A Wadden Sea Interpretive Centre: An MDP document

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master thesis

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A WADDEN SEA INTERPRETIVE CENTRE
AN MDP DOCUMENT BY HANS T. J. KOPPE
A b s t r a c t

This project is an exploration of site through the design of an interpretive centre of the Wadden Sea. The design, consisting of three structures, creates a dialogue between cultural and natural aspects of the Dutch northern landscape, and addresses issues of time and change in architecture, as brought forth by the site.

The first section of the document deals with the background and theory upon which the design is based. It can be divided into three parts. The first defines the site. The Wadden Sea is a unique environment which presents issues of landscape and time and change. The second part deals with landscape. Landscape is defined in terms of the horizon, the physical and the view, and in terms of natural and cultural distinctions. The last section deals with the sense of time and change which is presented by the site. The Wadden Sea consists mostly of tidal flats, so the tidal rhythm creates a strong presence of time. Aspects of cultural and natural time relate to issues of landscape, and change can (and should) be reflected by the architecture. The second half of the document outlines the design of the three structures and is accompanied by a series of drawings and photographs.
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Wadlopers, can I travel along,
Far from dike and polder,
To no-mans land, where nothing is
Stilling of the old land,
Where with a single leap
Across the ditch
My faltering faith
Can freely be exalted?

Jan Boer

**Introduction**

The Netherlands has a strong relationship with the sea. Much of the Dutch soil has been claimed from the sea, creating flat pastoral agricultural lands. The shortage of land and a shallow sea have led to a landscape which has been entirely structured through human endeavor. Every square metre of Dutch soil appears to be occupied by urban or agricultural land, leaving little room for nature. The northern part of the Netherlands is not as highly populated as the south, and offers the only sanctuary from the order of the cultural landscape. This natural area, called the Wadden Sea, is neither land nor sea. It is a vast tidal flat which is abundant with life.
A precious site is often embellished by an interpretive centre. The interpretive centre attempts to bring the essence of the site clear to the visitor. The centre interprets the site into a level of basic human understanding and appreciation. The sites on which these centres occur are valuable at one or more levels, dealing with aspects of history and nature. A site worthy of an interpretive centre will likely have a relation with a place or an event.

A ruin is a historical record of place. The ruin may be accompanied by an interpretive centre which would demonstrate the past glory of the structure. The site of an important battle, or the first flight by man pertains directly to a historical event. The natural site also exists as place or event. The concept of place pertains to landscape. Landscape, as a precious place in nature, pertains to the entire composition of the natural site. The natural event pertains more to the activity of a single species, like salmon spawning, or an isolated natural phenomenon such as Old Faithful at Yellowstone Park.

The Wadden Sea is a site worthy of an interpretive centre. The landscape can only be found in Denmark, Germany and the Netherlands, and the tidal flats are never as shallow as in the Netherlands. The scale of the Wadden Sea allows this site to be the only place in the Netherlands where one can step clear of the cultural landscape which dominates the mainland. The Wadden Sea holds an abundance of food for many species of birds. The sheer number of birds which use the Wadden Sea for breeding grounds also gives the site an element of event.

The Wadden Sea is currently used mostly for tourism. It can be engaged on foot, or by boat, and the strong winds make the area popular for sailing and wind surfing. Kayaking tours from island to island are also popular. The islands are recreational retreats, where one could get away for a romantic weekend. Commercial and recreational fishing also occurs on the Wadden Sea, concentrating mostly on the shell fish population. The Wadden Sea also has limited oil and gas exploration, which is mostly accessed through either the mainland, or the North Sea since the area is currently mostly protected.

There were never any important battles fought on the Wadden Sea, but it does have a certain historic connotation for the Netherlands. The landscape offers
many clues, through ruins and geographical remains, of the relationship of the Dutch and the sea. The Wadden Sea is defined by the mainland on the South and the barrier island on the North, which are both filled with archeological artifact signifying human endeavor. The Wadden Sea is washed twice a day by the tide, voiding it of artifact. The juxtaposition of old and new creates a strong historical presence.

The low tide drops the water level of the sea to a point where one can safely walk to the barrier islands from the mainland. This means that the Wadden Sea can be fully engaged as a pedestrian venture. The possibility to walk across a sea is an important element of the Wadden Sea, since it differentiates the site from all other types of landscapes. The experience of landscape is unique, since it can be engaged by foot or by boat depending on the movements of the tides.

An interpretive centre for the Wadden Sea will certainly have to accommodate these pedestrian adventures, stretching across the sea and onto the barrier islands. The interpretive centre will involve three inter-related structures. The principle structure on the mainland will serve as threshold between the natural and cultural landscape. A teahouse on a barrier island will become an extension of the interpretive centre, giving closure to the pedestrian trek across the sea. A small third structure, the sea hut, will create a link between the two buildings, and serve as a shelter from the landscape, allowing for rest and safety when required.

The interpretive centre must deal with the site at several levels. First as the physical place, a place of sea and land, of flatness and dunes. Secondly as a threshold between cultural and natural landscape. Thirdly as a place of rhythm and change, a place where the tidal flows create the order from which the landscape flows.

The Site is the springboard of this project. The issues and program of the interpretive centre grew from the site in a logical matter. The interpretation and understanding of the architectural site is an essential tool in architectural design. The formation, ecology and history of the land are all essential elements to the creation of an interpretive centre.
Landscape must be explored when addressing the Wadden Sea. The dike which separates the Wadden Sea from the mainland creates a clear boundary between cultural and natural landscape. This clear distinction is a rare phenomenon in landscape since the dike does not afford a view from one landscape to the other. An understanding of the (perception of) natural and cultural landscape as it pertain to the Netherlands is an essential part of understanding site.

Time is the essential part of the interpretive centre. The Wadden Sea sees enormous changes with every tidal cycle. The flow of the water moves sand and silt creating an ever-changing landscape. The tidal cycle as well as seasonal cycles, and cycles of day and night set up a series of rhythms which make the Wadden Sea a time keeper. The tide changes and it recreates, allowing the passage of time to be read as a cyclical and a linear element.

The physical place of site, the cultural and natural landscape and the heightened phenomena of time are the three concepts on which the design of the interpretive centre is based. This document is divided into two sections. The first will deal with the design background. The site, cultural and natural landscape, and issues of time and change will all be addressed in the background section of the document. The second section will focus on the architectural design of the three buildings.
Background
The interpretive centre exists as a medium between the visitor and the site. Site interpretation traditionally deals with a physical and historical analysis of the area surrounding the proposed building. The physical site is essential to the design of the interpretive centre, but it cannot offer all of the required information. The site is more than sand and water. Through (the perception of) landscape the site also embodies some of the spirit of the land and its people, and through its tides it creates a rich temporal experience where the passage of time can be experienced in more than one layer at a time. All of this must be discovered from the sand, the sea and all that lives upon it, which form the Wadden Sea.

The Site
The Wadden Sea is comprised of several distinct areas. The Northern part of the Netherlands was created from the Wadden Sea and offers clues to the formation of land from the sea. It is as flat as the Wadden Sea. The tidal flats and the mainland are separated by a sea dike. The dike is the defining edge between the two landscapes creating the only place from which the two landscapes can be engaged simultaneously. The tidal flats stretch ten to fifteen kilometers north of the sea and are comprised of a mixture of clay, sand and water. The Wadden Islands are referred to as barrier islands because they form a barrier between the Wadden Sea and the North Sea. These islands are formed from sand dunes and, due to the erosion from the constantly moving wind and water, are in constant flux.

Site History
The Roman historian Plinius gave an early account of the seascape offered by the Wadden Sea. His account is not favourable. Plinius found that being a slave to the Roman Empire is a lifestyle which would be preferable to being a slave to the land and sea.
Here the immense flow of the sea crashes twice daily into this unmeasurable land, causing one to question if the bottom belongs to the sea or the land in this unending battle of nature.

There lives an unfortunate people on high hills, or rather on man made heaps, build to the height of the highest tide, on which they build their meager huts. With boats which are seaworthy upon high tide and shipwrecked at low tide, they chase after the fish which escape with the flowing water.

They have no farm animals, so they can not live from milk, like their neighbors. They can not hunt for game, since every bit of vegetation that this game could eat is washed away by the sea.

From thatch and grass they make a type of rope from which they make their fishnets. With their own hands they dig the clumps of earth which are dried more by the wind than by the sun. With this peat they can cook their food and heat their limbs, which are stiffened by the north wind.

Two thousand years ago this land was inhabited by Germanic and Frisian (similar to Celtic) tribes. The lives of these people were at that time completely regulated by the course of nature: by the climate and the tidal rhythms, the wind and the availability of natural foods. These people naturally became interested in curbing and controlling the force of nature to ease their lives.

The tribes actually lived on the Wadden Sea. The coast line would have been about thirty kilometres south of the main dike of today. The Wadden islands, although completely changed in form, would have existed in about the same place. The mounds of earth which were inhabited, and the built up roads which later meandered through the country, still exist today as a palimpsest.

Using woven grass fences these people began to catch the rich silt that the sea was depositing twice a day. The land slowly emerged from the sea. The keeping of livestock became a possibility as firmer land began to emerge. This livestock would feed from hardy grasses which could survive the frequent flooding of brackish water. The small islands, called 'Wierden' in Groningen, began to merge into a single land mass a few hundred years ago. The building of dikes, a system which could fortify the land from the forces of nature, finally allowed the inhabitants to grow large crops. The land, made mostly of peat
and clay, proved to be abundantly rich and is still used today for growing a multitude of crops.

