TECHNOLOGIES & AESTHETICS

RESEARCH P2

MARC KELLERMAN

Delft University of Technology
Technologies & Aesthetics | graduation studio
January 2024

Marc Kellerman
4707656

Research Mentor: Peter Koorstra
Architectural Mentor: Veerle de Vries
Building Technology Mentor: Koen Mulder

- S U B M E R G E D -

/səbˈmɜːdʒ/

1. under the surface of water or any other enveloping medium; inundated.
2. hidden, covered, or unknown:

- I N D E X -

- ASSIGNMENT, RESEARCH QUESTIONS AND METHODS -

The assignment

The urgency of addressing climate change is highly significant in the field of architectural design. Architects today bear a substantial responsibility when creating new buildings, as they must consider the environmental impact of their designs. The challenge lies in finding a balance between incorporating technological advancements and pursuing aesthetic goals, while also addressing the pressing issues posed by climate change.

This studio places its focus on envisioning a future where architecture can withstand the impact of environmental shifts. The assignment is to design an off-grid building capable of self-sustaining energy production, projecting a century into the future. However, this task is set against a grim backdrop: in a hundred years, rising sea levels could breach existing dikes, exposing the land to water incursions.

The studio's objective is clear: conceive a small to medium-sized building covering approximately 1000 square meters, ready to confront the challenges presented by a changing climate. An essential aspect of this assignment involves seamlessly integrating at least one of the three core themes: material, energy, or water.

However, innovation and creativity thrive within these constraints. While the primary focus is on the critical themes, the building's function and program are open-ended, providing a canvas of many possibilities.

In the crucible of climate change and rising sea levels, this studio serves as a testament to forward-thinking design that aims to tackle these imminent challenges. It is not merely about constructing structures; it is about creating a sustainable legacy where climate resilience, energy neutrality, and environmentally responsible materials take center stage in architectural innovation.

Research questions

0 | How can sunlight and water be foundational elements for an off-grid building design in Groningen?

1 | What are the current weather and water conditions in Groningen and the anticipated projections?

2 | What solar and water-based systems can be implemented to support an energy-independent building?

3 | What architectural language implications arise when energy technologies form the foundation of the design?

Methods

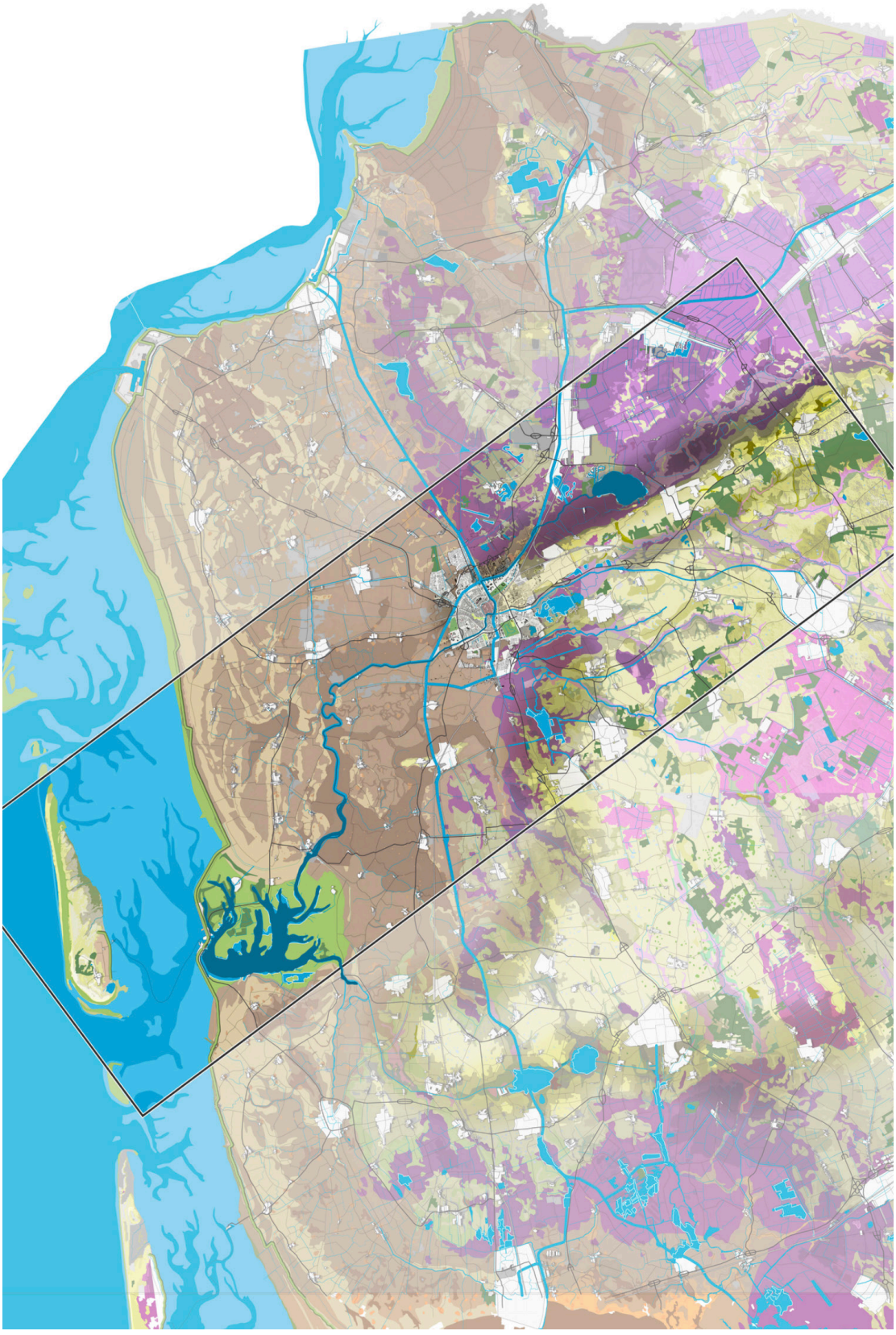
This research aims to create design guidelines for an off-grid building in Groningen where the rising of the sea level in 100 years could become a significant issue.

The research will commence by looking at the current weather and water conditions of the landscape and making an assumptions of the expected future conditions. Since it is not possible to know for certain what the conditions will be in the future, various expectations will be compared to sketch the best possible scenario.

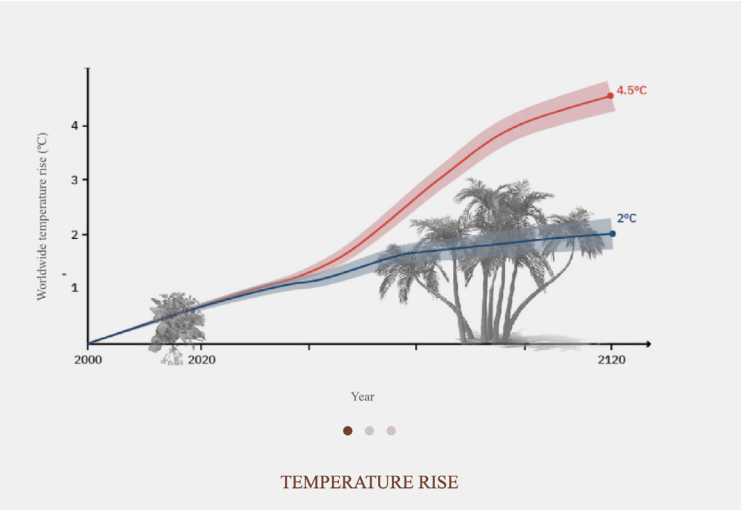
Subsequently, there will be looked into a set of diverse solar and water-based systems and which of these could be used in this specific environment. Mostly recent technologies with a likeliness to further develop in the near future will be overviewed. This will be done by studying different reports and studies, alongside analysing interesting case studies.

Based on the technologies that will be set as the fundamental elements, architectural language implications will be configured. Together with the anticipated projections for the area, a design brief will be formed for the project.

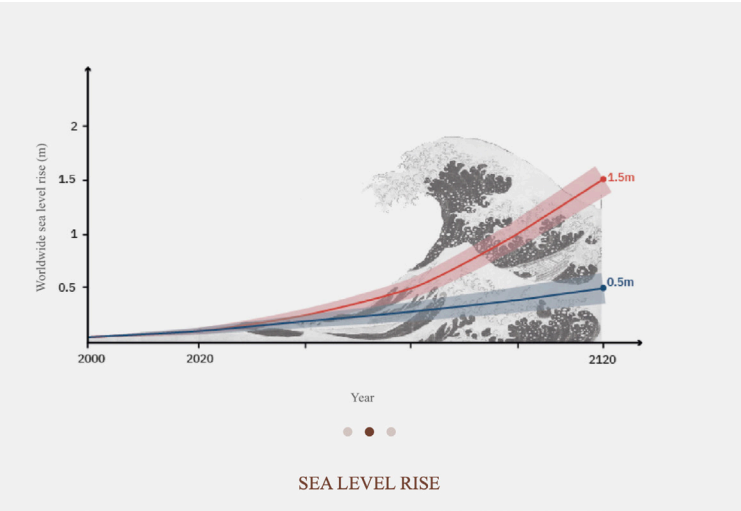
- LOCATION AND SITE ANALYSES-



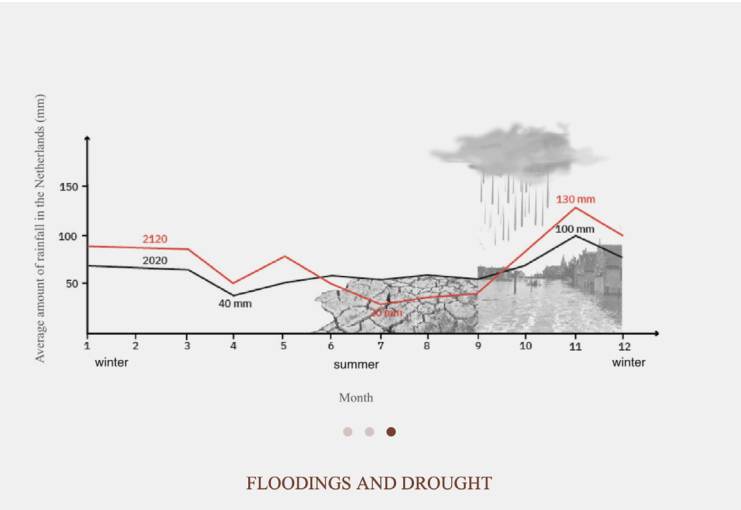
Hunzevalei - Sponsland



TEMPERATURE RISE

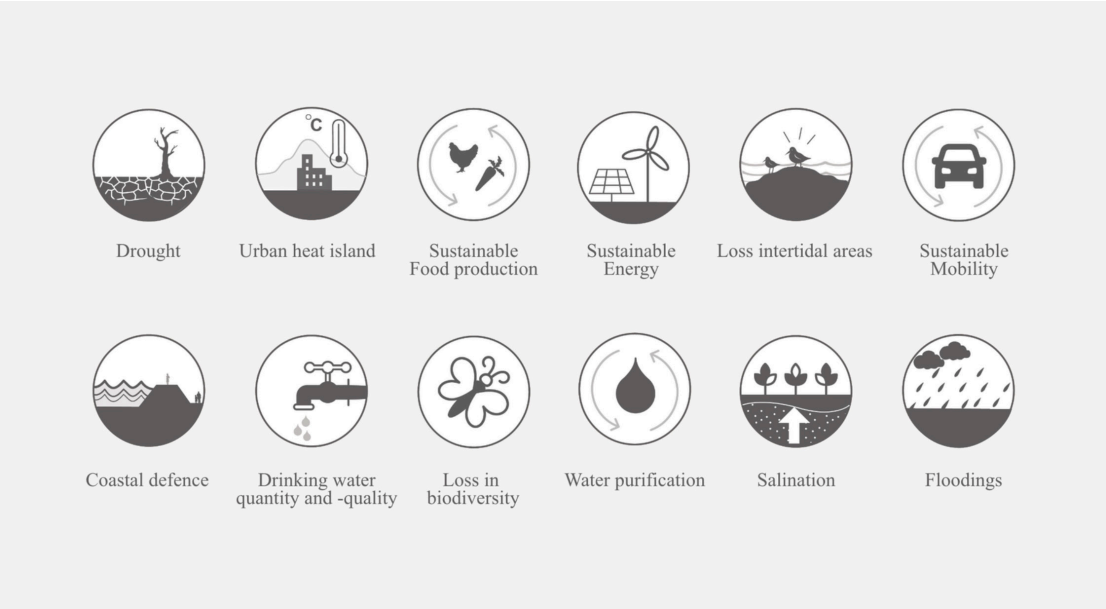


SEA LEVEL RISE

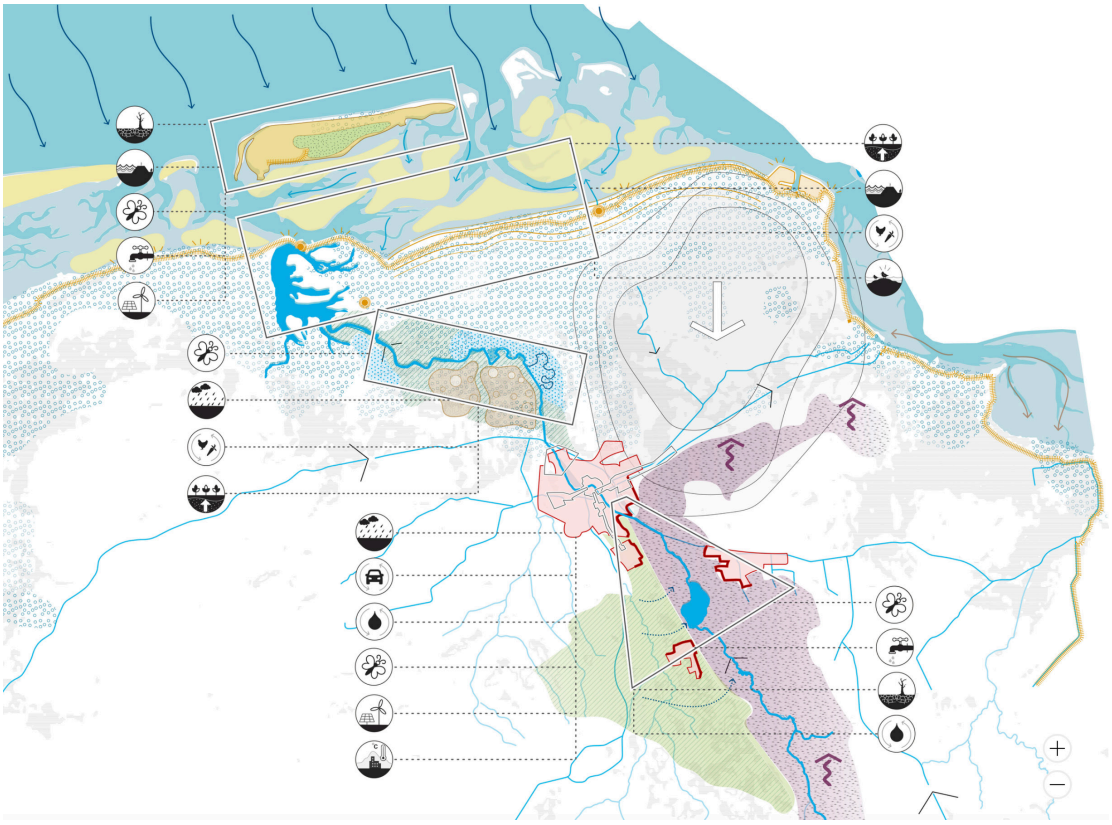


FLOODINGS AND DROUGHT

(Sponsland. Reis Door Het Landschap Van De Toekomst, 2022)



(Sponsland. Reis Door Het Landschap Van De Toekomst, 2022)



(Sponsland. Reis Door Het Landschap Van De Toekomst, 2022)

Lauwersmeer

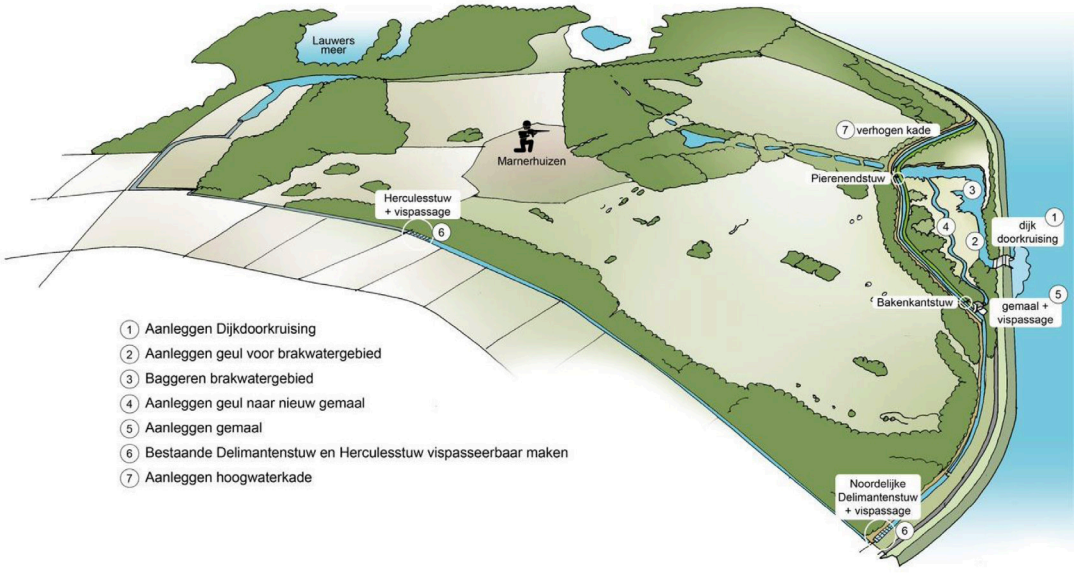
Until 1969, saltwater freely flowed through the Lauwersmeer area, but after the decision to dam the Lauwers Sea, this area underwent a radical transformation. Although the closure wasn't primarily intended to create a national park, the Lauwersmeer has evolved into a stunning nature reserve.

The decision to control the sea was prompted by issues of flooding and natural disasters caused by tides reaching into Groningen via the Reitdiep. Plans to dam the lake existed as early as the 17th century, yet economic interests hindered implementation. It wasn't until the storm surge in Zeeland in 1953 that the closure of the Lauwers Sea became a concrete plan, posing a threat to the vibrant fishing village of Zoutkamp.

Despite initial concerns, Zoutkamp thrived into an attractive tourist destination post-closure. Nature flourished almost undisturbed, creating a diverse ecosystem with rare flora and fauna. A visit to this area vividly showcases how the once salty seabed has transformed under the influence of freshwater.

Marnewaard

The seepage areas of Marnewaard, the Northern Delimantenstuw, and Herculesstuw are located in the northern part of the Groningen province. The seepage area and the surrounding area to the south and west constitute the Marnewaard military training and shooting range. This area comprises a nature reserve with woods, shrubs, reed beds, marshes, open water, and dirt roads. To the north lies the Wadden Sea, characterized by channels and drying tidal flats, while to the east there are inland agricultural parcels and coastal marsh areas. The seepage area consists of a combination of open water, marshland, and wooded areas with species like wild privet, sea buckthorn, and shrubby willow. The seepage area is a brackish water zone fed by saltwater from the Wadden Sea and fresh rainwater. On the whole, the seepage water is moderately salty. At the south side of the seepage area, there is an overflow through which the salty water flows into Marnewaard. The Northern Delimantenstuw comprises herb-rich grassland, waterways with bank vegetation, and the immediate surroundings including the rural dike with a coastal road, Marnewaard's wooded areas, defense fencing, the Ostter Küstenweg foot and bike paths, and agricultural plots. The area around Herculesstuw includes agricultural ditches, nutrient-rich grasslands, the Ostter Küstenweg foot and bike paths, and in the nearby vicinity, agricultural plots and Marnewaard's wooded areas.



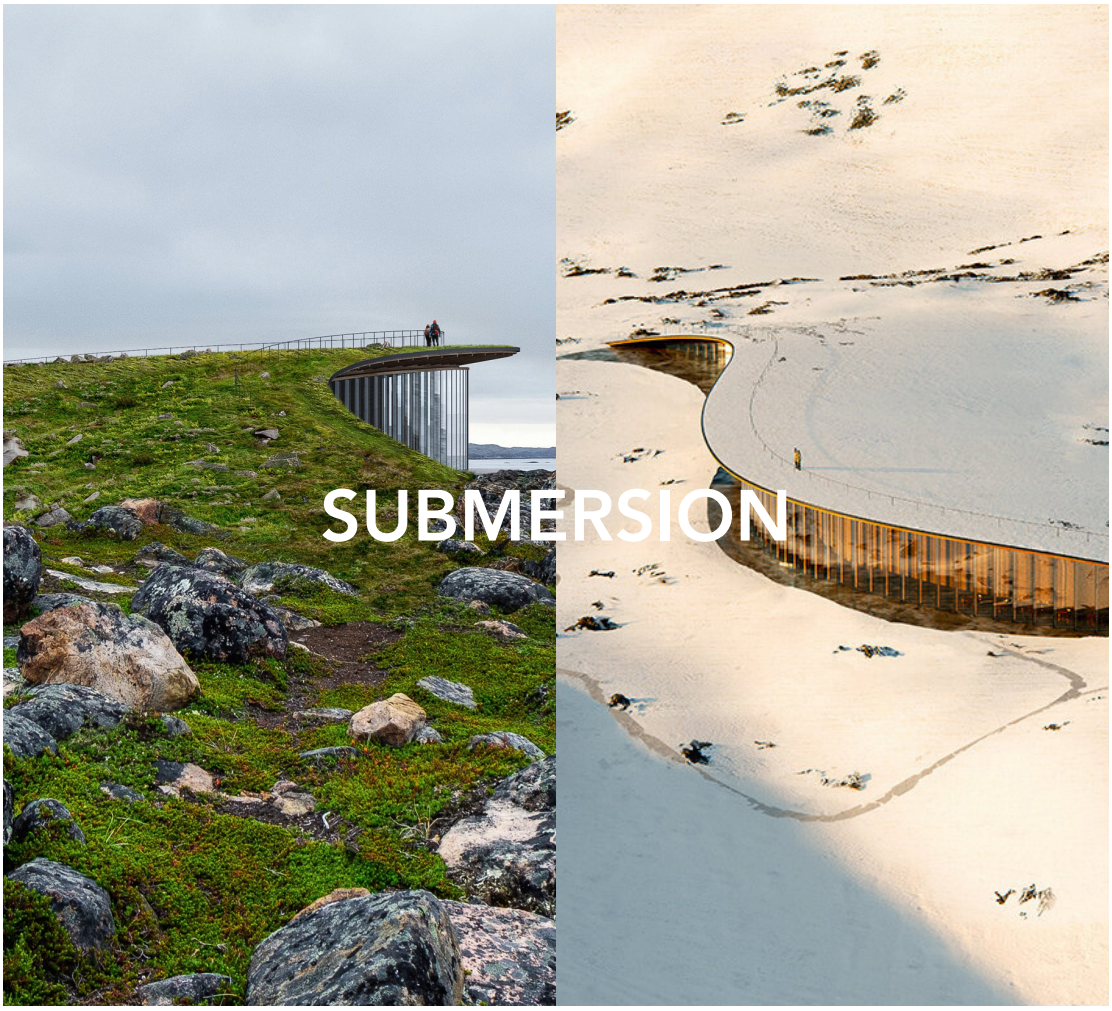
(Bensink, 2022)

- C O L O R R E S E A R C H G R O N I N G E N -

see other document


WATER


REFLECTION

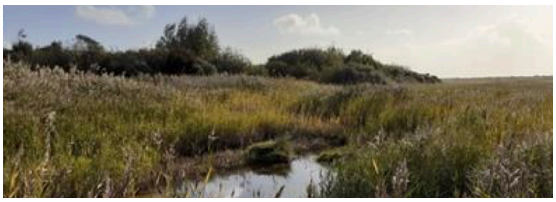

SUBMERSION

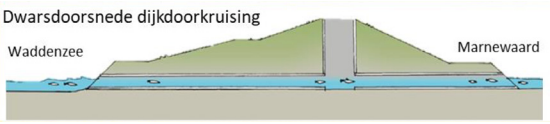
Locations in Marnewaard

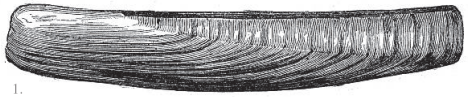
Marnewaard kwelgebied

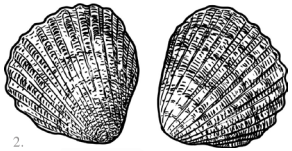
Topografische gemeentekaart van De Marne, per september 2017

