On JAPANESE SENSIBILITY
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Late September in the year 2014 I moved to Japan. Unimaginable at this time, it happened to be a journey with great effect and inspiration for my graduation research and perhaps further career. The reason for my travels was to start an internship at a Japanese architecture and furniture design firm in Tokyo named Schemata Architects. The office specializes in renovation design and reinventing traditional Japanese or unconventional techniques with a modern approach. Working here was very learnful and inspiring, as their modern way of designing with innovative and contemporary materials often finds its origin in traditional Japanese techniques. I learned to see the beauty of these techniques and the beautiful potential for a contemporary design.

Not only my working experience grew my fascination for Japanese architecture and design, also my travels through the various parts of the country were of great contribution. I took many pictures of Japanese architecture, in which I began to collect different textures of the façades due to weathering and aging. I felt that the Japanese architecture breathes a great sensibility, which I had not yet experienced before. It occurred to me that it could enrich the Dutch building context by topics concerning the way we build our buildings, static and permanent while our lives are always in continuous change or emphasizing a sense of craft or natural character in materials and their tectonics. This ultimately led to the start of my research in February 2015, which turned out to be a great and fruitfull journey. I would like to thank my teacher Birgit Jürgenhake for the great guidance during this joyfull process.
INTRODUCTION

PROBLEM STATEMENT

During my travels in Japan in 2014, I photographed textures of the built surroundings. While documenting these detailed pictures I was fascinated by the beauty of the weathered façades that showed their lifetime by the traces of water, sun, or wind. Readings and experiences made me aware of a high degree of Japanese spirituality. My feeling was that the sensibility of Japanese architecture seemed to relate to an ephemeral character, a sense of embracing impermanence. By visiting traditional houses I experienced a flexible use of spaces that is created by different settings, views and spatial relations during the day. These homogeneous spaces show in their layered arrangement and materiality a sensitive approach towards nature with a strong relation between the inside and outside, which seems somehow familiar to the modern Japanese examples that almost appear to dissolve in their surroundings. The notion of time in relation to the building, seems to relate in the Japanese culture to a degree of temporality by the flexible use of spaces and their changing settings, by the acceptance of the weathering of natural materials, or even ultimately to the short lifespan of 26 years of the modern houses.¹

The observations concerning topics as the Japanese approach towards the life of a building, the use of materials that age and weather over time or the open character of spaces towards their surroundings, occurred to me as strongly relating to a more spiritual relation towards nature and its temporality.

German sociologist and philosopher Georg Simmel, writes in his essay 'The Stranger' about the objectivity of the stranger in viewing a foreign culture. He describes the objectivity as a freedom that allows the stranger to view a culture without any preconceptions that might prejudice his perception and understanding of a culture. As the stranger is both close and far at the same time to a culture, there exists a tension in the distance to a culture that results in the understanding of both common and not common features of a culture.² The objectivity resulting from simultaneous nearness and remoteness, means that my personal observations can be regarded as an objective ground that is an important part of the base my research.

In Western literature similar topics are discussed regarding the European architecture, such as David Leatherbarrow in his book on 'On Weathering: The Life of Buildings in Time', that advocates the quality in viewing the weathering materials as part of the aesthetics of a building.³ Also American writer Stewart Brand discusses the lifespan of a building of Western architecture in the book 'How Buildings Learn'. Brand views a building as a scheme of different layers each with their own lifespan.⁴

However, my observations in Japan made me aware of the sensitive and even spiritual approach towards nature stated in the Japanese architecture regarding the temporality in the lifespan of a building and the weathering of materials, the flexible spatial enclosures and their relation to outside. The fascination for the Japanese sensibility towards nature in architecture from my personal experiences created the intention to use this Japanese sensibility for the design of a building in the Dutch context, which in my opinion is mainly based on rational reasoning.

The rational based architectural climate in the Netherlands, can be seen as significant for the Western building climate since the Modern architecture and the technical developments of mass production, as Florentine Sack explains in her book the 'Open house'. Sack ascribes the rational approach to the division of science in the West into esoteric and exoteric. Opposed to the intuitive, esoteric understanding of the cosmos, the rational, esoteric understanding formed the basis of Western science and aesthetics.⁵

During my working- and travel experience in Japan I came across a different approach towards architecture, which in my personal observation appeared to be more poetic, intuitive and sensitive. However, as the Japanese climate and culture are significantly different from the Dutch, there is no reason to exactly copy the Japanese architecture. Therefore, based on my own observations a research into the underlying theory is necessary in order to formulate architectural topics that can be used for my design.

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The research aims to formulate architectural tools for a design in the Dutch context based on the Japanese connection between nature and architecture. The research does not aim on redefining the relation of nature and architecture in general. To me, this relation is about specific topics that I viewed in Japan and which I judged to be relevant for the Dutch context regarding materiality, construction and sense of space. More specifically, this means the close relation towards the natural aspects of materials, the permanence or life of a building and the poetic quality of the building towards the ephemerality of nature.

In other words, these topics can be respectively summarized by the definitions of temporality, flexibility and relation. Together these topics formulate an argument for improving or enriching the Dutch architectural context. The specific definition of these topics will be explained later, as first I will discuss the relevance of these topics for the Dutch context.

1. Temporality

People nowadays become more connected to the materiality of a building. Due to ongoing industrialisation in the building industry based on efficiency and cost-consciousness, the aspect of time in relation to the material is not sufficiently incorporated in the present building process. These mass-produced materials lack in showing a degree of tectonics and details of how they are made. They reveal traces of weathering as unexpected stains on the facade that need to be cleaned, visible in the example shown in figure 0.1. The result of not incorporating the effects of the process of making and use or weathering in materials, is a disconnection from the materiality of the building both to its surroundings and its users and ultimately results in a short lifespan of the building. In the words of Paul Ricoeur: "...it must be said that we understand ourselves only by the long detour of the signs of humanity deposited in cultural works." 6

2. Flexibility

People are able to appropriate the building in the future. Already in 1954 Walter Gropius said "that the architect should conceive buildings not as monuments but as receptacles for the flow of life which they have to serve". 7

Still today flexibility by the incorporation of the time factor in the built environment is believed by young architect Hedwig Heinsman "the key to the future" 8, as we see that buildings continuously are being re-used differently over time. Allowing adaptation by use of the building provides a longer life and functionality, prohibiting demolishing and enabling re-use and appropriation over time.

Also flexibility in terms of climatic adaptation can offer benefits due to decrease in the use of energy and the way nature, its daylight and seasonal changes become part of the building.

3. Relation

People experience nature more from the inside of the building. Interior walls and a uniform facade with limited openings, often cause a disconnection from the interior spaces to the exterior. However, instead forming a clear boundary between the indoor and outdoor space, the facade can play a potential role in forming a transition in a spatial sequence between the interior and exterior. The relationship between the person and the natural and built environment is intensively described by Machiel van Dorst. He describes that people appreciate a connection with nature and it is one of the basic needs for people. 9

Florentine Sack also advocates the importance of creating a relationship between the exterior and interior to represent the unity of man and nature in architecture. Among multiple reasons, she refers to American architect Frank Lloyd Wright, who "was deeply convinced by the fact that an individual's personal, spiritual and physical well-being increases in proportion to his association with nature." 10
Regarding this significance for the Dutch context, the research is focused on discovering the architectural tools relating to the topics temporality, flexibility and relations regarding Japanese architecture. In figure 0.2 the full overview is provided of the research. 

The research exists of three parts, in which the first part exists of the documentation. The second part focuses on the analysis of the background information of the topics together with a in-dept analysis by case studies, revealing Japanese architectural features. In the third part these findings are evaluated and formulated as architectural tools according to the specific themes. This is followed by a critical reflection.

Chapter 1 describes the first subquestion: What was my observation? This chapter shows the documentation that was the base for my observation of Japanese architecture. The documentation consists of a selection of my own photography of the materials, textures and façades, woodblocks and poetry. The documentation is a visual explanation of the research topics, as it organized information of the topics together with an in-depth analysis by case studies, revealing Japanese architectural features. In the third part these findings are evaluated and formulated as architectural tools according to the specific themes.

Chapter 2 describes the second subquestion: What is the background theory behind traditional Japanese architecture and can I use certain aspects for the Dutch context? This chapter relates the observations to a theoretical frame. The Japanese sensibility will be explained in relation to the climate in Japan, the religion and philosophy, and architectural principles by addressing specific terminology. This chapter results in formulating the theoretical frame, which determines the way the case studies are addressed in the following chapter.

Chapter 3, 4 and 5 describe the third subquestion: How is temporality, flexibility and relation to inside and outside translated into specific aspects of traditional Japanese architecture? In chapter 3 the method of case studies will be described, which I will use to research the relations between my observations of the Japanese sensibility to the Japanese architecture. The case studies are researched regarding specific aspects of spatial characteristics, construction and materials. In chapter 4 the criteria for the selection of the case studies will be explained, describing the three selected traditional houses in different contexts.

In chapter 5 the Japanese architectural features will be presented of the case studies.

Chapter 6 described the fourth and final question: How do the topics concerning temporality, flexibility and relation to inside and outside relate to architectural tools that I can use for my design? The results of the analysis are evaluated according to the topics and defined as architectural tools. Concluding, the three topics these tools are redefined and illustrated with Japanese architectural tools in chapter 7.

The research ends with the epilogue in chapter 8, in which the added value of the research for my design assignment is described.
INTRODUCTION
DEFINITIONS

The research is focused on several topics which are defined by my observations. However, these topics are subject to multiple interpretations and definitions. In order to specify the meaning of these topics, several definitions are discussed. In the next chapter, the documentation is depicted which explains my observations according to the specific topics.

Temporality
The state of existing within or having some relationship with time. 11

Temporality in relation to architecture can be viewed in many ways. Time in architecture can mean a building structure that is temporary and ceases to exist in a certain time-frame as described by Matthias Schwartz-Clauss in “Living in motion” by describing temporary structures.12

Time can also be viewed in relation to space, which is described as “experiential space” by Yi-Fu Tuan in his book “Space and Place”. Here time is viewed in movement and distance through space.13

David Leatherbarrow elaborates on materiality in relation to time: “Weathering marks the passage of time”.14 Thought of it in this way, weathering connects the future of a building with its actual present, creating a dialogue as both are intertwined in its past. This temporal structure of building can be compared to the experience of time of a person. Always earlier stages of one’s life mark the present, such as infancy, childhood, and increase in number by time and remaining familiar, while all stages are subject to redefinition and appropriation.

Jonathan Hale writes about time in relation to materiality regarding the building’s capacity to record and reveal traces, in which he defines by the processes of construction and inhabitation. According to Hale, these traces enable us to read and relate to our environment. In terms of a building this means the tectonic articulation of the materials, the processes of its making and the traces left by its users that accumulated over time.15

Regarding my observations of Japanese architecture in which I focused on documenting the tectonic qualities of materials, together with the relevance for the Dutch context as described earlier, the relation of time and materiality is most significant for my research. Based on my documentation and the different definitions, the following three aspects of time in relation to materiality can be defined for my research:
- Time in weathering of materials
- Time in the process of making the materials
- Time in use

11 www.oxforddictionaries.com, access date: 08-06-2014.
Flexibility
The ability to be easily modified. 11

Flexibility in relation to architecture has different meanings. Flexibility can be interpreted as adaptability according to use as Bernard Leupen writes in his dissertation on flexibility, in which he defines the three following types.

- Alterability: Changing the internal setting of the building by removing or changing walls, doors or other internal elements.
- Extendability: Enlarging the surface area of a building.
- Polyvalence: This means the space can be used in multiple ways without architecturally or structurally modifying the space, by using for example sliding partitions.

In his view flexibility can be created by separating the building into the frame which is permanent and the generic space in which change can occur. The permanent parts of the building are provided with a specific character by architectonic articulation in that contributes to its expression and durability regarding the generic space. 12

Also, flexibility can be viewed as adaptability of the building according to climate.
- Climatic adaptation of the building Change per day: Daylight entry.
- Change per different season.

For my research, the definition most interesting is polyvalence. The reason for this concerns my documentation on Japanese architecture that shows flexibility by a polyvalent space, created by the partitions that are able to move and open towards their surroundings or interior.

Another definition that is interesting for my research is climatic adaptability as the moveable partitions, visible in my documentation, seem to regulate the entry of daylight and create a seasonal adaptation by allowing ventilation in the humid summers.

Relation (of inside to outside)
The way in which two or more people or things are connected; a thing's effect on or relevance to another. 13

The relations or connections within a building are described by Anna C. Schultz as stratification, which involves the relation between individual elements and their plurality.

While for example in geology stratification means the understanding of the arrangement of materials such as rock formations, in architecture Schultz describes the term stratification regarding materials as: "the superposition and apposition of layers of material". 17 In terms of space, stratification is described as: "the succession of planes or spatial sequences". 17 This results in defining material stratification and spatial stratification. While spatial stratification is defined by the space between the layers, material stratification is determined by attaching the materials immediately to each other and form one element.

My research focuses mainly on the spatial stratification, meaning the spatial sequence from outside to the interior spaces of a building. This is based on my photography of the Japanese architecture that shows the relation between the outdoor and interior spaces and emphasizes the connection towards nature.