At the time when the inhabitants were still living on the 'Wierden', or human made hills, there was no clear distinction between the natural and cultural landscape. The water moved onto the hills, often flooding them. The Wierden arose from the water in a pattern controlled by movement of water through the land. Currently the dike clearly separates the sea from the land. The sea is uninhabited. The dike, built to seven meters above sea level, divorces the two landscapes. The only thing which is left from the old Wierden are small hills upon which the town churches are standing, and the ever present north wind which continues to stiffen the limbs of the northerners.

DE DIJK
The dike is the icon of the relationship between the Dutch and the Sea. The dike separates the land from the sea and allows the land to exist upon the domain of the sea. The first dike crossed is called 'de dromer' (the dreamer). It was once the last line of defense against the heavy gales of the north, but it is now little more than a mild ripple in the landscape. This dike no longer has any function. It simply marks a coastline from a time in history.

About two kilometres from the dreamer lies 'de slaper' (the sleeper). The sleeper is about three to four meters high and also mark the spot where the northern coast once existed. This dike remains a second line of defense against the sea. Roads either run over the top of the sleeper or run through it. Any dike breaks can be closed, either with heavy wooden doors, or a series of beams, stored at the side of the dike.

At this point the last dike becomes visually accessible. 'De waker' (the guard) is the defined coastline. On the other side lies the Wadden Sea. The guard has recently been brought to the height of the Delta-works in the southern parts of the Netherlands. It is over seven metres high and is covered with grass and stone. Sheep keep the grass short and continue to compact the dike.
The Wadden Sea
An area which is unique for a combination of qualities: space, unspoiled, meeting places for many species of birds which can not be found anywhere else in those large numbers, such an area can only be found in the Wadden.2

The Wadden Sea was formed by glacial ice flows in the last ice-age. The tidal banks have served as a rich source of food for humans and many species of birds and mammals for thousands of years. Until about 1930 the sands of the Wadden Sea were covered by a hardy grass-like plant which thrived in the saline waters. This grass was used as a bonding agent to hold soil in the building of dikes, and as a mattress filler.3

The Wadden Sea presently is mostly comprised of sands, with some parts covered by salt water grasses and mussel banks. The first few hundred metres along the shore line holds a fine sand or silt called 'slib'. Slib is a muddy material which can be a rich soil for many of the indigenous plants. It can hold as many as 50,000 micro-organisms per cubic centimeter. Due to the small grain size, the slib can not weight bear like the coarser sand, sometimes causing one to sink into mud up to the knees. This means that rubber boots are quickly lost, so the only proper footwear is tightly tied canvas high-tops.

New attempts to gain land from the sea is not to establish more agricultural land. Rather, it is merely to re-establish some of the old flora and fauna that once thrived in the salt water marshes. (There is little interest to gain agricultural land since the government sees no financial gains in this highly subsidized field.)

The land is captured by the construction of a series of woven fence-like structures which serve both as wave breakers as well as a way to capture soil. These structures run along the first few hundred meters of almost the entire northern coast.4

A multitude of minuscule creeks meander over the tidal flats. These are called 'prielen' and change shape constantly, this becoming apparent even to the
limits of human temporal capabilities. The prielen never run dry, since the sand can not be fully drained before the return of the tide.

The prielen run into kreken, small drainage channels, which in turn run into kwelders, which are large drainage channels big enough to swim in. These will drain into the tidal inlets. The land is flooded the same way it is drained, but never exactly the same way. The system of kwelders and kreken moves from day to day, so that only a guide with the capacity to read the sea and the land can safely bring a crowd across.

**MOVING WATERS**

Four billion cubic metres of water flow in and out of the Wadden Sea with every tide. Twice a day the sands are covered with water. In some areas this water is a thin film stretched across the tidal flats. In other places the flows create treacherous undertows and pulls which even the greatest swimmers can not navigate without risking certain death.

The tidal flows, combined with the shallow and sandy sea bottom, contribute to the elements of change and rhythm which are essential parts of this project. The theme of tide, and how it pertains to time, change and rhythm in the Wadden Sea will be appropriately addressed in a later section.

The tide washes the Wadden Sea with an abundance of food for the local species. These species range from shrimp to a plethora of bird species as well as large numbers of sea lions. There is a strong movement to make the entire Wadden Sea a protected natural area. It is currently threatened by pollution, development and oil spills.

The tide is not the only natural force with the capacity to move large amounts of water. Combined with the pull of the sun and the moon, the wind can push waters up several metres, creating a treacherous environment. The Wadden Sea is one place where the forces of nature can neither be controlled or ignored, since a miscalculation by a pedestrian visitor (wadloper) can lead to certain death.
The tide comes in from the west and the north. The islands are separated by a number of tidal inlets which allow the water to flow in and out of the Wadden Sea. Because of the vast area of the Wadden Sea, its tidal rhythm is not synchronized with the tidal rhythm of the North Sea. The difference ranges from minutes to several hours on the mainland.

The tides are not the only natural forces which can move water. Storm surges are caused by a strong eastern wind which can push the water onto the tidal flats, causing the waters level to raise several meters. They can be very dangerous for the wadloper who can find herself in several metres of water where maps and tidal charts indicate she should be above sea level.

**WADDEN ISLANDS**

The Wadden Islands are a natural barrier between the Wadden Sea and the North Sea. They are small and wild, consisting mostly of grassy dunes. The islands, due to their sandy nature, are in constant movement from the forces of wind and water.

The Wadden Islands are some of the most popular tourist areas of the Netherlands. The western islands are the largest, and are populated year round, each having a central town. Schiermonnikoog is the only populated island which is accessible by foot. West of Schiermonnikoog are several uninhabited islands, all accessible by foot.

The barrier islands have long been inhabited. Most of the travel was done by boat. The monks of Schiermonnikoog in the fifteenth century were among the first to venture on the walk. These monks and other island inhabitants planks attached planks to their feet in a ski-like fashion to help them get across the mud flats. The island inhabitants would make the journey mostly across a frozen sea in mid-winter.

The islands offer rare glimpses of what the Dutch coastline would have looked like before every square metre became a garden, home or farmland. The
islands are therefore protected, offering a historic view of the Netherlands. Presently the beaches are no longer full of sunbathing sea lions. They have to find their peace on the hidden sand banks.

Rottermeroog, or Rotter is the island I have chosen for the site of the teahouse. It is an island in constant change. The tidal inlet is rapidly eroding away the west part of the island, while winds and tides are making new land on the east. The island can move in excess of twenty meters eastward in one year.9

The islands are the mountain top for the wadloper. It is the summit which they look for, always at the edge of the horizon. Here they have gone as far as they can, and they can now only turn around and head to the mainland. The tide will not allow one to walk back immediately and most decide to go back over the risen waters, by way of a flat hulled boat.

WADLOPEN

Brave souls discovered that one could engage this fantastic half-land-half-water world on foot. If one possesses knowledge of the tides, knows of the fantastic branching of ditch and stream systems, can work with a compass, is familiar with the climate and possesses enough self control and endurance. The few who knew how to surprise the treacherous sea were later followed by thousands of others, who under the leadership of good guides, also wanted to experience the sensation of a journey on the Wadden Sea. Wadlopen became a new national sport, almost a rage.10

The tidal flows of the Wadden Sea are a large part of what makes it a unique environment. Twice daily the water flows in and out of the land, reaching almost up to the dike on high tide, and all the way back to the islands in low tide. Because the water has so far to flow the tides are not synchronized with the tides of the North Sea, sometimes running up to two hours behind. Water flows from the flats into a series of streams called 'kwelders'. These are often hidden under a few centimeters of water, and can be several meters deep. With every tidal shift an enormous amount of water is moved. The kwelders will flow alarmingly fast, and create dangerous undertows and flows. The use of a guide who knows the land and water movement is therefore the only safe way to navigate any journey deep into the Wadden Sea.
The first recreational wadlopers were three young soldiers. These young men had done a little climbing in the Swiss Alps and were hungry for some similar challenges in their own native land. They were stationed on the northern coast and decided that the walk across the wad was possible. Against the advice the local inhabitants who were fully convinced the journey would lead to certain death, the three set out on their journey.

On June fourteenth, 1939 the three soldiers walked to Rottermeroog. They used tidal charts, a compass and maps as their guide, and a bottle of cognac as their courage. The surprised island keeper told them that they were the first to make this crossing, and that their arrival had reminded him of the Israelites crossing the Red Sea.

The Second World War put a damper on most recreational activities in the Netherlands the next ten years, but after the war wadlopen became a fast growing sport. More than ten thousand wadlopers now make the trek across the Wadden Sea yearly. It has become an industry, employing many guides and giving many Dutch city dwellers a sense of nature in their own country.

A considerable amount of trust is involved in allowing a stranger to guide one across an unknown and potentially threatening land. What possesses one to walk through cold and wet sand, wade through freezing waters and slog through knee-deep mud? Why does one expose themselves to the elements, risking death by drowning or a lightning strike? Several avid wadlopers attempted to answer this question in their book Wadlopen.

If someone asks: 'Why do you walk the wad?', answer with: 'Because our country has no mountains.' Others called wadlopen (in all forms) the only alpine sport of the Netherlands, naming it the mountain climbing of the flat plain.

The authors suggest that the Wadden Sea can be conquered like a mountain. There is something in the concept of the challenge, the idea of a goal which can be achieved, which is very appealing to the competitive spirit. The idea that the islands are luring entities which beckon the wadloper from the horizon gives a poetic climax to the journey.
The islands were enticing us from the horizon, the one more virginal than the other, but none were entirely spoiled.\textsuperscript{14}

The Wadden Sea is not simply something to conquer. The pioneer wadlopers took severe risks to cross this sea, but by taking the right precautions one should be able to ensure a safe journey, so there is no real life-death struggle. There are many reasons why one would want to engage the Wadden Sea by foot which have little to do with conquering and curbing nature.