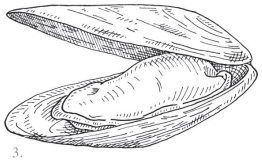

1000 m
100 m
0

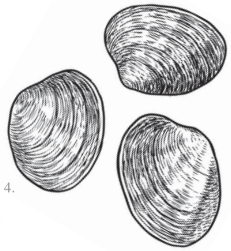


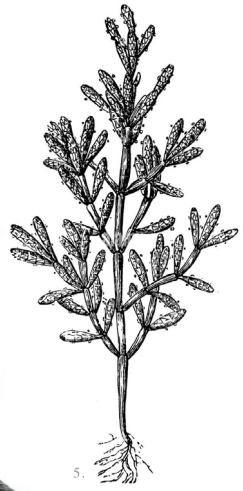

Dwarsdoorsnede dijkdoorkruising
Waddenzee
Marnewaard

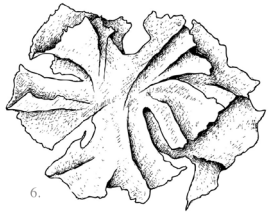


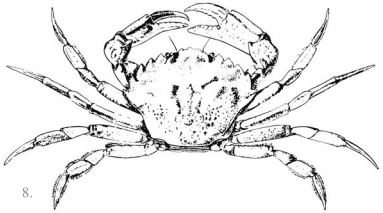


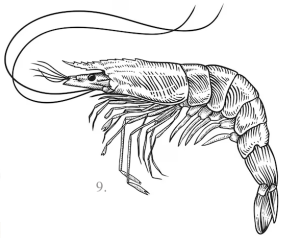


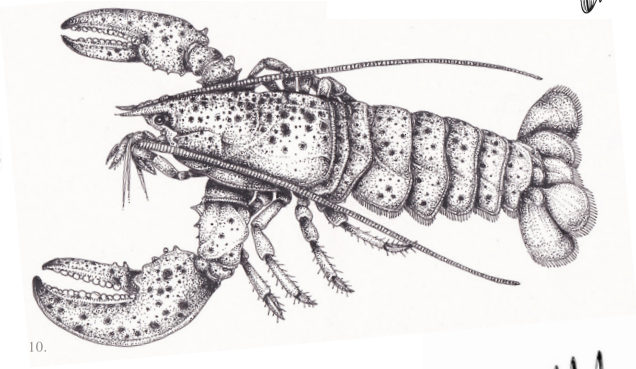


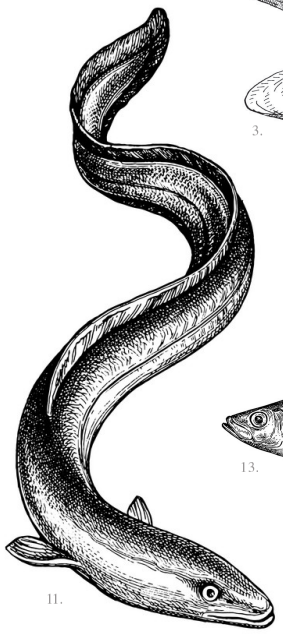


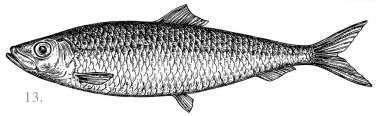


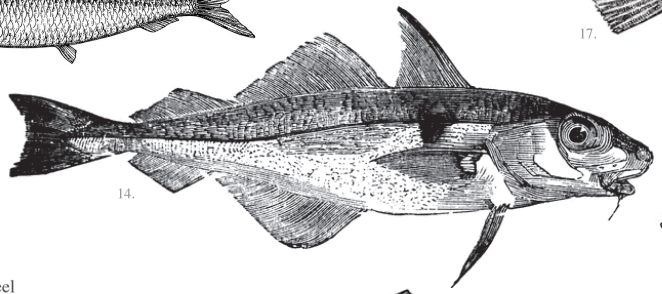


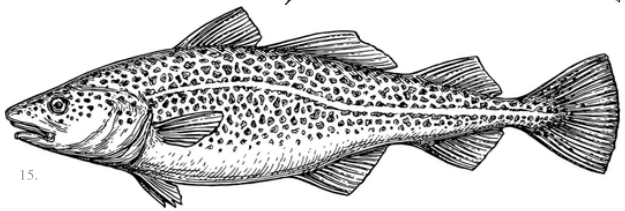


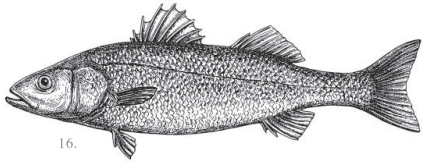


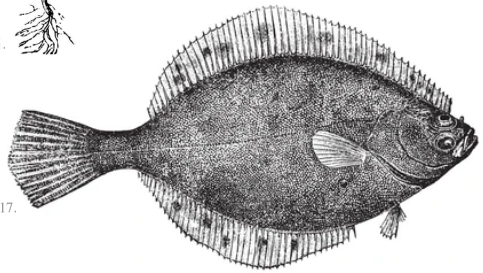


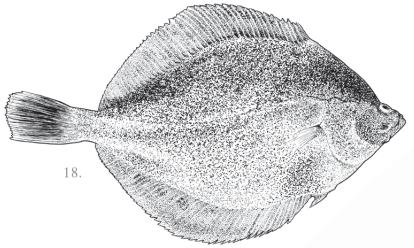


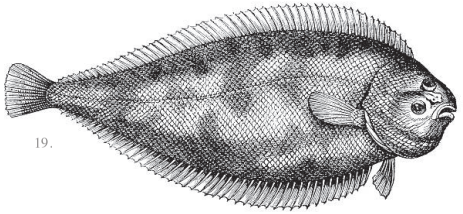


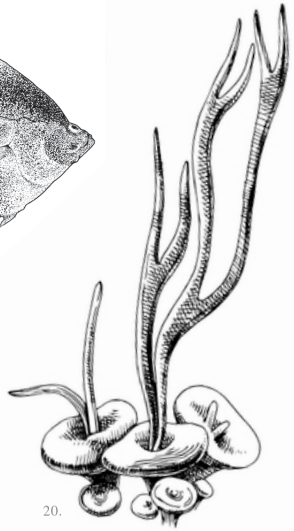












Waddenzee Seafood

1. ensis
2. cockle
3. mussel
4. baltic clam
5. glassworts
6. sea lettuce
7. wad oysters
8. european green crab
9. shrimp
10. european lobster
11. eel
12. mackerel
13. herring
14. haddock
15. cod
16. seabass
17. flounder
18. plaice
19. sole
20. thongweed

STARTERS

Pan-Seared Wadden Sea Scallops - served with a white wine and tarragon butter sauce.
Grilled Calamari Rings - marinated in garlic, lemon, and olive oil, served with a spicy aioli.
Wadden Smoked Mackerel Salad - with mixed greens and a dill-lemon dressing.

MAIN COURSE

Pan-Fried Cod Fillet - with caper and cherry tomato sauce, served with roasted potatoes.
Steamed Wadden Cockles and Venus Clams - in a white wine garlic sauce with fresh herbs and linguine.
Grilled Sea Bass - with a mango and red pepper salsa, served with seasonal vegetables.

SEASONAL SPECIALS

Wadden Zeeland Cultured Mussels (late summer to early fall) - cooked in a flavorful broth of vegetables and white wine.
Stuffed Wadden Lobster (spring to early summer) - with herb butter and grilled lemon.

SIDE DICHES

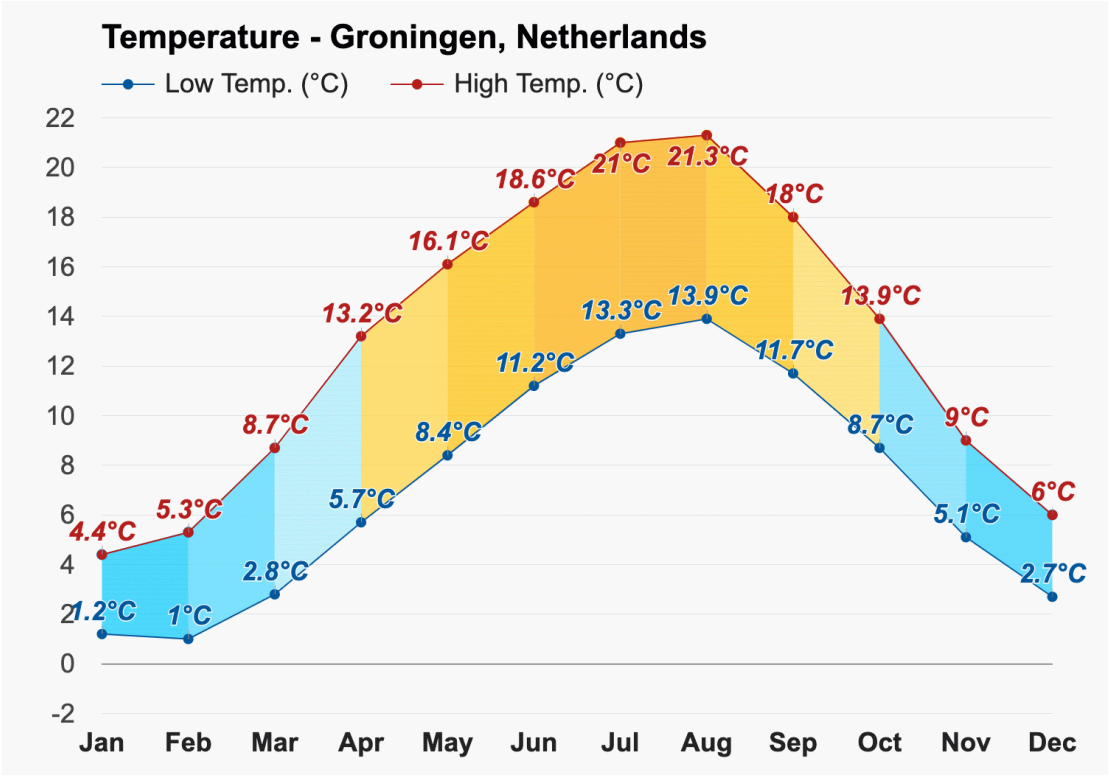
Quinoa with Seaweed and Green Herbs - a nutritious and flavorful side dish.
Roasted Vegetables - seasonal vegetables such as parsnips, pumpkin, and red onion.
Fresh Focaccia with Olives and Rosemary - served with garlic butter.

DESSERTS

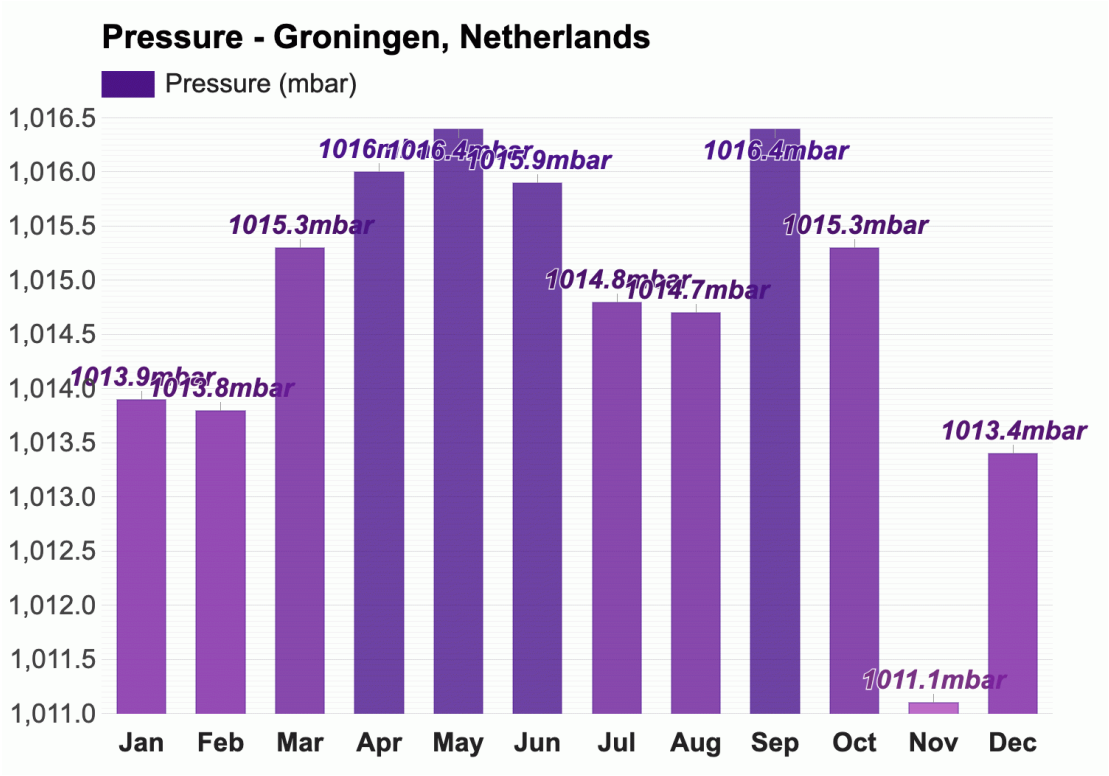
Wadden Cranberry Crumble - served with a scoop of vanilla ice cream.
Wadden Rhubarb Compote - served with Greek yogurt and honey.
Wadden Honey Panna Cotta - with a blueberry coulis.

MENU

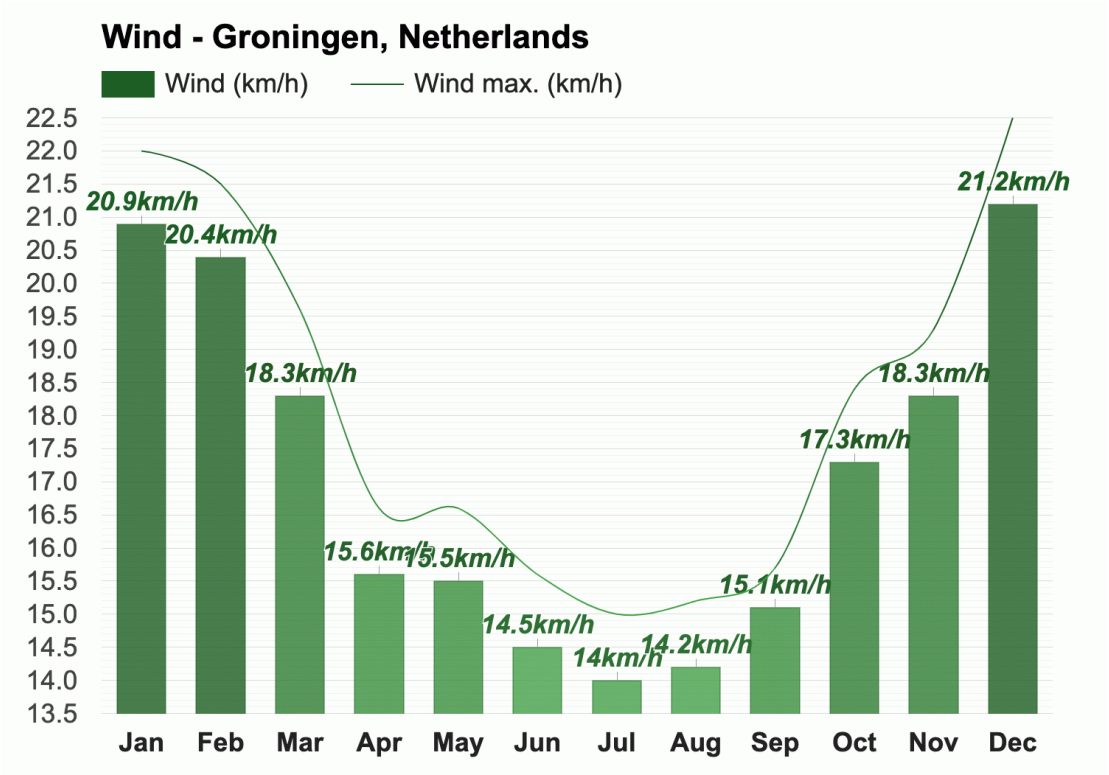
- CURRENT CONDITIONS AND ANTICIPATED PROJECTIONS -



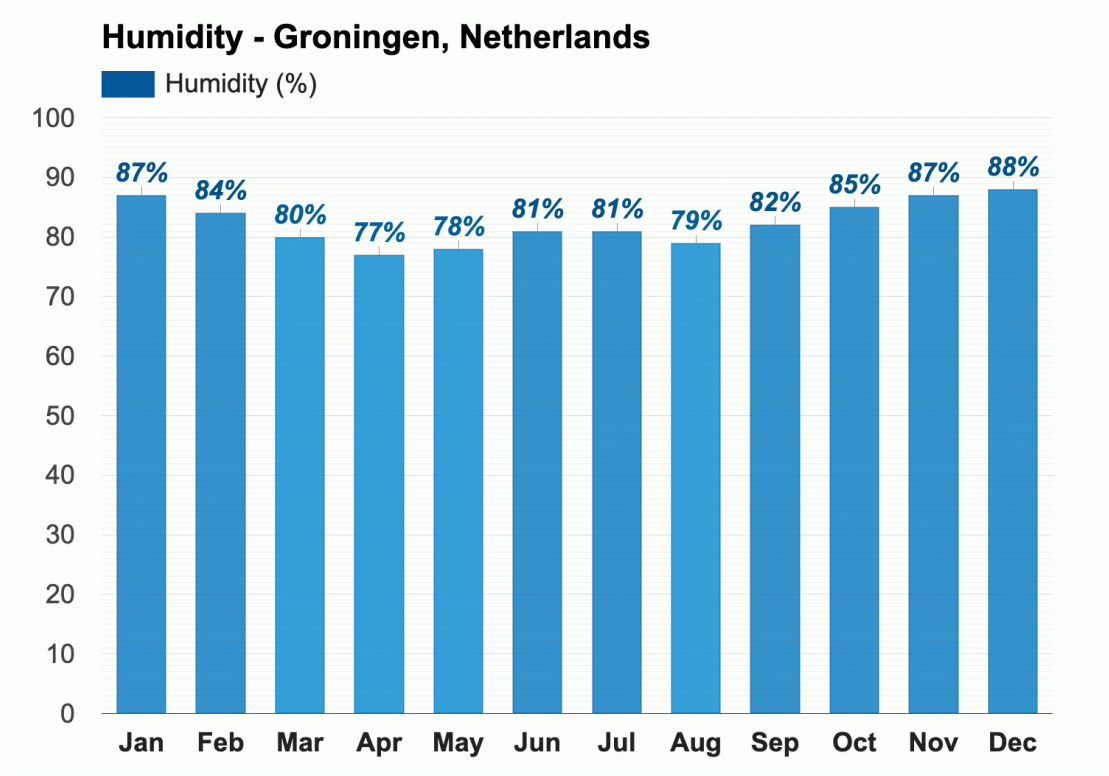
(Atlas, n.d.)



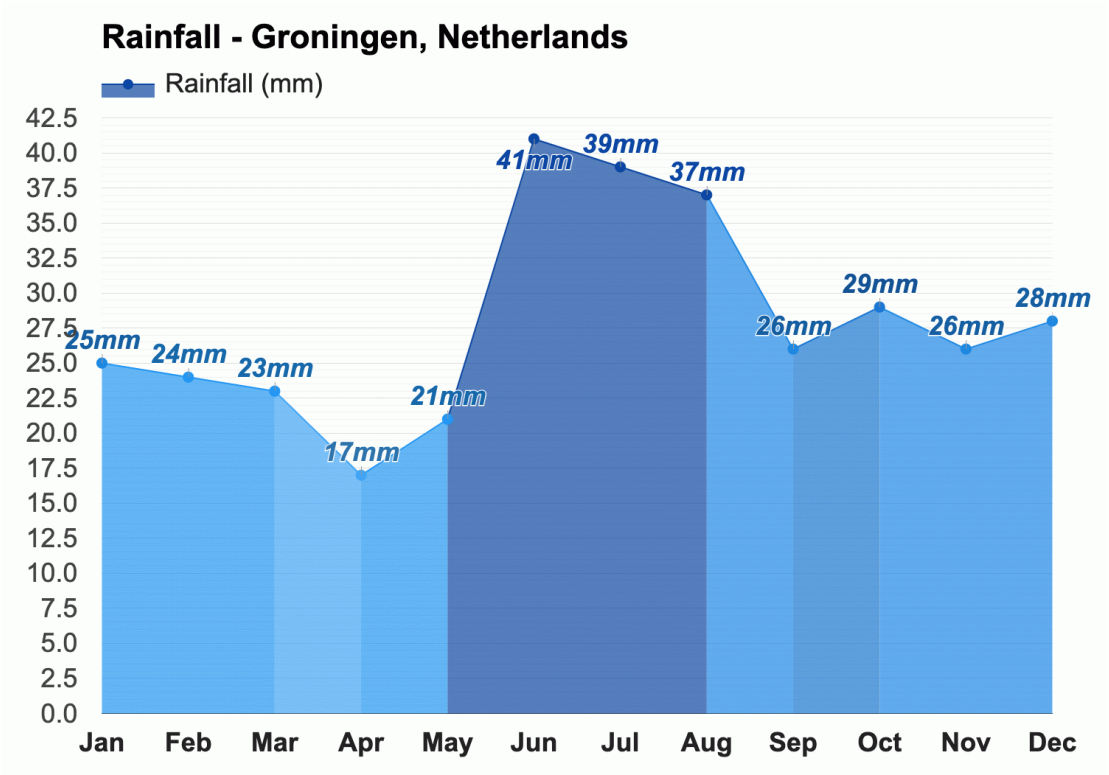
(Atlas, n.d.)



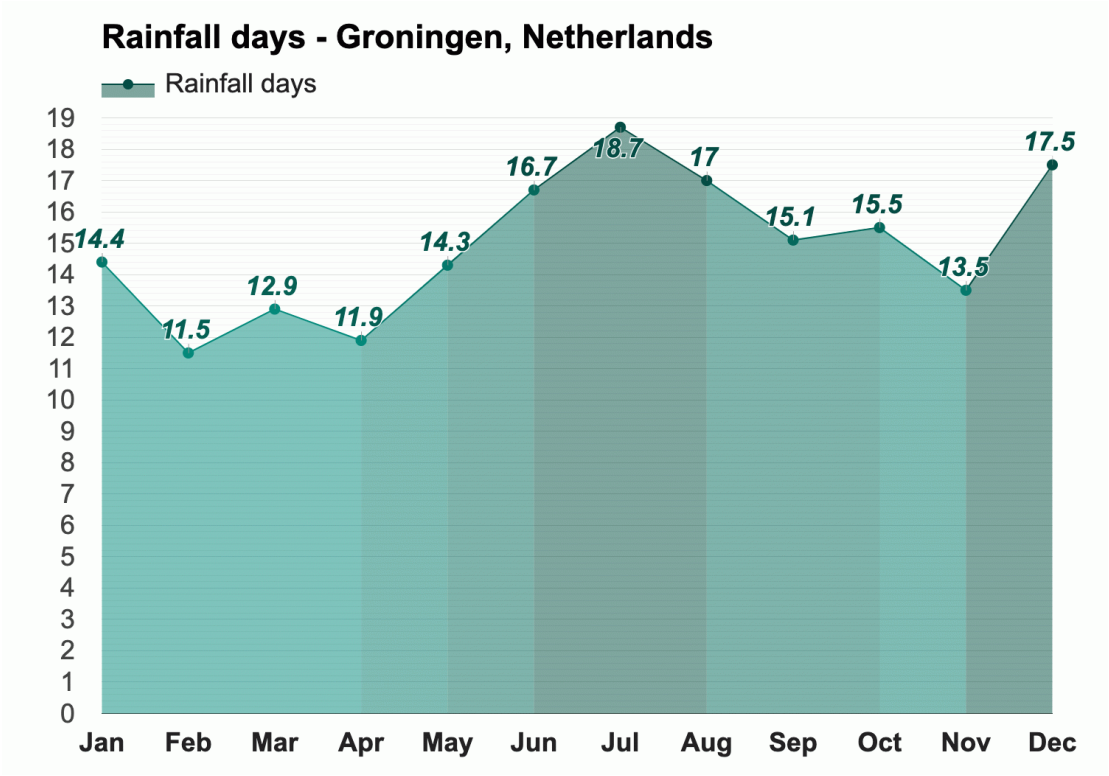
(Atlas, n.d.)