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TEMPORALITY

PHOTOGRAPHY

Weathering of wood

TEMPORALITY

PHOTOGRAPHY

Weathering of wood
Weathering of wood
TEMPORALITY

Weathering of wood

PHOTOGRAPHY

TEMPORALITY

Weathering of wood

PHOTOGRAPHY
Weathering of wood and stone

Weathering of wood and stone
Weathering of wood and traces of use in stone

Weathering of wood and stone
TEMPORALITY

Weathering of various materials

PHOTOGRAPHY

PHOTOGRAPHY

Weathering of stone
Weathering of stone

Weathering of stone
TEMPORALITY

Weathering of stone

PHOTOGRAPHY

TEMPORALITY

Weathering of copper

PHOTOGRAPHY
TEMPORALITY

Weathering of steel

PHOTOGRAPHY

Weathering of steel

PHOTOGRAPHY

TEMPORALITY

Weathering of steel

PHOTOGRAPHY

Weathering of steel

PHOTOGRAPHY

TEMPORALITY
Weathering of steel

Weathering of steel
TEMPORALITY

PHOTOGRAPHY

Use over time of wood

PHOTOGRAPHY

Use over time of stone
TEMPORALITY

Process of growing wood

TEMPORALITY

Process of making concrete
Layered arrangement from inside to outside

Layered arrangement from inside to outside
Layered arrangement from inside to outside
Framing the outside view

Framing the outside view as part of the interior
Open space enabling different use

FLEXIBILITY

PHOTOGRAPHY

Open space enabling different use

FLEXIBILITY

PHOTOGRAPHY
The woodblocks chosen are landscape prints that developed as an important genre from around 1830, with as most important the works of Utagawa Hiroshige (1797-1858) and Katsushika Hokusai (1760-1849). The prints mainly depict frequently visited places and mementos of famous locations. Later, artists of the shin-hanga, mainly by Kawase Hasui (1882-1957) started to focus instead of only depicted famous places also places that were less known and reproduced the Japanese landscape with a strong emphasis on the power of nature.  

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Tohoku Hokusai, Eaten hill at Shinagawa 1830

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Utagawa Hiroshige, Cherry blossoms in full bloom at Arashiyama 1834

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Time showing in the falling leaves of the cherry blossom

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Time showing in the short blooming of the cherry blossom

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Utagawa Hiroshige, Bridge at Awate 1856

Kawase Hasui, Rainy night at Maekawa 1932

Temporality

Time showing in the falling rain
Kawase Hasui, Snow at Hinuma swamp, Mito 1947

Time showing in the snowfall and seasonal change
Time showing in the seasonal change of autumn

TEMPORALITY

Utagawa Hiroshige, Inside Akiba Shrine Ukeji 1857

Time showing in the seasonal change of autumn

TEMPORALITY

Utagawa Hiroshige, View of the sunset at Meguro 1858

Time showing in the seasonal change of autumn
Figure 1.2

17th Century Calligraphy:
‘Old pond / Frog jump-in / Water’s sound.’

by Matsuo Basho

Time as connected to nature and the poetics in its ephemeral and spiritual character.
TEMPORALITY, FLEXIBILITY and RELATION

I have to come to think that my desire is to free the space of architecture from several frames. It is also that I have come to seek a space of freedom that has not yet been seen. This type of space will release our bodies and spirits from various binds and make possible its own communication in the world. This space, however, is not within a special place or special time. I have come to believe it is a place within the absolute commonness of the everyday within the continuation of ordinary time.

I feel that there is an as yet unseen, renewed world of freedom within a new everyday that develops within the normal, matter-of-fact everyday. Within an arrangement/composition of something that is ordinary, without being special or extreme, or within the relationship of the compositional elements, or within the modification of their assemblage, there is a poetry that is rhetoric connected to another everyday. Within this poetry, cannot a method be found to relate the space of the everyday to the world? Would not a new world appear that breaks apart, that relativizes the framework of the everyday within a new form of space?

In this sense of expectation, I have come to look for an architecture as a free space through the achieving of another everyday within the composition of the residence - which is the most everyday form of space.

CHAPTER TWO
JAPANESE SENSIBILITY:
NATURE, SPIRITUALITY, ARCHITECTURE

This chapter forms the background for my observations in which the theory is described that relates to the three topics of temporality, flexibility and relation. Starting with the theory behind the Japanese spirit concerning nature, religion and aesthetics, the chapter moves on to architectural theory that forms an explanation of the three topics.

The Japanese spirit

Climate

Indigenous architecture as related to culture can be seen as a response to climatic circumstances. Viewing Japanese architecture in relation to the natural phenomena, which it encountered through time, seeks for a greater understanding of the Japanese climate. Japan is a land with a variety of different regional climates. Not only the climate, also Japan’s topography and seismography, which are strictly speaking part the geography, are taken in this chapter into account as factors playing part in coping with the environment.

The country is an archipelago with over 3000 islands, consisting of a main island, Honshu, a northern island, Hokkaido, two smaller islands, Shikoku and the southern island Kyushu, followed by Okinawa and an in-numerous wide spread amount of small islands.

The west coast of the country faces the Sea of Japan, while the south east coast is oriented towards the Pacific ocean. The Sea of Japan brings in the winter the cold monsoons coming from North China and east Siberia that mainly determines the weather in wintertime, reaching the main land from the Northwest. After forming clouds over the mountains it creates a heavy snowfall that due to the great difference in latitude affects the country differently. In contrast to the North-western part, the south-eastern and middle part of Japan facing the Pacific ocean has very mild winters with sunshine.

Despite the difference in latitude the summer temperatures of the different islands are comparable, being around 23 to 32 degrees except for the slightly colder northern islands. The summer brings besides high temperatures also a great amount of humidity. During the period from late August to the middle of October the country is threatened by typhoons coming from the Southeast and raging each year, with the result of causing a great destruction. Another distinctive feature for the Japanese climate is the rainfall, which is two or three times as high of Northern Europe. Besides these meteorological features the geological thread caused by earthquakes haunts Japan. The country is covered with a large amount of hills and mountainous landscape, in which a large amount of partly active volcanoes and hot springs show the underground powers.

Spirituality

In the spiritual believes of Japanese there is a great importance of nature to be found. Dating from as far as the myths of the ancestors of the Amazon tribes and the Yamamoto times, there is a Japanese belief in tree spirits continuing in the believes in various gods at the shrines of Ise, Kumano and Atago. The importance of the forests also is found in spiritual believes, as the forests and mountains are regarded as the “dwelling of gods”. Thousands of years ago gods descended in the forests and mountains and there are many folk songs about the worship of “god-trees” and wood spirits (fig.2.5).

The respect and spirituality towards Japanese nature signifies in art and poetry, such as Japan’s highest mountain, Mount Fuji; Fuji-san. Natural forces, such as earthquakes, tsunami, typhoons and active volcanoes created this culture of respect for nature and an appreciation for its ephemeral quality, demonstrated by daily rituals and seasonal festivals based on the Japanese religion Shinto (“the way of gods”).

Shinto is the indigenous religion of Japan and coexists next to Buddhism, and other religions such as Confucianism. Mainly Shinto and Buddhism are religions that were not only of influence on spiritual believes, but also had great effect on daily life of the individual and morality of the society as a whole.

In this sense the Japanese religions also circumscribes Japanese philosophy, in regard to moral behaviour and world-view. This is why the focus in this essay relies on these two religions. Shinto, literally meaning ‘Way of gods’ can rather than a religion better be seen as a sense of morals and values found in daily life, which is rooted in the natural conditions of the Japanese climate. Shinto is essentially a nature worship that conceives all natural things as divine. The godly spirits are called kami, which means the divinity, or sacred essence, and is manifested in various forms such as rocks, trees, rivers, animals, places, and even people can be said to possess the nature of kami. The relation towards nature is also the most distinguishing element of the shrine, as the shrine symbolizes the believer in a divine answer to prayer of a community that holds the respect for nature and natural forces as two ideals. The shrine consists of buildings that emphasize the scenery and invites the visitor to its grounds that show a sequence of changes in the landscape. The changes of the season shown in the many woodblocks (fig. 2.1-2.4) are part of the nature worship. They beauty of the change of the seasons and other natural phenomena such as the blooming cherry blossom is a significant element that is recurrent in both poetry in the form of haiku’s and the natural scene’s depicted of the woodblocks shown in figure 2.3. In architecture this reflects in the acceptance of weathering of the facade material and use of wood in the Japanese architecture, in which the wooden pillar can have even a spiritual meaning.

A great influence on many aspects of Japanese life ranging from architecture, fine arts to social institutions is Buddhism, the third great religion. A multitude of Buddhist sects developed that each have a different method to reach Buddhist salvation, of which the Zen sect from the Middle Ages on has had profound influence in Japan on not only the arts, government and society but also in particular architecture and landscaping. As a full description of Buddhism is too extensive and too distinct, only a short introduction into this world of thought will be given.

The Buddhist view sees life as one, in which life and death are part of one universe that is free from time and space. This universe is has evolved by itself, it is an ultimate reality that is not created by a supreme being. Enlightenment is conceived as becoming one with the universe, transcending the limited individual feeling and thinking. The universe cannot be explained by verbal interpretations or concepts, considering their limitations. Also the human intellect based on reasoning is limited in expressing man’s full knowledge, meaning a state of mind of gaining knowledge by direct experiences is pursued. The here and now as part of something much greater, must be experienced without the boundaries of our reasoning thoughts that limit our intuition. Subject and object should become one, that results in a pure and transparent state of mind. The Buddhist view deeply touched the minds of the Japanese and therefore is closely associated with the creative expression in different forms of art. A characteristic feature is the simplicity of form, as form should not be much emphasized, in order to becoming one with the object and reaching for the spirit behind all form. In architecture this refers to the connection to nature and the moveable partitions that enable open interior and exterior connections or the use of the modular size system in which the module can be seen as part of a greater whole.

The Buddhist ecclesiastic architecture, i.e. the houses of the priests, the temples and monasteries was adopted by the Japanese and also had influence on residential architecture after ingenious reforming, such as the modular size system that reached Japan by scripts for temples and attached buildings. Also the picture recess in the house, tokonoma finds it origin in the Zen Buddhist Hall as a place of meditation and art. Concluding this chapter the following quote of Heinrich Engel, states the relation to the spiritual believes to architecture.

“In the midst of a succession of individually defined spaces from room to garden universe, house becomes but a transient station for life, a material form that temporarily shelters human life. Therefore, there is no reason to build a house for eternity, stable to withstand the violent forces of nature, resistant to bear the war of weather. The unpainted wood exposed to rain and decay demonstrates the imperishableness of all material form more convincingly than could any verbal instruction.” 27

Tea ritual
Another great influence on the sensibility of Japanese architecture that relates to my observations was the philosophy of tea. The spirituality behind the tea ritual sprouted mainly from Zen Buddhism and is not only manifested in architecture, but also in art and objects as ceramics. The various aspects that were already present in the Japanese architecture were the base for the tea cult, such as simplicity of function and form with the use of restraint motives and a preference for the natural and inconspicuous as the result from coping with environmental factors. The tea cult interprets these values in the principles for aesthetics and a way of life.

The essence of the tearoom and way of life are expressed by the term wabi-sabi, which finds its origin in Zen Buddhism. The term wabi-sabi was coined by the Tea master Sen-no Rikyu in the 16th century. The meaning of the word wabi is poverty, referring to being independent from material matters and seeing the beauty in the imperfection of life. Also it describes a ‘transcendent detachment’ in which the mind is pushed to see things what the eye cannot see. The word sabi is related to the Sanskrit term santi, meaning tranquillity or peace and is used in the Buddhist scripts to denote nirvana; being free from the worldly discrepancies. It refers to a state of solitude and tranquillity, in a place that shows age.

The tea ritual aims to link the natural and the spiritual. The room for the tea ritual is designed in the way that when sitting, the windows are at eye level so you can see outside and be connected to the garden.

The spirit for aesthetics
In the Japanese society there exists historical time, seen as progressive and irreversible and the natural time that has an eternal cyclic rhythm. The historical time is counted by the years from the enthronement of each emperor, implicating a continuous renewal of historical time. Each of these eras have their own name, based on the gengo (‘origin marker’) or nengo (‘year marker’).

The natural time regarding the eternal cyclic rhythm can be related to the Shinto rituals based on renewal, stating a sense of appreciation for perishability. This is what Donald Keene in his book Japanese Aesthetics describes as the most distinctive Japanese aesthetic ideal. In Japanese poems often the underlying grief of the fragility of beauty and love, shows an appreciation for mortality almost as a necessity for beauty (fig. 1.6). Although the fragility of human existence is a common theme in literature throughout the world, it is in Japan in particular where it is considered as beauty. The cherry blossom, so often depicted and described in art forms shows only its flowers in a brief period of blossoming in the spring.

The sense of uncertainty can be for example be viewed in the changing colours of materials over time or flaws and mistakes in the natural character of material. The pottery shown in figure 2.7 are examples of Japanese pottery that show certain flaws and irregularities in its shape and glaze. As Keene describes, rather than imperfections those characteristics are in the Japanese culture appreciated as an expression of the character of the material or its maker.