Each culture keeps its own time. The time we keep has little to do with the time nature keeps. When one comes to walk across the Wadden Sea one is aware that a watch will serve only a small purpose. The time kept is strictly regulated by nature. Here one can freely abandon modern time keeping, returning to a time where human activity was regulated by the moon, the sun, the seasons and the climates they create. "When one engages the Wadden Sea one takes a gamble with time and tide, playing a game with the sea in her weaker moments."\textsuperscript{15}

Humanity has existed as a cognitive species for many millennia, but we only recently traded our spears for televisions. There must be some part of us, in our soul, spirit, or collective consciousness, which makes us appreciate the (chaotic) orders of nature.

The wadloper experiences a window of time much like a moviegoer. For a set time an experience occurs. The experience has a defined beginning and an end. What sets these two temporal experiences apart is that a movie is not a cycle, and does not create a rhythm. The wadloper, after experiencing a part of the Wadden Sea drama, realises that at the end of the cycle experienced, another will commence, not as the repeated film, but as a recreation which is not entirely the same as the previous formation.
**Landscape**

At a glance the word 'landscape' points exclusively at nature, the rural, and even the archaic. But further investigation proves that almost all landscapes constitute the human presence: one almost always sees houses, an entire city or sometimes ruins: otherwise maybe a pedestrian, a farmer on his field, a little road, a crossing, or a church spire on the horizon.

'landscape' can be defined in two ways. The first definition deals with geographical space which defines landscape in terms of the physical realm, while the second deals with visual space, which defines landscape in terms of the scenic realm. Geographical space is defined by geographical and ecological borders, while visual space is defined by the horizon, which is the edge of our visual world.

The visitor at the Wadden Sea Interpretive Centre can enjoy the visual space of the Wadden Sea with little effort, but without stepping onto the Wadden Sea one obtains a very two dimensional understanding of the landscape. The visual, or scenic realm does not imply a purely visual understanding of landscape. The visual landscape can also be felt, heard, smelled and even tasted.

The word landscape comes from the Dutch word *landschap*. Landschap refers to the physical world, but more to its visual representation. Landschap was introduced to England by King William I, who brought Dutch 17th century landscape painting to England. Landscape painting was linked strongly to the representation of nature. Landscape in terms of the Wadden Sea cannot be defined without discussing natural landscape and cultural landscape.

**Geographical Space**

Geographical space deals strictly with the physical make up of the land. This means not just the outer layer of land which is what we are able to perceive. Geographical space refers to the layers of minerals, rocks and sand which form the visual space. When engaging a landscape we rarely get a chance to see below the skin, and this could only be presented within the interpretive centre through displays and educational tools. The interpretive centre would then
reveal the geographical nature of the landscape, so that the visual space could be understood more fully.

**VISUAL SPACE**

*It is especially the "scenery" that has been reflected in the arts, reflected in a variety of manners and styles, according to the changing cultural attitudes and appreciation. Also in the arts the conditioning of the human perception by the filter of cultural conditions is a very important factor regulating the relation between mankind and his environment.*

Visual space, or more accurately sensate space, deals with human perception. Geographical space can exist without the human presence, while landscape as scenery can not. Aesthetics therefore becomes part of the discussion. The representation of the sensate space is also referred to as landscape, as in painting and photography.

The landscape is perceived at many levels. The foot in the mud, the smell of the sea, and the sound of birds all collect into one's experience. The poet, photographer or painter never entirely capture this gestalt, but they can capture certain elements. Landscape can never be captured in architecture either, it can only be presented and represented. The photography or painting of either natural or cultural surroundings frames landscape with a defined border. I believe that the architectural experience can bring forth a sense of landscape through framing and layering the view.

Landscape is therefore often a controlled set of circumstances. The architect creates landscape as a part of building, framing the view and thereby allowing the landscape to unfold for the spectators.

The perception of landscape has become relatively universal. We are all accustomed to framing something for the camera, or the edge of the television or movie screen. There are standards by which we now perceive landscape. We all like to walk up to the lookout, we all turn the direction we are meant to look at and look at the objects and scenes presented. Presenting landscape is not a way to control perception; one is still free to see what one wants.
Presenting landscape is a method of communication, of bringing scenery into the aesthetic realm.

**VIEWS AND HORIZONS**

The view is the theory of space, while walking in it is its practice.

Landscape architecture devotes more discourse about presenting and layering the horizon than any other architectural subject. The view and the visibility of the horizon was an essential part of the Villas of the Italian Renaissance. When we look out a window we can establish our location by finding the horizon. The horizon is always perceived at eye level, so it is a tool by which we can measure the size of people and buildings in our site line.

Lemar equates the horizon with nature. The view of the horizon is the view of nature. The horizon is the adhesive which bonds elements of nature and culture into landscape. The horizon, manipulated in part by human-made elements, such as distant cities or buildings, creates landscape. I argue that this manipulation of the horizon helps to frame views, thereby creating landscape.

In landscape we are enclosed by the horizon. When we are moving the horizon moves with us. The horizon centres us, so we always exist in a perceptual centre. Traditionally, the movement of the horizon moved as slowly as we did, but now we can perceive its changing form through fast travel. This leads to a dissociation with the horizon, and a dissociation with nature, which could be countered by a long walk within the landscape.
NATURAL LANDSCAPE
Nature is generally perceived in two ways. The first sees the natural world as a set of scientific formulas. Nature is the great ordering device which forms the universe, as described in Newton’s and Einstein’s theories. The second perception sees the natural world as one of chaos. Nature is an unpredictable chaotic swirl from which we humans carve out our own particular order. Some may argue that nature’s perceived chaos is simply an order which we have not learned to decipher.

These two perceptions of nature and the natural world are simultaneously upheld in our western culture. Nature is both the formulaic world of math and science and the dark unknown of snake infested jungles. Natural landscape can be perceived as anything which comes from nature, either chaotic or ordered by the laws of nature.

Humans once controlled the environment just to survive, or at least to obtain enough time to participate in activities beyond the basic act of survival. This control means we surround ourselves with objects that disassociate us from nature. Without this nature it is possible that we lose the stimuli which leads to our desires, the natural desires of humans. Our sense of desire, and therefore our sense of aesthetics are often directly linked to nature. We use nature as the measurement of beauty. Aesthetic proportion and composition stem from the ordering of nature.

NATURAL VS. NATURE
Many people believe that the natural world excludes humans. This stems from making distinctions between natural and cultural worlds. The urban environment is construed as an unnatural habitat, but the city is as much a natural evolutionary step as is the invention of the wheel. Everything that we build fits into our human nature. We have developed our ability to adapt to any
environment to a degree that we can now adapt environments to our own needs. The cultural landscape of the Netherlands is only a natural occurrence. One may say that it is in the nature of the Dutch to create their own land.

**Cultural Landscape**

For more than two thousand years the Dutch have carved their land from the bottom of the sea, leaving a country which is almost without nature. The measures taken by the inhabitants controlled nature, and use its forces to benefit the human population. More than one third of the Netherlands is, or once was, below sea level. This ability to claim land from the sea has created a unique philosophy of landscape.

The lack of ‘nature’ in the Netherlands has led to a different understanding of natural landscape. Cultural landscape is a source of national pride. Urban parks and pastoral lands are perceived as nature, even if this nature is manmade. To the Dutch, that which is green is nature. The natural (original, or undisturbed) landscape is one that is divorced from the Dutch landscape of today. The cultural landscape which occurs within the protection of the dike walls has an ordering which has been aesthetically preferred over the perceived chaos of the Wadden Sea. This means that until recently the Wadden Sea has been disappearing at an alarming rate, getting sacrificed for more agricultural land.

The cultural landscape of the northern Netherlands is extraordinary. The farm lands stretch across the landscape endlessly, and from any point three or four church spires and the occasional windmill break the horizon. In the north this horizon becomes temporarily static. This defined horizon is the Sea Dike, and it is the threshold to the Wadden Sea.

**Borders and Thresholds**

The walk across the Wadden Sea will involve crossing over several distinct thresholds from one landscape to the next. As one leaves the city one
emerges into the cultural landscape of the Netherlands. This cultural landscape ends abruptly at the sea dike. The interpretive centre becomes the threshold onto the natural landscape of the Wadden Sea. The wad walk takes one across the plain and brings one to the barrier islands of the Wadden Sea. This creates a new threshold. First one is lifted from the Wadden Sea onto the sandy dunes of the islands. On the other side of the islands lies the North Sea. The North Sea contrasts the rhythmic calmness of the Wadden Sea. The North Sea is in constant rage, demonstrating the immense forces of nature.

BUILDING FOR LANDSCAPE

But the mention of walking, rambling or picnicking conjures up a picture of some piece of land which affords the opportunity not only for comfort but also for the contemplation and enjoyment of landscape.25

As previously discussed, architecture can only present landscape, it can not capture it. A Wadden Sea Interpretive Centre could greatly aid the visitor in understanding the landscape. It could, as threshold, make clear distinctions between the cultural and natural landscapes. Through framing, the architecture could point out important landmarks and interesting places, which could later be recognized while participating in the landscape. But most importantly it could bring people to a natural landscape which may not be immediately understood as a richly textured precious place. The building must create the opportunity to move across the landscape in an intimate fashion and create a sense of nature as space, an unprecedented phenomena in the Netherlands.26

The horizon defines the edge of landscape (space).27

The interpretive centre presents the landscape in two ways. The first is through framing, or presenting views. The second is through transition, which deals with how a person walks through a space. The natural and cultural landscapes are very distinct, and can only be visually engaged at the crest of the sea dike. When one walks out of the interpretive centre and is first presented with the natural landscape one is allowed only a glimpse of the view through and past the restaurant.
A window frames a view, and usually controls the direction we to look. Fenestration is as much about view as it is about light. We look for the horizon as a reference point, and achieve a connection to the outside. The fenestration of the interpretive centre is not intended to give any picture of the landscape, it merely hints at what lies beyond. In order to appreciate a landscape one must be willing to fully engage it. The visitor must step onto (into) the Wadden Sea, and take a long and careful look before sensing the richly textured subtleties of the landscape, so that they can make a connection between the cultural and natural landscape.