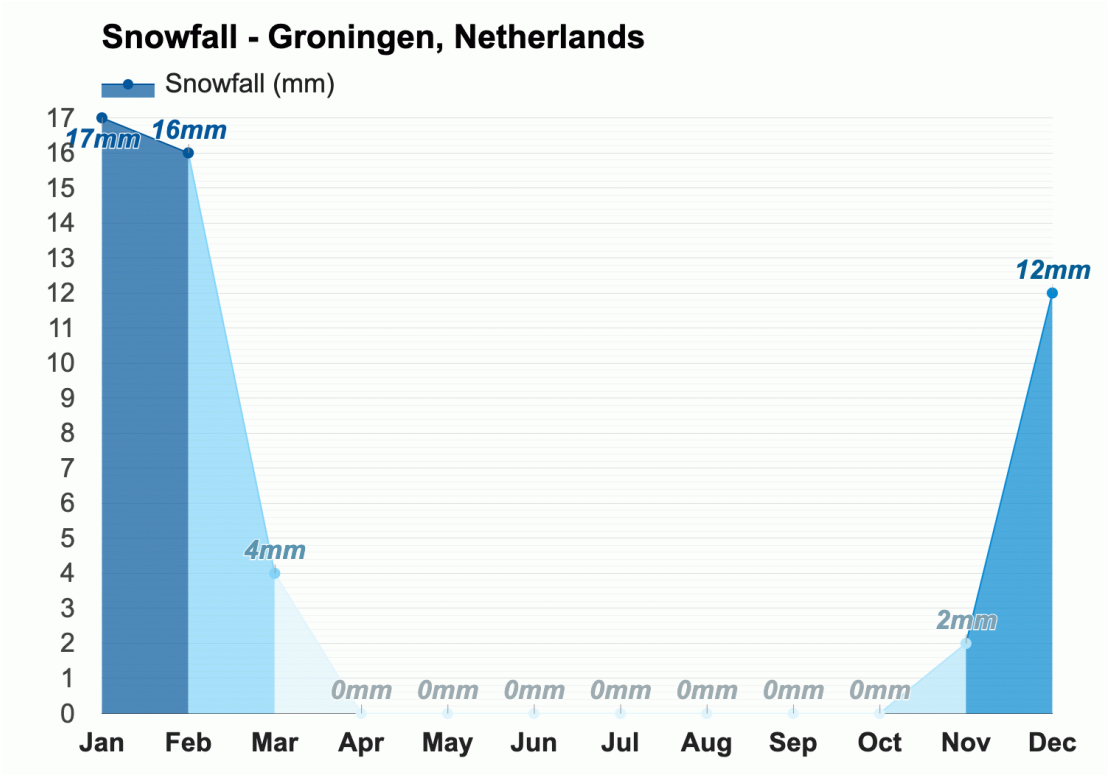
(Atlas, n.d.)



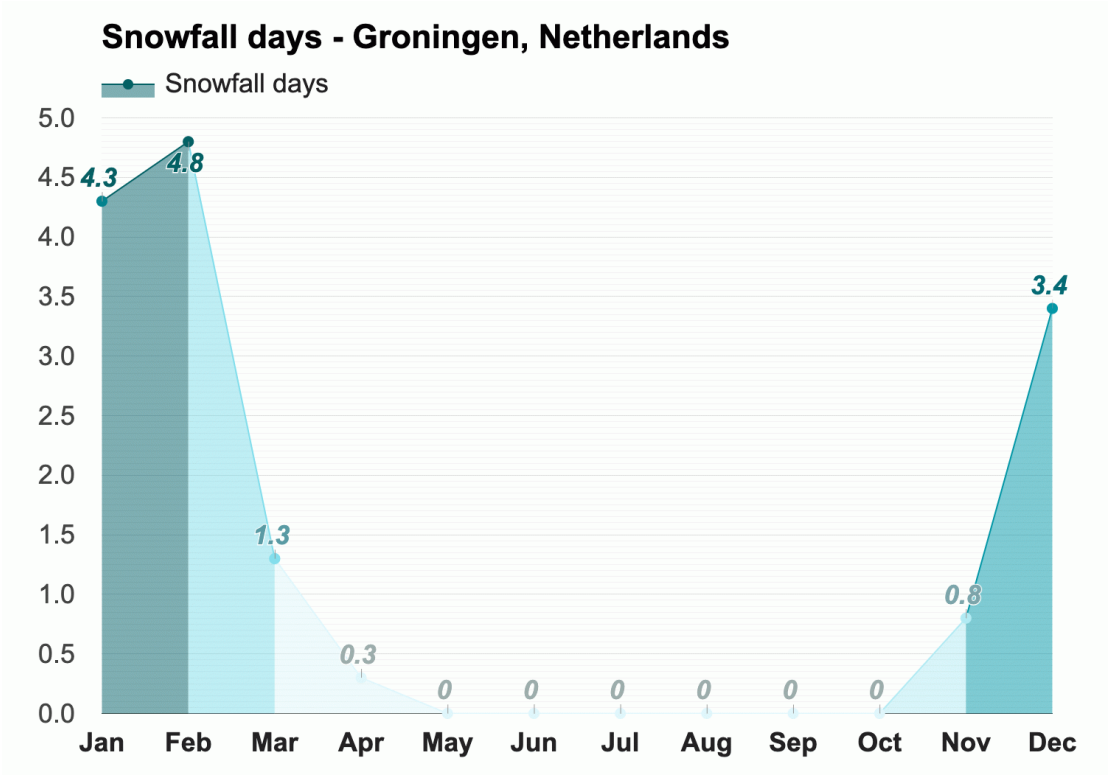
(Atlas, n.d.)



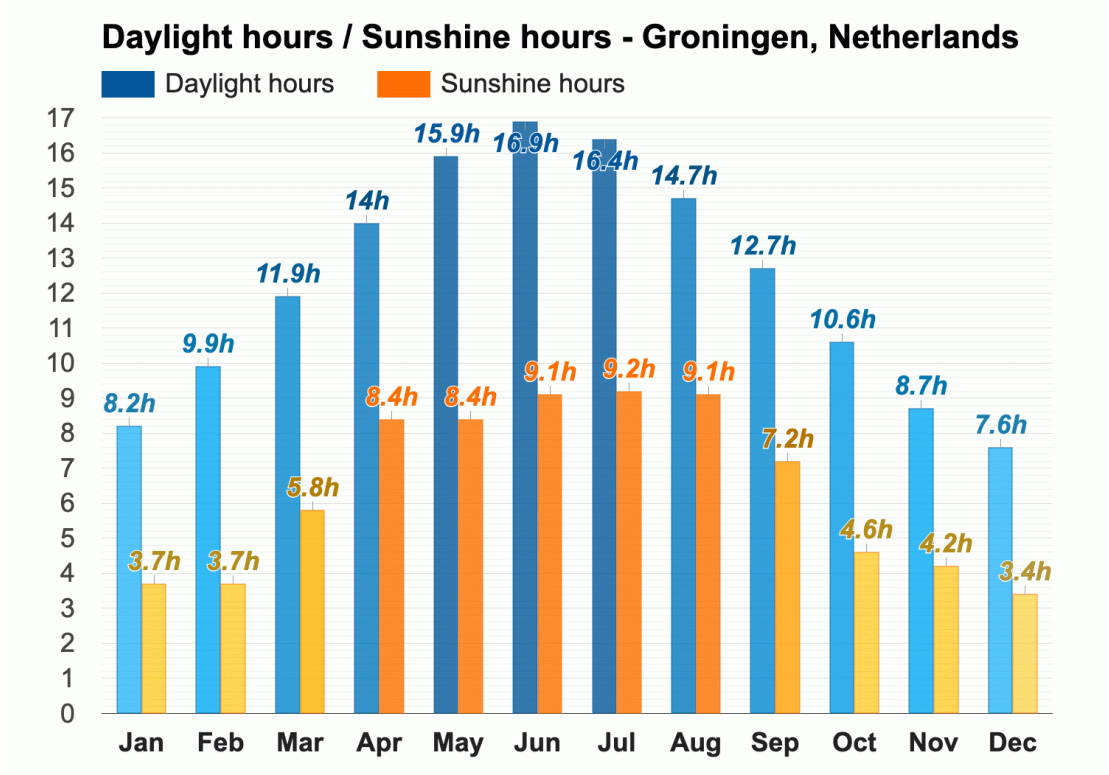
(Atlas, n.d.)



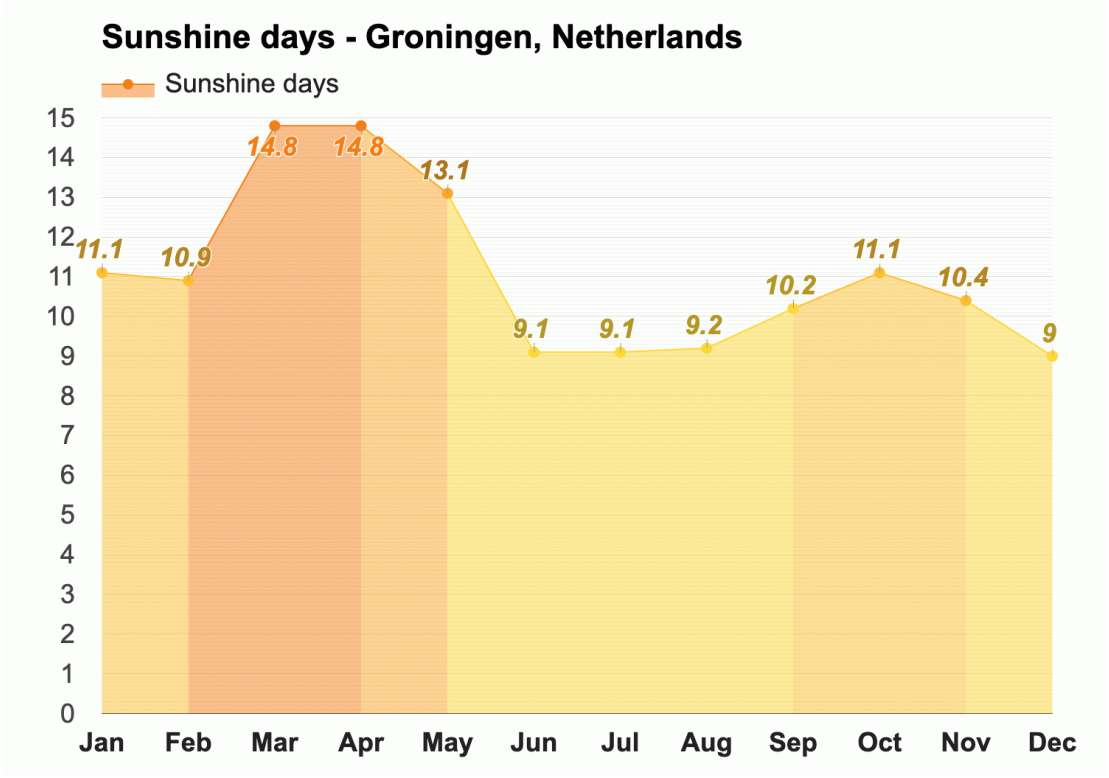
(Atlas, n.d.)



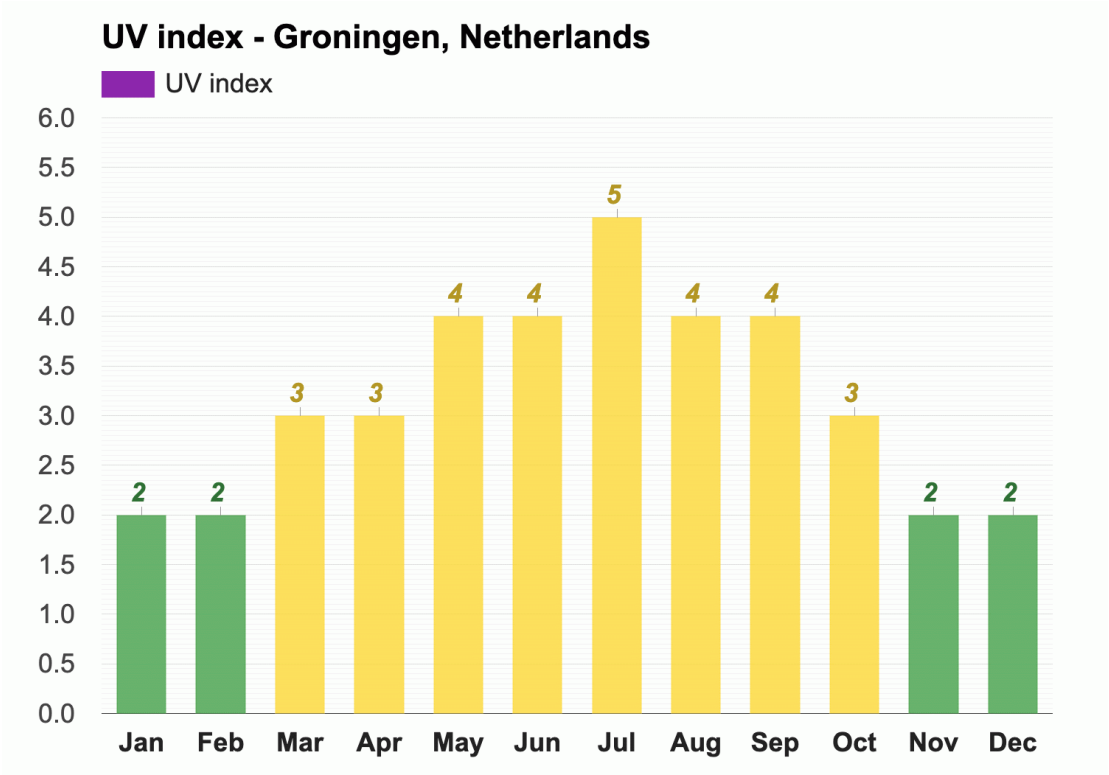
(Atlas, n.d.)



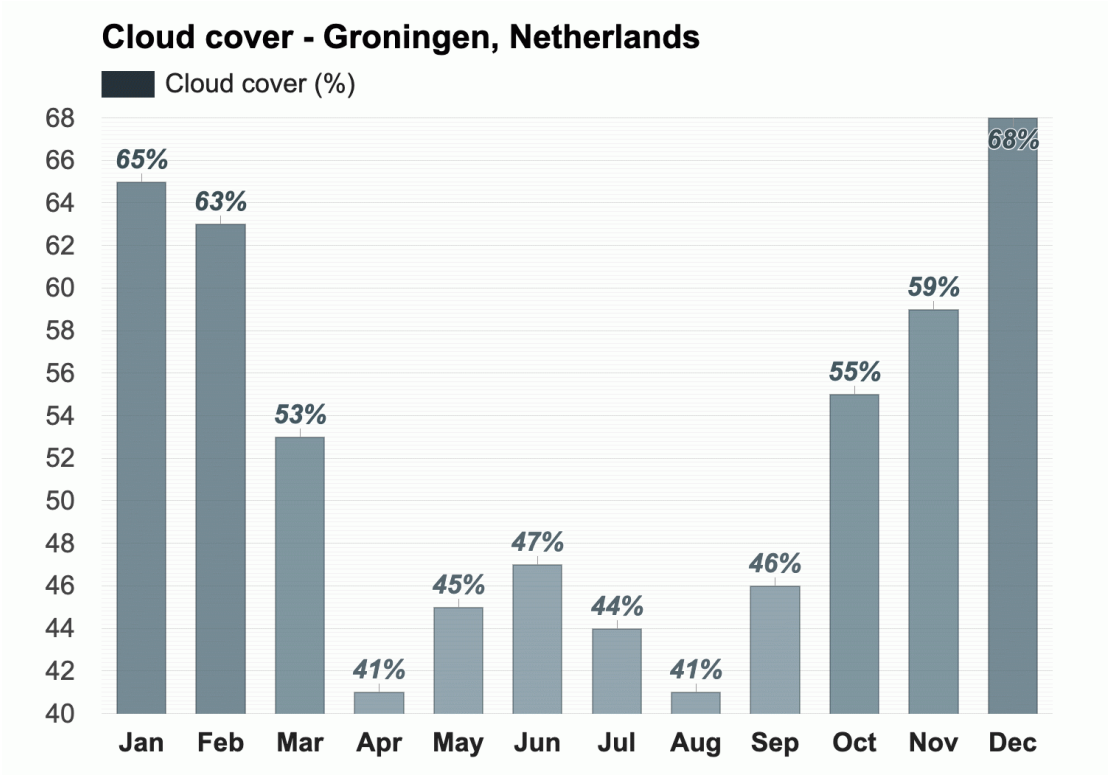
(Atlas, n.d.)



(Atlas, n.d.)



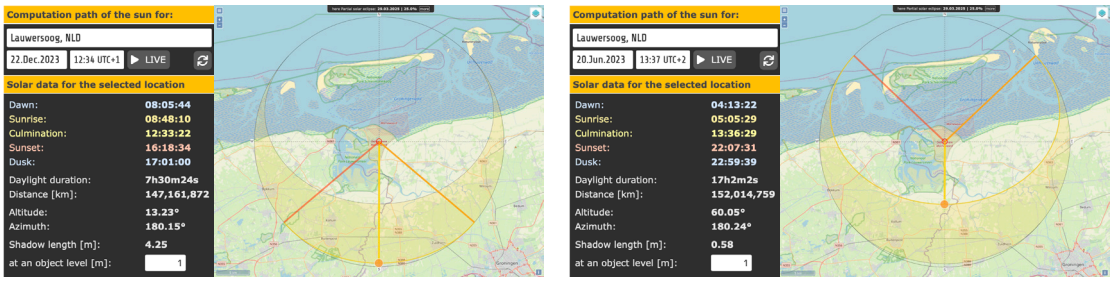
(Atlas, n.d.)



(Atlas, n.d.)

Info

Below are two solar diagrams. On the left, December 22, the shortest day of the year with the lowest solar angle of 13,23 degrees, and on the right, June 20, the longest day of the year with the highest solar angle of 60,5 degrees.



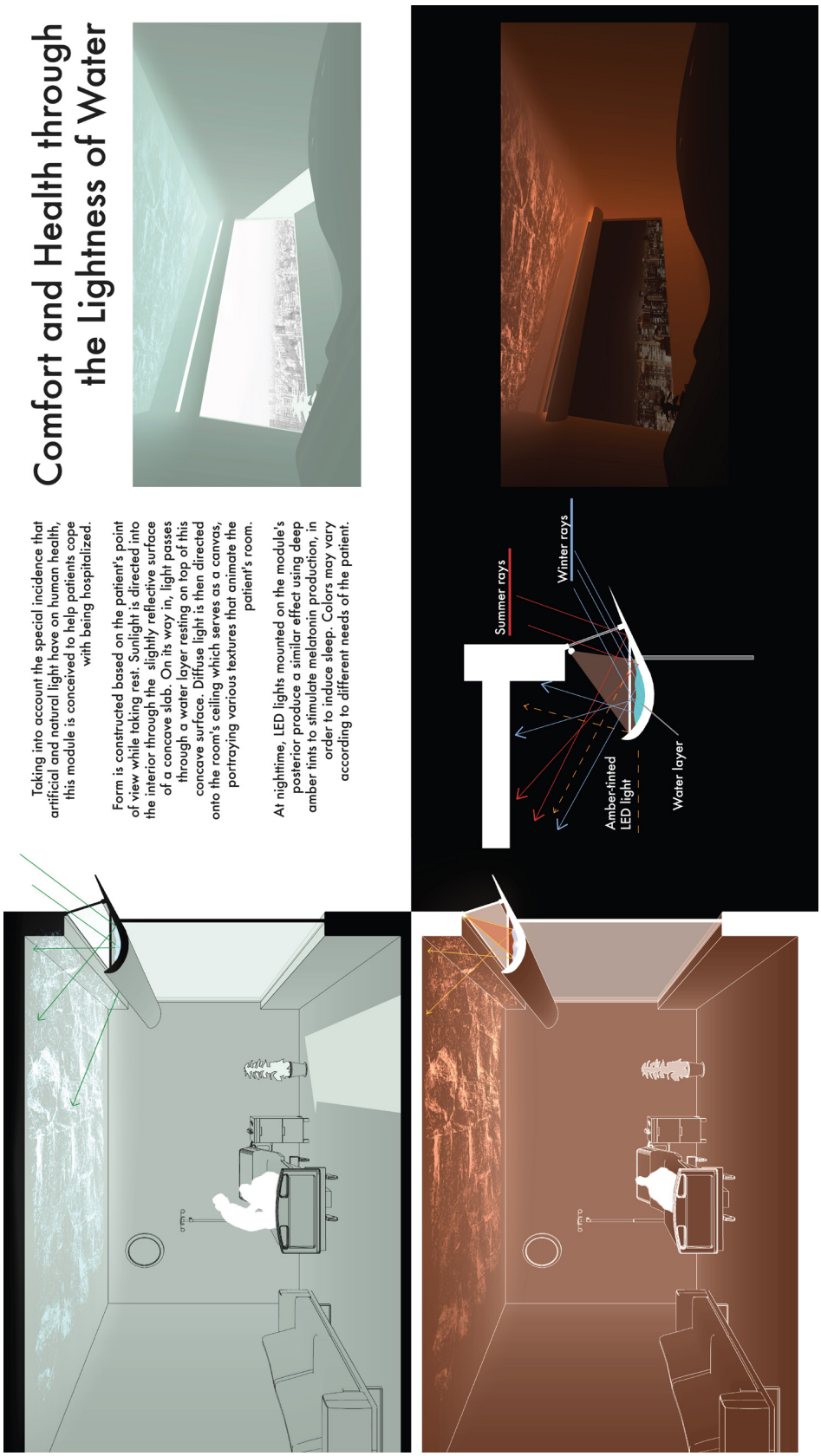
(info@sunearthtools.com, n.d.)

The effect of the reflection of the sun on the water is not always the same. This depends on the weather conditions, the water level, and the conditions of the water.
According to the KNMI weather station in Lauwersoog, there were 1183,55 hours of ‘volle zonuren’ in the year 2022 and 2217,00 ‘gewone zonuren’. One hour of full sunshine provides one kWh per m^2.

factors

In the two schematic drawings below, you can see the effect a body of water next to the building can have. When sunlight falls on the water, the angle of incidence is equal to the angle of reflection. In winter, the sun is relatively low during the day, causing the light to be reflected into the building. In summer, when the sun is higher, the light is not reflected into the building via the water. Therefore, in winter, this method can be used to capture the sun’s warmth, while on hot summer days, it keeps the sun out.

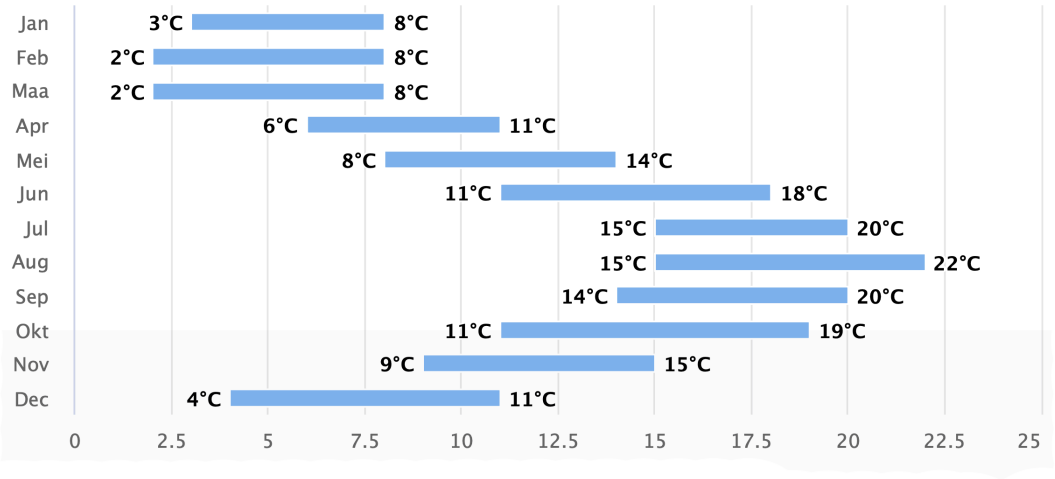
(Can a Pool of Water Be Used to Reflect Heat From Light?, n.d.)