“If you are a guest at a tea ceremony and are offered your choice of bowl—a lovely celadon piece, or a fine porcelain with delicate pat-terns, or a bumpy, misshapen pot rather suggesting an old shoe—it is easy to prove your appreciation of Japanese aesthetics by unhesitatingly selecting the old shoe. A perfectly formed round bowl is boring to the Japanese, for it lacks any trace of the individuality of the potter.”
The appreciation for aesthetics is rooted in the seeing the harmony of nature and its inconspicuous qualities. Also the Buddhist view had influence on architecture, regarding the view on the inseparable connection between the subject and object that creates transparency and a pure state for intuitive experience, “realm of Emptiness or Void”. The boundaries between man and his environment should be soft, as everything is connected in the same time and space.

Florentine Sack describes that Japanese appreciation for asymmetry as opposed to the Western strive for symmetry, relates to the openness of nature and its incomplete character refers to the human and natural aim to grow. All natural connections can be seen as temporarily linked. Thus the imperfections of an object relate to a greater whole, as they connect and enhance each other.

The beauty of the impermanence, the process of change also refers to the term wabi-sabi, originating from the tea ritual. Together the terms wabi and sabi form the appreciation for simplicity and the beauty of the imperfections. American writer Leonard Koren considers as wabi-sabi in his book on the matter as the beauty of imperfection, impermanence and incompleteness, of modesty and humbleness.

The famous Japanese novelist Tanizaki, Jun'ichirō writes about the beauty of the shadows in his book 'In praise of shadows'. He compares the western cleanliness and appreciation for light with the Japanese subtleness that is found in the shadows.

"I say that Westerners attempt to expose every speck of grime and eradicate it, while we Orientals carefully preserve and even idealize it. Yet for better or for worse, we do love things that bear the marks of grime, soil, and weather, and we love the colours and the sheen that call to mind the past that made them. Living in these old houses among these old objects is in some mysterious way a source of peace and repose."

He describes the beauty of the shadows and explains the dark lacquer ware that shines elegantly in the candle light. Also in temples, in which in the deepest recess of spaces a distant glimmer from the garden is reflected in the golden leaf on the paper of a sliding door, creating a glow in the darkness shown in figure 2.8. He ascribes the appreciation for the darkness to the ability of the ancestors to discover the beauty of in shadows, as grown from the reality of live as they lived mostly in dark rooms. The content oneself with the things as they are, speaks of embracing the nature of things and seeking for a certain poetics in the ordinary.

In my personal documentation the haiku poems (see page ) by Matsuo Bashō are remarking a similar connection to nature. The poems that are written by Matsuo Bashō are a Japanese poet famous for his haiku’s, and translated by David Landis Barnhill (2004) seem to describe the Japanese sensibility towards the close connection with nature and the flowing moments of beauty and inevitable decay. The only way to life is to subject oneself to its natural immutable laws, deriving partly from Buddhism.

The Japanese spirit is strongly rooted in spiritual believes, in which the relation to nature and its cyclic renewal is a base for the aesthetic appreciation for changing and ephemeral characteristics, showing a sense of time or temporality. The spiritual aspect in architecture is visible in the divinity ascribed to the natural material wood, deriving the Shinto believes of the godly status of nature and in particular trees and forests. The Buddhist view of being part of the universe and detachment of the life here and now, focuses on the connection to a greater whole. Together with the ritual of tea which is a significant ritual in the daily Japanese life, those believes can be traced back in the way architecture is created, in which the beauty of imperfection of life and the changing character of nature together with a sense of harmony and simplicity to enable detachment of the mind. This will be further elaborated on in the following chapter.
The Japanese spirit that is mainly resulting from the spiritual beliefs, such as Shinto and Buddhism that manifest a close and spiritual relation to nature and the universe. The ephemeral character of nature reflects in the embrace of aesthetics that show a sense of uncertainty. In the following paragraph the topics discussed in the previous there will be illustrated with examples of Japanese architecture.

1.2 Architecture in a greater sense

Ma; Japanese sense of space

Ma is often translated in dictionaries as ‘space’, but Gunther Nitschke writes in his book ‘From Shinto to Ando’ about his translation of ‘Ma’ as ‘place’. He relates it to time, as he writes: “Place is the product of lived space and lived time, a reflection of our states of mind and heart.”

The reason why the Japanese word ‘ma’ cannot be correctly translated as space, is because in the Western view space is quantified. It is viewed with boundaries while the Japanese sense of space by using the word ‘ma’ is more existential, transcending dimensions or incorporating the meaning of space or the emotions that take place within. Time and space are separate dimensions, but two sides of the coin, indivisibly coupled. If one is preconditioned by nature or modified by men, the other is affected.

“The dual relation of ma to space and time is not simply semantic. It reflects the fact that all experience of space is a time-structured process, and all experience of time is a space-structured process.”

The word Ma in Japanese is used in a variety of dimensions, in which Nitschke highlights three domains; the objective, the subjective and the domain of metaphysics.

The objective domain is viewed as the one, two, three or four-dimensional space. In the one-dimensional realm ma means a measure of length or a line in space. When the character of ma stands alone, pronouncing it as aida, it not only denotes a straight-line distance as it also refers to the two points as individual units. In this sense there is an ambiguity in both meaning distance and polarity or relativity.

The Japanese sense for space, ma, denotes in a one-dimensional realm a measure of length or distance. In terms of the ancient wooden frame construction applied in Japanese architecture, the distance between the centrelines of posts is written as hashira-ma. This became to be the basic structural unit of the traditional Japanese house, which is in terms of a carpentry measure called ‘ken’. All the dimensions for timber constructions and pillars would be derived from fractions of the ken, including the measurements of the tatami. Since 500 years ago the tamami mats are adopted in the traditional Japanese residential architecture in which they are used from wall to wall to cover the floor, but originally they were used only where needed for sleeping or sitting. An area is stated by the word ‘ma’ combined with the number of tatami mats, making the tatami a unit of measurement for different types of room (fig. 2.9 and 2.11). An area covered by one tatami is called ‘jo’. Another way of expressing an area by using the tsubo, which is one ken square measured from the centrelines of the columns.

In the two-dimensional realm an area is linked to the measure unit of a tatami or ken; such as roku jo no ma (meaning six-tatami room). In a third dimension ma is used in combination with other characters meaning different spatial descriptions, which stretches beyond the Western concept of a three-dimensional objective space such as words like do-ma (earth place, meaning a work space that often in farmhouses has an earthen floor) or toko-no-ma (floor or bed of place, meaning an alcove for display). In a fourth-dimensional view, time is a dimension of space in which time is abstract without a length, beginning or end.

In the subjective realm of experience, ma relates to the mood or atmosphere of space. This can also relate to a personal feeling, such as: ma ga warui (literally the placing is bad) meaning to feel uncomfortable or embarrassed.
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"The uses of ma highlight the fact that the identity of a place is as much in the mind of the beholder as in its physical characteristics. Many waka and haiku poems begin with a phrase that employs ma to paint the atmosphere or energy of the setting." 38

Also in the realm of design that traditionally in Japanese is referred to as; ma-dori (literally grasp of place) a sensibility is found. Nitschke refers to architect Seike Kyoshi who explains that design is not only existing of structural elements in space, but also the temporary use in the Japanese dwelling by the changing sliding doors, portable screens and other elements. The sense of a place is in the Japanese language dynamic, even in regarding a human being; nin-gen (literally, person-place) or the world; se-ken (world-place or world-in-relationship). Even in a metaphysical sense, the notion of emptiness or the void is expressed by Japanese Buddhists using ma. This can be illustrated by the word Taema (literally discontinuous place) meaning pause, or gap, which is used in the following poems by monk and poet Saigyo in the twelfth century:

Kumori naki yama nite umi no tsuki mireba shima zo kohori no
Not clouded mountains around the sea in which the moon I see the islands, in ice
tae-ma narikeri
holes become.

Ta-em a here is a spatial metaphor, referring to experience of a void. 39

Japanese modular order
In his article on 'Climate and the Japanese way of life' Koji Yagi writes that the module is the special characteristic of Japan's architecture. The module is based on the standard size of the interval between the wooden posts that developed into an open space in a wooden frame construction with a free plan. He writes that initially the module was intended to provide a system for the construction method in wood, while also the movable partitions and additional fixtures that accommodated a use within the room appeared to be designed according to the same module. As described earlier, the module is defined by the size of the tatem, or ken; the interval between two pillars which became standardized in the residential architecture and was used as a measure unit. The traditional measure system has the basic unit of the Japanese foot called shaku. The history of ken starts with the carpenter. The measurement of 6 shaku was the standard size of the ken for the inaka-ma measurement and mainly used in the countryside and the kyo-ma measurement of 6.5 shaku, which was used in the cities. Due to economical and practical reasons the inaka-ma measurement became dominant as module also in the cities.

The modular order in the Japanese house is believed to originate from the end of the 16th century in the Momoyama period, as in 1608 the first carpenters manual called Shomei was written containing the word kiwari, meaning proportions of wood allotment (fig.2.10). While the word kiwari was introduced in the Shomei, earlier also scripts existed that contained the exact same rules for measure and procedure explaining the construction of various building types for the Buddhist temple, including the houses of the priests. It is therefore believed that there is a very close, or even essential connection between the Buddhist building rules and the later Japanese modular order. 40

Space and history
Historically there were two main house types in Japan, the northern continental pit dwelling (fig. 2.13), which had enclosed spaces and the southern high-floured house that was relatively open. Eventually the common house of the pit dwelling turned into a ground-level building. This house existed of open space that surrounded an enclosed space in the centre constructed of clay with plastered walls, which served as storage or a vault. Eventually, in order to divide the open space movable partition walls were developed. This type of building concerning partition embodies a difference between the historical Japanese and Western building methods.
2.12
Order of the facade
Also panel partitions were used as fixtures to be placed within or attached to the structure, such as noren (fig. 2.20), ungathered cloth or rope curtains, and independent objects such as mosquito netting, large folding screens and single panel screens; fusuma for the indoor spaces and shoji: opaque paper panels and amado; wooden partition for rain (fig. 2.19) or rusu for read-patterned partitions that let the air pass through (fig. 2.38). Lastly utensils served as fixtures like utilitarian and decorative shelves, lamps, dishes and chairs made of increasingly refined wood, lacquer, and ceramic techniques (fig. 2.22).

Due to the use of the same module for all different parts of the building, the construction, the partitions and further finishing’s, the building was very flexible.

Later, during the rise of the samurai class in the Kamakura and Muromachi eras (1180-1570) the rules concerning the use of space were defined according to status and became more complex. The placement of people was arranged by placing the persons of high status on movable tatami mats and the ones with a lower status on round straw cushions or on the floor. Later when the room was entirely covered with tatami, with fixed partitions the level of the floor was raised to create differentiation. Also certain fixed elements that were used to display objects formalized the space, such as alcoves, desk arrangements and particular types of shelving. The decoration by means of paintings, flowers and scrolls came to have its own fixed meaning and was characterized by the moods of the seasons. By changing these elements the space was responsive to the garden and the surrounding area.

The tea ceremony room had a great emphasis on the spiritual communication between the individuals, which was enabled by un-restricting people, things and space. This freedom of space relates to the idea of transparency and purity of space, which enables the intellect to move freely and is not prohibited by the ratio. As being separated from the material world, immediate experience is created based on intuition and the mind is enabled to absorb fully.

When comparing the both floorplans shown in figures 2.14 and 2.15, the Western method of building in stone creates separate enclosed spaces on which the roof is placed afterwards, referring to the word partition as derived from the Latin word pars, meaning part. The Japanese word for partition, majikiri, refers to the timber-frame construction after the roof is raised, similar to the meaning of the words that ma, in this case the interval between the posts and jikiri or shikiri, which refers to the division of the space.

The same difference in spatial method is noticeable in the Chinese character and the ancient Egyptian hieroglyph for “house”. The Chinese character resembles a section of the house with a roof and the symbol below shows the character of the building type. However, the hieroglyph takes the form of a wall seen in plan, which indicates the defined space enclosed by walls.

In the days of the Heian period (800-1180) the house still existed without partitioning walls. The space existed of a board-floored area with posts that were used to hang halfdoors, called ‘shitomido’, mounted in the top corners under the eaves. In order to respond to changes in the season, nature of the occasion or status of the guest, acquired appropriate fixtures were used to alter the size and ornamentation of the space. Yagi quotes; “This sense of the provisional, or temporary expedient, is a living tradition in Japan.” The fixtures existed of floor furnishings in the form of reed mats, ‘tatami’ mats and cushions.
2.18 Fusuma with need-patten

2.19 Shoji (in the back of the space) Bamboo Mosquito netting hanging in the garden and fusuma panel on the right and seado in the front

2.20 Noren

2.21 Fusuma (blue door) and furnishings: shelving and closets
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Space and ritual

Ritual of rebuilding
The Ise Shrine celebrated the ancestral god of the Emperor’s house Amaterasu Omikami, the greatest god of the State Shinto. There are two parts, one near town, which is the Outer Shrine and the Inner Shrine placed in the mountains. The Ise Shrine is according to tradition rebuilt every twenty years. This ritual for renewal is called Shikinen Sengu, which is the periodic renewal of the Imperial Grand Shrine and resembles one agricultural ritual year that is extended over a period of eight years. The ritual represents the renewal of nature, the time that is perceived as the eternal return of the seasons, by means of the cyclic reconstruction of the sacred space of the shrine grounds. In the case of the Ise shrine the ritual is completed each twenty years. In an eight-year process, the buildings of Ise are replaced. Figure 2.24 shows the plot when it is not yet rebuilt. The act of renewal is an aspect of the succession of time. This temporal dimension is most simply shown in space by placing objects side by side, visible in figure 2.23.