The interpretive centre presents the context of the landscape, giving the visitors a hint of what the Wadden Sea has to offer. The visitor is then presented with the complete glorious view of the Wadden Sea, but this does not mean that there is nothing left to see. The view is the theory, an abstracted presentation of a complex land. When the wadloper steps off of the board walk and into the mud the visitor engages the landscape, and can only then truly understand and appreciate the precious qualities of the Wadden Sea.

The interpretive centre presents the cultural landscape in view. The dike maintains a separation between the building and the Wadden Sea. The views are mostly layered glimpses, through sections of the buildings to the farm land beyond. The axis along the entrance is maintained with a view along the dike. The theater, which sits on the dike, allows a full view along the axis of the dike. The connection to the dike will easily be made. The floor of the theater is formed like the dike. When needed a heavy curtain can be drawn to close the theater from outside light, but at this time the connection to site topography will have been made.

The exhibition space is the most important part of the building. The focus will be on displays instead of the actual landscape, so there is little need to display the cultural landscape. The fenestration of the interpretive centre therefore simply contributes to the lighting of the space, and shows only skyscapes. The sky does not recognize the edge condition presented by the dike.
The interpretive centre cannot give a full understanding of landscape through slides, films or other displays. The centre simply clarifies the site to the visitor, allowing the tourist to enjoy and appreciate the site more fully. The glimpses which the windows allow of landscape are not intended to capture the landscape, they are intended to capture the interest of the visitors.

There is a distinction between cultural and natural time just as there is a distinction between cultural and natural landscape, and at the Wadden Sea the threshold exists in the same place, on the sea dike.

The Wadden Sea is presented only when leaving the interpretive centre. Every tread of the last section of the staircase offers more view of the Wadden Sea, but the restaurant creates a buffer between the visitor and the landscape. Once one is in the restaurant one is subjected to two views, or two landscape choices. The seating area of the restaurant looks toward the German Wadden Island Borkum, slightly east of Rottem. This large island is inhabited and is usually visible from the mainland. The path cuts through the building and becomes a raised board walk. This directs one toward the teahouse at Rottem, presenting the landscape of the walk in which many of the visitors will participate. The view directed by the board walk anticipates the journey while the view of Rottem is not much more than a framed interpretation of the Wadden Sea landscape. One finds herself almost at the top of the dike upon exiting the building.

The view is mostly directed forward when one walks along a flat landscape which has little or no markation. The guide could direct the attention of his audience when deemed necessary. The view remains fairly constant, with the sea hut slowly emerging from the distant view. The group of walkers could use the sea hut as a lookout point to scope out the land. The hut is the midpoint of the pedestrian part of the journey, so it is here that the traveler can dissociate themselves from the landscape, looking toward the journey ahead, and looking back on the fast disappearing footsteps they left in the sand.

The top platform of the sea hut presents the panorama, which means 360° of horizon, so the landscape becomes almost 100% natural. The lower platform protects the hut users from the cold northern wind. The travelers have been
traveling and therefore looking north for several hours, so the cut off view becomes part of the rest.

The teahouse presents a landscape of three elements: the island, the Wadden Sea and the North Sea. Here one leaves the Wadden Sea behind, so the building largely turns its back to the journey. The teahouse is also a place to rest and replenish energy through heat and food. The lounge is relatively closed to the landscape, with a dominant western view of the Dutch Wadden Islands. The roof of the building embraces the site in all directions, allowing the building to radiate from within. This raised roof, free from most of the wall structures, allows much light to enter the building. The exhibition space looks toward the east, with the focus on the old town site. The North Sea, from whence the boat which will transport the visitors back to cultural time will come, is presented at the boardwalk which broadens at the north side of the building. An exterior waiting area terminates this part of the boardwalk.
Time and Tide

Time is an image of eternity, but it is also a substitute for eternity.

Our lives are regulated by a series of clocks and calendars which have long ago abstracted the rhythms of nature. The Wadden Sea has no such schedules imposed upon it. Here time is kept by the sun and the moon, by the nesting birds and the weather. Here time is imposed by nature, not culture.

Upon experiencing the Wadden Sea one inevitably discovers that it is a landscape in constant flux. It is a metaphor for change. Here one can actually experience nature and land erode and change within the confines of the human temporal experience.

The interpretive centre will act as a threshold between natural and cultural time. The passage of time at the Wadden Sea can be perceived in three ways. The perception of the different kinds of time lead to a heightened sense of the layering of time which the architecture must recognize. Linear time deals with change, through the movement of the land and water. Cyclical time comes from the natural rhythms of the landscape. The most abstract element of time in the Wadden Sea creates a sense of time through timelessness. Elements of the landscape seem to be unchanging, or constantly reborn, so that they can become the point of reference from which change can be measured and perceived.

Cultural Time

Telling time is a simple technical problem, but unfortunately the clock is a rather obscure perceptual device.

The mechanical clock is a recent development in history. Before the mechanical clock, the sundial was the most useful tool for keeping time. The sundial measures midday, dawn and dusk, and can divide the day into a number of sections. The sundial measures time directly from nature, since dawn and dusk change from day to day on the twenty four hour clock. The modern
international culture has led to a standardization of time. We wake without regarding the sun's position and live according to the arbitrary measure of week.

Clocks keep time. The cues of keeping time come from nature, mostly dealing with the earth's rotation around its own axis. The clock splits the day into two cycles of twelve hours, and splits these hours into minutes. The time it measures for is arbitrary, since the sun never rises at the same time, while the rooster measures the sun rise to occur at the same time every day, at dawn. The clock measures noon, but does not measure the time the sun is at his highest. The sundial does. The clock, by abstracting time and by making it a measurable entity, makes time a commodity.

The calendar must make constant adjustments. It is based on the earth's rotation around the sun. The calendar must be synchronized with the clock, but this is hard to do when a year lasts about three hundred and sixty five days... and six hours. The calendar measures months, which are not synchronized with the lunar cycle, the origin of the month. A calendar does not tell someone when to sow their seeds, or when their cows will calf; a calendar does tell us how many shopping days are left before Christmas.

Clocks and calendars have become an important tool for our global village. One can not make a business appointment between 'when the cock crows and the sun is high up in the sky'. It is an essential part of communication in our society. Sometimes we are stressed, and do not want to think about the passing minutes, we do want to think about deadlines and the end of the fiscal year, and at this point we long to abandon our watches and digital clocks so we can enjoy a place where time is measured by the wind and the sun, we want to embrace natural time.

Time, as measured by any culture, is based on the time of nature. It is nature which created the basis of our calendars, and has created our biological rhythms. As a culture becomes more and more removed with a direct relation to nature, it becomes more and more removed from keeping natural time.
NATURAL TIME
Our internal rhythms seem to respond to the rhythms of the universe, and we use those external changes to regulate our own life processes.31

Natural time does not only exist outside of our culture. We still perform tasks, and live by many of the rhythms which occur in the natural world. Natural time cannot be manipulated. We can not change the time the sun rises, or change when Halley's Comet becomes visible from the earth. Natural time consists of a number of rhythms and cycles which are created by the rhythms of the universe. It is a multi-layered clock, one which can not be completely comprehended, and one that can not be ignored.

Natural time has elements we all live by, elements which create the natural rhythms of all of nature's creatures. There are two elements which set up our temporal understanding here on earth. The sun appears to be the central object from which we measure time, but the sun is a stationary object in space for earthlings, so it is in fact the earth's movement in relation to the sun which creates an image of change and repetition. The secondary icon of the passage of time is the moon. The moon orbits the earth creating an important secondary rhythm for the lives of many of the earth's creatures.

The sun and the moon both have gravitational pulls towards the earth. Gravitational forces cause the water masses of the earth to move toward these stellar bodies, creating tidal rhythm. The moon is the dominant element in the creation of tidal rhythm, the sun the secondary. When the two are aligned on axis with the earth the gravitational pull is increased, creating a high tide.32

Time is constant; the interval between one second and the next is the same. This is not how we perceive; we perceive the passage of time as one of constantly changing velocity. Pleasure leads to a speeding up of time, boredom leads to a slowed down version of it, while the clock ticks away at the same speed. Our bodies have many ways of measuring time but sometimes the mind forgets how time has spased.
WADDEN SEA TIME

Natural time is an essential part of the Wadden Sea. The Wadden Sea is a place of natural rhythms. The most important rhythm is the tidal rhythm. A tidal day is 24 hours and 50 minutes; one cycle is 12 hours and 25 minutes. The rhythm is evident not only in seasonal changes and tidal rhythms, it is also etched into the wave formations in the sand, created by water and wind. The change occurs with every rhythm, every wave moves and removes molecules, every tide creates new streams, destroys old ones. Every island is in flux, some moving faster than others. The seasons; the breeding and life patterns of the many animals; the day and the night; all are elements which help to create a composition of change.

The animals of the Wadden Sea are a part of the natural time of the Wadden Sea. They also control human activity. Seasonal mussel, shrimp, bird and seal presence can limit access to parts of the walk, closing or diverting the passage.