(DAYLIGHT & ARCHITECTURE, n.d.)

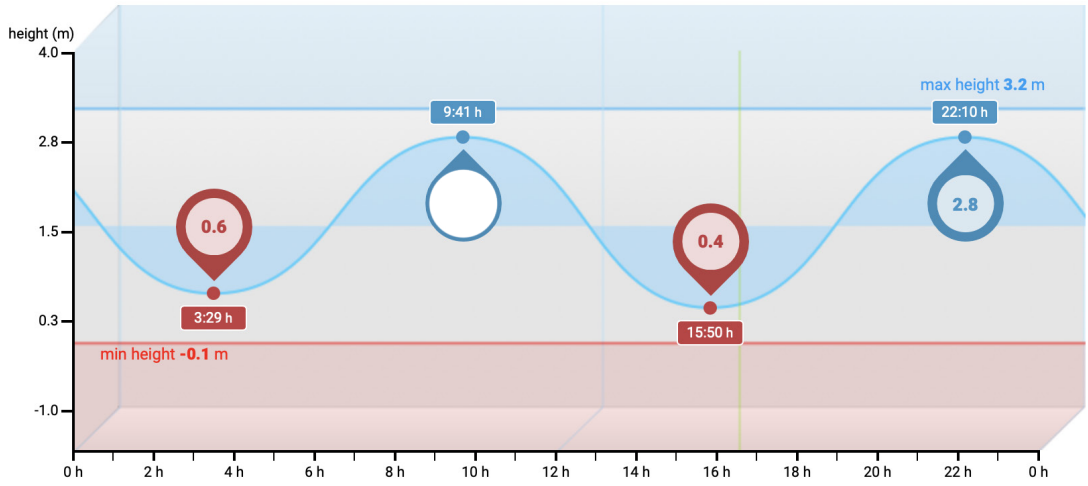
Info

The water temperature changes from winter to summer. In winter, the temperature at Lauwersmeer ranges between 2 and 8 degrees Celsius, while in summer, it ranges between 15 and 22 degrees Celsius. The average temperature over a year is 11,6 degrees. Below is an overview of the average temperatures per month over the past 7 years.

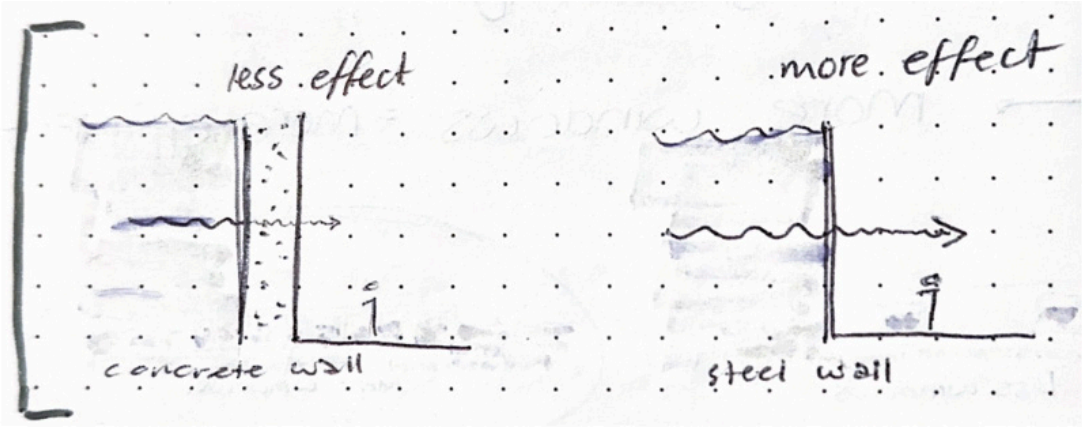


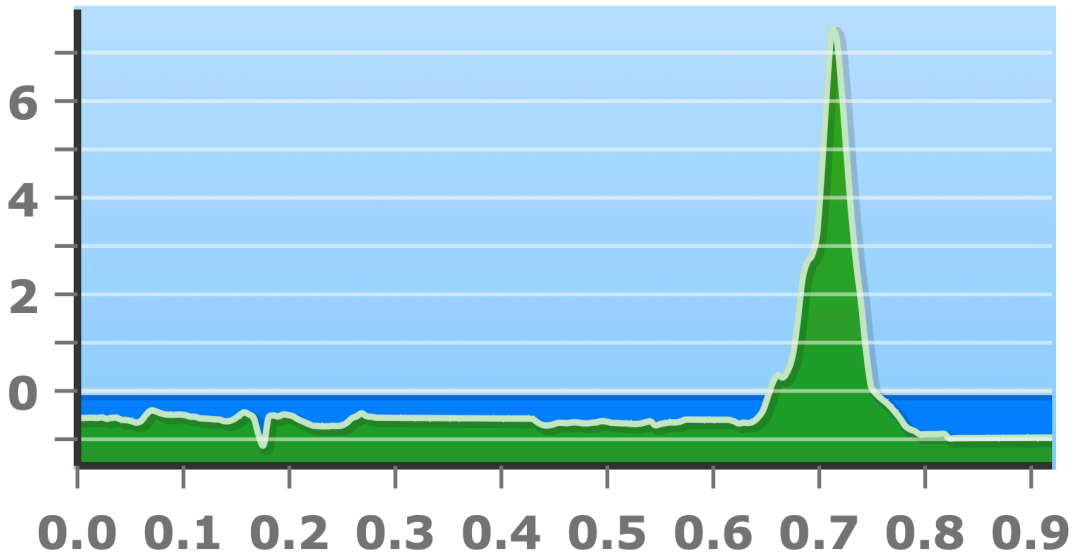
Factors

When a part of a building is underwater, it is in direct contact with the water. As the temperature of the water is generally colder than the air temperature, this creates a cooling effect on the building. However, the extent of this effect depends on various factors. There is a tide difference at this location of roughly 2,5 meters. Below is an overview of the tide difference on December 12, 2023 as an example.



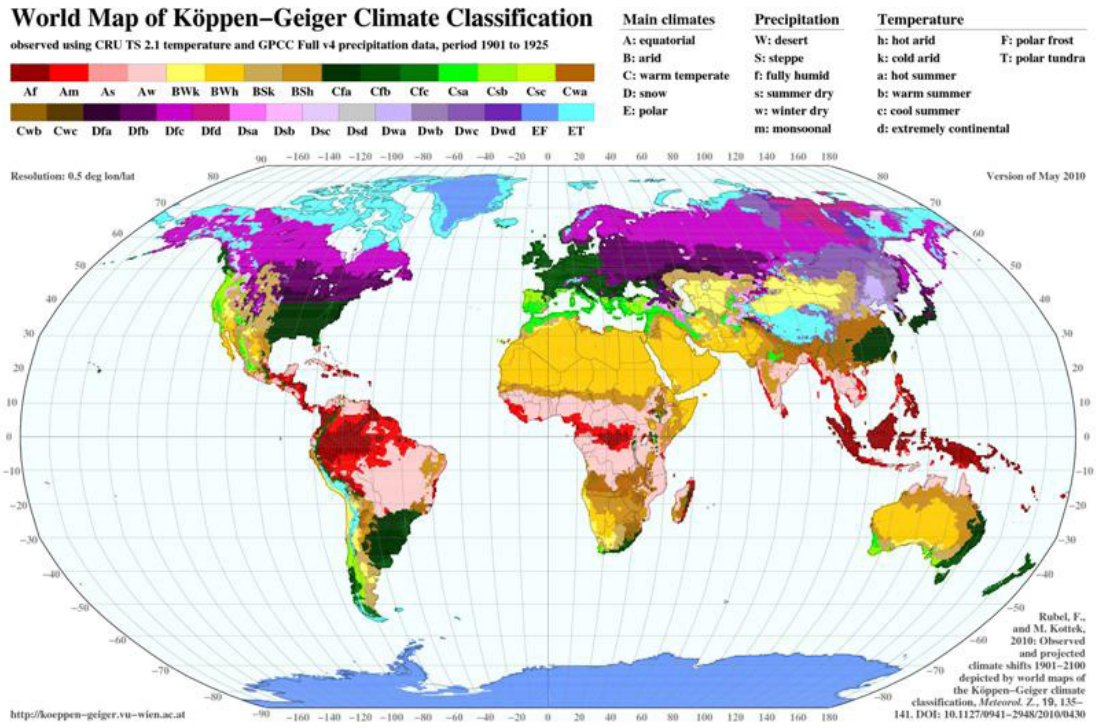
In addition to the difference in water levels, the material used also affects how much temperature transfer there will be from the water to the air inside. Not every material is suitable for underwater construction; primarily, concrete and steel are good options. Concrete is a much poorer conductor of heat compared to steel. Therefore, using steel walls will result in greater temperature transfer and provide more cooling.



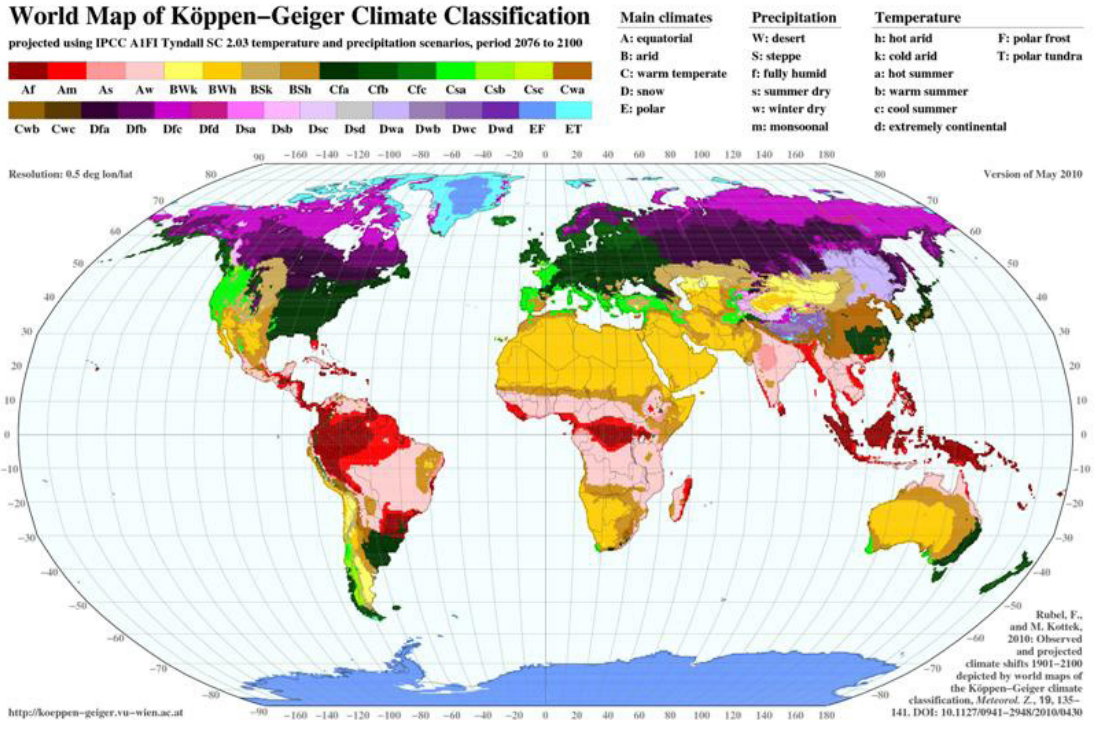


(Kaarten | Atlas Leefomgeving, n.d.)

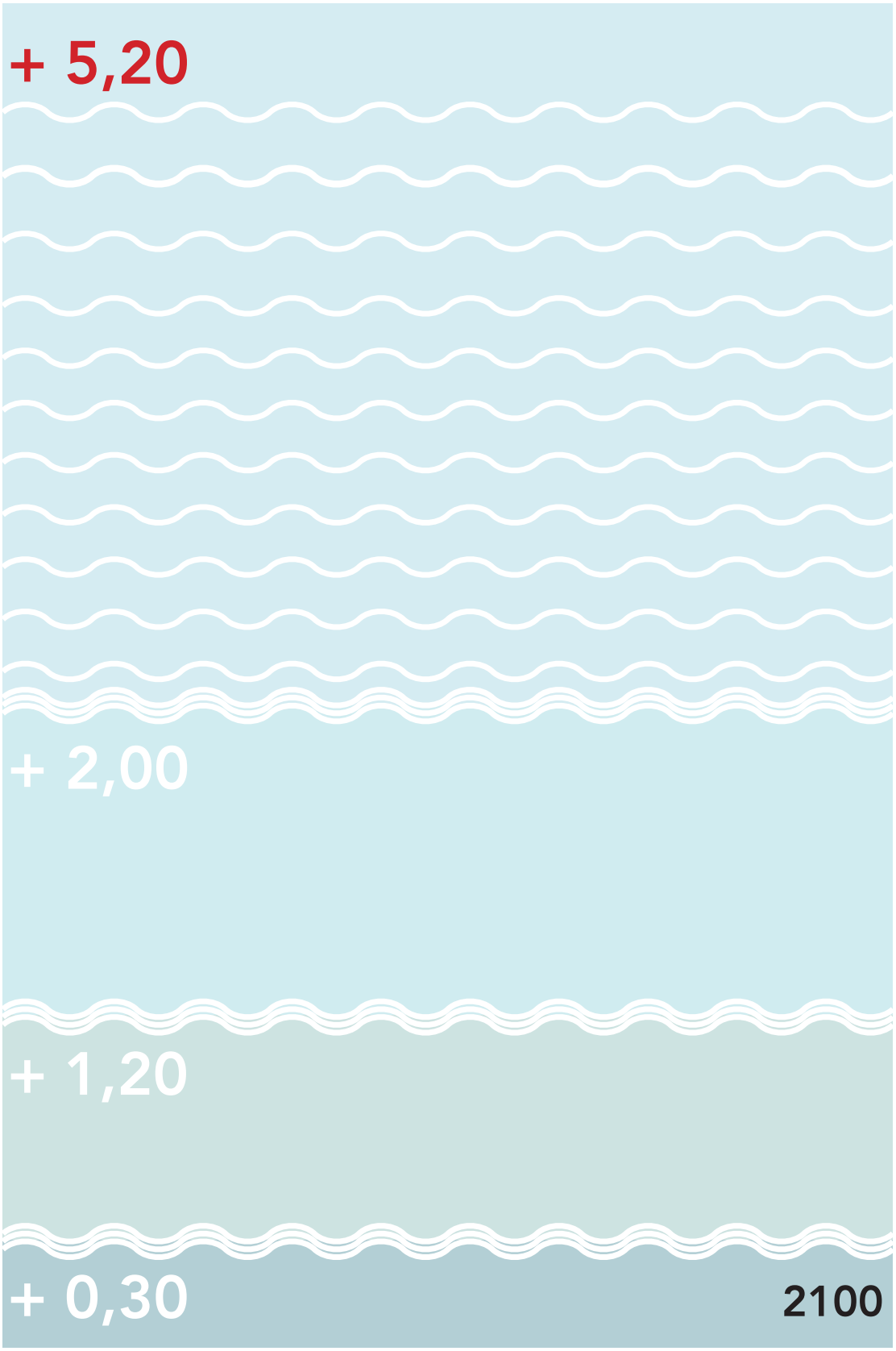
(Image by author)



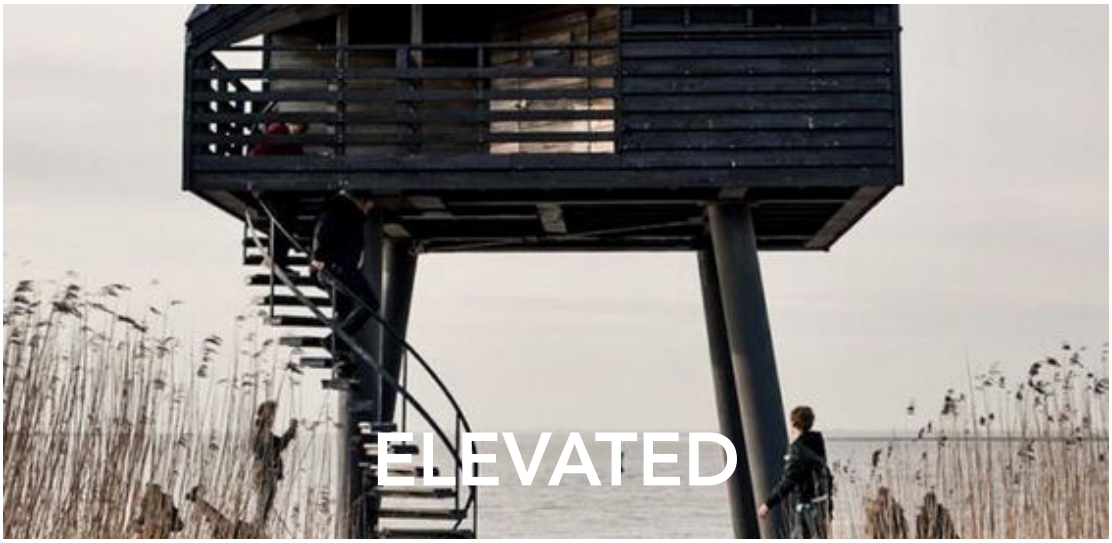
(World Maps of Köppen-Geiger Climate Classification, n.d.)



(World Maps of Köppen-Geiger Climate Classification, n.d.)



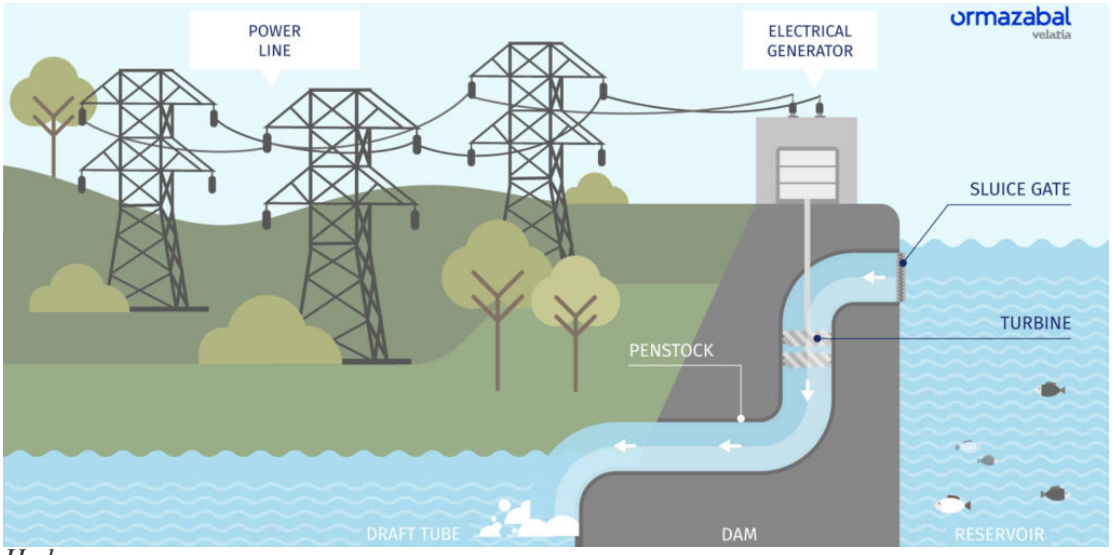
(Ministerie van Algemene Zaken, 2022)


ELEVATED

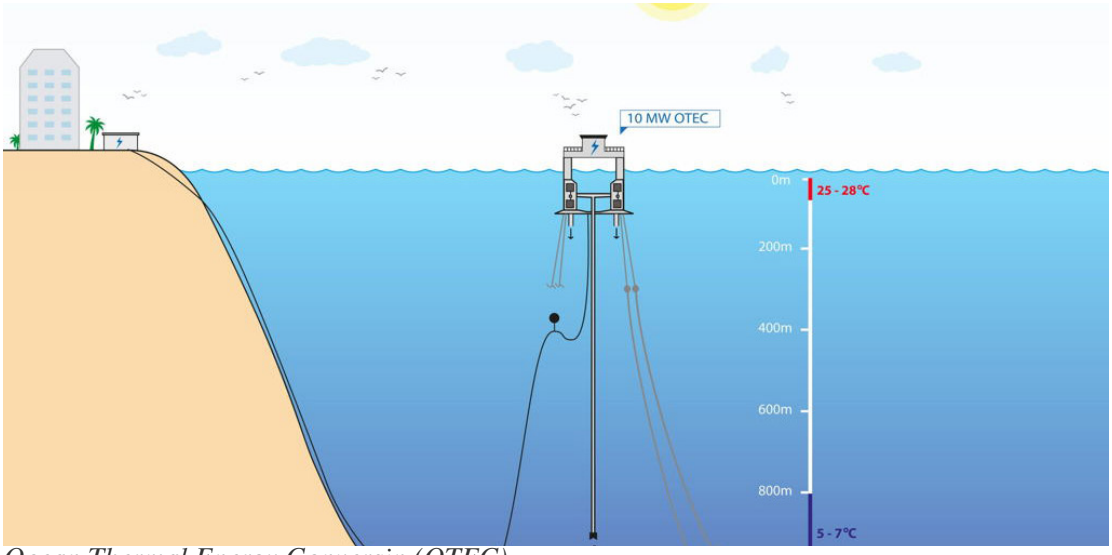

FLOATABLE


FLOODABLE

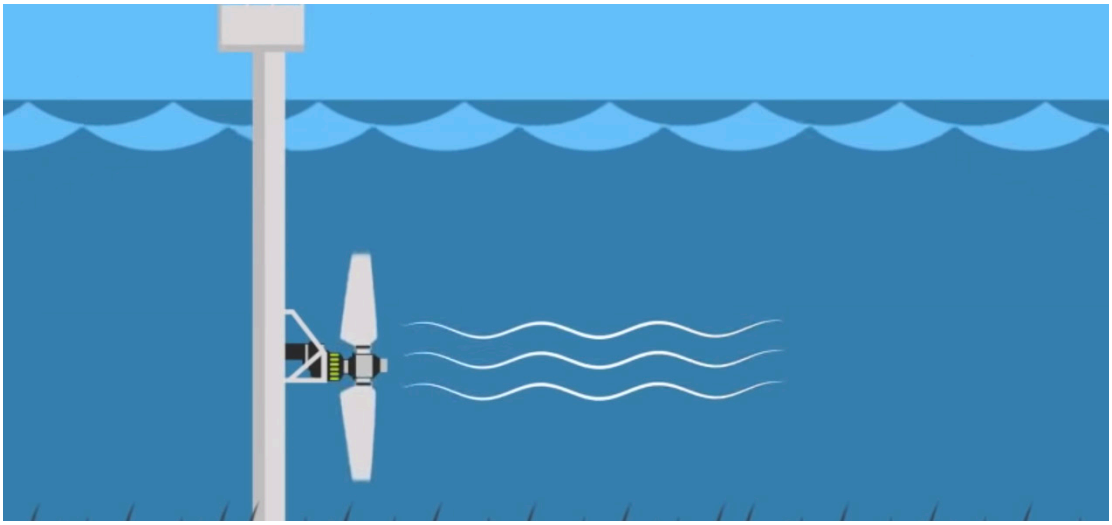
- WATER TECHNOLOGIES -



Hydropower



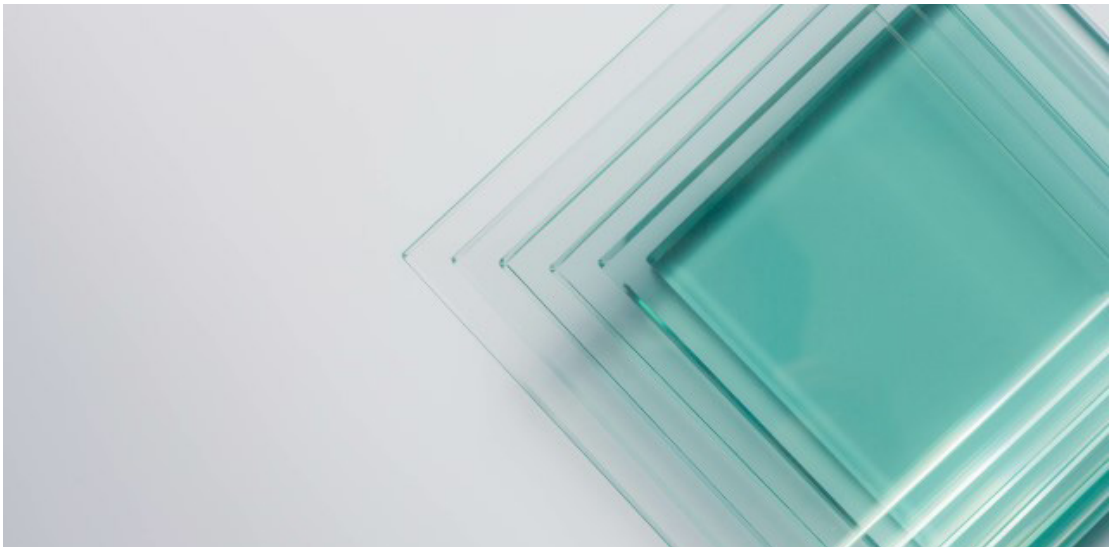
Ocean Thermal Energy Conversin (OTEC)



Tidal power

Water Filled Glass

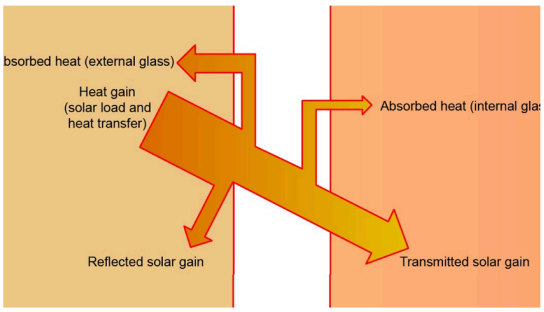
Architect M. Gutai



Increase Window Reflection
Boosting the reflective properties of windows can significantly contribute to thermal comfort. High-reflectance coatings or films on window surfaces help bounce off a portion of the incoming solar radiation, reducing heat absorption and glare. This simple yet effective modification helps maintain a more comfortable indoor temperature.