Also the Ise Shrine consists of two identical plots that are placed adjacent to each other, in which the buildings are built in identical form (fig 2.23).

Another important ritual that as to be mentioned concerning the Ise Shrine is the Daijosai, or ‘Great First Fruit Tasting’ which is regarded from the many Shinto rituals as the highest. This is an annual ceremony in which the first fruits are offered to the Amaterasu Omikami, the kami. The style of the Ise Shrine is the typical shrine architectural style: shinmei-zukuri. It is also used as a residential style and has a high-floured ground level (fig.2.25).

Besides the religious rituals as connected to architecture, there is also a relation between Japanese architecture and the ritual of human behaviour. Architect Arata Isozaki writes about the Japan-ness in architecture in which he considers building as events, not as solitary objects. This means that the cultural act is directly linked to shaping the building, or as Isozaki writes: “Buildings involve a space that we can experience directly, but each is also connected to an external context, including the socio-historical environment. This is why they can be treated as “textual spaces”, capable of introducing plural interpretations vis-a-vis the architectural object.”

Also other modern architects take a different position in the relation between the space, human behaviour. Kazuo Sejima from the Japanese office SANAA, explains in an interview with Jun Aoki that her buildings are not based on the program as she views this as only provisional. As she considers human behaviour as flexible, also the spaces should be adapted to this flexibility. The architect must create spaces that are adapted to such behaviour, while she should not be refrained from creating defined spaces. The human actions that take place within the space together with the content of the building and the architectural form are all developed simultaneously instead of a sequent order. This method of adjustment to human behaviour creates the forms, while the architect looks on from the sides. It replaces the subjectivity of the architect and the traces of the architect vanishes; the architect becomes “transparent” (fig.2.26).

Oku
The layered arrangement of the Japanese space refers to movement and the experience of time. The sequence of spaces of the traditional Japanese house is based on more public external spaces towards the inner private spaces. Oku is the spatial quality created by the successive layers with different types of boundaries and limits with the sense of continuity, linking the experience of time to physical space.

The space in the Japanese house becomes only human when there is the presence of the person. The empty space allows the spirit of the person to move freely and enable his thoughts to reach their ultimate possible potential.
Identical plots of Ise Shrine

Plots of Ise Shrine in state of rebuilding

Ise Shrine building

Transparency: SANAA, 21st century museum in Kanazawa
The Japanese view upon architecture, in which the Japanese meaning of space called 'ma', reaches far beyond our Western approach and connects space to time. With its roots in spiritual believes and the relation to nature and the Buddhist view on the universe, the Japanese traditional architectural had a great influence of the climate as well. The way this relation to nature and the influence of the climate is visible in the traditional Japanese architecture will be explained in this paragraph.

1.3 Architecture and Nature

Influence of climate

Regional differences in architecture with distinct features are largely created by the particular climate of the locale. In her book on traditional Japanese architecture Mira Locher describes that the natural environment and the cultural context is fully integrated in the Japanese architectural forms, materials and construction and that it is not possible to separate them. The strong respect towards nature shaped the buildings in a cultural context, together with the influence from the architecture abroad that was adopted over time to the Japanese climate and aesthetic sensibility. However Heino Engel describes in his book 'The Japanese house', in which he thoroughly studies the Japanese house that the house is mainly designed to cope with seasonal changes but does not quite take effective architectural precautions against the seasonal typhoons and earthquakes. The timber construction has an elasticity and tensile strength that makes it suit the geological situation. However, it shows a lack of lateral stability in the framework because the upright framework fails to alter the shocks to the roof. Subsequently the over dimensioned roof pushes on the vertical elements that cause them to break. Also regarding the seasonal typhoons the framework does not show to take precaution; As the timber framework does not have diagonal bracing elements while the heavy roof creates a top weight the slightest horizontal stress becomes fatal for the construction of the house (fig 2.27). On the other hand, there is said that the timber construction of the house was build to withstand an earthquake. This is due to the importance of the main pillar in the centre of the space that was in adopted in the house as one central pillar (daikokubashira), or a row of three pillars. The pillars were mounted on a stone and not firmly in the ground to prevent the wood for rotting (fig.2.28). This original Chinese technique keeps the construction in balance by allowing a slight movement.

It is not to say that the Japanese house does not show climatic adaptation, as there are many details and design precautions that show the sensibility for the seasonal changes. There is an important influence of the seasonal changes in the Japanese climate on the way people live, their homes and even the way of thinking. There is an emotional relation with nature and life is lived in full awareness of the rhythm of the seasons. This intimate relationship is shown in the house in the tokonoma, a elevated area in the house used to exhibit elements. According the seasons, a hanging picture scroll and flowers in the vase below the house in the tokonoma, a elevated area in the house used to exhibit elements. The Japanese view upon architecture, in which the Japanese meaning of space called 'ma', reaches far beyond our Western approach and connects space to time. With its roots in spiritual believes and the relation to nature and the Buddhist view on the universe, the Japanese traditional architectural had a great influence of the climate as well. The way this relation to nature and the influence of the climate is visible in the traditional Japanese architecture will be explained in this paragraph.

It is apparent how the open space of the Japanese house enables ventilation in the summer (fig.2.28). When the weather becomes hot and humid the house is adopted by altering the dividing and outdoor panels, such as exchanging the opaque paper, fusuma for read-patterned partitions that let the air pass through. Yet, the degree of enclosure in the winter seems to deny the extreme coldness. Instead providing the house with solid walls in order to warm the house in wintertime other elements are applied, such as heaters called hibachi or warm clothing.
On the other hand, there is a response to the heavy rainfall, a natural element that is characteristic for the Japanese climate. The eaves of the roof stretch beyond the exterior and prohibit the rain to reach the interior, together with the outer wooden doors. The verandas together with the eaves on the south and east of the house also play part in reflecting the sunrays in the high sun of the summer while enabling to enjoy the outside weather in the fall and spring and letting the light of the low sun penetrate the house in the winter (fig 2.30).

Traditionally, residential architecture was in the past mainly built to protect against the local climate, creating regional characteristics of architecture. However, Japanese houses can be seen as insufficient in protecting against the major extremes of the Japanese climate. It is the question why the Japanese house is not fully adapted to all climatic elements, including the extreme forces of nature. Among several reasons there is referred to standardized building methods which disabled changes or the feudalistic control that prohibited to differ from the old. Also the Buddhist believes which prohibited a decisive opposition to the forces of nature, as it teaches to live in harmony with nature and to submit oneself to the inevitable rather than to fight it. The passive attitude towards the climatic forces and subsequently a degree of exposure to the weather has actually created an emotional sensitivity and spiritual relation towards nature and its seasonal changes. These changes are physically reflected inside the house, in the picture recess of the tokonoma (fig 2.31) and the changing partitions, while Western architecture would perhaps moreover show a sign of the forces of nature in the weathering of the facade. In accordance with the change of weather or season the building changes together with the way of life in the Japanese house, which results in a synchronisation between man, house and nature. The beauty in living in harmony with nature within the house resulted in a spiritual elevation from the daily changes. Architect and author Heino Engel reflects on the importance of the relation to nature for the modern Western society, after describing the spiritual Japanese manner of life and the house according to the seasonal changes.

"The psychological indifference of contemporary man to most expressions of his surroundings – the arts, architecture, science and nature – is symptomatic of the level of contemporary culture, in spite of infinite psychological stimuli and communicational means [...] It would mean sensitizing man’s appreciation of his total environment and could become instrumental in promoting culture in contemporary society, the final purpose that all learning, all working, all creating should serve."

**En; The transitional space**

The Japanese term en implies connection and/or separation, which is expressed in different contexts of Japanese culture. In Buddhism it refers to the notion of Karma, the bridge between actions and their effects. In architecture it denotes the transition from the inside to the outside; nature, private and public. "Ultimately, the uses of en suggest a deeply ambivalent interpretation of man’s being, his social structures and architectural artifacts as being neither simply independent of nor dependent upon, but as being interdependent among each other, i.e. part of each other."

The transactional space, en, is stated in words depicting different layers of transition, such as en-gawa, meaning veranda (fig 2.32). The composition of the Japanese living space is greatly characterized by the connection between the interior and the exterior. The wooden frame construction enables a free circulation and sight due to the spaces between the posts, which are not enclosed but can be altered by the use of movable partitions. Compared to masonry construction, the thick walls structurally limits the amount of openings and clearly separates the interior and exterior. In this case separation of spaces is set in stone, while the wood construction led to a step-like hierarchy of spaces. Elements creating a degree of separation and a layered transition of spaces are the sliding doors used within the house, called shoji and sliding doors called amado on the outer side, which are heavy wooden doors that can protect the interior spaces from rain and cold night air. Another layering element is a sudare; a reed or bamboo blind mounted on the edge of the eaves to intercept sunlight. By enabling a layered transition from inside to outside, which either connects or gradually separates the private space to the garden, creates an ambiguity of the en’s spatial belonging. This is connected to a similar ambiguity of light and sight inside the interior and towards the exterior.
Natural material wood

Nature was a source for traditional architecture providing construction materials. In the article ‘A culture of wood’ Kiyosi Seike, who is professor emeritus at Tokyo Institute of Technology, writes about the great importance of the use of wood in Japanese architecture. He refers to the oldest group of wooden buildings in the world, which are the temples of Horyu-ji, Toshodai-ji, Yakushi-ji and Shinayakushi-ji as the proof for the excellent native traditional wood craft and the great building skills that came to Japan with Buddhism in the sixth century. Seike refers to the great amount of forests as the result for the primacy of wood architecture in Japan and the development of the great skills and techniques. In the article ‘A culture of wood’ Kiyosi Seike, writes about the relation between the spiritual belief regarding trees and the construction of buildings. “Japanese gods make their descend to earth in the body of trees, in forests, in response to prayer. In Japanese, the counter word for counting gods is "post". The god-nature of trees has more than speculative foundation, then, The Japanese architectural system is largely post and beam, essentially different from brick, masonry, or even other Wood systems, such as the Western two-by-four and log cabin structures.”

This spirituality is also found in relation to wood used in architecture; “another belief is that the spirits of trees used in temple buildings ascend to heaven when that building is destroyed in fire; the godly nature of trees has been raised to an art which can be felt in the architecture of wood.” A form of deity in architecture is found in the hashira; the pillar. The importance of the wooden structure resembles in the meaning of the word to refer to the core of things, as is the head of the household is also called dai-kokubashira, or central pillar. In ancient times the word hashira was used to indicate an element that was closely related to the gods. Later the Shinto religion was based on the divinity of trees, since the gods were believed to descend to earth by trees. The pillar can be regarded as the last remnant of the ancient tree worship. The reason for believing in the divinity of nature is that the Shinto gods originate from the territorial behaviour of ancient man, concerning the creation or renewal of land. “That is the other important pre-agricultural thread of symbolism displayed in the grand rites of renewal of time, space and man.”

Nature and naturalistic

The Japanese take a sensual pleasure in the encounters with natural phenomena, noticeable in their appreciation for weathering materials, celebrating the seasonal changes of the appearing blossom or leaves changing colour. Yet what is somehow peculiar is that instead of experiencing nature in a natural state, it is moreover being ritualized, cultivated, filtered or enclosed (fig. 2.34). Tokyo University professor Hidetoshi Ohno describes the latent fear of nature in the wild, describing ‘nature’ as being a product of culture in Japan. This means the Japanese relation towards nature is ambiguous, one of love, fear and respect, resulting in a culture of embracing the natural phenomena while cultivating it in a highly sophisticated manner.

Garden

The love for nature is stated in the beauty of the Japanese gardens. The Japanese garden is rather than a reproduction of nature more a re-creating of nature and its ways and spirit, in which a symbolical and spiritual meaning is sought. The love for landscapes of the people of the Far East causes a belief that poetic inspiration is to be found in nature. The garden is designed in harmony with the house, in which living and nature come together (fig.2.32-37). It is viewed from the interior space with the garden fence as a back wall. In the contrary to the common Western tradition of viewing the garden from the outside with the building as the background. This can be explained by the way the interior space is designed according to sight lines on the garden.
It can be seen as a place to unite with nature and lifting the spirit. The spiritual meaning of the garden is related to the influences of spiritual believes on its design, in particular Buddhism. This might not be surprising, as Buddhist priests have designed numerous famous gardens and their temples have beautiful gardens that are carefully preserved. The Buddhist influence is for instance visible in the Japanese garden by the rocks (fig. 2.35), which are placed in specific arrangements. An auspicious garden was the mural landscape, in which a rock composition represents a crane and a tortoise that together are a symbol for long life, which is considered as man’s greatest happiness. The representation of the crane and the tortoise is also found in the shape of the islands in a pond.