The birds, which are such a dominant part of the Wadden Sea also give their own layer to the rhythms of the Wadden Sea. Every kind has its own rhythm in flight and behaviour, in colouring and sound.

The one image of time which occurs both as fragment, and as continuous element, is the presence of waves. Wave patterns are created by water and wind. Waves represent a rhythm which can easily be abstracted into a scientific formula. Tides are in fact enormous waves. The smaller waves, which can be layered, are always present on the water; on the Wadden Sea as small ripples, on the North Sea as thundering masses of water.

Waves are also temporarily represented as a still form, imprinted on the sand by both the wind and the movement of water. These are portraits of change, constantly creating patterns in the sands of the Wadden Sea. Every day they are different, never repeated, but in essence always remaining the same. A newly formed landscape, both reborn and virginal, as well as a portrait of an unchanged land.
The experience of the wadloper occurs in a time frame. This time frame is controlled foremost by the rhythms of nature. When a number of people venture into a similar temporal experience like wadlopen they would likely obtain a somewhat synchronized sense of time. The sense of synchronization would stem from the intimate relation with natural time as well as the shared experience. The defined time frame is like theater where everyone enjoys the experience simultaneously.

LINEAR TIME
We have two kinds of evidence of the passage of time. One is the rhythmic repetition - the heartbeat, breathing, sleeping and waking, hunger, the cycles of the sun and moon, the seasons, waves, tides, clocks. The other is progressive and irreversible change-growth and decay, not recurrence but alteration. Men have made magical attempts to see the second phenomenon as a cosmic variant of the first, to pretend that change is also cyclical, to imagine that progressive time is a series of eternal, contrasting repetitions, each arising from the other. That magic warms the spirit with the sense that decline and dissolution are only appearances, that resurrection will follow. But the things we love do not in fact come back to us. Whatever our hopes, we know things change.

Linear time implies constant change. The Wadden Sea changes constantly: at the island this change occurs rapidly, while at the sea dike the change occurs very slowly. The dike is the anchor from which change radiates. Environmental change rarely falls into the human temporal experience. One would have to revisit the site year after year to realize the extent of the changing nature. The time which is kept by the Wadden Sea is primarily cyclical. The cycles never come back to the same point, with every cycle the land is changed, so a linear pattern may be derived from the cyclical nature.

Time is measured through change. Left in the dark we can only use the beating of our hearts to measure the passage of time, but that is not enough. When we are deprived of sensing change our perception of time slows, so the Wadden Sea, which always changes, creates a heightened sense of time.

CYCLICAL TIME
There are theories which suggest that the morphodynamics of the Wadden Sea occur in a somewhat logrhythmic cycle. The islands, although in constant
movement, do not change significantly over hundreds of years, they move, and disappear, but they move along the same general path, and they are recreated on the same spots.

The cycles of the seasons, of the tides and days, are the cycles which dominate the landscape of the Wadden Sea. These cycles can be measured without tools, they can be perceived by engaging the landscape. The wadloper will see the landscape unfold in front of him, so that the first part of the journey can be made as a pedestrian, and he will see the water cover the landscape, so that the return journey can be made by boat. The journey gives indication of one tidal cycle, the building block of the landscape.

The Wadden Sea is not only very old, but also very young. In fact it is an area of continual construction and destruction. The sea and the wind build as they destroy, creating new land and new habitat as other land is pulled into the sea. This destruction/rebuilding cycle is especially obvious in Rotter, where a two and a half meter difference between low and high tide easily moves the sandy ground.

**TIMELESSNESS**

Because the Wadden Sea recreates itself daily it appears unmarked by man. The wind does the same to deserts and dunes. This recreation or rebirth gives parts of the Wadden Sea a sense of timelessness: everything changes, yet everything remains the same.

The idea of renewal is one aspect of timelessness. The dike has been established as the definite coastal border which will no longer change. This makes the dike the anchor from which change can occur. The dike can be used to measure change. The visitor may revisit the centre yearly, coming to the same place, with a different view unfolding before her.

The many rhythms and changes of the Wadden Sea are so layered and complex that it is unlikely that any one person can have an complete understanding of all its intricacies. What is clear is that anyone who visits the
Wadden Sea and walks on its ever changing sand flats will go through a heightened sense of time, both in the perception of change, and in the perception of rhythms and cycles.

**Composite Time**

Our internal rhythms seem to respond to the rhythms of the universe, and we use those external changes to regulate our own life processes.\(^{40}\)

Composite time occurs when the passage of time can be perceived in more ways than one. Time passes in a layered manner. Cultural and natural time constantly collide, and time can be perceived as linear and cyclical simultaneously. We live by a schedule which although cultural was born from natural time. We sleep at night, we work in the day time. Our metabolism slows in the winter months, suggesting a period of hibernation. Menstrual cycles run roughly synchronized with the moon. Still we divide the year into weeks, work the same hours, regardless of the season.

When we visit the Wadden Sea we can only abandon cultural time in a figurative manner. We can predict when a low tide occurs, so we make an appointment to meet on a clock and calendar created by cultural time. The Wadden Sea and the interpretive centre create a space not void of cultural time. The cultural time simply takes a back seat to natural time. The walk can not start on a twenty four hour cycle, it must start according to a twenty four hours and fifty minute cycle, the clock which is kept by the movement of the tides.

The cultural and natural time must therefore synchronize in a certain way, much like the swimmer in the ocean whose stroke and breathing rhythm becomes synchronized with the rhythm of the waves.

Linear and cyclical time can also occur concurrently. The cycles of the Wadden Sea form a helix, creating long term change. The barrier islands see the largest overlap, since the strongest tidal flows create fast change to the landscape.
ARCHITECTURE IN TIME

Ruined structures, in the process of going back to earth, are enjoyed everywhere for the emotional sensations they convey. This pleasurable melancholy may be coupled with the observer's satisfaction at having survived or being tinged with righteous triumph, aesthetic delight, or intellectual enjoyment... But at the base the emotional pleasure is a heightened sense of the flow of time. 41

Buildings exist in time. Some last only a year, some last centuries. Most buildings are designed to last well over fifty years, so they see significant change, but they are rarely designed to accommodate change. They are a reaction to the site as it exists in a small time frame, the time frame of the present. However, site and architecture are not stagnant, they are dynamic, so buildings change with the site, no matter how much we spend on sustainability.

The dynamic aspect of site exists in several layers. It can occur within context as well as appearance. Context occurs through the changing site and building use. Appearance is related to cosmetic changes.

The context of a building changes with the destruction and construction of buildings and parks in vicinity of the building. This includes re-zoning and re-use. The building will likely adapt itself to the changing city and the changing community. The automobile and the train have also played an integral role in the changing context of site. We now often perceive buildings while moving over one hundred kilometers per hour. Streets have divided old cities and created new borders, edges and thresholds within the cultural as well as the natural landscape.

The appearance of a building is changed cosmetically over time, due to growing and changing vegetation, the aging and weathering of buildings and streets, and the cosmetic application given to streets and building exteriors. Many of these changes are controlled by fashion. Fashion, or the popular, will direct decisions toward colour as well as material and form.

The architect can only exercise control over the changing building, not the changing site. The site must be considered a dynamic entity. We build in the
present, for the future, and are inspired by the past (precedent), the present (the new) and the future. The architect must be aware of the impact the construction will have on the site, both in the present and as a developing and changing place.

_Finishing ends construction, weathering constructs finishes._

Buildings age. Materials discolor, fade, rot, mould, stain and wear away with time. This is not a negative aspect of architecture if it is considered a design tool. The right weathering will construct a building long after the last contractor has departed the site. All buildings weather, all materials change, but the nature of this project makes weathering an important part of the design.

...The form of the environment - the distribution of objects and activities in space and time - can encourage the growth of a strong image of time, can support and enrich it.

Movement in space necessitates time. As we move around objects in space, around architecture, the appearance of the object changes. As one commences the walk a sequence of experiences occurs. The landscape always changes beyond the permanence of the dike. The dike becomes the anchor from which change can ripple across the landscape. The dike, although changing in view, is the security blanket for the wadloper. Everything can change and shift, as long as one can believe that the dike remains the same.

**Time in Design**

Where synchronization is absolutely required, it should be supported by perceptual clues that convey the sense of a common endeavor. When concerted effort is needed to move a weight, a rhythmic song makes it jump. When a group deliberates together, a token meal prepares everyone to think in concert.

How can one imbibe a sense of heightened time into an architectural design? Change and rhythm both have to be addressed properly for any building which deals directly with the Wadden Sea as a site. A building is a clock which tells time: it changes, yet the changes can not be entirely predicted. Any building on the Wadden Sea must therefore accommodate time.
The largest factor in the changing/aging of a building is related to water and weather. Water stains, rusts, and allows microorganisms to change a building's appearance. The weathering of a building and how it accepts this kind of change will be dealt with in the next section. This section will focus on how architecture can heighten the experience and understanding of time.

The site is so weighed down with time that the architecture should only have to recognise and accommodate its changing and cyclical nature. The factor of time and change in architecture is therefore recognised and manipulated, it is not created or designed as a separate element.

Kevin Lynch suggests five ways in which environmental change can be made into an aesthetic architectural experience. I will use these five ways to demonstrate how the Wadden Sea experience, through the interpretive centre and the walk, realizes elements of time.

1. Temporal Collage
   - A visible accumulation of the rich traces of time
2. Episodic Design
   - Contrasting states that resound against personal memories and expectations, organising time into discontinuous, recurrent patterns (Rhythms) (present compared to past or expected)
3. Displayed Change
   - Dramatization of continuous modifications of the present
4. Viewer's Motion
   - Creating perceived change through forcing the observer through a series of scenes
5. Use of Media
   - Bringing rapid or slow change into the human spectrum of perception.