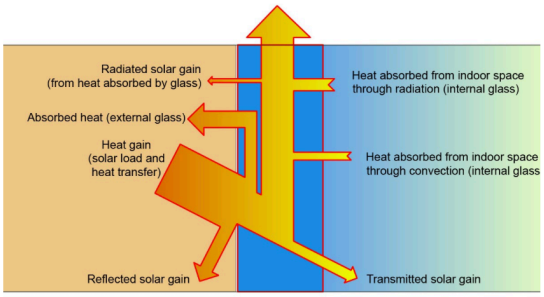
Multiple Glass Layers
Increasing the number of glass layers in windows serves as an insulating barrier against external temperatures. Double or triple glazing creates a buffer zone, limiting heat transfer between the interior and exterior. This insulation not only enhances thermal comfort but also reduces the need for excessive heating or cooling, thereby decreasing overall energy demand.

Internal or External Shading
Implementing shading systems, either internally or externally, is a proactive strategy to control solar gain and optimize indoor temperatures. Internal options, such as blinds or curtains, allow occupants to adjust light and heat levels. External shading devices, such as awnings or louvers, intercept and diffuse sunlight before it reaches the window, minimizing heat absorption. Both approaches contribute to increased comfort and decreased reliance on heating, ventilation, and air conditioning (HVAC) systems.



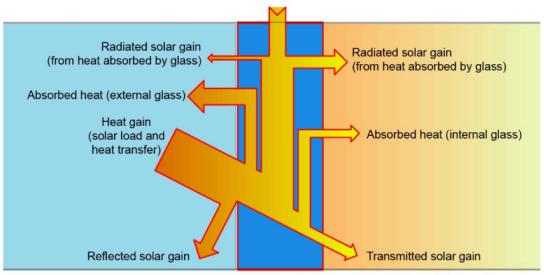
STANDARD GLASS

Glass has low insulation and lets radiation through the facade, which leads to overheating (summer) or rapid heat loss winter), increasing energy demand and compromising thermal comfort.



WFG IN SUMMER

During summer WFG uses its water layer to absorb heat before reaching indoors, which protects indoors. The same heat can be reused by the mechanical system, leading to additional savings.

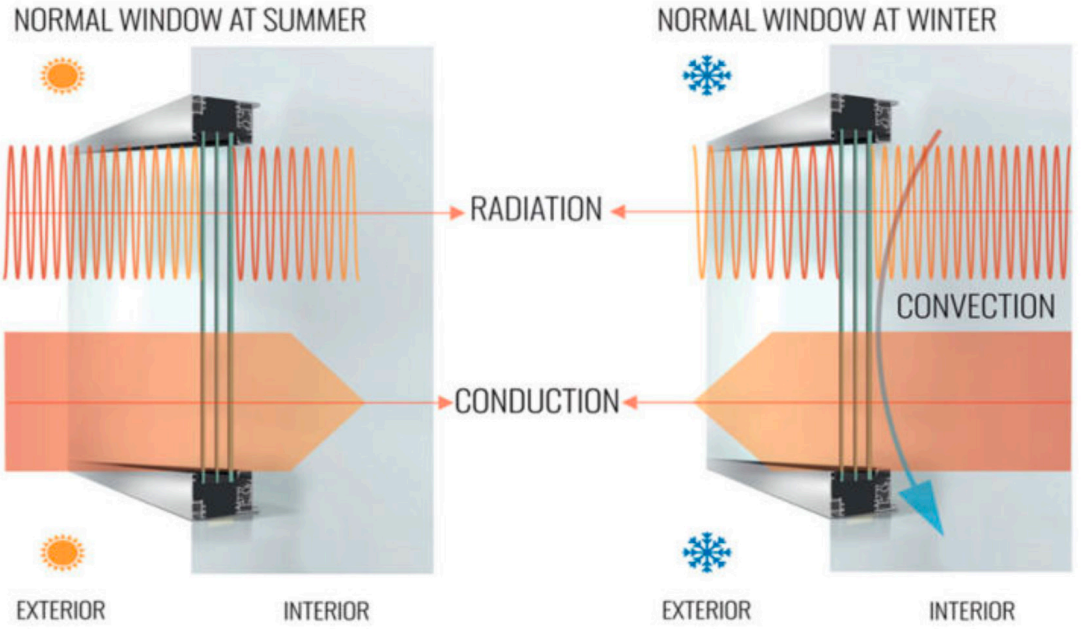


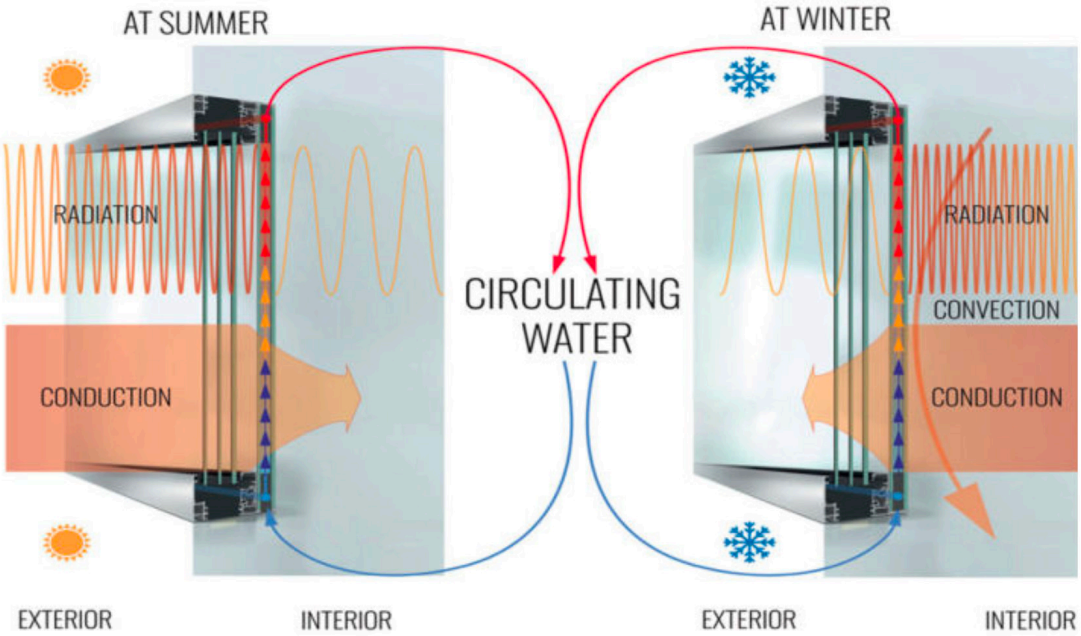
WFG IN WINTER

During winter the water layer is heated, which improves thermal comfort and reduce energy consumption by having higher efficiency than a conventional heating system in the building.

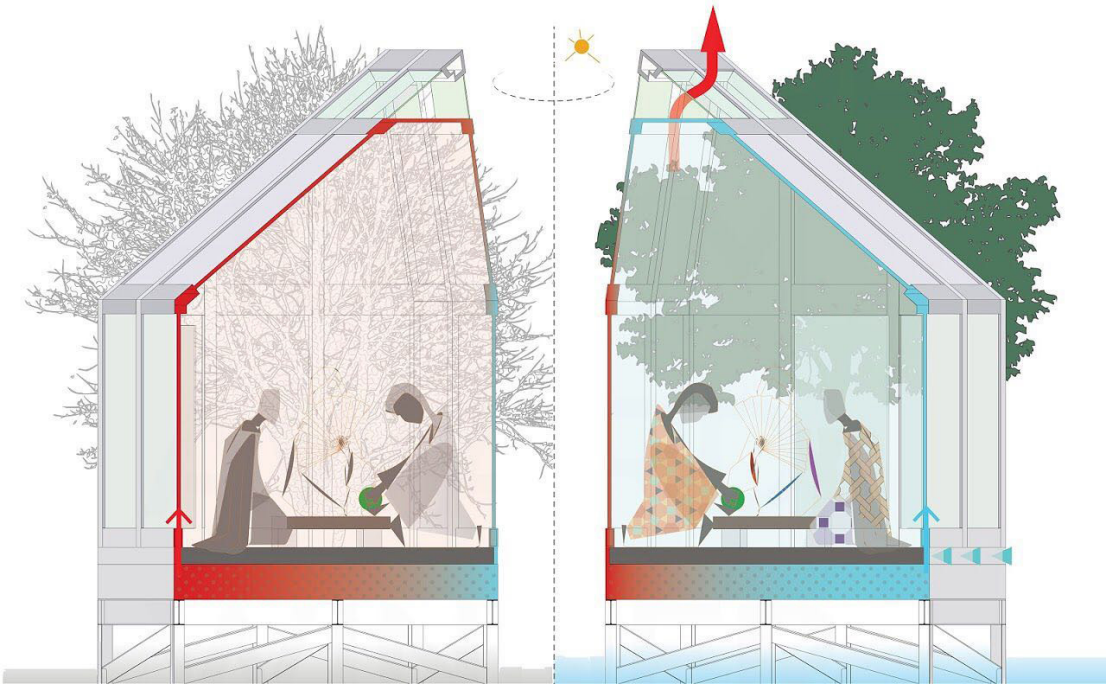
Depending on the type of WFG system installed, the heat source in winter can be supplied in different ways. It can be reuse of stored heat, ground heat (pipes under the building) or a heat pump. Each case provides energy savings compared to standard.

(WFG Basics, n.d.-b)

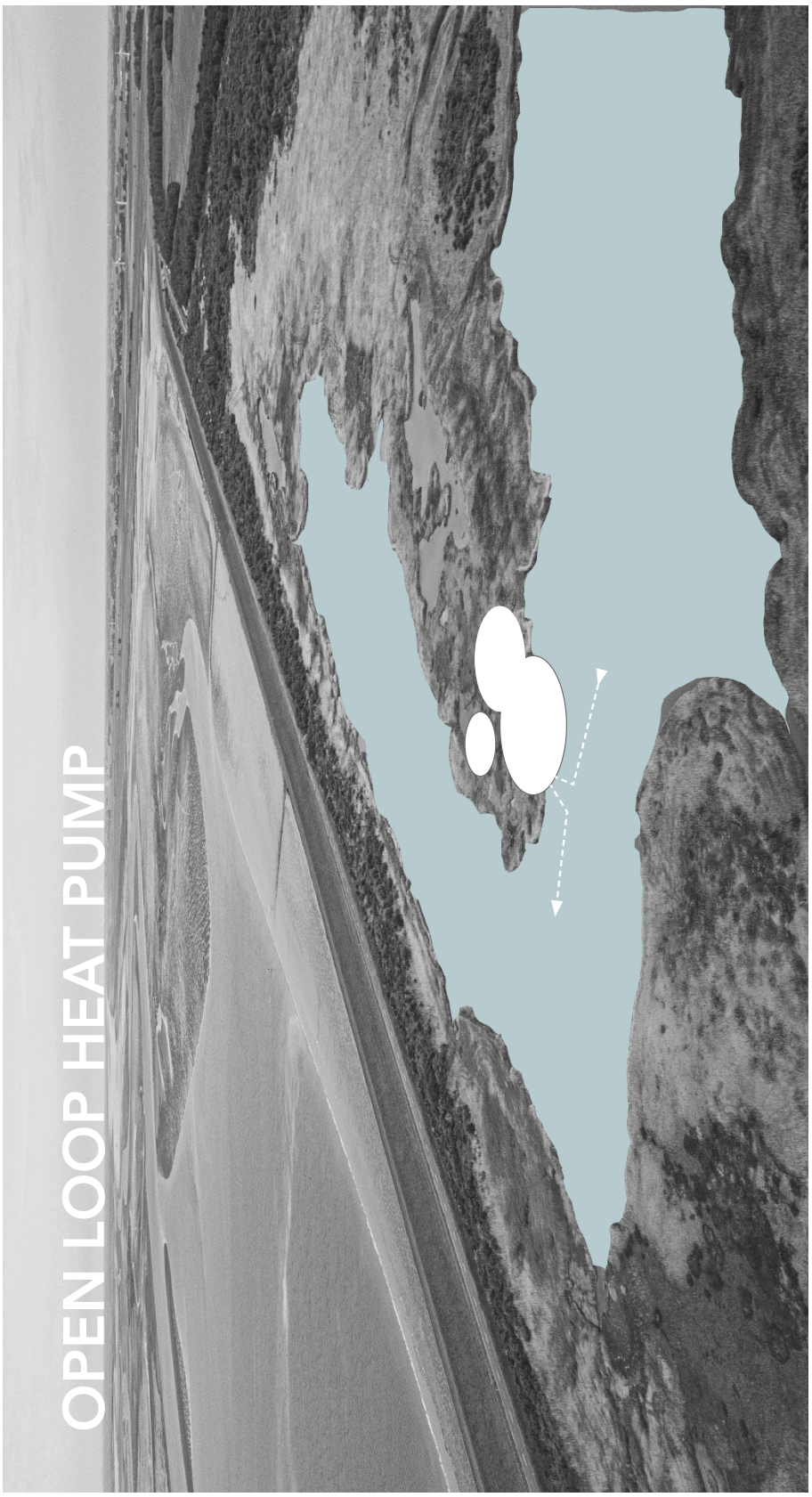




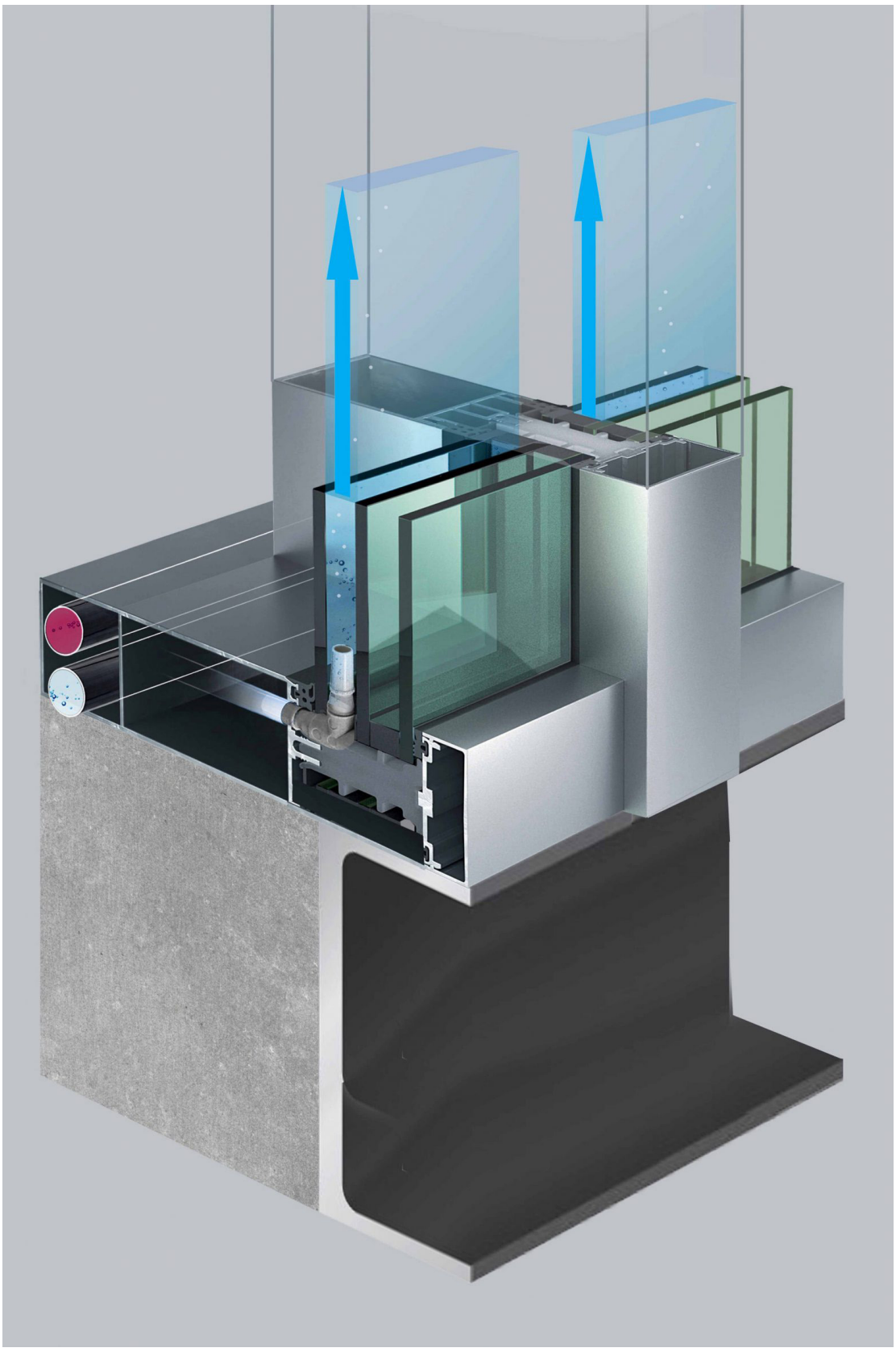
(Mok et al., 2023)



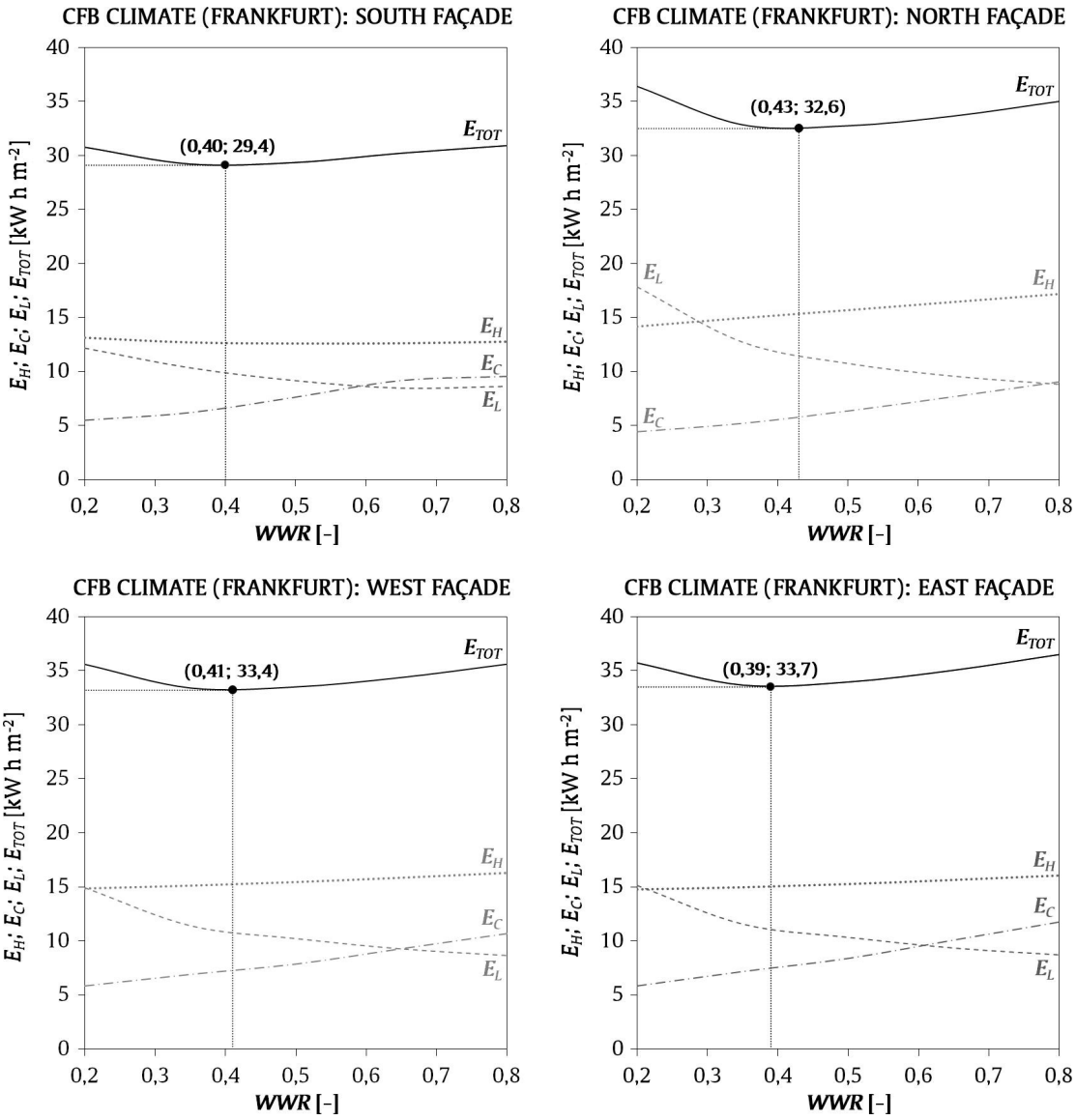
(WFG Basics, n.d.)



