-year time scales of the forest to guarantee enough available wood for future reconstructions. Hinoki logs are transported by floating them down adjacent rivers. Each main shrine has two main pillars - eleven meters tall from 400-year-old trees. After twenty years these pillars are relocated and reconstructed as the two
Torii gates on Uji bridge. After another twenty years, they are again reconstructed as Torii gates at Shichirino-Watashi and Seki-no-Oiwake. The population of the entire region participates in the reconstruction through rituals and ceremonies as for instance the Oshiraishi-mochi where people pick up, wash and pile up white pebbles to be put on the shrine’s ground. The carts that transport the pebbles and logs from the river to the shrines are pulled by the local population in lively festivities.

In the reconstruction of the shrines, only traditional tools are used. This way the technology for the reconstruction is already guaranteed - there is no need for experimenting new assembling tools, new materials or techniques. By avoiding experimentation, the risks normally associated with building construction or maintenance are reduced. The Ise shrines were used multiple times as an example to change the procedures for acceptance as UNESCO patrimony (Sand, 2015). Interestingly they were never proposed to be accepted as such. For survival, they strongly rely on their own network. If they were proposed as UNESCO patrimony, they would become “patrimony of all world citizens”. This would be a shift, a change. It is exactly by resisting change that Ise anchors its resilience. Ise changes but it only allows its own internally defined changes. By allowing dismantlement and reconstruction, small changes in design, small changes in rituals, by avoiding dependency on external networks of support, Ise remains alive and relevant. Let’s for a moment try to imagine that today the Parthenon’s appearance was as new, and lively festivals and rituals would happen around it as they happened when it was first built. To imagine this is an almost impossible exercise. But it is exactly what happens every day at Ise. Ise shrines, priests, rituals calendar, local population, forest, rivers, network of shrines throughout Japan, traditional tools, proven building technologies and sacred objects become one single renewable system that is managed as a whole. Without one item, the whole system would collapse and not be able to be replicated every twenty years.

6. Important Absences

At Ise absences are designed. The Torii gates that define the limits of the sacred territory are no more than a sign - no walls, no fences. The Tamagushi (fig.2) are not on display for us. They are offers for an unseen deity. It is in the physical presence of the Tamagushi that we think about the unseen, non-physical entities. During pilgrimage, people leave the middle of the paths empty for the deity to move through freely. There is no “main space” for visitors as in the navel of a gothic church. We stay between nature and fences. (fig.3). The main spaces inside the shrines are designed at the human scale but not visible - they are voids for absences (Koolhaas and Obrist, 2009). For the gods that reside on them, without windows or natural light. The relocation ritual from the old shrine to the new one is not announced. It is performed in secrecy and in darkness. This ritual Shikinen Sengu, (fig.4) most probably a real and tangible experience cannot be visually confirmed. This way, it is elevated to a non-confirmed existence - the same status that is attributed to the Shinto gods that reside in the shrines. By doing so they are not only elevating a physical experience to a spiritual one, they are also making the spiritual experiences more credible.
7. Charged Voids

When arriving closer to Gekū, first we see Kodenchi the adjacent site (fig.1). It is a vast void, a rectangle perfectly defined by its emptiness, the different material of its ground and the two lanterns that mark a possible future entrance. There is only a very small structure in the middle. This vast empty plot has a powerful effect on the viewer. Not only for its spatial qualities - the only opening among the dense forest - but also for its past - the shrine and sacred treasures used to be here - and its potential future - the shrine and its sacred treasures will be here again. Looking at the void, we are looking at an absence - nothing is there. We stare where we weren’t allowed to look when the old shrine was present and where we will not be allowed to look when the new shrine is built. A charged void of the utmost importance, an emptiness that carries the past and the future while sitting next to the present - the tangible built current shrine next to it.

Looking at the fence right next to the empty site, we can see part of the shrine roof where the sacred treasures are today. We can only suppose as we cannot see the sacred treasures or even the shrine in its whole. When we go through the fourth fence we cannot see anything again. We know that the shrine is behind it. We can almost sense its mass through the delicate white silk screen, but here we cannot see it. We stay in absolute silence waiting to see the contours of the shrine through the screen.
Nonetheless, it doesn’t happen. We can only sense its presence. By walking away from the screen, we can see again parts of the shrine roof over the third fence. Through nonlinear openings on the second and first fence it might - or it might not - be possible to see parts of the shrine walls - it is not clear what exactly we are seeing. It is precisely in these designed indefinities that the strength of the experience lies.