Temporal Collage: The Wadden Sea is a temporal collage by definition. The entire landscape is filled with traces of time. The moving water; the waves in the sand and water; erosion and moving sand; all become a wonderful composition of change and rhythm. This must be recognized in the design of all three buildings.

The interpretive centre is built on the sea dike. The sea dike represents change through the imposition of cultural landscape onto natural landscape. The dike
also has a certain static quality. The placement of this dike is permanent, so it becomes the anchor from which change can occur for the wadloper. The interpretive centre is strongly seated in the dike, and changes little in massing. The structural repetition creates a rhythm more similar to the time and landscape of culture, not nature.

The interpretive centre must embrace change just the same. This is done through manipulating the way the building ages as well as the way the building skin can be manipulated to act and react toward sun, wind and temperature. The teahouse and the rescue hut will deal with the elements in a more extreme way, closing for winter, going to a state of architectural hibernation.

-Episodic Design: The Wadden Sea can not fully be read as a rich texture of rhythm and change without some basic knowledge of the landscape. With the help of a guide and numerous displays and signs the visitor could achieve a fairly basic understanding of rhythm on the first visit. Understanding could be achieved through episodic design, which organizes change and events into a pattern.

Architecture can not teach any complicated lessons about the formation of landscape, although it can act appropriately toward the site, clarifying and directing the focus and attention for which the building was intended. Episodic design would occur first and foremost in the displays of the centre. This project deals only with architectural solutions, but some architectural elements of the three structures do partake in a certain level of episodic design.

The water feature of the interpretive centre clarifies the movement and rhythm of tides, demonstrating high and low tide levels, and the present sea water level. The sea hut is built on piles, which are an essential and recognizable element of its form. The sea hut will be required to be moved from site to site on the Wadden Sea, due to its morphodynamic nature. The piles will be left in place, leaving a record of the huts of the past, and making the sea hut an event as well as a place. The teahouse directs our attention to past and present. On one side it looks toward the old town site, which is now sand and water, and on the other it looks toward the tidal inlet, which will eventually
close, making Rotter a much larger island. The teahouse is both nostalgic and anticipatory.

-Displayed Change: The Wadden Sea acts as the largest display of change possible, but much of this change can not be experienced within the time frame of a day. This means that the interpretive centre must make this change perceivable to human temporal understanding. Displayed change would largely be demonstrated through photographs and displays, since they can easily make change, which takes years to take place, fit into our sensate realm. Displayed change falls mostly out of the realm of architecture.

-Viewer’s Motion: The Wadden Sea experience deals with two kinds of motion. The landscape moves, and the wadlopers move upon it. As land and water moves, the visitor can engage the landscape more and more deeply, eventually reaching the extent of the journey. Space and experience can change within an architectural expression much like it can in nature.

The visitor is led through a series of spaces and events when visiting the Wadden Sea Interpretive Centre. The multi-layered aspect of the landscape and the architecture lead to a rich experience which has been imbibed with a heightened sense of time. The progression of space is an essential part of architecture. Every corner allows a glimpse to the next space; a window or door hints at what is beyond.

Perhaps the greatest of transitions occurs within the interpretive centre where one is led through the building stepping from the cultural to the natural landscape, shedding cultural time, so that natural time can once again be embraced. The other important transition occurs at the teahouse, where one leaves the Wadden Sea for Rottermeroog, which separates the North Sea from the Wadden Sea. Nature’s enormous power is immediately made clear once again, leaving the visitor with a sense that the Wadden Sea has the potential to be as threatening as the North Sea.

-Use of Media: The use of media excludes architecture to a degree. Media would be an essential part of any interpretive centre, but I do not find it pertinent to design signage or display areas. Film could be an excellent media
to demonstrate slow change through stop motion photography. The architecture will house the media, extending to signage displayed on the landscape. The theatre is designed to accommodate media at several levels.
Weathering

Buildings are single substantial structures that can be demolished by men or nature or both in time. In architecture, the gradual destruction of buildings by nature in time is weathering.

Weathering refers to the way architecture reacts to the environment, the changing and aging of a building, as well as the elements of the building which deal with or control these changes like gutters. This mostly applies to the building skin, but if weathering is not properly dealt with it can start to degenerate the structure of the building.

The weatherings we are most familiar with are caused by rain. Water can create rot, mildew, staining, oxidation and cracking, changing the nature of many materials. The way we drain water away from a building is an important part of design. The gutters and downspouts of most buildings are usually an afterthought and are not integrated into the design.

The interpretive centre is about designing through landscape and time, so weathering becomes an essential part of the design. Weathering refers to the way the buildings deal with weather as a whole, as well as how they weather and change. The choice of materials and the design of weatherings are to be considered separately for each of the three buildings, since they each address different aspects of the site. However the three buildings are still a singular architectural expression upon the landscape, so the design must be subtly integrated.

The weathering of a building is an essential part of architectural design. There are two approaches to the weathering of a building. One way is to protect all of the materials with finishes and details to retard weathering as much as possible. Stable materials like acrylic stucco and vinyl siding are excellent materials for such an approach. The other approach embraces weathering. The shedding of water and the aging materials are a celebrated aspect of the building. This requires a mix of materials, and a knowledge of their nature. When weathering is embraced, the changing building does not only age, but metamorphosizes, becoming a dynamic form.
WEATHERINGS
The term 'weathering' was, in fact, originally defined as that part of a building that projected beyond the surface of any external wall and served as a 'drip', in order to throw off rain water (these weatherings can/will lead to staining).47

The buildings must incorporate weatherings into the design so that they can properly embrace the issues of time and change presented by the site. Modern building techniques use weather proofing, not weatherings. These devices are designed to hide the signs of aging, creating forms which appear static in nature. Certain parts of the interpretive centre will be weather proofed, and thereby become static elements from which change of the rest of the building can be measured, much like change in the Wadden Sea can be measured from the static dike. The interpretive centre will use weatherings as essential details to demonstrate the changing and shifting elements of the building.

Materials weather in different ways. The juxtaposition of static materials like stainless steel, along side of the use of dynamic materials like exposed wood and copper, can create a composition of change.

The interpretive centre has a defined life, just like any other building. The time frame in which a building will exist is unclear. Within the lifetime of a building it may go through a number of rebirths, through renovations and changing functions. Every building will return to the earth from where it came. At the point at which demarcation notes the building's demise, weathering takes on the role of death mask.48 The building becomes ruin, a record of a past time, eventually returning to the earth, to the horizon, thereby returning to nature. The building slowly merges with the landscape, and is completely integrated with the site.
The Design

The idea of a project, hypothesized in sketches, drawings and models, are its past, which will be soiled by the marks of weathering after construction. The effects of these marks can be retarded through inventive solutions. These solutions could be elements that direct or prevent the flow of water, or they could respond to the effect of the weather by creating situations that both recognize and utilize the ever-changing characteristics of materials as a way of renewing beginning by allowing refurnishing.49

The function of the interpretive centre, with its teahouse and rescue station, does not reach far beyond threshold. Threshold, not as a two dimensional line to cross, but as a multi-dimensional space, prepares one before commencing or completing an enlightening journey.

A new building can act either as fabric, or as a monument upon the site. As fabric the building is integrated and woven into the site. Architecture in the city should consist mostly of fabric. Special buildings like musea and city halls are usually approached as monuments. These buildings are differentiated from the site in scale and approach. A site can house few monuments since a city built of monuments becomes a new fabric. The building which is fabric has little impact on site and will likely change along with the site. A monumental building will greatly influence site, affecting the way the site will change and develop.

A monumental building can help organize a site. The fabric of the site can become stronger through this organizing element. The interpretive centre will have a certain monumental effect upon the site. The flat land and the continuity of the sea dike will be broken, creating a slight tear in the landscape. Hopefully the intervention will not compromise the site, rather it will be an organizing element, creating an architectural expression of threshold between two icons of Dutch landscape.

THE FRAGILE LAND

Considering the natural value of the Wadden Sea, wadlopen should be limited to a few pre-set routes, and frequency, number and size of groups should be limited.50

small farm house at sea dike
An architectural expression can buffer the impact of people on the natural environment. One way the impact can be softened is through centralizing the impact to a specific place through the placement of buildings and adjoining trails. This means that wildlife can easily make adjustments to accommodate predictable levels of human activity. The other method is through enlightenment. Through education we can teach visitors that the site is precious, and that any unnecessary human intervention on it can do a great deal of damage. The creation of the interpretive centre will make it easier to monitor human activity and the impact on any particular site.

There is a movement to protect the remaining part of the natural landscape in the Netherlands. The main building is designed to nestle into the south side of the sea dike, to have little or no impact on the relatively fragile ecosystem of the Wadden Sea. The rescue station and the teahouse are more intrusive to the natural orders of the Wadden Sea.

The sea hut sits directly on the sand flats. It would require anchorage to four piles. Due to the shifting nature of the Wadden Sea the sea hut will likely have to be moved from time to time. This means that the building can be fabricated on the mainland, then installed causing little disturbance to the site.

The teahouse creates the largest problem. Rottermeroog is a protected bird sanctuary. This structure would also be built on piles and prefabricated on the mainland. The construction, due to the size of the structure, would be more involved than the rescue station. The building would have to be built at a time where minimal disturbance is created for the various bird populations. The teahouse would be constructed on the fringe of the island, and the wadlopers would be forbidden to enter the island. The tea house may have long term benefits since it will cluster the human visitors to a small area, leaving the rest of the island for the birds.