Characteristic for the Japanese garden in comparison to the Western garden is that the Japanese garden is meant purely for visual enjoyment and spiritual enlightenment. The Japanese word for garden is niwa, which can be translated as empty land in front of the house. Originally this word referred to a large space, while now it also used to refer to the large earthen work floor either indoor or outdoor. Another word for garden is senzai which is more a proper cultivated garden. From the ancient times all persisting through the Heian period (794-1185), the proper man made garden was known to be referred to as shima, which literally means an island. Historically the first garden that is documented is a contained pond with islands, constructed by Soga no Umako (?-625). A later example illustrates a similar principle of islands that is a significant element for the Japanese garden, shown in the garden of the Katsura Imperial Villa (fig. 2.35-2.37). The gardens of the Katsura Imperial Villa are known as the most beautiful garden of Japan, which is known to be designed by Kobori Enshu. Among differently designed parts of the garden, the Katsura has four chashke that each have their own garden designed according to the four seasons. This means that each garden is specifically beautiful for one particular season. Uedo describes that in the poems in the Manyoshu, which is the oldest collection of Japanese poetry dating from A.D. 759, the Japanese sensitivity towards the furusato, meaning the native place or spiritual home, is notified by recalling nostalgically the life by the sea and the beauty of the seashore. Viewing the ponds of the gardens and small islands with trees, the garden can be seen as a representation of a seascape, in which the ponds imitate the sea. Uedo writes about the origin of Japanese people that they anciently invaded from the Asian mainland or the islands of the South Pacific. By depicting the garden as reproductions a seascape as is shown in the Manyoshu, the Japanese created a link to the illusory homeland far beyond the sea, as Uedo describes, that enabled viewing the garden as gazing over the sea. The Zen-rock garden often shows in lines drawn with the stones, which can be viewed as depicting a seascape. The use of stones formations, different types of trees of which cherry blossoms are most the significant, ponds with islands, small grey stones to represent waves, shown in fig. 2.12 are characteristic elements for the Japanese garden that garden are rooted in believes of Buddhism and the connection to the sea.


The sensibility in Japanese architecture derives from ancient beliefs, which are rooted in the Japanese culture. Buddhism together with Shinto are spiritual beliefs that can be seen as part of daily life, creating Japanese philosophy and morals. Subsequently, this also had an influence on architecture together with a great range of art forms. The respect, love and fair for nature has created an ambiguous relation of extreme cultivation and on the other hand embracement of natural elements. The heavy rainfall, hot and humid summers, raging typhoons and earthquakes characterize the Japanese climate and influenced the Japanese architecture.

The change of seasons and perishability of nature is a recurrent topic in art forms such as paintings, poetry and ceramics, which also strongly relates to my personal observation. Seeing the ephemeral character as an element of beauty distinguishes the Japanese appreciation for aesthetics.

This relation to nature, in which Shinto even ascribes a spiritual character to natural elements such as trees and forests show not only a pragmatic, but also a spiritual background in the use of wood in the Japanese traditional architecture. Wood is a characteristic and important element of traditional Japanese architecture and is traditionally used as primary construction material. The wooden construction of pillars enables a freedom in the configuration of the space and open connections that allow the air to pass through the space in the humid summers. The modular order that was developed, enables change of partitions according the change of seasons.

The open interior connections of the Japanese house towards its surroundings, can besides climatic and structural reasons also be related to a spiritual character. This is explained by the Buddhist view of seeing the space as part of the universe and the acceptance of the aspect of change as being free from the daily sorrows by focusing on the connection with a greater whole. The solitude position of the mind in the space means the space is adapted to human behaviour, in its simplicity, harmony and flexibility in use.

The topics of temporality, flexibility and relation resulting from this theoretical chapter are listed below.

However, further in-depth analysis is necessary to research the specific architectural features that are related to these topics. This will be research with the method of case studies, described and shown in the following chapters.

**Temporality**
- The Japanese view time as an element that is connected to space, embodied by the meaning of "ma".
- Natural character of the material showing the embrace of imperfection and uncertainty, relating to the term wabi sabi, shown by weathering materials that reflect time.

**Flexibility**
- Influence of seasonal changes to which the house can adapt with different types of partitions that are placed according to the season.
- The modular order that enables the change of elements and creates simplicity and harmony contributing to the adaptive character towards human behaviour (and mind).

**Relation**
- The connection to nature in Japanese architecture is related to the open interior settings and the direct relation to its surroundings.
- The interior spaces can be seen as a sequence of space that is part of the garden. This in turn also means the garden is in its design, must be seen in the relation to the house.
- An important spatial element that is part of this sequence of indoor and outdoor space is the veranda, which is form the transition from inside to outside.
- The module plays also part in the relation from inside to outside in a spiritual way. This means the module can be seen as an element that is connected to a greater whole.
CHAPTER THREE

CASE STUDIES

As a stranger in Japan I was fascinated by its architecture, in which the beauty
of the weathering materials, the serenity and harmony of the interior spaces, the
sensitive character in the use of materials and beautiful arrangement views on
the surrounding captured my imagination.

The previous chapters describe a theoretical frame consisting of several themes
linked to the three topics of temporality, flexibility and relation. To test this
observations and the underlying theory, the method of case studies will be employed
to discover how this is visible in specific architectural characteristics.

Ultimately these case studies will lead to the conclusion in which several themes
are formulated that can be used in a broader context of a design in the Dutch
context.

Firstly, in order to provide an understanding of the Japanese architecture before
relating it to the formulated themes, the case studies are researched by three
aspects, which are considered to be valuable. This concludes the use of space,
the use of construction and the use of materials.

On the next page an overview is given of the analytical drawings.

Space

A plan drawing of the building will be taken, with the aim to distract elements
that have an effect on the enclosure of space and the relation to nature.

Translucent and solid walls

The penetration of light in the space is shown, by means of colouring the walls
that are translucent with white and the solid walls that do not transmit light
with a black line. The rest of the plan is coloured grey in order to emphasize
the different lines.

Sequence of indoor and outdoor space

The different spaces are distinguished by colour varying from dark to light
depending on how much the space is enclosed or outside.

The outdoor (white), semi-outdoor (dark grey) and indoor spaces (mid-grey) are
coloured, with the semi-indoor (light-grey) space that is created by the enclosure
of removable outdoor walls.

Flexibility of space

The outline of the different spaces are drawn with thin lines, in which the solid
and moving walls are highlighted by means of a solid line or a red dashed line
for the moving walls.

Transition from inside to outside

The section of the house is taken and redrawn by only showing the height
differences in the floor level by entering the house from outside to inside,
together with the ceiling and roof. The moveable partitions are dashed and rest
of the lines are solid.

A detailed line drawing of a section is used to show the important details.

Moving and fixed partitions

In this drawing an axonometric drawing is used in order to show the difference
in moving and fixed partitions. The building will be abstracted in an axonometric
drawing showing only the partitions and their supporting columns with as a base
the floorplan. The layer only showing the fixed elements will be drawn in grey.
The layer above shows the moving elements, are highlighted in red. The different
layers are connected with dashed vertical lines in order to show the exact
relation between the different layers and the floorplan.

The different layers are connected with dashed vertical lines in order to show
the exact relation between the different layers and the floorplan.

Construction

The different elements of which the houses are constructed are analysed according
to a grid in order to research if there is a recurrent system employed in the
different houses that relates to the aspect of relating to a greater whole or
nature. Further the flexibility of the construction details are researched.

The modular system

To research the use of a modular system, one enclosed space will be taken as
an example for the rest of the building. The space will be unfolded in a two-
dimensional drawing, meaning the four side views of the space will be drawn in
relation to the plan. Under the black and white line drawing a grid will be
drawn that shows the measure of shabu. This way it will become apparent if the
measurement of the spatial elements are according to the shaba sizes of the
tatami, meaning 3 shabu by 6 shabu.

Joints

The details of the construction that are flexible, are drawn in 2d line drawing.
Construction which consists of a complex structure are shown in a perspective
linedrawing in order to explain the way the details works.

Materials

The materials are analysed according to their origin and capacities in order to
research the relation to nature and the place it is used within the building.

Material overview

A selection of photographs shows an overview of the materials employed in the
exterior and the interior.

Material inventory

A picture of the interior will be chosen and if necessary cropped to the use of
materials of different spaces. This means the picture is a perspective that not
only shows a detail, but an overview of the space in connection to other spaces.

Following, the picture will be analysed and abstracted to a line drawing. The
different materials are identified by means of a number in the line drawing. The
lines in the drawing show their thickness, the different elements in depth.

Further, the characteristics of the materials are listed, by the following
aspects; material, texture, transparency, pattern, colour.

Material Patterns

The line drawing as described above, will now be used to show the pattern of the
space. An overlay will be made based on two pictures and scaled so it becomes
clear how the patterns of the different spaces are related to one and other.

Techniques: Autocad, Photoshop, Illustrator, Photography.
CHAPTER THREE

MATRIX SPACE

CONSTRUCTION

MATERIALS

Translucent and solid walls
Sequence of indoor and outdoor space
Flexibility of space
Transition from inside to outside
Moving and fixed partitions

The modular system
Joints

Material overview
Material inventory
Material Patterns
In order to fully understand the translation of the Japanese sensibility into architecture regarding the significant cultural aspect, case studies will be viewed consisting of traditional architecture dating back to the Edo period. The reason for this is that the traditional architecture from this era is mainly referred to in the underlying theory and in order to further research the topics resulting from the theoretical research the traditional architecture forms a good base.

The intention is to look at various relevant topics concerning the architecture in a similar way for all case studies, in order to make a comparison between the different buildings.

Therefore, it seems necessary to select buildings with a similar function, which in this case is housing that are build around the same time period.

As the relation to nature plays a significant role, the case studies are selected based on three different contexts with buildings of different sizes; a small farmhouse the countryside, a small samurai house in the city, a large villa in an enclosed the park. This way it becomes clear how the buildings are adapted to their environment and which elements are significant for three topics of temporality, flexibility and relation.

Summarizing the criteria are:
- Similar function; Housing
- Same time; approximately around the Edo period
- Different context; the countryside, the city and the enclosed park
- Different size; Minka, Machiya and Villa

For each type one example will be studied.

To provide an overview of the specific case studies in relation to the time it is set in, the buildings are related to the Japanese historical periods. Following, each building type will shortly be explained in order to provide a background for the collected data in the following chapter.

Early period (600 BC-AD – 540)
Asuka period (540-640)
Hakuho period (640-720)
Tempyo period (720-780)
Heian period (780-1190)  First Machiya are build
Kamakura period (1190-1340)
Muramachi period (1340-1570)
Momoyama period (1570-1616)
Edo period (1616-1860)  Minka and Kastura Imperial Villa
Meiji period (1868-1912)
Taisho period (1912-1926)
Showa period (1926-1989)
Heisei (1989 – present)

Sources
The documentation for the three buildings is based on photographs, plans and sections. Important to notice is that the photographs of each of the buildings are taken in one moment. This is significant due to the fact that the interior settings of the Japanese house are changing throughout the year. By basing the analytical drawings on one moment, this moment is taken as the setting of the house for the comparison.

Minka: Kitamura house
https://deutsudesignstudio.wordpress.com/2012/10/15/kitamura-house-a-study-model/
http://english.nihonminkaen.jp/visual_visit/old_folk_houses/15_kitamura_house/
Google: maps and images

Machiya: Yoshida House
Fingley, Eric, Stahl Caroline. The Urban Housing handbook, John Wiley and Sons Ltd., West Sussex England, 2009

Villa: Katsura Imperial Villa

For the construction principles based on the sections of different case studies:
Machiya

In English the word “machiya” might be translated as townhouse, as it is a type of building often found in the urban environment. However, this Japanese type of house does not only include living as it often combines the space for profession of the inhabitant, such as a shop. The word ‘machi’ or ‘cho’ refers to a district or section of a town and as with ‘shoka’ (O) ‘ka’, ‘ya’ or ‘ie’ equals house.

The first type of machiya buildings are found in the Heian period (792-1185) and has changed through time. First, there was a type with semi-open façade was used to enable display and a closed type, which had a single opening serving as the entrance that was presumably shuttered in the night. At the end of Kamakura and beginning of Muromachi period the noren, or curtain was used to hang in the opening often with the family crest or shopmark on it.