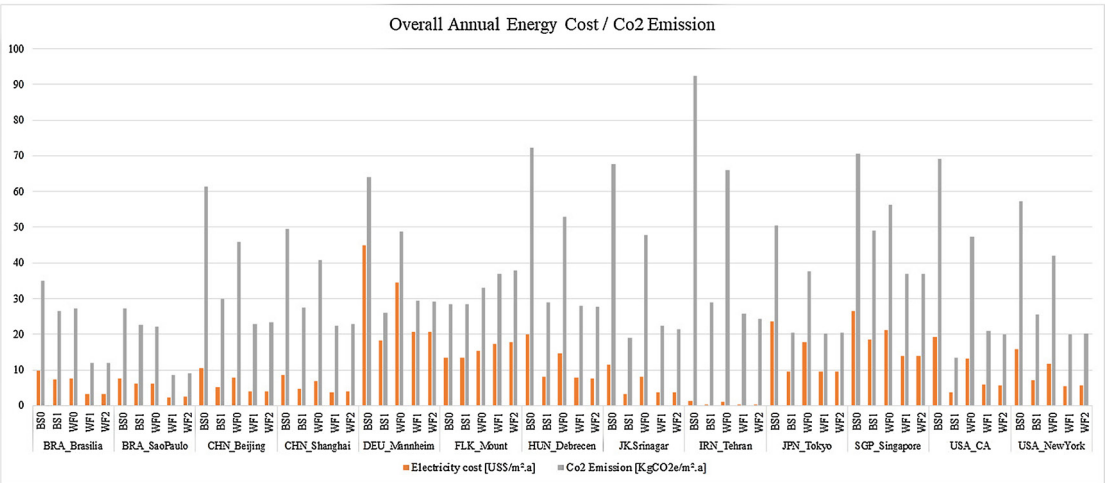
(Image by author)



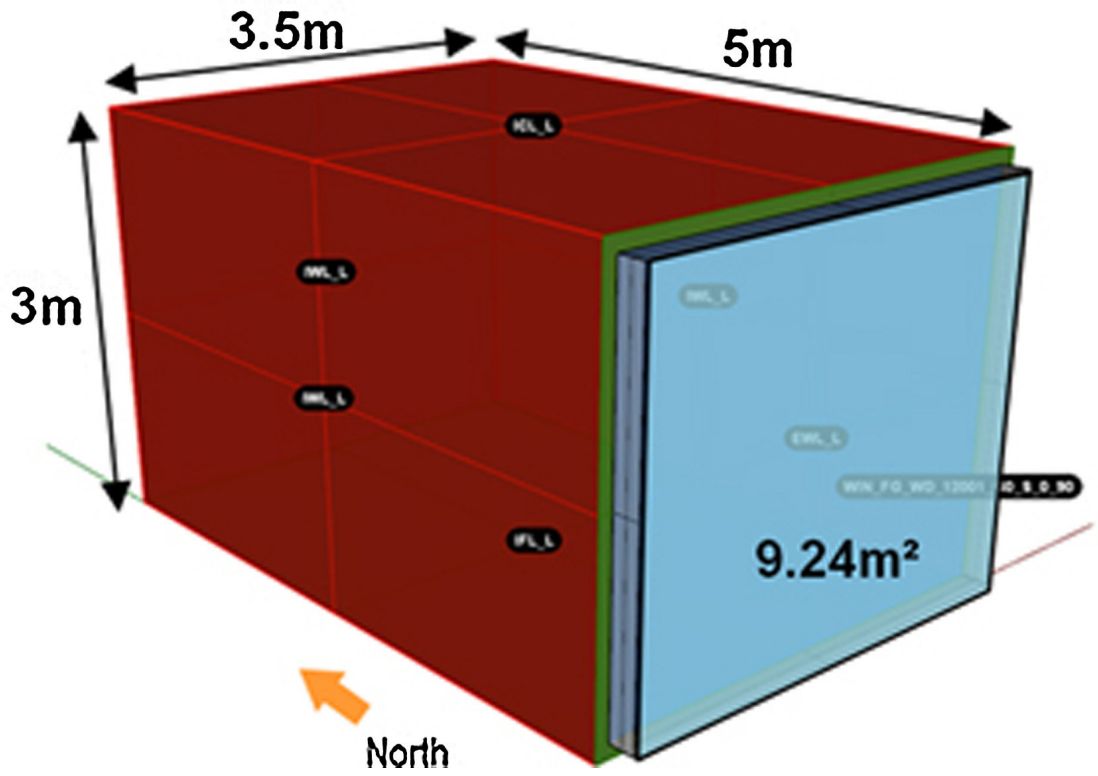
(WFG Basics, n.d.)


CFB CLIMATE (FRANKFURT): SOUTH FAÇADE
(0,40; 29,4)
E_{TOT}
E_H
E_C
E_L
E_H; E_C; E_L; E_{TOT} [kW h m^{-2}]
WWR [-]
CFB CLIMATE (FRANKFURT): NORTH FAÇADE
(0,43; 32,6)
E_{TOT}
E_L
E_H
E_C
E_H; E_C; E_L; E_{TOT} [kW h m^{-2}]
WWR [-]
CFB CLIMATE (FRANKFURT): WEST FAÇADE
(0,41; 33,4)
E_{TOT}
E_H
E_C
E_L
E_H; E_C; E_L; E_{TOT} [kW h m^{-2}]
WWR [-]
CFB CLIMATE (FRANKFURT): EAST FAÇADE
(0,39; 33,7)
E_{TOT}
E_H
E_C
E_L
E_H; E_C; E_L; E_{TOT} [kW h m^{-2}]
WWR [-]

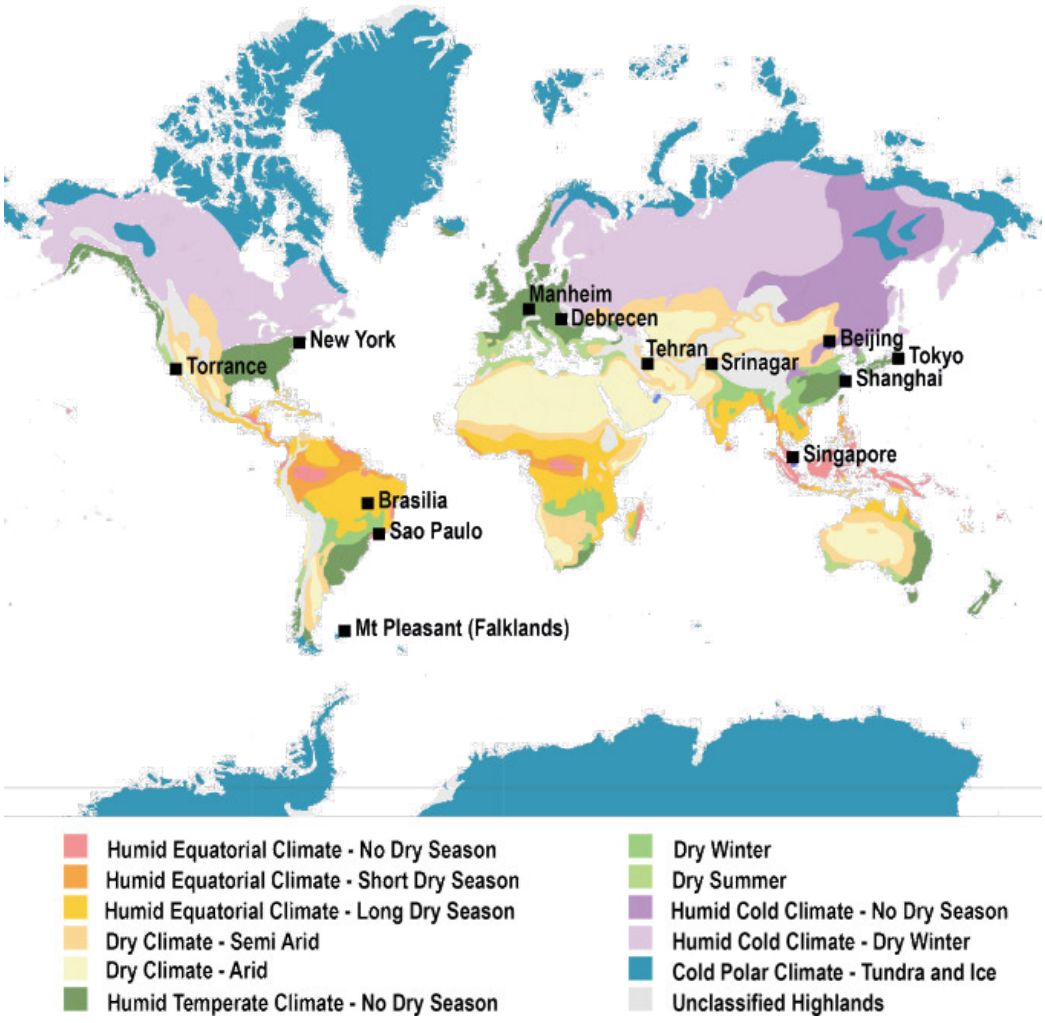
(Goia, 2016)



(Gutai & Kheybari, 2020)



(Gutai & Kheybari, 2020)



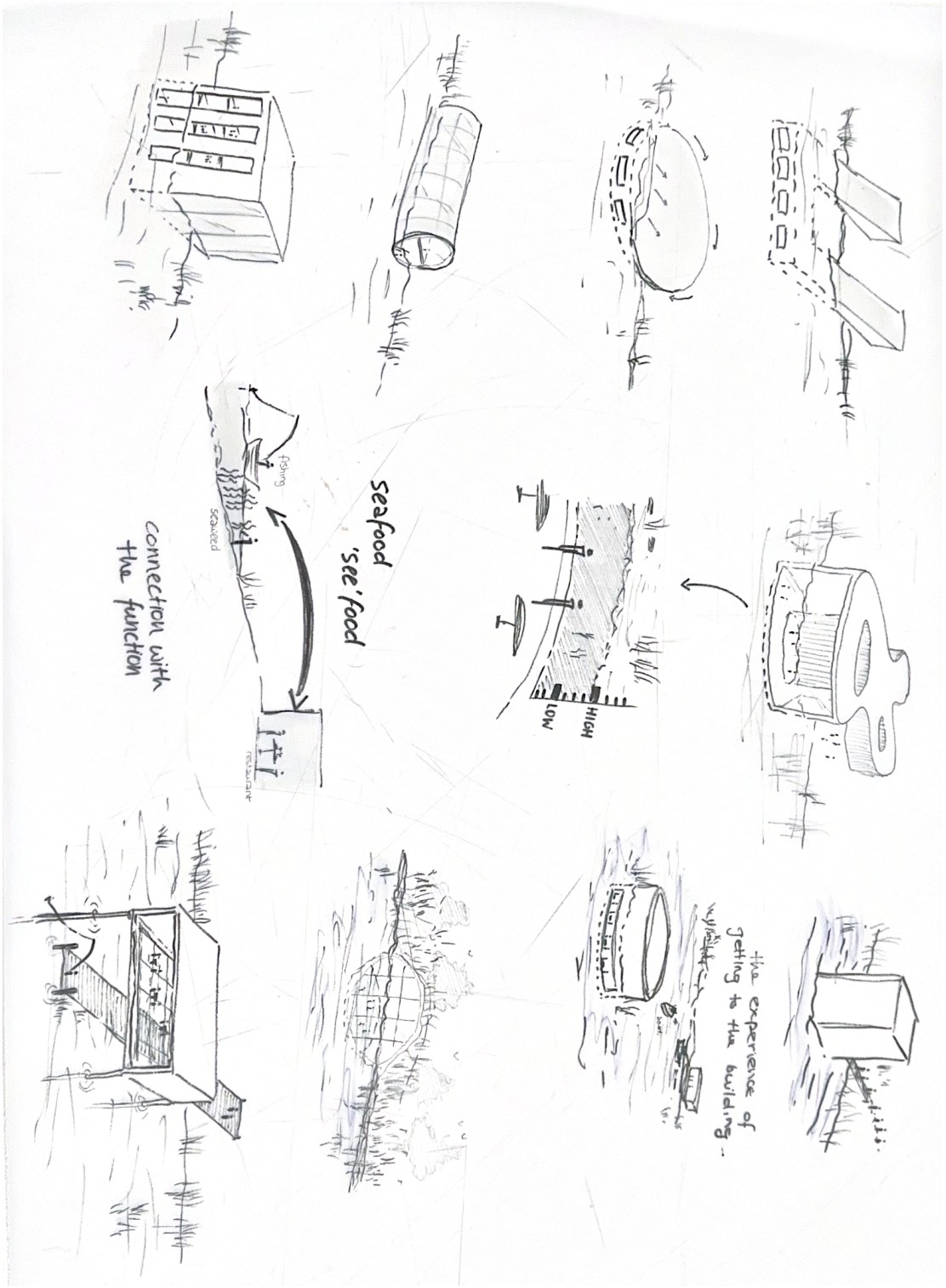
(Gutai & Kheybari, 2020)

Table 3
Energy savings of WFG in different climates.

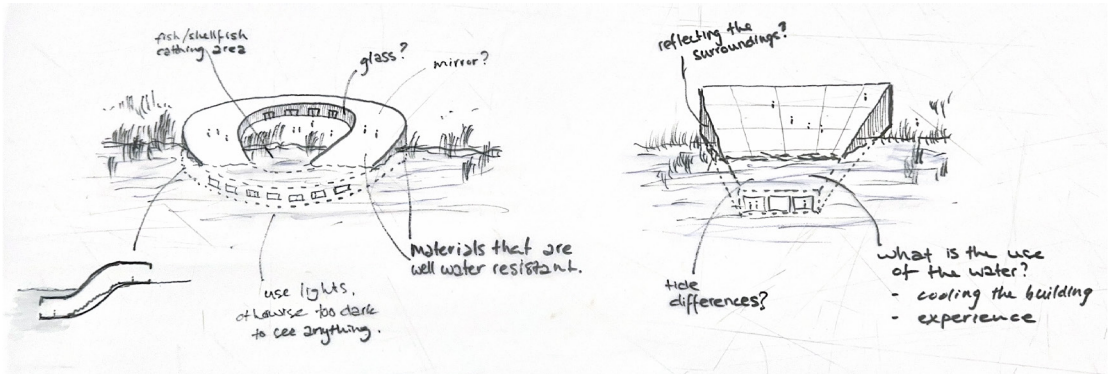
Cities	Total energy demand (kWh/m².a)			Savings: Base0-WFG1	Savings: (%)	Savings: Base1-WFG1	Savings: (%)	Savings: Base1-WFG1+Quseful	Savings: (%)	Climate group	Climate Priority
	Base0	Base1	WFG1								
Brasilia	84.1	62.1	21.7	62.4	74%	40.4	65%	40.4	65%	absorption-based	SHGC
Sao Paulo	61.8	49.1	9.3	52.5	85%	39.8	81%	41.1	84%	absorption-based	SHGC
Beijing	150.2	69.2	46.5	103.7	69%	22.7	33%	42.4	61%	intermediate	SHGC
Shanghai	114.7	57.1	36.2	78.5	68%	20.9	37%	33.8	59%	intermediate	SHGC
Mannheim	152.2	55.0	58.6	93.7	62%	-3.6	-6%	14.3	26%	hybrid	Both
Mt. Pleasant	58.1	57.6	68.7	-10.7	-18%	-11.1	-19%	-5.3	-9%	insulation-based	U-value
Debrecen	175.0	64.4	58.7	116.3	66%	5.7	9%	26.6	41%	intermediate	SHGC
Srinagar	171.5	43.3	51.8	119.7	70%	-8.5	-20%	17.1	40%	hybrid	Both
Tehran	231.2	68.3	57.4	173.8	75%	10.9	16%	33.6	49%	intermediate	SHGC
Tokyo	118.6	41.0	37.3	81.3	69%	3.7	9%	23.7	58%	intermediate	SHGC
Singapore	180.7	125.3	91.0	89.7	50%	34.3	27%	34.3	27%	absorption-based	SHGC
Torrance, CA	171.6	27.2	45.2	126.4	74%	-18.0	-66%	2.6	9%	hybrid	Both
New York	140.1	58.1	39.6	100.5	72%	18.5	32%	38.2	66%	intermediate	SHGC

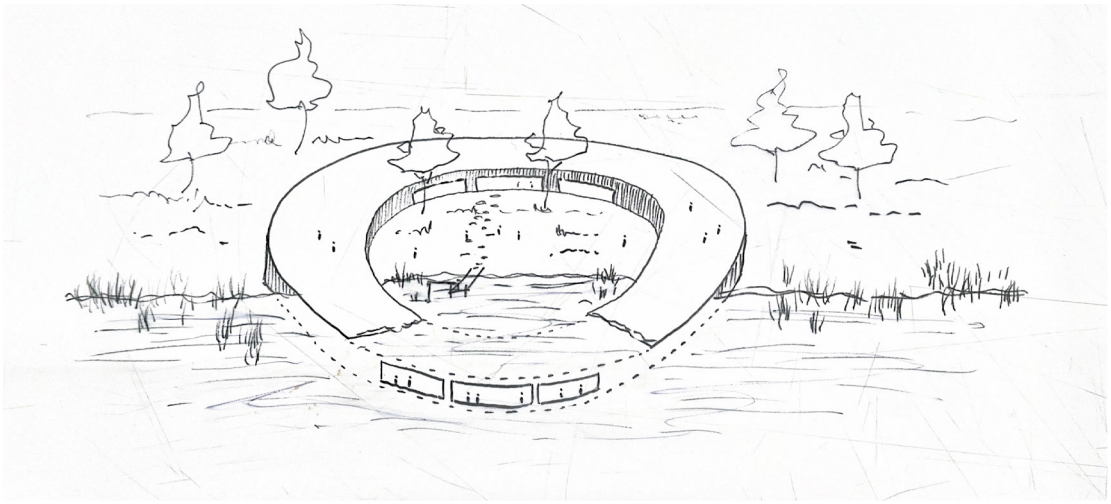
(Gutai & Kheybari, 2020)

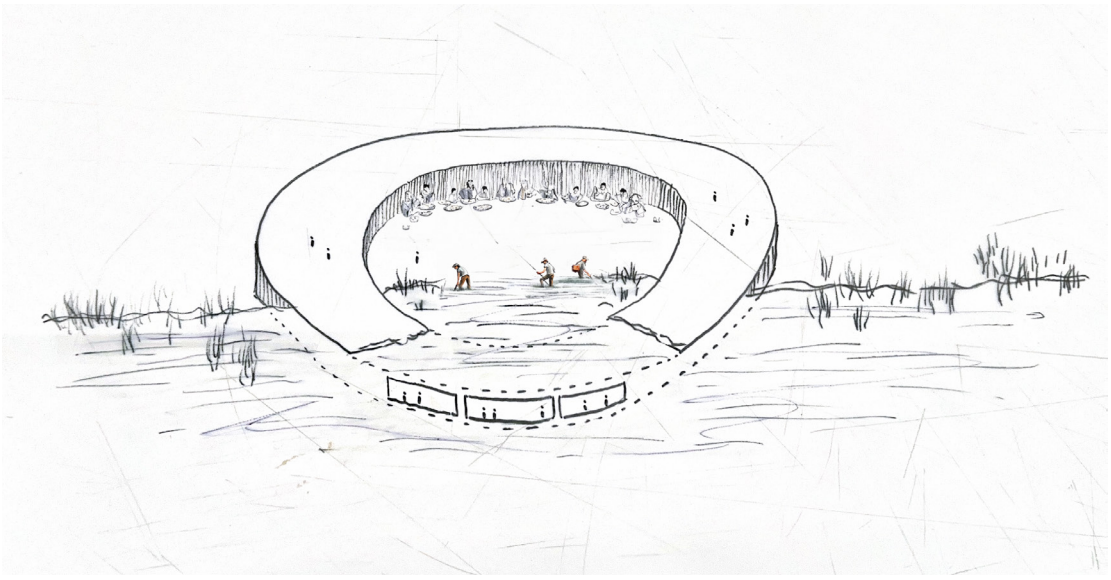
- FIRST DESIGN-



(Image by author)



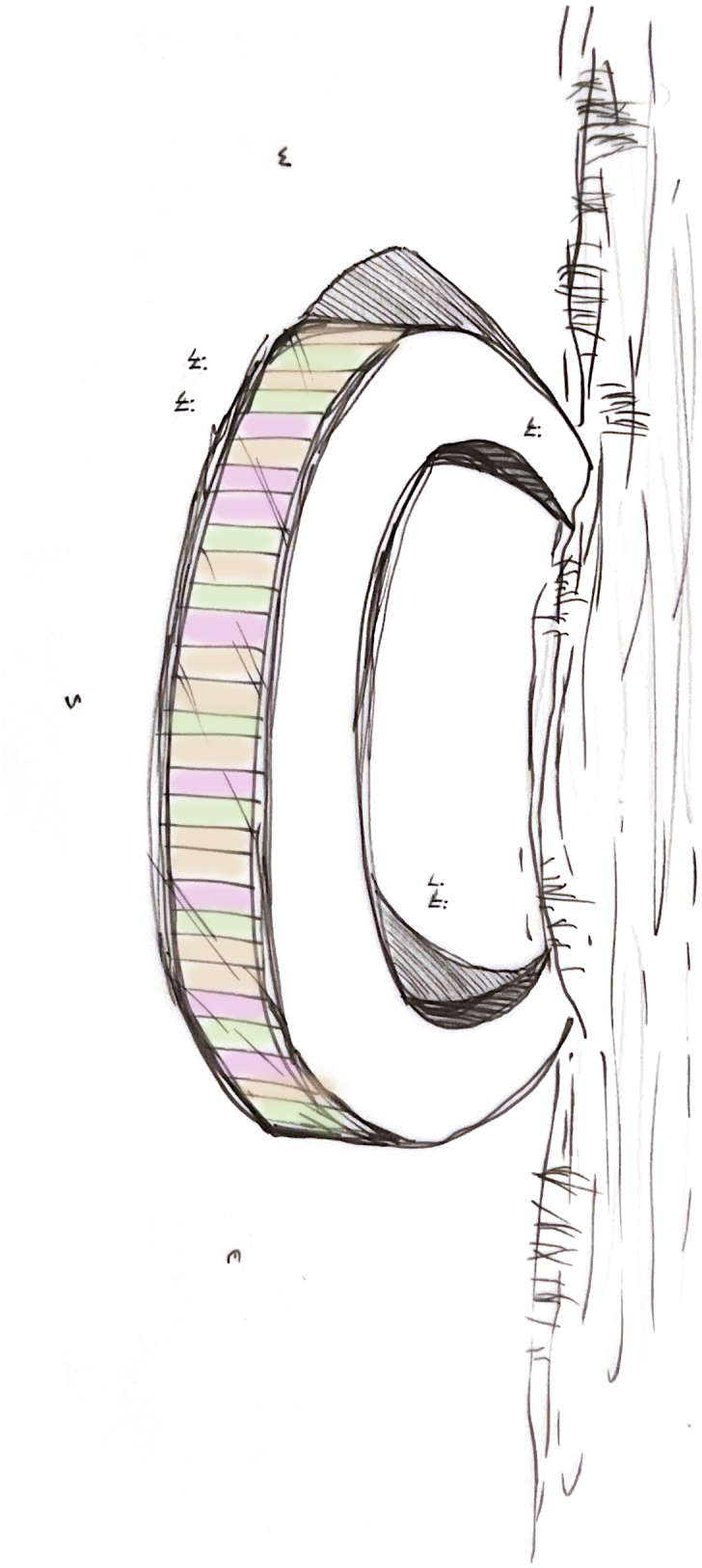




(Image by author)

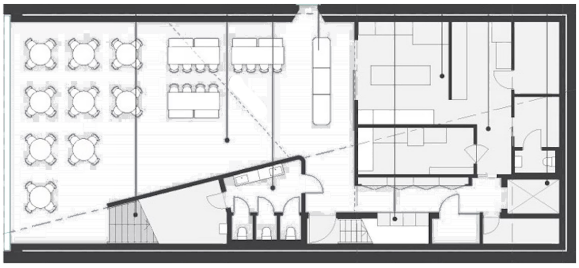
(Image by author, made with Muse AI)

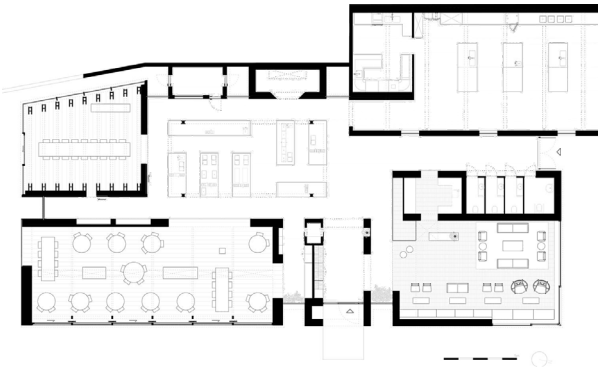
(Image by author, made with Muse AI)