The interpretive centre, the sea hut and the teahouse are three separate buildings which also have to exist as a singular expression. This means solving the puzzle of connecting three elements stretched across ten kilometers of a powerful landscape. The site offers certain advantages. The first is the flatness of the landscape, affording a view which stretches across kilometers...
before meeting the horizon. The second advantage is the progression of the walk which takes one to all three of the structures, creating a clear relationship. The third is the untouched quality of the land. These three buildings will likely be the only constructions encountered by the wadloper.

THE PROGRAM
The three structures have separate programmatic demands, which are unified by the interpretation of site and a place of sanctuary. The three structures are pauses in a journey, and each allows for revival and rest. The interpretive centre is the beginning and the end of the journey across the Wadden Sea. The sea hut is the midpoint of the pedestrian journey, a place where one can escape from the infinite view. The tea house is the true mid point. The goal has been reached, and from here the journey will recommence by boat.

All three buildings make up the interpretive centre as a whole, but the building on the mainland must exist as a separate entity, since it must also exist for the public which is not able to tread on the Wadden Sea. The interpretive centre I will refer to in this section will refer to the main structure on the safe side of the sea dike.

THE INTERPRETIVE CENTRE
The Interpretive Centre is the largest of the three structures. It houses administrative and research facilities along with the educational and interpretive displays. The building consists of several distinct areas. The first is the entry pavilion, the second is the exhibition space. A lecture and audio/visual space is separate from, but related to the exhibition space. Administrative space and research space take up two blocks of the building, and a small snack-bar completes the list.

The Approach to the building can be made by car, shuttle bus or bicycle. A parking lot and bike storage will become a part of the site development of the interpretive centre. One returns from the island on a small flat hulled boat, so a boat launch must also be constructed.
The Entrance Pavilion is the meeting place which must incorporate several functions. Ticket sales, an information booth, and a small souvenir shop are essential elements of the pavilion. The entrance will also require a large meeting place, as well as clothes changing facilities.

The Exhibition Space is the most important part of the interpretive centre. It would house a small introductory space, with three larger spaces. The larger spaces will all fit into a single volume and house displays dealing with morphodynamics, site ecology and site history.

The Theatre will be used for lectures, films and slide shows. The wadlopers could gather here to learn proper wadlopen procedures. The theatre is integrated with the exhibition space as the public part of the interpretive centre.

The Administrative Block will house all of the administrative needs of the building. Offices for guides, coordinators and curators as well as an area for general office use is included in this block. The receptionist area and a staff lounge overlaps the research block.

The Research Block houses a library and a shop/laboratory. The shop would be used for research as well as the creation of new displays and signage. The administrative and research blocks could be shared by the Wadden Sea Society, a government environmental research organization.

The Snack-Bar/Restaurant is the last element of this building. It offers the view across the Wadden Sea. This area would be separate from the interpretive centre, and contains its own rest room facilities. A small kitchen, a exterior/interior sitting lounge and counter will be incorporated into the design.

Our eating habits are an essential element of our natural rhythm. We must eat at regular intervals to maintain energy. The walk across the Wadden Sea offers a perfect opportunity to reach a level of synchronicity. Each building
would give the traveler a chance to consume food and drink, creating three places of rest.

The Raised Board Walk creates a strong axis for the walk to Rottermernooog, and makes the first few hundred meters of the Wadden Sea easily accessible for most visitors. The board walk forks off to allow boat access.

The Sea Hut
The sea hut is foremost a place of sanctuary for the wadloper. Sanctuary from the vast scale of the landscape, and sanctuary from potential storm surges. This means that certain safety supplies and communication devices must be made available in a storage area. The sea hut will not serve exclusively as a place of refuge. It will also serve as an integrated part of the walk, and the interpretive centre.

The sea hut is a place where the exhausted hikers can lift themselves above the sea, creating a place for rest and revitalization. Here the wadlopers can break for lunch, or a light snack, hiding from the elements.

The sea hut will also house some educational displays, and serve as a lookout tower, where a full view of the Wadden Sea landscape can be presented. The sea hut stands in the middle of the Wadden Sea, so through maps, photographs and other visual cues one could easily demonstrate the dynamic nature of the site.

The Island Teahouse
The teahouse is the last stop the wadloper makes before returning to the mainland. It sits on a barrier island, looking over the North Sea. The teahouse needs a lounge space with a cafetaria, sanitary facilities, a small exhibition space as well as the small boat launch.

The Lounge Area requires a kitchen, an interior/exterior sitting area and a snack bar. The lounge must offer sanctuary from the elements. At the end of the journey the group of wadlopers will possess a different social dynamic than
at the beginning of the journey, leading to a certain sharing of experience. The lounge would therefore be less oriented to panorama, landscape and view, and more oriented to conversation and social dynamics.

The Exhibition Space of the teahouse will be small, concentrating mostly on the history of the island Rottermeroog, as well as the ecology of the island. The exhibition space would likely be integrated into the lounge space. The restaurant space focuses on the experience of the walk, while the exhibition space will focus on the island of Rottermeroog, the site of the teahouse.

The Boat launch/Boardwalk will be an important part of the teahouse, since the island can not be directly engaged by the visitors. This means that the decking which creates the launch becomes a space which will incorporate views and seating areas where one can wait for and anticipate the arrival of the boat.

The flat hulled boat makes its journey back to the mainland along some of the deeper kreken. The wadlopers could wait until the water level has risen to a level which is safe for a journey by sea. The first part of the return journey will be on the North Sea, then the boat will turn in the Wadden Sea at the East end of Rotter, where the sea would once again be calm. A small canal, which would occasionally require re-digging, will allow the boat to return to the board walk launch of the interpretive centre, where it will remain beached until the next tide frees it sail again.

CHOOSING THREE SITES
Choosing three sites for the buildings resulted from site interpretation. The Wadden Sea is a place of subtleties, so choosing one site from the next was not immediately clear. The one thing which was established from the beginning was that the interpretive centre would be on the mainland, the sea hut on the Wadden Sea, and the teahouse would be placed on a barrier island, the normal end of the journey for the wadloper.

The Interpretive Centre has to be easily accessible to the public, and deals with both the natural and cultural aspects of the Northern Dutch landscape.
Uithuisen is currently a popular place for wadlopers. The train comes close to the sea dike, stopping a few hundred meters from the first dike. The interpretive centre site is easily accessible by road, and an excellent starting point for the walk to Rottermeroog.

**The Sea Hut** sits a little beyond the mid point of the journey. The site placement relies on the location of the kwelders and kreken. The land formation changes constantly, so the rescue hut must be partly mobile. It will have to be moved whenever necessary, likely every five to ten years. The rescue hut will be built on concrete piles, and whenever it is moved the piles will be left in place. This leaves a record of the past locations of the rescue hut.

**The Teahouse** location on an island was the most essential because it largely defines the placement of the interpretive centre and the rescue hut. Rottem became the clear choice since it is abandoned, a beautiful small island, and a prime example of changing landscape in the Wadden Sea.

Rottem consists of two separate islands divided by a tidal inlet called the Schild Inlet. Rottermerplaat is a newer island, consisting of sand plates and grassy dunes. Rottermeroog is an old island, inhabited until the last century. The town has gone to the sea, but remnants of the human population still exist as ruin, creating a sense of history and time. The island is populated by many kinds of birds and is a natural sanctuary, so any intervention must be as minimal as possible.

The specific site will exist on the western end of the island, looking to Rottermerplaat. "The Schild Inlet between Rottermerplaat and Rottum(eroog) recently has started to decrease in size, giving rise to a positive sand budget on Rottum's Northwest coast. It seems possible that the Schild will completely be filled, allowing Rottermerplaat and Rottum to form a single, major island."52 I hope this place, which is close to the old town site, will give a sense of the past as well as a sense of the future through the anticipation of the closing of the inlet.

The northern coastal winds and frigid water makes the walk virtually impossible in the winter months. The winter also offers an higher level of unpredictability
where the weather is concerned, so the buildings will participate in a form of hibernation. This means that all the structures would have to be winterized, to ensure that they would sustain minimal damage due to storms and weathering.
The Interpretive Centre

The interpretive centre is nestled into the south side of the dike. One approaches it by driving north from Uithuizen through the first two dikes, the dreamer and the sleeper. At the sea dike one will turn left, driving along the side of the dike. The interpretive centre is the only break in the continuity of the dike. The interpretive centre will be within the visual field almost as soon as one leaves the town, making the trip clear and simple. At this point the Wadden Sea will not have been visually perceptable.

The entrance to the interpretive centre has a ticket counter, where one can purchase the entry into the building, or pay for the guided walk across the Wadden Sea. The entrance expands to reveal an exterior meeting pavilion. Here the entire building is clearly presented. The structure of the roof is suspended above the entry, creating a canopy, and clearly demonstrating the structural order of the building. The entry pavilion has changing facilities and a small souvenir shop, which can both be used before entering the interior of the building.

The entrance pavilion uses an architectural tidal pool to conduct the visitors into the building. The tidal pool is a deep hole which shows current sea level, demonstrating change through tidal movement.

The visitor now finds herself in a large volume. To the left are washrooms and the administrative block. Views to the outside are mostly toward the sky, or frame the landscape, giving glimpses of views instead of panoramas. The exhibition spaces are all nestled underneath the giant roof structure which is suspended between the carved out dike and the administrative block. The low space, which is free from the dike is dedicated to the history of the site. The upper spaces, dealing with the ecology and geography of the site, are carved from the dike and are about one and a half meters higher than ground level.