8. Performance Architecture

By looking to our left, we understand that the whole time we were in front of the white silk screen trying to glimpse the shrine, we were being observed by a priest that sits in the silent semi-obscurity of a small pavilion. The sound of our steps on the small loose stones announces all our movements. We are now behind the third fence. Here we are as close to the shrine as we will ever be. A woman dressed in black arrives. The priest has already changed position and is now waiting for her. She signs a book and a ritual starts. The priest closes the book and goes to the back side of the pavilion. Here he opens a fence door for the woman and lets her into an intermediate space between fences - not through the white silk screen. After a ritual where the priest lays white rice on the path, he lets the woman walk all the way between two fences until she arrives on the middle side of the plot. Here he opens another fence door and they walk, struggling to stand still, as the stones here are larger and loose. The priest leaves the woman in the void between the second and third fences. She is standing behind the second fence - seeing almost the same as us standing behind the third fence. But she is closer. She is closer and for her, that is enough.
Everything is designed to allow these performances to happen. There is no separation between stage and audience. Priests, visitors, nature, architecture are all integral parts of the performance.

9. Conclusion

Some architects say that they find inspiration in Nature for their designs. Some create nature inspired forms that are no more than a skin over traditional orthogonal structures. This designs create increasingly complex forms that are extremely difficult to build. Nature is understood as a fixed image, there is no understanding of any type of nature’s processes.

Another category of projects inspired by nature are the ones where ordinary buildings have a prominent green element, such as green facades, trees on balconies, green rooftops, and so on. This eventually can be an advantage for the project: living elements might relate to interior spaces and make them better, performance gains might be achieved by reducing thermal exchanges with more insulation - as in green rooftops - or solar exposure might be reduced in summer and increased in winter by the placement of trees that lose their leaves over the seasons. However, most of the time the green element is again no more than an image. For instance, there are multiple examples of green elevations made of living organisms where the environmental costs of watering make it less sustainable than if it was simply made of an inert material such as cork.

What can we learn with the Ise shrines and how can they be used as a model for future architecture?

- Vernacular architecture has provided solutions that have been tested and proved correct over long periods of time. It should be studied, embraced and adapted into contemporary solutions.
- Buildings should change and adapt, reacting to each season’s climatic conditions.
- Careful long term planning: Buildings, cities and landscapes should be designed considering timelines that span thousands of years - not decades.
- A decreased selection of building materials can lead to more knowledge about the building material sources. In today’s worldwide interconnected construction industry, materials come from an increasing variety of sources in different countries. By having a large quantity of different building materials, it is impossible to control or to be knowledgeable about the sources. Sometimes material sources can work in less ideal situations where workers are exploited, environmental impacts are ignored, and materials are contaminated with toxic or lower quality elements and so on. By reducing the variety of materials used, we are further reducing the number of material sources. If there is interest, this can make the process of obtaining information on the sources simpler.
- A reduced selection of building materials allows a more focused research and development strategy. This can potentially lead to advances in construction techniques, fabrication processes and materials performance.
- It is important to include people when planning for important buildings. By considering how people can be part of the building’s future life - through festivities, rituals, celebrations or other uses - the building has a higher chance of permanence through time. Multiple recent failed examples such as the Expo’ 92 Seville buildings, the Euro 2004 stadiums in Portugal or the Expo 98 Portuguese Pavilion have not been planned with a consideration of how the population would participate in the long term.
- The consideration of user-interaction within buildings can be more important than the design of form and materials.
• When designing a proposal, it is important to remember that the non-tangible can have the same importance as the tangible. Voids, absences and memory can play a significant role in a building design. Examples are the Ise shrines and also Wang Shu’s Ningbo Museum with its walls made of recovered tiles and bricks from the village that was destroyed for the museum to be built.

• Nature can be considered to be an integral part of the design. Defining spatial qualities of enclosure and openness, static and dynamic, voids and mass, veil and screen. Nature can be real, alive and healthy and still perform in designed architectural qualities. Not as mere decoration but performing as any other architectural material.

In Ise we have a radical experiment where a human creation is copying nature’s processes. Where a wider system needs to be carefully managed to guarantee Ise’s resilience through constant regeneration. Where one cannot define where nature ends and architecture starts. Ise in its humble scale gives us a lesson in long term planning. In a world with limited resources and an overgrowing population, Ise’s example is as relevant today as it was thirteen hundred years ago.

References