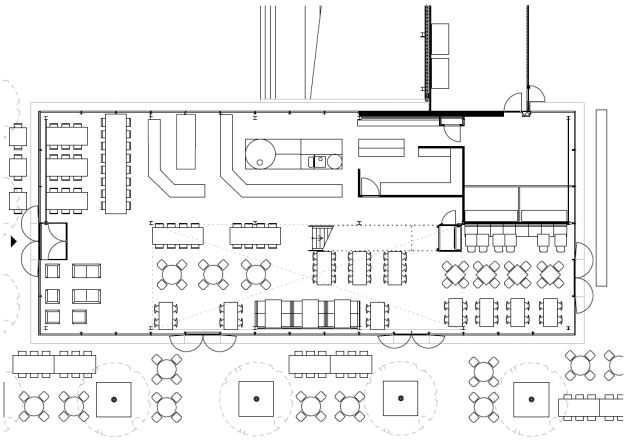


(Image by author)

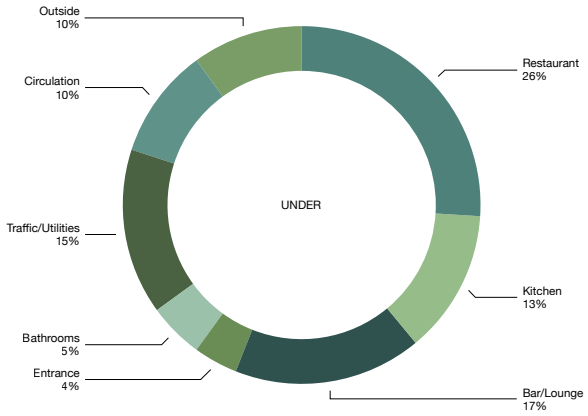
(Benchmarking three restaurants)

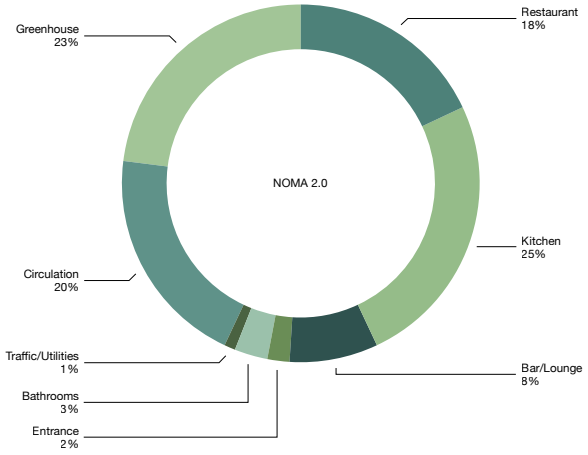


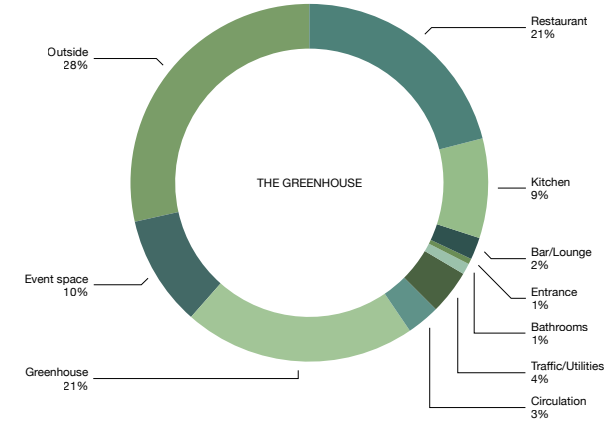




(Floorplans restaurants)

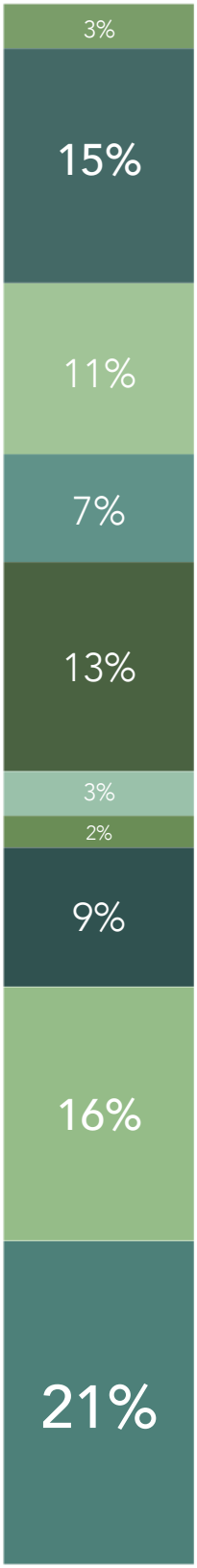






(Floorplan percentages)

(Programbars benchmarking)



Outside 30 m²

Event Space 150 m²

Greenhouse 110 m²

Circulation 70 m²

Traffic/Utilities 130 m²

Bathrooms 30 m²

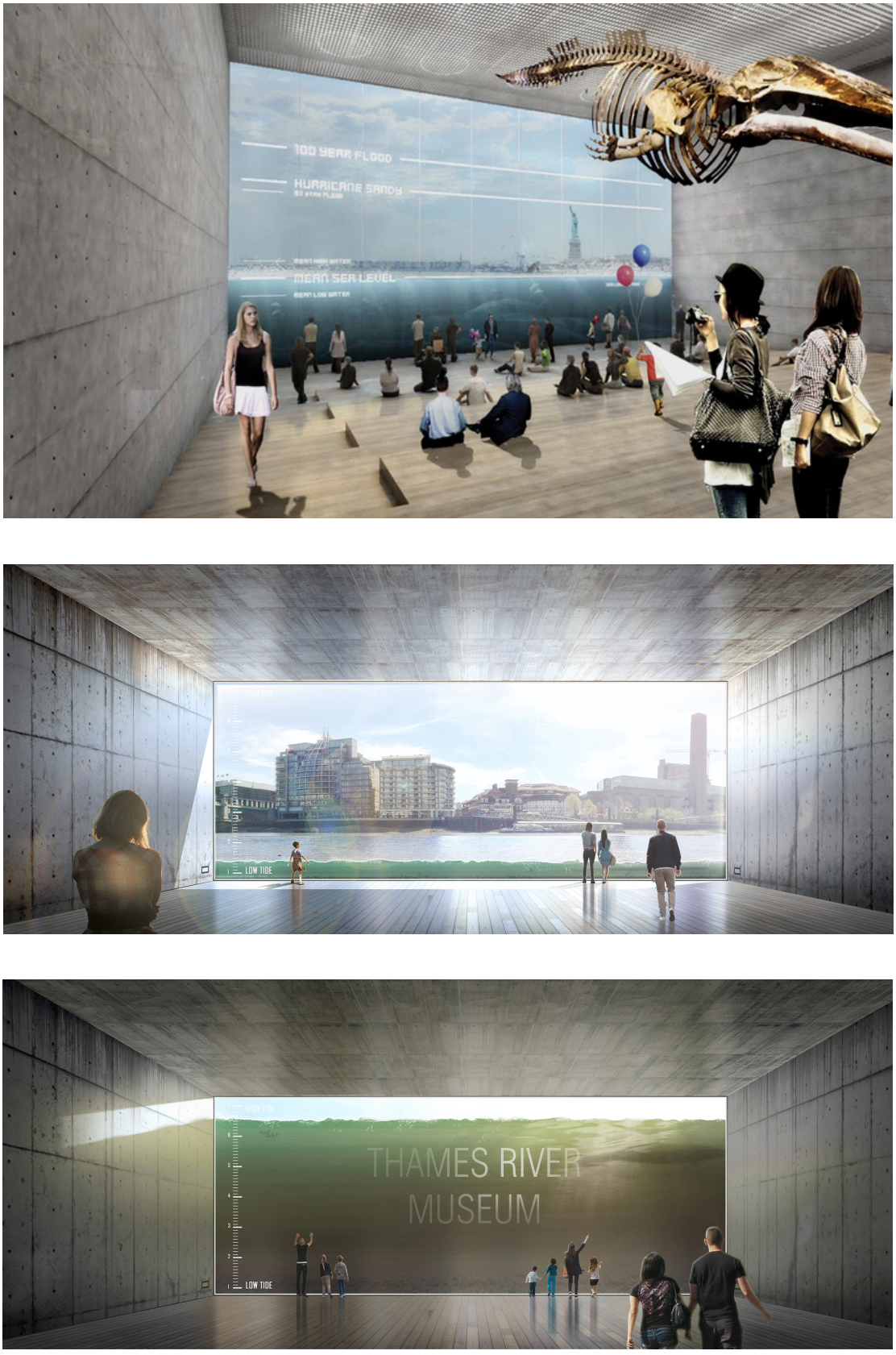
Entrance 20 m²

Bar/Lounge 90 m²

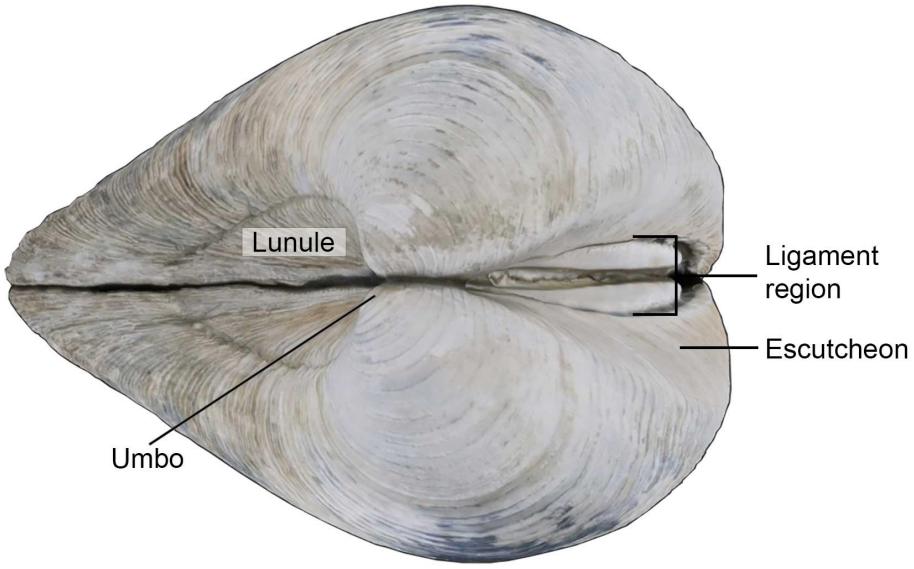
Kitchen 160 m²

Restaurant 210 m²

(Program bar 1000 m², starting point design phase)


100 YEAR FLOOD
HURRICANE SANDY
MEAN SEA LEVEL
LOW TIDE
THAMES RIVER
MUSEUM
LOW TIDE

(Santos, 2017)



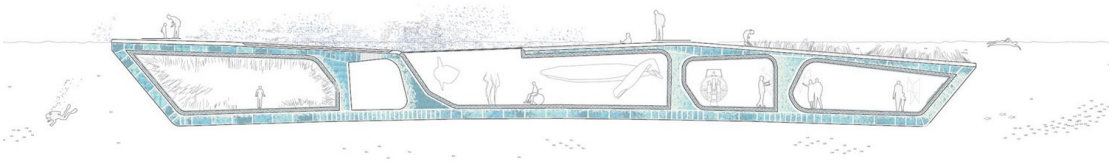
Several types of bivalve mollusks, including oysters, clams, mussels, and scallops, possess the ability to open and close their shells. This movement is facilitated by an elastic ligament known as the hinge ligament. These bivalves have adductor muscles that control the opening and closing of their shells.

The opening and closing of the shells are not constant; rather, it's a dynamic process based on the bivalve's needs and responses to its environment. For instance, during feeding, many bivalves open their shells to allow water to flow through, filtering out food particles. They also close their shells for protection against predators or to prevent desiccation during low tide.

The rate and frequency of shell movement vary among species and depend on factors such as the availability of food, water quality, environmental conditions, and the presence of threats or stressors in their habitat.

Nervous System: Bivalves have simple nervous systems that respond to sensory inputs. Stimuli such as changes in water quality, temperature, light, touch, or chemical signals in the environment can trigger responses that lead to the opening or closing of the shells.

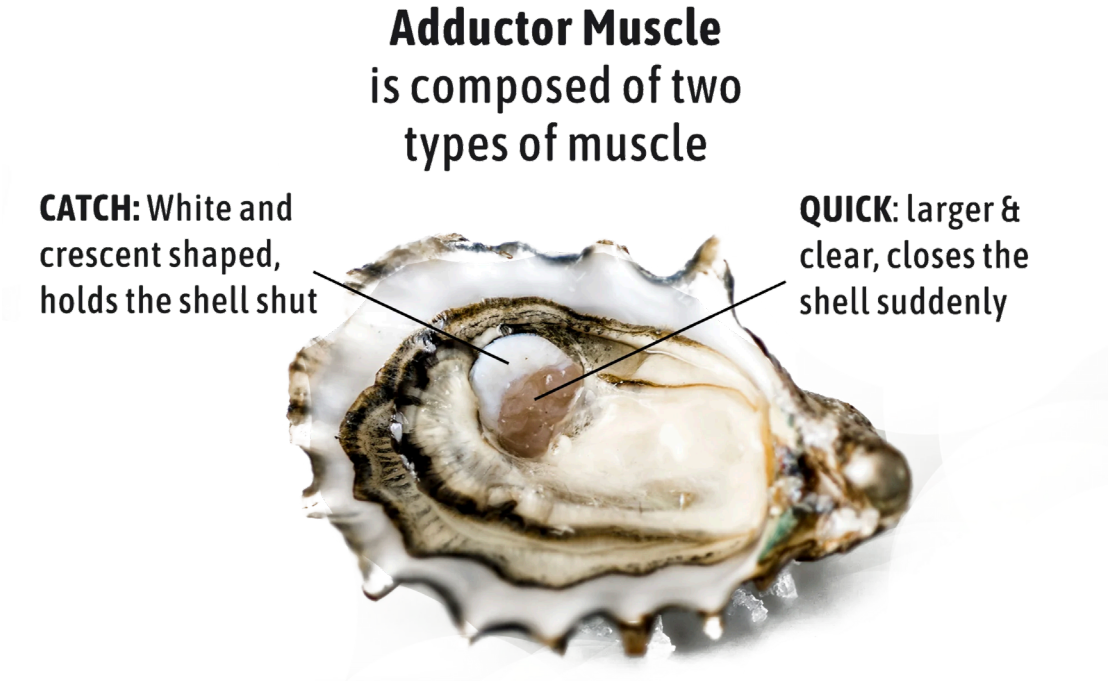
Should my building also have a 'hinge ligament' to open and close itself when the environmental conditions change? (change in temperature, change in tides, change in weather, change in season)

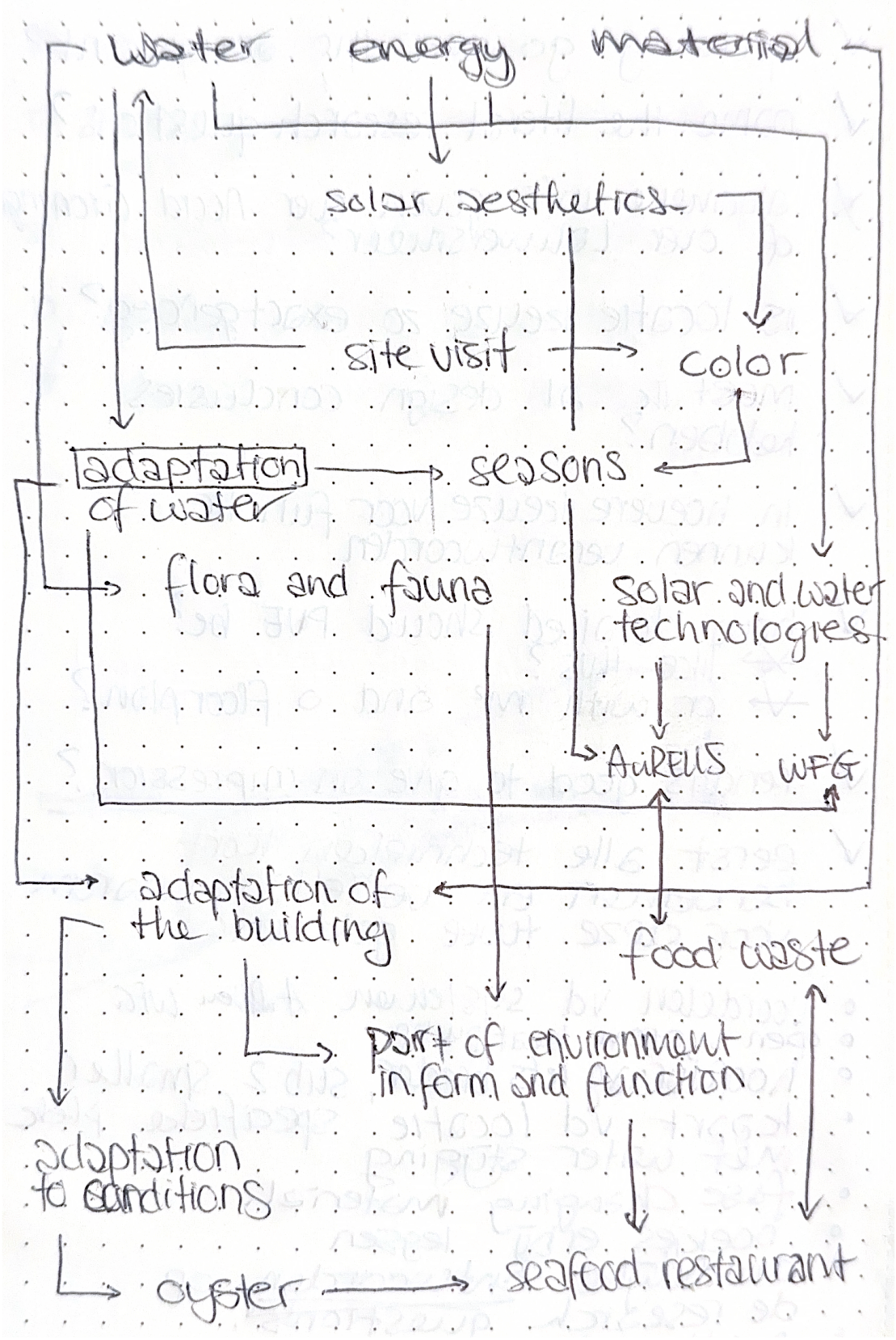


Can the building adapt to the environment?

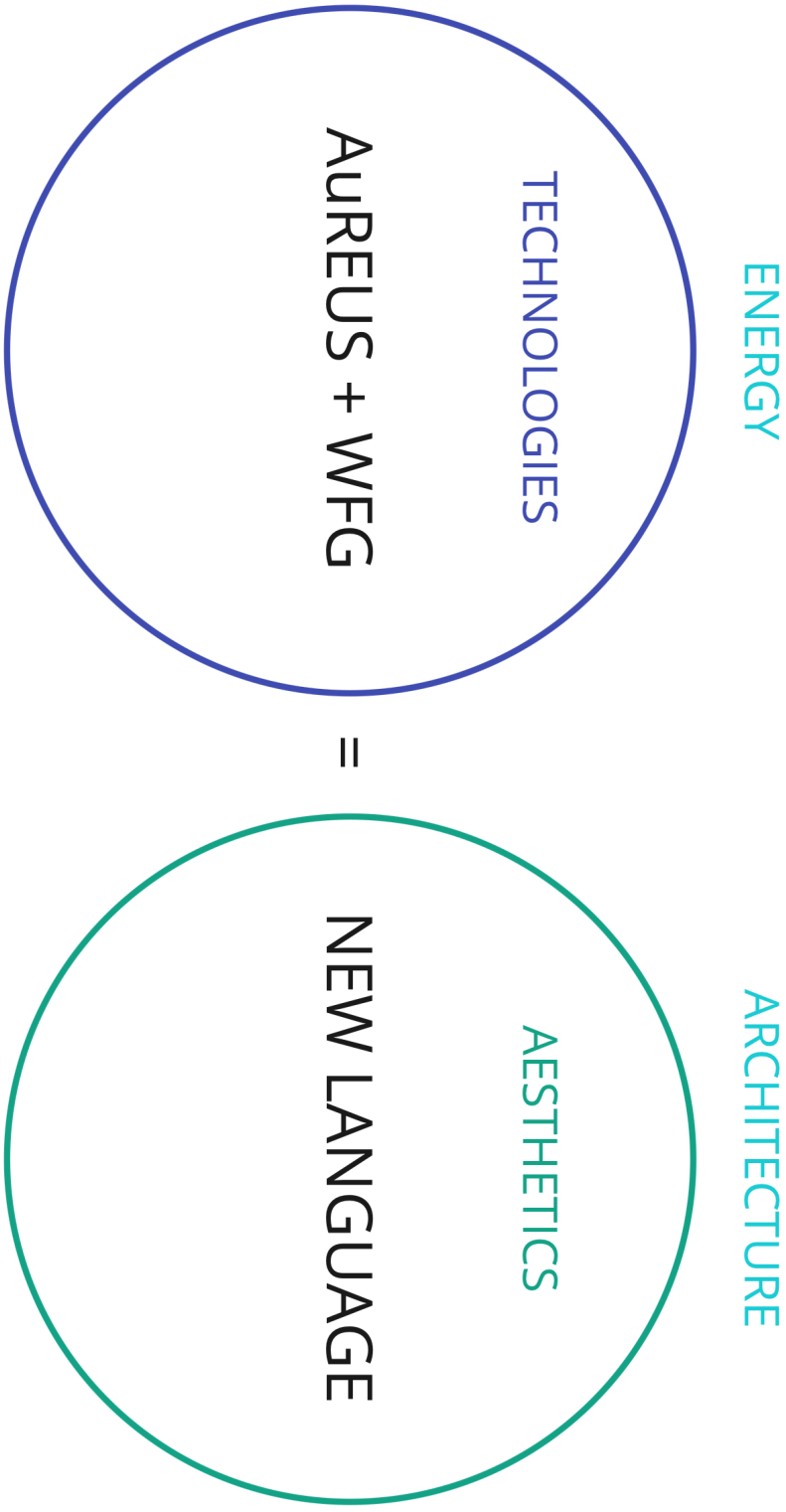
depending on the water and weather conditions

maintaining the optimal circumstances





(Image by author)



(Image by author)

(Image by author, made with Muse AI)

(Image by author, made with Muse AI)

(Image by author, made with Muse AI)

(Image by author, made with Muse AI)

(Image by author, made with Muse AI)

(Image by author, made with Muse AI)

(Image by author, made with Muse AI)

(Image by author, made with Muse AI)

(Image by author, made with Muse AI)

(Image by author, made with Muse AI)

(Image by author, made with Muse AI)

(Image by author, made with Muse AI)

(Image by author, made with Muse AI)

(Image by author, made with Muse AI)

(Image by author, made with Muse AI)

- CONCLUSIONS -

Research questions

0 | How can sunlight and water be foundational elements for an off-grid building design in Groningen?

1 | What are the current weather and water conditions in Groningen and the anticipated projections?

2 | What solar and water-based systems can be implemented to support an energy-independent building?

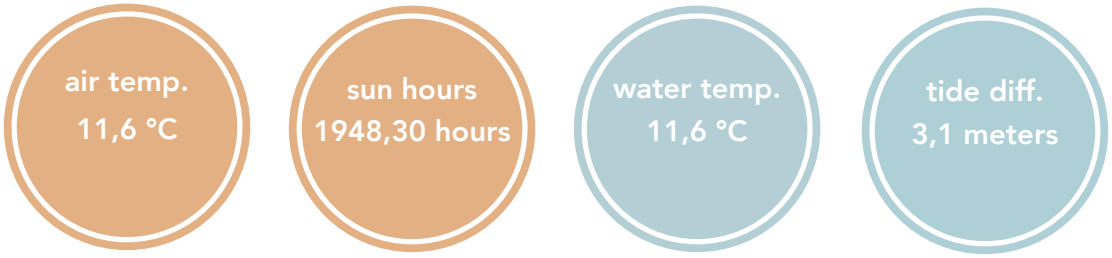
3 | What architectural language implications arise when energy technologies form the foundation of the design?