Yoshida House

For the Kyo-machiya the Yoshida house in Nakagyo-Ku, Kyoto is chosen, dating from 1880-1920. With a modest wooden façade, the house houses several functions in which a commercial area, a residential area, gardens as courtyards and a storehouse are placed on a small and narrow plot in the city.
The Katsura Imperial Villa was built from 1615 until 1663 by prince Toshohto. The house was built in three phases, of which first the Old Shoin and Old Service quarters was built, followed by the Middle Shoin and the Music pavilion with the New Servants quarter and lastly by the New Goten. The building is designed according to the Shoin style, and the surrounding tea-pavilions situated in the park in the Sukiya style with Shinden influence. The Sukiya style is greatly influenced by the ideas of the tea ritual, in which elements can be traced back to the design of Shinto temples. However in the case study only the villa will be analysed. The house is set in Kyoto and is surrounded by a large enclosed garden with several tea pavilions. The garden is designed by Kobory Enshu and is known as the most beautiful garden of Japan.
The Minka house is a type of house that is built for the common man or as a family house in an indigenous style. The early Minka houses date back to the sixteenth and seventeenth century, of which some are still existing today. The houses were built, despite the moist climate that hastens the decay of the materials, for long-term use regarding both the structure and the way of life of the inhabitants.

There are different styles and types of Minka houses, mainly determined by factors as the climate, land formations, regional building materials, social conditions and the occupation of the inhabitant.

The Chumon Minka is an example of a house built for heavy snowfall in the Northern regions of Japan and is characterized by the bufferzone between the interior and exterior under the eaves of the building. On the other hand, the Bestumune Minka has a separate roof to enable in better reconstruction after the rage of typhoons and was built mainly in the southern islands and along the Pacific coast.

While the climate caused a great difference in styles, also the farming conditions had a great influence on the regional differentiation of the form of the Minka. Mainly the occupation that occurred within the house, such as silk worm, such as the Koshu Minka and horse raising, Magariya Minka, were of great influence and in a lower degree things as paper making, weaving, smithing and carving.

Kitamura House

For the case study, the Kitamura House will be studied as it is of use for the Dutch context due to its climatic situation. This Minka has a basic three room Hirona plan, which is found everywhere from the southern Kyushu to the northern Tōhoku and can serve as a general example. The building is set in Hadano City, in the Kanagawa Prefecture, which is an important cultural property designated by the Japanese government. The house was built in the 4th year of the Jōkyō Era, which is the year 1687 and the name of the master carpenter was Rihei.

The house has a 3-room hirona-type plan (hiromagata mimadori) which is typical for the plan of the minka. Variations are found on this plan, such as the four-hirona plan.
SPACE

Translucent and solid walls
Sequence of indoor and outdoor space
Flexibility of space
Transition from inside to outside
Moving and fixed partitions
**Kitamura House**

**Yoshida House**

**Katsura Imperial Villa**

**SPACE**

**TRANSLUCENT AND SOLID WALLS**

- **Black**: Solid wall
- **White**: Light transmitting wall
- **Grey**: Space
SPACE
SEQUENCE OF INDOOR AND OUTDOOR SPACE

Kitamura House

Yoshida House

White - Outdoor space
Light Grey - Veranda: semi outdoor space
Mid Grey - Enclosed veranda semi indoor space
Dark grey - Indoor space

Katsura Imperial Villa
Katsura Imperial Villa

Yoshida House

SPACE
TRANSITION FROM INSIDE TO OUTSIDE

Kitamura House

SPACE
TRANSITION FROM INSIDE TO OUTSIDE

Principal Detail
Engawa

Translucent panel
Shoji

Veranda 'engawa'

Opaque panel
Fusuma
Katsura Imperial Villa

SPACE
MOVING AND FIXED PARTITIONS

Black - Solid wall
Red - Moving wall
Transparant/Solid partitions
The transparent partitions are in all cases facing the outdoor space, except for the first room in the New Boten in the Katsura and for the Machiya the room in between the rooms facing the garden. However, in both of these exceptions the transparent partitions face the transparent partitions which are connected to the outdoor space. The partitioning wall separating the interior and the outdoor space can fully exist of transparent and removable walls. Viewing the partition as a separating element, the interior and exterior becomes almost one. However, regarding the fact that the partitions are removable, the setting in which the building was photographed does not have to be the permanent setting of the building. The transparent partitions can be changed for solid wooden partitions. This means the building can be changed according to the season, and the separation between the interior and exterior is not clearly defined but can be altered.

Outdoor/Indoor space
The Machiya is surrounded by other buildings in the urban context of Kyoto in the Nakagyo-ku district. The plan shows a set of two gardens placed in between the interior spaces. In this case, the garden becomes part of the building as it is placed as part of the linear sequence of the interior spaces. The Katsura Imperial Villa is set in an urban context of the city Kyoto, similar to the context of the Machiya. However, the building does not show a similar sequence of the interior spaces, alternated by gardens. In case of the Katsura, the interior spaces are separated from the garden which surrounds the building. The building as a whole is facing the garden, while in the Machiya the garden is part of the building. The context of the Minka is a natural surroundings, in the mountains of Hadano City in the Kanagawa Prefecture. In the case of the Minka there is no garden, unless the natural surroundings are viewed upon as a garden in a natural state. Viewing the garden as an outdoor space and the interior spaces as enclosed by a floor, a ceiling and partitions on all sides, the buildings show an intermediate space in the form of a veranda. The veranda is an intermediate space as it is covered by the eaves of the building while it is not separated by partitions from the outdoor space. As the veranda serves as a space that connects the interior and exterior, the veranda can be seen as a transactional space. Only in the Katsura Imperial Villa there is an intermediate space that can be changed into an interior space, as the veranda can be enclosed by removable partitions. This makes the veranda either part of the indoor space, or part of the outdoor as an intermediate space.

There is always a direct relation between nature and the building, either in the form of a garden or natural surrounding. Depending on the context in which the building is set, the form in which nature shaped and the relation it shows towards the building is different. In the case of the context of the city, nature is resembled in the garden showing a variety of natural elements (further elaboration: source Japanese garden, Ueno). Depending on the size of the plot, the garden shows a different sequence of the interior spaces in relation to the garden. In case the site of the building is small, the garden is brought in the house.

Transition from inside to outside
In the section it is visible how the floor height is changing according to the transition from inside to outside, in which the outside garden or street is lower and the higher veranda higher transcedes in the interior space. This way the veranda is the connection between the interior and exterior, which makes the boundary between the interior spaces and the outdoor space not clearly defined by a wall.
Moving partitions
Apparent in the construction is the number of moving elements in all three plans. On the outer walls of the buildings, the partitions are in case of the Machiya opening on the outdoor spaces, while the solid walls are placed on the sides towards the adjacent buildings. The Minka outer walls are on the north and east side of the building solid, while mainly on the south and partly on the west side of the building the partitions are moveable. For the Katsura, the orientation is also determining the enclosure of solid walls on the mainly the south side of the building. The moveable partitions of the interior spaces are in all buildings apparent, as they surround all living and sleeping areas. Solid walls as visible in the Machiya and Kastura, are mostly surrounding storage rooms, washing rooms, toilets and are placed. Also a specific element apparent in all buildings that contains a solid wall is the tokonoma, since the tokonoma is a space in the room that provides the display of a having roll or object such as a flower arrangement called ikebana.
Partitioning walls are used from ancient times to adapt to different settings of daily use and different seasonal weather conditions. The changing settings of the building have great influence on the spatial experience. In my view, the walking flow in the building is very interesting, as the spaces are not fully enclosed while they are apparent in the use of the modular grid and differentiation in height of the floor and texture of the material in the space. In this way, the spaces are not entirely enclosed and it is always in connection to nature. The way a person moves through the space becomes more intuitive, as a wall does not perform as a clear boundary, which automatically directs movement.

Hierarchy
The transparency of the walls and the transition from outside to inside the building does show a sense of hierarchy, looking at the previous topics. When entering the building from outside, the semi-outdoor space of the veranda is lifted from the ground floor. Stepping inside the building, the exterior transcends in the interior space by a translucent moveable wall while the floor level of the veranda and the interior space is the same. By further entering the building, the interior spaces are enclosed by moving yet non-translucent walls, causing a gradation from the outer public space to the increasingly dark and enclosed interior space.
Also apparent in the hierarchy between the spaces are the friezes, that separate one interior space from the other only in the top part of the wall. This way, the boundary of the single space and in turn the sequence of spaces becomes clear, although the partitions are differently opened.

Conclusion
The way nature is brought into the building or it is surrounding the building is subdue to a manipulation. On the one hand the changing partitioning walls determine sights on nature by the complete interior setting. It is not a curtain in front of the glass that manipulates the view. The effect on the change of view on the nature by moving the partition wall is changing the whole space, as a boundary of space also can become an opening. Another way of manipulating nature is visible in the garden. The garden resembles an interpretation of the landscape showing the different transitions in height, boundaries, routes. Stones, water and plants are arranged in a setting that is unchanged, and in this way entirely manipulated.
The human behaviour determines how the space is used. Moreover, seeing it from the relation to nature, the person in the space is never enclosed entirely from its surroundings. The moveable spatial settings are intending a play of light and sight through the varying openings, which are created differently. In this way, there is not to speak of a clear enclosure of the interior space towards its surroundings. It is mainly the human act, which determines this enclosure and manipulates the degree of enclosure. The way the building is controlling this enclosure is by providing a modular size system, which provides a boundary to the amount the building can actually change. However, while there is not a clear enclosure of the space by solid walls, there is a hierarchy in the outdoor, open space towards the more dark and enclosed interior space in which the veranda serves as transition from the exterior to the interior space.
Some standard longitudinal joints:

Construction of the Hashira: main pillar

Construction of the partition element
Modular system

The measure system for the houses is based on the shabu. The proportions of the reed mats, tatami are visible in the drawing as 3 shabu by 6 shabu. The unfolded space reveals the relation between the floor with the tatami, the partitioning walls or fusuma and the details of the shelving and windows, or ramma. While the exact sizes of these different elements are different, the proportions of the elements show a relation to one another. This means that the size of the tatami relates to not only the size outer frame of the fusuma, but also the size of the window element in the fusuma. The details in terms of ramma and shelving are different according to the function of the room. However, the use of similar constructional elements is clear. In all the spaces, tatami flooring is employed and the fusumas are of similar proportions. Even though the houses are very different in size and location, it is remarkable that the proportions and the constructional elements applied are similar. It is the small detailing that differ the spaces from one and other. The ramma in the Katsura Imperial Villa show a curved shape, that differs from the other elements employed. In comparison with the ramma of the Yoshida house that show a similar pattern as the fusuma, the ramma Katsura Imperial Villa state a refined detail.

Homogeneity by proportions

The use of the module is apparent. It is not only used for the proportions of the loadbearing construction, also the spatial elements such as the fusuma, the flooring and the interior furnishings and details relate to the module. This subsequently creates homogeneity of the entire space and a strict control in the sizes of the separate elements. While the detailing of the space, such shelving or ramma, and the sizes of spaces are different for each house and its interior, the rigid proportion system that is clearly visible in the fusuma and tatami causes a great similarity between the spaces.

Wood joints

The different types of joints for the wood construction of ceilings, walls, eaves, veranda and main construction are all according to many variations on a similar connection, which is without nails or screws and solely by the shape of the wood with addition in some cases a wedge. The details shown here are similar to all the different types of building in the case studies. The joints are all made with a great level of detail and craftsmanship.

Moveable wall

The partition wall is able to be fully removed, and to be moved sidewards. The whole construction is made of wood and by means of vertically lifting and tilting the partition, it can be removed. The joints of the panel are made without the use of glue. The joints for this fusuma are similar to the other partition; the shoji. The tightness of the construction with the opaque paper makes it easily moveable and re-moveable. While the fusuma is pasted with heavy opaque paper on both sides, the shoji is pasted with translucent paper only on one side.