The space on the west end of the building concentrates on the morphodynamics of the Wadden Sea. The displays will demonstrate the
view of interpretive centre looking toward SE

- a) entry block
- b) souvenir shop
- c) lockers
- d) entry pavilion
- e) tidal pool
- f) washrooms
- g) offices
- h) staffroom
- i) research facilities
- j) library
- k) exhibition space
- l) kitchen
- m) restaurant seating
- n) boardwalk

interpretive centre plan at 1:500 scale
changing and cyclical nature of the site. The east end of the structure holds displays which concentrate on the ecology of the site, concentrating on plant and animal life on both sides of the dike.

The entry pavilion and the ecology exhibition space frame the theatre. This space uses the shape of the dike to create the theatre, giving the audience a sense of being seated on the dike. The view from the theatre looks toward the east, the direction from which the travelers came.

The administration block corners at the west end of the building, creating the second block dedicated to research and development. This block is completed by a small library mass. The point at which the administration and research blocks corner becomes the staff room.

The two upper exhibition spaces are separated by a set of stairs which leads the visitor to the crest of the dike. Here the visitor leaves the building and gets a first view of the Wadden Sea, layered through the snack-bar/restaurant. The walk is guided through the restaurant, which has an open kitchen with a self serve counter on the west side, and a seating area on the right. The seating area is skewed, and enjoys a panoramic view of the Wadden Sea. Here the visitor is truly confronted by the site. The seating area has some inside/outside ambiguity which is enhanced by large movable glass panels.

One can chose to bypass the restaurant, or walk through it without engaging it. Outside the wind becomes a new element to the site. The visitor is now unprotected. The visitor now finds herself above the dike, and can walk upon the raised decking. The pier will span beyond the dike, at which point one can go down to the ground. At the ground a low boardwalk will span the first silty part of the Wadden Sea, making the site partly accessible to the physically challenged. The wadloper groups could gather toward the end of the board walk, which will branch out to become a boat launch.

The interpretive centre is a large scale building which makes a significant impact on the site. The experience of the building can not counteract the experience of the landscape, so the large singular volume of the building, along with continuous fenestration which separates the roof from the dike will evoke a
view from interpretive centre looking toward entry pavilion

view of interpretive centre looking toward NW
sense of awe which hints at the spectacle of what lies beyond. The building is heavily structured to ensure that the visitor feels safe from the elements, and to ensure that the integrity of the dike is never in question for the visitor.

An interpretive centre is an educational facility, so the building must also allow a sense of peace and quiet. The architecture must allow the landscape to remain at the foreground, and the educational displays can not disappear into the scale of the building.

THE SEA HUT
As one walks across the Wadden Sea the windmills and churches which are visible beyond the dike are replaced by oil rigs which become visible in the distant north. After about three hours of the amazing walk one approaches the sea hut. At first it would be difficult to separate the sea hut from the oil rigs which lay beyond the Wadden Islands, but as one nears the hut one realizes it possesses a much smaller scale. The sea hut, although small in scale will still possess a monumental scale through differentiation, and by breaking the horizon.

The sea hut is perched on the site. It is raised several meters above the land to accommodate tidal surges. The ladder is climbed, and a small box unfolds to create a shelter from wind, rain and sun. Above the shelter a viewing platform allows a full view of the landscape. On a clear day one may be able to see the interpretive centre emerging from the dike as well as the teahouse upon Rottermeroog.

In the closed confines of the city we tend to seek shelter in open places like urban parks. In the vast space of the Wadden Sea one will look for sanctuary from the sky. This sanctuary can be found in the sea hut as well as the teahouse, which create a more intimate scale.
view of sea hut looking SE at high tide

a) main platform
b) shelter
c) counter
d) upper platform

view of sea hut looking NE at high tide

old piles at high tide

view of sea hut looking NE at low tide

old piles at low tide
**THE ISLAND TEAHOUSE**

Bachelard suggests that difficult to reach places, like a cave or a mountain top, can house a space where time can slow down. This place would be the island, where the resting period within the teahouse would create a lazy kind of comfort similar to a quiet Sunday afternoon after a weekend of madness.

The teahouse is the pinnacle of the journey of the Wadloper. By the time the teahouse is reached the tide will be rolling in, so the adventurer will likely be most relieved to step up off the Wadden Sea. The boardwalk leads one through the building where the self serve kitchen is east of the path and the lounge area is on the west side. The teahouse is mostly walled in, making it an introverted experience, allowing only glimpses of the views. The North Sea is just beyond the teahouse, and can be seen as well as heard from the teahouse. The building enfolds a protected exterior lounge where one can still enjoy the outdoors, while being protected from the prevailing northern and western flows.

The teahouse focuses in all directions. The axis of the island direction and the relation to the North Sea and the Wadden Sea are both incorporated. The exhibition space is focused towards the east, towards the old town. From here a beacon will be visual, demonstrating the placement of the old town church or light tower.

One does not have to walk through the building to get to the boat dock. The boardwalk wraps the building, and widens on the north side. The idea was to create a space similar to the bow of a ferry, which gives one a frontal shock of wind. The space eventually opens to a small waiting area, much like a bus stop where one can anticipate the arrival of the boat.

The washrooms are designed like stalls. Sewage and waste will have to be shipped from the island so the sanitary facilities must be easily accessible for dumping waste. The washrooms have been placed outside, along the boat dock.
a) boardwalk
b) kitchen
c) interior seating
d) exterior seating
e) exhibition space
f) washrooms
g) boardwalk to boat dock

view of tea house looking W

view of tea house looking E

view of tea house looking N

section AA

view from Interior seating
The boardwalk turns west at the end of teahouse, terminating at the boat dock. This termination point indicates the end of the pedestrian journey. The people can rest and relax on the docks, or enjoy a Heineken and herring in the lounge until the boat arrives. The arrival of the boat depends upon the tide since it requires some water coverage to sail.

The boat does not travel across the Wadden Sea the way a pedestrian does. While a pedestrian seeks out the highest sand banks the boat seeks out the deepest waters. The beginning of the return journey will commence over the rough waters of the North Sea: the boat would travel east, allowing a full view of the north part of Rottermeroog. From here the boat travels south at the edge of the sea-way, until it reaches an inlet where it meanders along the system of kreken. Waterways in the Wadden Sea are marked by a series of long sticks set in the sand. The water ways have to be changed, just like the walking routes due to the erosion of the sand.

The visitor can revisit the interpretive centre for a snack, or a further look at some of the displays, or he can return home. The last hundred meters of the journey are made on the path from which the journey began, completing the journey across the Wadden Sea.
Conclusion

Architecture can serve as transition between two landscapes. Transition in site occurs between city and park, rural and urban, prairie and coulee or any other transition. Many of these transitions can change or move, but the building which once stood as transition remains at the same spot. At this point the building becomes a marker, or a mile stone, signifying a past place.

The Wadden Sea Interpretive Centre acts as threshold between Dutch natural and cultural landscape, and through this landscape a transition also occurs between cultural and natural time. The interpretive centre presents the landscape, it does not represent it.

The Wadden Sea is a vast plain, with a horizon which is only broken by human endeavor. The concept held by Dutch landscape philosopher Lemaire is realized in the Wadden Sea. The horizon is natural, that which breaks it is cultural. This precious landscape requires considerable care and understanding, but also requires a willingness to make the 'big move'. Here a building is not easily integrated into the landscape, so the horizon must be broken. Breaking up landscape can occur on the prairie landscape, on any lake or sea shore, and the willingness, and knowledge to successfully break this line is an essential part of architecture, creating a possibility to enhance the landscape.

Cultural and natural aspects of landscape are involved in all architectural projects. Landscape in architecture is the manipulation and presentation of site. The construction of a building on a natural site will cause the site to change considerably. A successful architectural intervention should not destroy the site, instead it should reveal the essence of the site through presentation, site manipulation and juxtaposition.

Any architectural intervention changes the context of the site, both in urban and rural settings. The intervention can be at a scale which becomes woven into the fabric of the site, or one which is monumental. On a flat, untainted landscape a building will take on a monumental scale. The monumental building can frame the landscape, and become a visual beacon for those who engage
the Wadden Sea. We must understand that the visual manipulation of the horizon disturbs no one but those humans who believe that people are not a part of the natural world.

The Wadden sea landscape presents a nature that is richly textured in time. There are two ways that time can be approached in architecture. The first ignores time, the other embraces it. One ignores time when one designs a building that is unwilling to change. The concept of the 'complete' building, with hidden weather proofing creates a static landmark. The building records change regardless, since it can now become the form from which change can be measured.

We can choose materials and building systems which age. Aging is not bad: it can symbolize beauty and history as well as death. Through the slow death of a building we give it life, a life which can not be breathed into the steel and glass skins of many modern buildings.

The interpretive centre becomes a dynamic building through the amalgamation of aging and static components. The different components of the buildings measure time, and allow the architecture to exist in an clear temporal time frame. The landscape for which they exist remains the dominant part, but the buildings play a prominent part in the drama of the Wadden Sea experience.
End Notes

3. ibid., p.28
5. ibid., p.23
7. De Interprovinciale Structuurschets voor het Waddenzeegebied. Reitsma, T., p.17
11. ibid., p.22-23.
12. ibid., p.6.
13. ibid., p.10.
14. ibid., p.10.
15. ibid., p.6.
21. ibid., p.69-60.
25. ibid., p.188.
31. *What Time is This Place*. Lynch, K., p.117.
33. ibid., p.24.
34. ibid., p.13.
35. *What Time is This Place*. Lynch, K., p.65.
40. *What Time is This Place*. Lynch, K., p.117.
41. ibid., p.44
44. ibid., p.82.
45. ibid., p.189.
47. ibid., p.36.
48. ibid., p.42.
49. ibid., p.120.
51. ibid., p.47.
53. *The Experience of Landscape*. Appleton, J., p.188.
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