Conclusion

The use of similar proportions that relate to both the flooring as the wall partitioning create a harmony in the different elements employed. Regarding the different functions of the house, there is a simplicity to be found in the application of similar elements of the houses, while the size and status of the house are very different. Since the houses are based on the standard grid and measurement system of the Japanese timber frame architecture, there is always a harmony of form and design of both the interior and exterior. This way the patterns of the architectural elements are in harmony with every level, from perhaps even an urban scale of the plot to the façades to even the details of the interior. This systematic approach is also visible in the treatment of the joints of the construction, in which the details are constructed with similar principles and are able to be used to create different types of spaces. The simplicity in which this variation is made possible is also visible in the way the partition can be removed.
MATERIALS
MATERIAL OVERVIEW

Katsura Imperial Villa, Exterior
Katsura Imperial Villa, Interior

Yoshida House, Exterior
Yoshida House, Interior
### MATERIALS
#### MATERIAL INVENTORY

<table>
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<tr>
<th>No.</th>
<th>Material</th>
<th>Texture</th>
<th>Transparency</th>
<th>Pattern</th>
<th>Color</th>
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<td>Non transparent</td>
<td>Equal</td>
<td>White</td>
</tr>
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<td>Equal</td>
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<td>Non transparent</td>
<td>Pineapple flower motif</td>
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</tr>
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<td>Paper</td>
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<td>Non transparent</td>
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</tr>
<tr>
<td>2**</td>
<td>Paper</td>
<td>Shiny</td>
<td>Non transparent</td>
<td>Equal</td>
<td>Yellow</td>
</tr>
<tr>
<td>3</td>
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<td>Non transparent</td>
<td>Equal</td>
<td>White</td>
</tr>
<tr>
<td>3*</td>
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<td>Non transparent</td>
<td>Equal</td>
<td>White</td>
</tr>
<tr>
<td>3**</td>
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<td>Non transparent</td>
<td>Equal</td>
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</table>

### Katsura Imperial Villa

- Plaster 1
- Plaster 1*
- Paper 2
- Paper 2*
- Paper 2**
- Japanese cedar 3
- Japanese cedar 3*
- Japanese cedar 3**
- Straw 4
- Straw 4*
- Straw 4**
MATERIALS

MATERIAL INVENTORY

Yoshida house

1 Plaster - Matte - Equal - Yellow
2 Paper - Matte - Equal - Yellow
3 Japanese cedar - Untreated - Wood grain - Grey
4 Straw - Matte - Ribble - Beige
5 Bamboo - Ribble - Linen - Brown

Kitamura house

1 Plaster - Matte - Equal - Yellow
2 Paper - Matte - Equal - White
3 Japanese cedar - Untreated - Wood grain - Brown
4 Straw - Matte - Equal - Beige
5 Bamboo - Ribble - Shiny - Green/Yellow
Katsura Imperial Villa
Interior and exterior

Kitamura House and Yoshida House
Natural and weathering materials

In all three houses, only materials of natural components are employed meaning stone, plaster, paper, wood, bamboo and straw for the tatami mats. While there are different treatments of for the materials in terms of colour and texture to be found in the buildings, the materials are also left for a great deal untreated. In terms of materiality the use of untreated wood is creating a remarkable effect on the exterior, shown in the picture of the exterior of the Katsura Imperial Villa, as it shows the influence of rain by the changing colour of the wood. This is also visible in the pictures of the Yoshida house and the Kitamura house, in which particular details of wood show a sense of age by turning from brown to partly grey. The natural character of the materials creates a beautiful colour pallet, with shades of brown, crème, white and grey. The use over time and the weathering of the material contribute to the pallet by the changing colours of for example the wood, which contributes to a harmony in the materialization.

Three layers; ceiling, walls and flooring

Apparent is that in all the buildings similar materials are employed for the ceiling, flooring and walls. However, there is a great variety of textures and colours of the materials employed, which creates different atmospheres per space. While the use of wood is shown in all three parts of the house, found in the flooring of the veranda outside the house, the frames of partitioning walls (fusuma and shoji), the detailing in terms of shelving, the ceiling and the load-bearing construction, there is still a clear separation between the materiality of the floor, the walls and the ceiling. Overall, the flooring consists of read by tatami or bamboo and earthen floor in the Kitamura house, the walls consist for a great part of paper, wooden panels or plaster and the ceiling of always wooden panels.

Transition of materials

The overall three layers of materiality in the flooring, walls and ceiling do contain degree of variety. The difference between the different textures and materials of the space are stating in a subtle way the transition of one space to another. In case of the Kitamura house, the different sequence materials of the flooring per space is apparent. The sequence in the Kitamura house starts by the wooden flooring of the veranda, inside the building the flooring changes the bamboo flooring of the living room, an earthen floor of the work area and read in form of tatami for the guest room and the sleeping room. While the interior spaces are mainly open, the outer walls towards the exterior reflect a similar division. In the Katsura Imperial Villa however, only a change in the texture of the tatami flooring are to be noticed per space while the overall use of tatami is the same throughout the building. In case of the Katsura, mainly the texture and colour of the partitioning walls are different per space. In the inner space the walls are provided with a shining floral pattern, reflecting a small stroke of light in the inner space. Following to the exterior wall, the walls of the following space are colored yellow, followed by a white colored space and ending in a translucent paper of the partitioning wall; the shoji. Lastly, the Yoshida house shows a a change of the materials change mostly per different layer of the space such as the stone flooring of the hallway, transcending in the wooden and plaster step, followed by tatami of the interior space and a wooden floored veranda. The walls are mostly consisting of wooden panels that change in pattern per each side of the space. The exterior wall facing the garden consists shoji’s; panels of translucent paper and the outer wall facing the other plot is constructed of plaster.

Patterns

The pattern created by the construction of the wood that is defining the space. All materials have their own textures but relate to each other due to the proportions. By eliminating the textures in the analytical drawing and leaving only the outline of the elements visible lines, it becomes clear that the patterns of the different interior elements are creating a play of lines. While the exteriors of the buildings shows a more vertical alignment of the patterns, the interior...
The pattern shows a less clear verticality and the patterns seem to merge in a composition of horizontal and vertical lines. The overlay of the different patterns shows a great sense of homogeneity of the ceiling, flooring, walls both indoor and outdoor. While the materials and their textures are different for each element, the way the overall patterns of the materials are merging into one and other state a more unclear separation of space.

Conclusion

There is a great deal of different textures in the employed materials to be found, while all materials have a natural origin. There is a degree of hierarchy in the application of the materials, in which the transition from inside to outside the building is defined while the overall use of materials defines a difference in the flooring, walls and ceiling. A great degree of harmony between the different spaces, both on the interior as the exterior is found. This is due to the simplicity of the application of the materials in terms of the orthogonal patterns that are created by the proportions of the elements on the one hand and the natural origin of the materials on the other hand. The natural character of the materials creates a harmonious colour palette and a similar degree of texture and change of the material by weathering or use.
CHAPTER SIX

EVALUATION

The conclusions from the case studies are based on the architectural analysis and organized according to the architectural themes of space, construction and materials. In this chapter, the conclusions for each of these themes are related to my observations and the underlying theoretical frame, in order to connect the concluding architectural topics of the case studies to the three topics as described in the first chapter. The diagrams on the left page illustrate the topics described in the previous analysis. In this evaluation, these descriptions will not be repeated, but organized according to the topics of temporality, flexibility and relation. This way, it is clear which Japanese architectural topics embody these topics. A full description of the way these topics are visible in the different case studies is written in the analysis.

Temporalities: The state of existing within or having some relationship with time
- Natural and weathering materials
- Changing settings

The relationship with time that was explained by the theory as the concept of ‘ma’ and the weathering materials is also visible in the case studies. This means the natural character of the material wood, allows to show a sense of time by aging over time. Also the relation to time is visible in the topic of changing settings, in which these changes along the day that influence the spatial relations, can be seen as a state of existing within time.

Flexibilities: The ability to be easily modified
- Moveable wall construction
- Moving partitions
- Flexible joints
- Modular system

The easy modification is stated clearly in all the case studies in the modular system that enables a flexibility in the way the house is constructed and is able to be changed by the moving partitions. This also relates to the flexible joints, in the way that the joints can be taken apart as they are not glued together. Also the joint show a flexibility in their application, as they are able to be used in all types of houses; large, small, narrow or wide.

Relations (of inside to outside): The way in which two or more people or things are connected; a thing's effect on or relevance to another
- Relation to outdoor and indoor space
- Transition from inside to outside by the veranda
- Transparent and solid partitions
- Hierarchy in space, from outdoor space, to semi outdoor space, to semi indoor space and indoor space.
- Three layers in materials, ceiling, walls and flooring
- Transition of materials in each layer
- Patterns created by the application of materials, their colours, structures and measurements.

The spatial connections in the case studies show a hierarchy, stated by subtle changes. This is due to the application of materials and differences in the floorlevels. There is a harmony in the different patterns of the materials, which is visible by the layered sequence of spaces. In all cases the veranda is visible, which forms an intermediate space connecting the outdoor and indoor space. The first layer of partitions that faces the outdoor space is consisting mainly of translucent panels, while the interior partitions are usually made of non-translucent material. This means the outer layer of the indoor space in its translucency is a very subtle transition from inside to outside. Also, all the cases show a connection to the garden or rural surroundings, in different ways according to site specific characteristics. This close connection to nature within the house, is also found in the poetry and woodblocks in which nature is a recurrent theme.
My observations as a stranger in Japan shown by my photographs and related to woodblocks, objects and poetry were valuable for understanding the Japanese philosophy of building, showing a strong connection to aspect of nature. The use of my own observations from my stay as a stranger in Japan where I used my full senses to experience the Japanese culture and architecture is the base for my research. According to German sociologist and philosopher Georg Simmel, the position of being a stranger in a foreign culture allows an objective view. “Another expression of this constellation lies in the objectivity of the stranger. He is not radically committed to the unique ingredients and peculiar tendencies of the group, and therefore approaches them with the specific attitude of “objectivity.” But objectivity does not simply involve passivity and detachment; it is a particular structure composed of distance and nearness, indifference and involvement.” (p.2-3) The position of the stranger in a foreign culture is a unique base for a research, especially when it regards researching a sensitivity which is significant for Japan that lies beyond solely rational arguments.

The Japanese house shows a flexibility in connecting space to time, by changing interior settings, weathering materials and graduate penetration of different layers, both exterior and interior. It reflects nature and the philosophy of how to life with nature. The subtle transitions between inside spaces and towards the outdoor space are created by elements as the veranda, the subtle space dividers by columns and the structure. Also, the transitions are reflected in the different use of natural materials, with the light transmitting outer layer allowing the light to reach even the most inner spaces through the flexible partitions. This layered sequence of spaces that incorporates the garden in its views, shows that the house can almost be seen as one with its surroundings. The house is entirely constructed with a modular grid, causing an infinite pattern that relates to small details and the larger scales. The harmony of these patterns and the sense of infinity creates a feeling that the house relates to a greater whole, which is a spirituality that is related to Buddhist believes. The degree of flexibility enables an adaptation of the house to nature by the moveable partitions and ingenious joints of the wooden construction that can easily be separated.

After researching the three topics resulting from my observation in a theoretical frame, including evaluation by case studies, the themes of temporality, flexibility and relation to inside and outside are now formulated according to final conclusions of the research. This means the research concludes in three specific themes to use for the design of a building in the natural surroundings of my site.

The themes on the following page show a certain overlap in specific topics. This means that time is related to materiality in terms of weathering, while the modularity of the elements determines a grid that controls the way the materials weather. The module also enables flexibility by changing or removing wall elements, which in turn is related to movement and distance, or experiental space as described in the definition of temporality on page 12. Also, regarding the stratification, it is both materiality as the spatial structure and its details such as the engawa, that determines the different character and sequence of the spatial layers. Therefore, the formulated themes can serve as a great driving force for my design project, as together with the individual definitions they can also serve to generate different ideas for the design when the themes interact with each other.
CHAPTER SEVEN
THREE CONCLUDING THEMES

TEMPORALITY

Showing temporality in materiality by weathering, use and process of making or natural growth of the material.

The flow and change of nature is reflected in the changing interior settings and the weathering materials that show the flow of rain. The continuous flow of walking through the space is created by the flexible openings, while the degree of changing walk-flows is controlled by the recurrent sizes of the spatial elements. This experiential space connects space and time, by incorporating movement and distance.

While the topic of experiential space is very interesting, in my view the relevance for the Dutch context relates more to the tectonic qualities of the materials regarding temporality created in Japanese architecture.

The weathering of materials in the Japanese facades is interesting since it shows how it is being controlled by the pattern of the materials and the way the facade is built according to a size system. There is a beauty in creating a sense order in the façade, while letting the material transform in time. This way the natural or changing character of the material is emphasized and turned into an aesthetic. The recurrent patterns by the same size system for the different materials relates highly to the tectonics created by the process of building, as the constructional order and details are visible and used to create a harmonious spatial atmosphere.

Architectural tools:
- Visible patterns in the tectonics of materials: by process of making
- Natural character of the material
- Weathering of materials, the influence of seasons and orientation

FLEXIBILITY

Using flexibility in terms of an adaptable structure to optimize the adaptation by future use and climatic adaptation per season or day.

The enclosure of the Japanese space is characterized by moveable partitions; fusuma and shoji. These thin paper panels enclose a great part of the interior spaces of the Japanese house. These similar elements are part of a modular system, creating the ability to move and remove the walls without structurally modifying the space. This polyvalent space allows a high degree of adaptation by use. This in turn relates to the changing character of nature in which for example the seasons cause the colours of the leaves to change or to disappear entirely, the weather during the day to change the daylight or cause rain, snow and wind. The sequence of layers with variable openings allows a deep penetration of daylight in the interior spaces that is variable and a degree of seasonal adaptation due to the alteration of openings by different partitions.

Architectural tools:
- Variation in the size of space
- Degree of freedom in walkflow and route: The walkflow is directed by the module but there is still variation.
- Variation of light entry and framed views
- The use of the module

RELATION

Improving the relation of the interior spaces to the outside which causes nature to become part not only from the outside, but also inside the building by light and views.

The close connection between nature and Japanese architecture is the result of subtle transitions created by the different materiality and patterns for the layers, in which the material stratification of the wall elements is very transparent. The transparence and variety of the transitions creates a spatial stratification that allows nature to become almost part of the space instead of being strictly outside, by letting the outdoor space gradually move into the sequence of interior spaces.

Architectural tools:
- Gradation and separation of inside and outside, transferring through the space differently.
- Transition of areas by materials and floor height.
- Sequence of the garden and space
CHAPTER EIGHT
DUTCH CONTEXT

The Dutch context

Connecting the theory to my own observations, reasons for the origin of the architectural topics I concluded in my research can be found in the spirituality towards nature, which influenced the way of living, morals and values and view on aesthetics and architecture. Now, it is time to reflect on the value of this research for the Dutch context, which in this case is the site of my design assignment in the North of the Netherlands called Friesland. First the context of my site is explained, followed by a reflection on the themes of temporality, flexibility and relation according to this local context.

Characteristics of the site

The site is situated in Friesland, in a natural area called ‘De Grutte Wielen’. A significant characteristic of the landscape is its horizontality and the presence of water in the form of lakes and canals. The area of the Grutte Wielen is situated below sea-level. The lakes in the area are historically created by the flooding of the Middle-Sea. The landscape changed through time, mainly influenced by the continuous floods, visible in figure 7.1. Nowadays the water level is artificially controlled by man, using dams and mills. Naturally the water level in winter is 1.5 meter higher than in summer, influencing the flora and fauna. However, in order to create a diverse ecology and due to practical reasons, some areas are artificially regulated to have a low water level the whole year. This results in several areas with different water levels, of which the so called ‘summer polder’ even shows how naturally the water level in the winter would be 1.5 meter higher than in summer. Now, the area is divided in ‘winterpolders’ that are regulated to flood in wintertime (from the 1st November until the 1 March), ‘sumerpolders’ in which the water level is kept low the whole year with a slight variation and parts in which the level is kept the same shown on figure 7.3 and 7.5. Due the three different soils in the area; sea clay that originates from the sea, veen and sand, the vegetation and morphology of the site is different in each part, which is visible in the different small scaled fabric of the area created by the parcelling and exploitation, visible in figure 7.2 and 7.4. There are soft transitions between the different vegetations, for example the transition from land into water is created by the road that will increasingly expand over time (fig 7.6).

When the area would not be controlled by man and protected from the water, the process of ‘verlanding’ would change the area in 30 years into forest. This process means the reed will take over the water, causing the vegetation to change that subsequently results in the ground to rise and allowing trees to grow. The tension between man made interventions and natural influences through time created a rich ecology and diverse morphology of the site. The characteristic landscape with its horizontality and fast view, asks for a sensible approach in the design of a building that makes use of these natural surroundings in its architecture and for its visitors.

The surrounding buildings are traditionally build with materials from the surroundings, consisting of bricks made of clay and a construction consisting of wood. These materials naturally show effects of weathering over time (fig. 7.8). Looking at the detail pictures on figure 7.9 we are reminded of the Japanese façades that weather and show a natural characteristic. Although the façades do not show a clear pattern as visible in the Japanese façades, the weather conditions are here allowed to naturally reform the materials of the facade over time while the moist climate here asks for well protected painted wooden surfaces.

68. Interview Albert Westra, It Fryske Gea (page 228)
CHAPTER EIGHT
DUTCH CONTEXT

The nature of the area is in continuous change, due to the change of seasons or modifications by man, by cutting the grass and the reeds while the swamps are growing into a swamp forest. Also the flooding of the polder, and the rain in winter that makes the small ponds expand while the sun makes the water damp in summer leaves a mark in the landscape.

The built surroundings are characterized by the overall use of the land for agriculture and farming. This area has been used since 900 for agriculture. Since the land was situated all below sea level, it was flooded for the large part of the year. The area has never been used for living, as it was a rough swamps and threatened by floods. Due to the peat digging and the flooding of the Middle sea, large lakes were created. The large variety of the landscape is due to the different types of soil, ranging from sand to clay and peat.

On the site, I photographed concrete silo's. These rural types of sheds and silo's are in their placing within the nature a very characteristic feature in the landscape. Also, they tell the story about the nature area Grote Wielen, how it is in use by man for agriculture. Often these types are placed in the meadow, and it is interesting to see how they are built. As they need to be built on a location without much trouble and costs, these local built structures are an interesting base for an architectural design on this site that fits within its surroundings.

Added value of combining nature and architecture for the surroundings

The natural surroundings ask for a sensitive architectural approach towards its landscape, for which I believe the topics I observed in Japan can be beneficial. Regarding the natural qualities of the site, it will add value to the surroundings to build a building that is connected to its natural surroundings in its materiality, spatial structure, and construction or use.

By using the three topics of temporality; the influence of time in materiality by weathering, use and process, flexibility; the ability to change according to the seasons and future use and relation; creating a relation in its spatial structure to its surroundings. The aspect of time and adaptability can be connected to nature, by seeing nature as re-forming the building after it is completed as a work of art; in the life or time of a construction and its materials. The time after the construction is when the building takes on the qualities of the place it is set in, the building's colour and surface textures are modified and thereby modifies the relation to its surrounding landscape. Showing an approach that deliberately uses the influences of time and by seeking for a connection between the interior spaces and the outside, the building becomes connected to the beautiful natural surroundings and creates a special atmosphere for its users by using this natural context.
7.1. Site History

History of ‘de Grutte Wielen’, showing how the area was shaped differently by water and by man over time.

7.2. Morphology

Man made parcelling partly taken over by water

7.3. Water Control

The map originating from the ‘Peilbesluit’ shows different areas according to the water levels and borders created by small dams. The water is let in and out by pipes (in red).

7.4. Soil Types

7.5. Polders

Official border of de Grutte Wielen
CHAPTER EIGHT
THE DUTCH CONTEXT

6 POLDERS
Showing different ecologies

INFRASTRUCTURE
Showing dams and valves

Fields with trees
Winteerpolder
'Sleggen'-swamps
Swamps
7.6. Transitions of nature

These pictures are showing the natural landscape of the site 'de Grutte Wielen'. Characteristic of the area are the many transitions of different vegetation: trees, grass, reed, water, different plants. The morphology of the landscape changes by straight and clear borders made by man and natural lines of vegetation within these borders together with the water that finds its way through the manipulated landscape. The landscape has been cultivated by man and again taken over nature. The tension between man and nature is visible in this area by the types different transitions and the way it is controlled.

7.7. Surrounding buildings

The horizontal aligned sheds have a clear function; to house cows or store crops. It is a characteristic typology for the rural surroundings, that with its simplicity of forms, colour and materials and horizontal lines fits the horizontality of the landscape.
CHAPTER EIGHT
BUILT SURROUNDINGS

7.8. Facades
The built surroundings of Grutte Wielen mainly consists of farms with
sheds in their backyard. These pictures are taken from the facades in a
similar way as the facades are photographed in Japan. The low brick wall
and small windows are elements that are characteristic for the farm, with
roofs with tiles or covered with reed from the local surroundings.

7.9. Material details
The rural and natural surroundings show the influences of time and
weather. The usually horizontal layered wood, shows a random pattern of
nature that fades when the rain does not reach the material. The materi-
als are treated, usually by paint, to protect the material for the age of
time.
Japanese sensibility in architecture according to my documentation can be explained by the relation to nature and architecture. The thinking in Europe that has played the most significant part is dualism, from Aristotle to Kant, to Descartes and Catholicism. In that thinking, nature is in opposition to architecture. Thus, in building, nature is conquered. However regarding Japanese architecture, the space in between those opposites, may be something of even greater importance. Nature and architecture are in a continuous dialogue.

When people are born, millions of bacteria enter their bodies through nose and mouth. Right up until their death people coexist with all that life which is made up of bacteria. So, in Japan according to Buddhism, people cannot live separated from nature. There is a clash of interests – how can we live in harmony with nature?

This formulates the overall conclusion of the research; We should build more in dialogue with nature, instead of building in opposition to nature.
The symbiosis between nature and man, is also very visible in the landscape of the Grote Wielen. In this landscape there are many traces of man. After years of exploitation, the landscape has continuously been modified in order to allow agriculture and farming. As the area is below sea level, the risk of flooding is high and by periods of heavy rains the land is fully under water. The ditches and trenches were dug in order to allow the water to flow, while dams and windmills made sure to protect the area from flooding.

Another word for this dialogue between nature and man, is ecosemiotics. Ecosemiotician Kati Lindström explains: “Environment turns into something that is outside of us, that is the object. At the same time what we need to understand from the very beginning is that the two poles, the different agents work together. It is always about their interrelation. For analytical reasons we can extract those elements on abstract terms, but the precondition is that they are always interwoven and in interaction with each other.”

Nowadays more often we see that rural landscapes, such as the ricefields in Japan, once created for agricultural reasons are now preserved as a nature area. This means the situation is frozen by the government, while actually this landscape has always been modified. This is also the case in the Grote Wielen. Nature control is using the water level as an instrument in order to preserve the current ecologies. The borders of the polders are frozen, while these have changed continuously during many years.

New topographics
Artists have framed this very interesting dialogue of ecosemiotics. Their work is a great inspiration for architecture in showing how to deal with nature. The landart by artist Richard Serra, ‘Shift’, is for example created by a placing a solid, clearly man-made element in the changing meadow. It makes us aware of the different timescale of a solid built structure and the ever changing nature, creating a contradiction that is powerful in showing the force of nature.

The photography of the New topographics provides a frame on nature and architecture, which makes you understand the reality in another way, or, that you can see something new, such as the photography by Japanese photographer Toshio Shibata and Dutch photographer Bas Princen.

In every image of photographer Bas Princen there is a quite specific idea of space. It contains a notion of contemporary landscape by showing the relation between the man made and the natural. That they are one.

One type of idea of space.
Bas Princen

Richard Serra, Shift


Fingley, E. (2009). The Urban Housing handbook. West Sussex, England: John Wiley and Sons Ltd.


CHAPTER TEN

LITERATURE


Figures

Figure 2.10

Figure 2.13,2.14,2.16

Figure 2.18

Figure 2.19

The rest of the pictures are all my own photographs or documents.
Wat zijn de natuurlijke grenzen van het gebied?

Het gebied ligt onder NAP, met als vastgesteld peil -0,52 NAP. Er zijn verschillende peilhoogtes vastgesteld, waarbij er delen zijn die hoger liggen dan andere delen.

Het gebied bestaat uit drie verschillende soorten ondergronden. In het westelijke deel van het gebied is nu moeras te vinden.

Het gebied onder de eendenkooi is afgegraven en plassen en routes zijn gemaakt.

Wat is de invloed van overstromingen geweest op het gebied?

Er bestaan twee theorieën over het ontstaan van de twee plassen, namelijk het overstromen van de Middelzee en door de vervening. Ik denk dat het door beide komt.

De overstromingen in het gebied zijn altijd aanwezig geweest. Erg lang geleden in de tijd van het bestaan van de Middelzee lag het dorp Ryptsjerk ter hoogte van de plassen. Door overstromingen is het dorp naar zijn huidige ligging naar het Westen verplaatst.

Hoe wordt het gebied nu gebruikt?

Hoe wordt het gebied nu gebruikt? Het gebied is in volledig beheer van It Fryske Gea, waardoor wij het gebied reguleren. Er zijn een klein aantal gebieden in particulier eigendom en het overgrote deel wordt verpacht aan boeren. Dit betekent dat wat in de zomer het gebied door vee wordt bevolkt. Het bewinden van het land in de Binnenweeshuispolder heeft een positief effect op de begroeiing, door het droog (uitwerpen) van koeien met hoog gehalte fosfaten. Ook het maaien van het gras zorgt ervoor dat vogels regenwormen kunnen vinden. In de winterpolder zijn er een aantal pony’s die in de zomer grazen. Het gebied wordt beschreven als Natura 2000 gebied en in de zomerpolder zijn in de winter wanneer het gebied ondergelopen is met water eenden en andere water vogels te vinden die hier nestelen.

Het waterpeil wordt gereguleerd door middel van kades. Door de waterpeil wordt het water richting het noorden naar het Lauwersmeer en naar het zuiden naar het Westen verplaatst. Wanneer de buizen worden open gezet in de winter zodat het water kan wegstromen, in de zomer wordt het water gehouden zodat er eerder gemaaid kan worden na de winter.

Het hele gebied ligt onder NAP, met als vastgesteld peil -0,52 NAP. Er zijn verschillende peilhoogtes vastgesteld, waarbij er delen zijn die hoger liggen dan andere delen.

Wat voor invloed heeft dit gehad op de bodem en begroeiing?

Het gebied bestaat uit drie verschillende soorten ondergronden. In het westelijke gebied; Binnenweeshuispolder is er sprake van zeeleem, wat duidt op de ouderdom van de ondergrond.

In het oosten bestaat er in de Ryptjerksterpolder een en een half meter laagland met een zandovlucht, terwijl de rest van het gebied bestaat uit veengrond. Dit heeft invloed op de morfologie van gebied, zichtbaar in het verschil van verkaveling van de klei en veengrond, de petgaten in de veengrond, en het verloop van het water. In de winterpolder zijn er een aantal pony’s die in de zomer grazen. Het gebied wordt beschreven als Natura 2000 gebied en in de zomerpolder zijn in de winter wanneer het gebied ondergelopen is met water eenden en andere water vogels te vinden die hier nestelen. Dit betekent dat het gebied afgegraven en plassen en routes zijn gemaakt. Het gebied is afgegraven en plassen en routes zijn gemaakt. Het gebied is nu moeras te vinden.

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