0 | How can sunlight and water be foundational elements for an off-grid building design in Groningen?

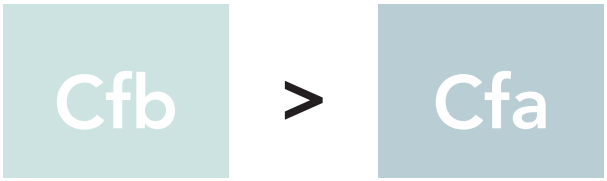
first preliminary answer:

By combining the features of sun and water with technology, we can turn their stand alone qualities into beneficial elements, which we can use as a foundation to build a design upon.

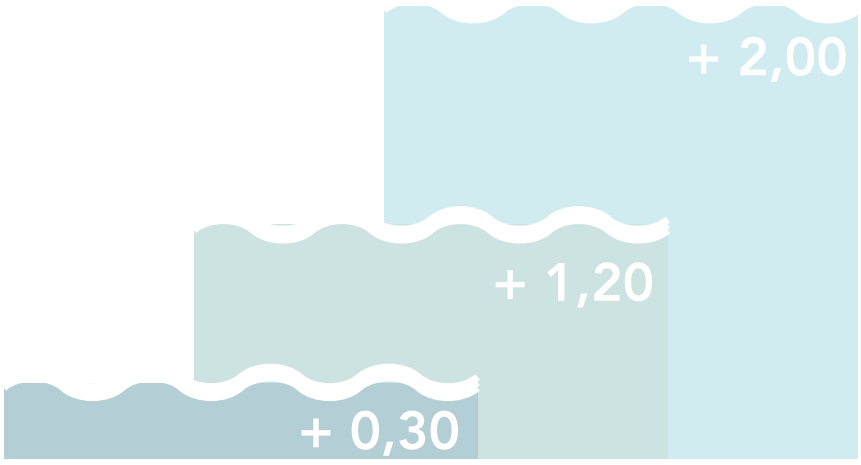
1 | What are the current weather and water conditions in Groningen and the anticipated projections?



(Current conditions)

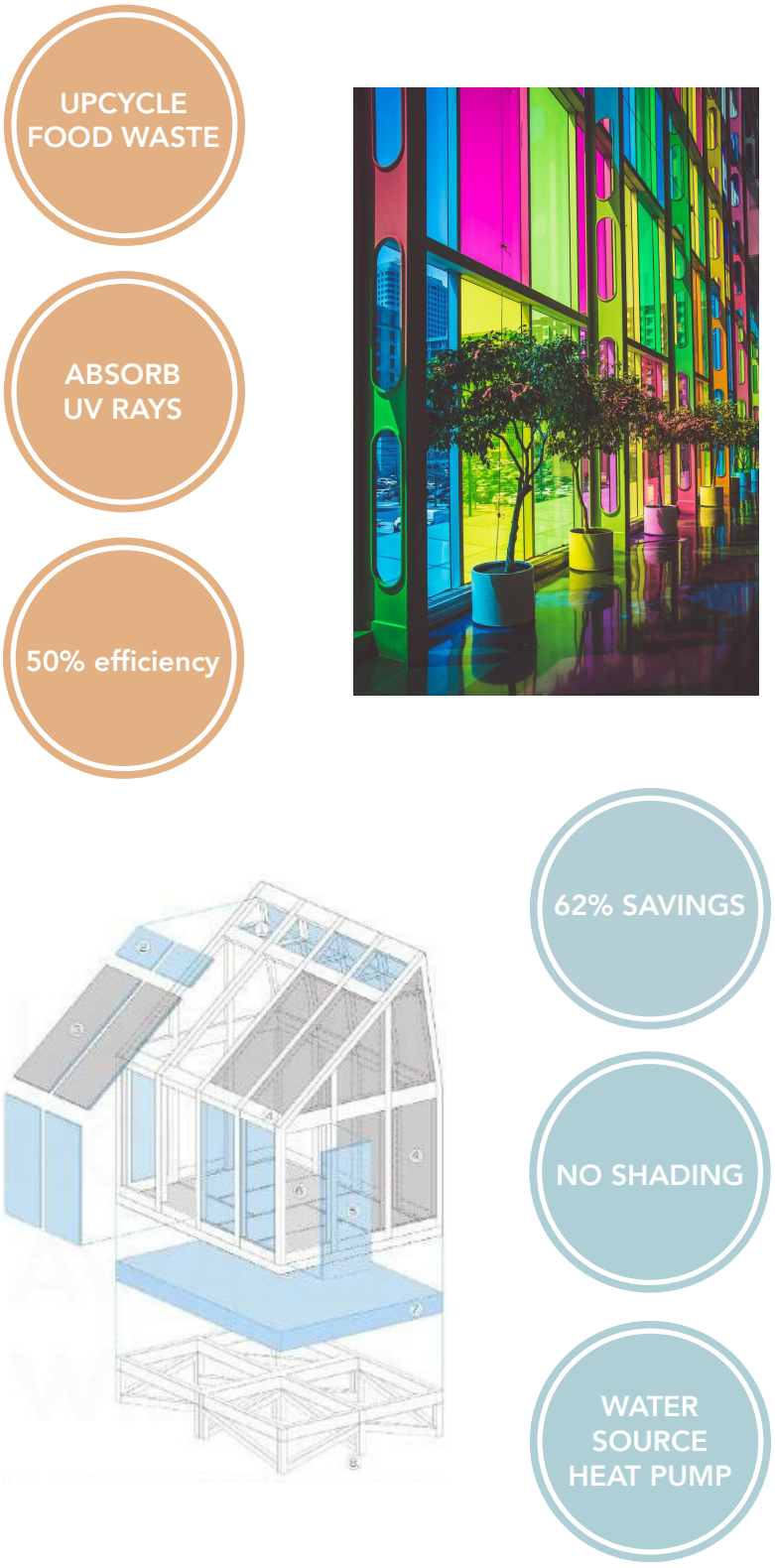


(Anticipated climate shift 2100)

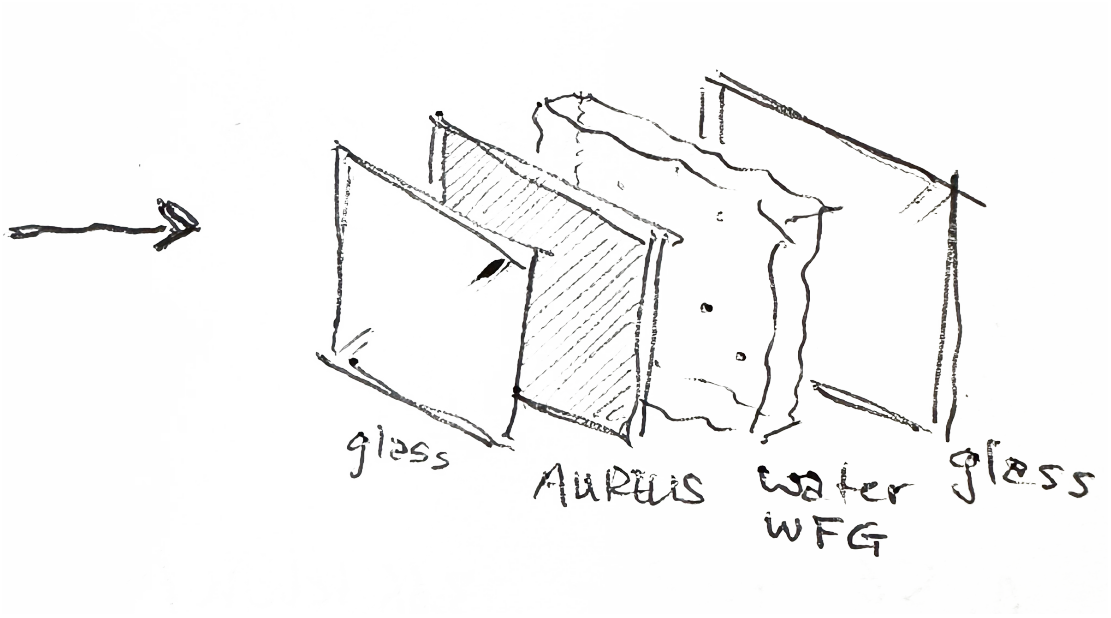


(Anticipated sea level rise 2100)

2 | What solar and water-based systems can be implemented to support an energy-independent building?



AuREUS and WFG



AuREUS + WFG

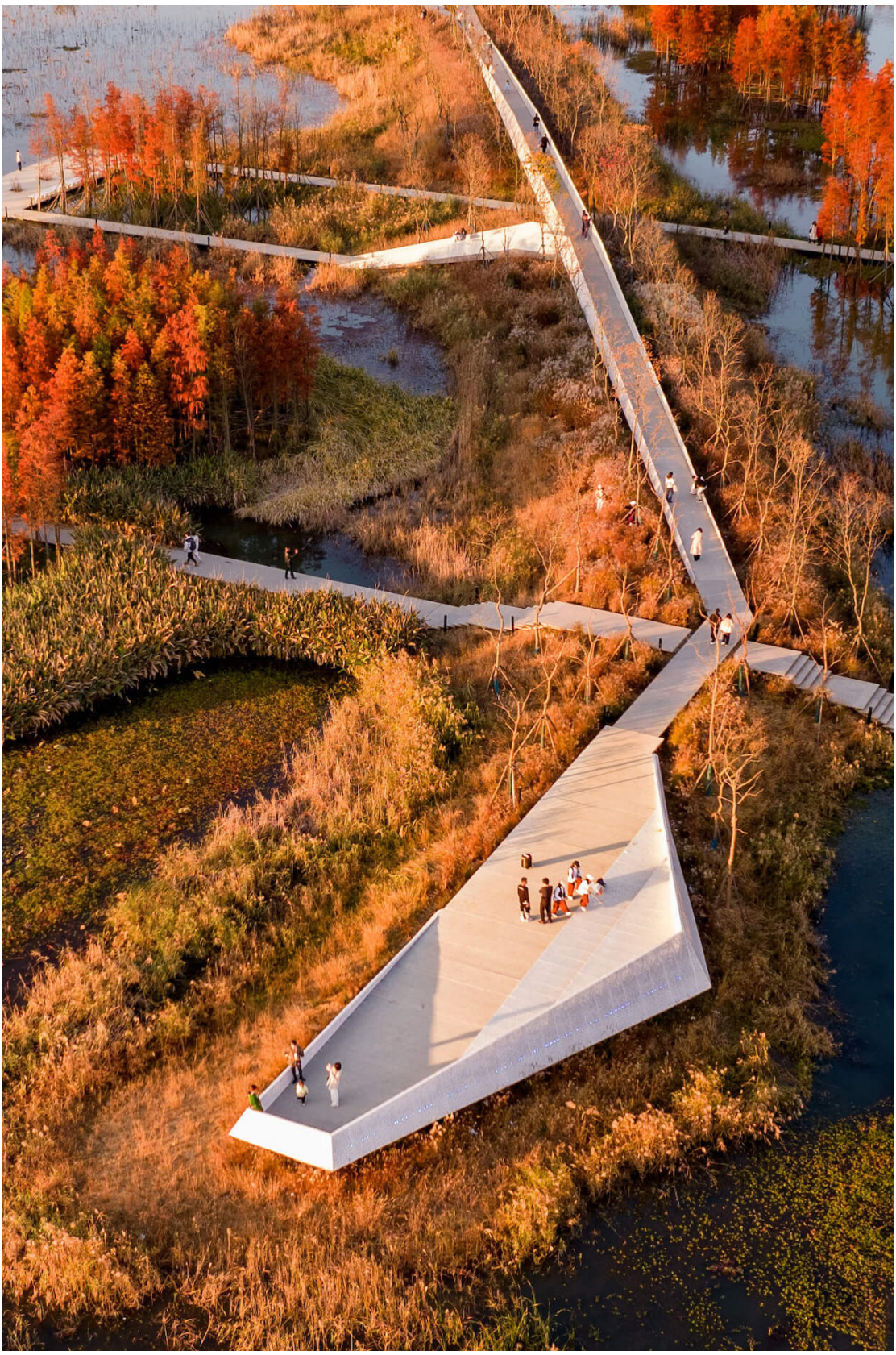
3 | What architectural language implications arise when energy technologies form the foundation of the design?

Design based on AuREUS + WFG research outcomes

Design based on AuREUS colored panels

Design based on AuREUS + WFG research outcomes + anticipated sea level projections

- PRECEDENTS -



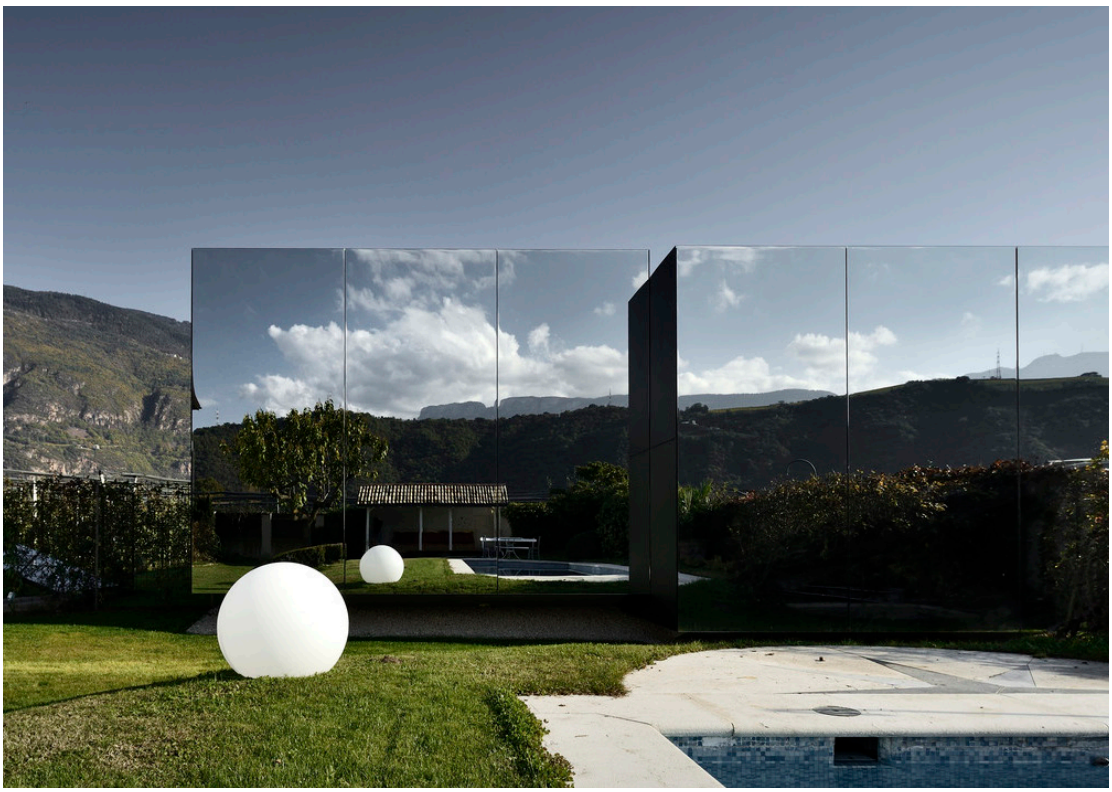
Fish Tail Park - Turenscape

“In the city of Nanchang, within the Yangtze River flood plain in east-central China, Turenscape transformed a badly abused 126-acre landscape into a dreamlike floating forest that regulates stormwater, provides habitat for wildlife, offers an array of recreational opportunities, and gives local residents a new way to connect with nature. All of this has lent a unique identity to the New District, serving as a catalyst for urban development in the surrounding area. Fish Tail Park offers a replicable model of designed urban nature for regions with monsoon or variable climates that can address the multiple challenges of floods, habitat restoration, and recreational demands. The project is part of a larger effort by the landscape architect to show that it is possible to open up new space in cities, not just for people, but also for nature, and for powerful forces like monsoon storms that drive critical natural processes.” (Ibrahim, 2023)

The Non Program Pavilion - Jesús Torres García

“Located in the South of Spain, close to the Mediterranean Sea, this small pavilion is surrounded by a remarkable landscape. The construction is defined by the relation between the form in the landscape and the contact of the structure on the field. The structure developed itself as a flower, as a natural fact, subscribing to Oscar Niemeyer’s approach. The whole project has been composed in the concept of “how to build in natural landscape?” and “what is the appropriate “weight” of a construction of this scale?” The non-program pavilion reaches the idea of disappearing in the landscape, attempting to erase the division between the intervention and the area. This concern of integration reaches the point where the landscape generates the architecture itself.” (Gaete, 2019)

The Mirror Houses - Peter Pichler Architecture



“The Mirror Houses are a pair of holiday homes, set in the marvellous surroundings of the South Tyrolean Dolomites, amidst a beautiful scenery of appletrees, just outside the city of Bolzano. They were designed by architect Peter Pichler. The Mirror houses offer a unique chance to spend a beautiful vacation surrounded by contemporary architecture of the highest standards and the most astonishing Landscape and beauty nature has to offer.

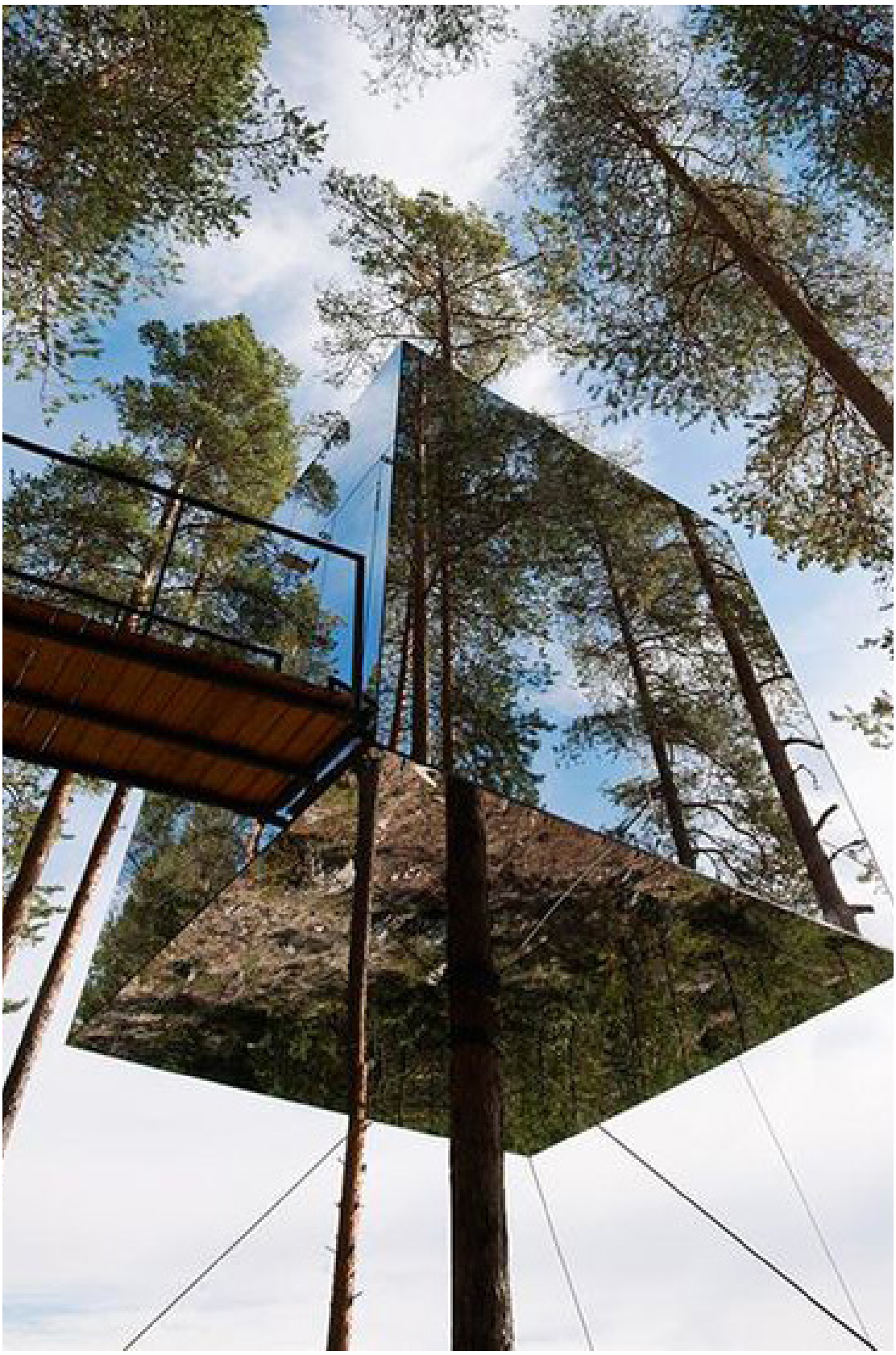
The client, who lives in a restructured farmhouse of the 60s on the site, asked to design a structure for renting out as luxury holiday units. Guests have their small autonomous apartment and can fully enjoy the experience of living in the middle of nature. A maximum degree of privacy for both the client and the residing guest should be taken into conside- ration.” (Sánchez, 2023)

Maraya Concert Hall - Giò Forma Studio Associato

“It’s easy to think that it’s an illusion – the desert can play tricks with the mind. Then you realise there really is an incredible, mirrored building in the heart of the Arabian Desert. With ancient, wind-carved, sandstone mountains reflected along its length, so that the structure seems to disappear and then reappear from the landscape.

This is the Maraya Concert Hall, confirmed by the Guinness Book of World Records as the largest mirrored building ever constructed. 9740 square metres, or 105,000 square feet, of mirrored glass in a location no one would expect. And although ‘Maraya’ means ‘mirrors’ in Arabic, this isn’t standard mirrored glass, it’s a new formulation specially developed by Guardian Glass – in just three months.

Nabil El Ahmar, at that time Mega Projects and Strategic Partnership Manager at Guardian Glass, was first invited to view the project after an attempt at a mirrored solution by a different company had failed. The exterior was cloaked in what can only be described as giant sheets of metal, reflecting a distorted and wrinkled version of the surroundings. As Nabil says “We were shocked to find it wasn’t even a mirror”, then recalls immediately thinking: “Surely we have a better solution.”” (Maraya Concert Hall – the World’s Largest Mirrored Building., n.d.)



Tree Hotel - Tham & Videgård Arkitekter

“A shelter up in the trees; a lightweight aluminium structure hung around a tree trunk, a 4x4x4 meters box clad in mirrored glass. The exterior reflects the surroundings and the sky, creating a camouflaged refuge. The interior is all made of plywood and the windows give a 360 degree view of the surroundings.

The construction also alludes to how man relates to nature, how we use high tech materials and products when exploring remote places in harsh climates (Gore-tex, Kevlar, composite materials, light weight tents etc).

The functions included provides for a living for two people; a double bed, a small bath room, a living room and a roof terrace. Access to the cabin is by a rope bridge connected to the next tree.

To prevent birds colliding with the reflective glass, a transparent ultraviolet colour is laminated into the glass panes which are visible for birds only.” (Saieh, 2020)

Fortuna Vlieland - Adema Architecten

“The housing of Fortuna Vlieland is a design by Adema Architects in Dokkum. We approached Adema with a sketch inspired by a storm umbrella. Adema came back with a pyramid. Now there stands a building designed as much as possible according to the golden ratio. Architecture in line with the natural laws of aesthetics.

Think of it as a sharply carved wooden dune, wrapped in aging and responsibly treated softwood. Fortuna Vlieland marks the transition between nature and construction; it aims to bridge the gap between the two. In the interior, technical stainless steel and warm wood form an exciting alliance. The building’s systems run entirely on solar energy.” (Fortuna,
(translated to english)

Dune between the dunes

Under - Snøhetta

“Under is a story of contrasts; the contrast between the landscape and the sea; above and below. The project underscores the delicate ecological balance between land and sea and draws our attention to sustainable models for responsible consumption. By focusing on the coexistence of life on land and in the sea, Under proposes a new way of understanding our relationship to our surroundings – above the surface, under the water, and alongside the life of the sea.

It is a natural progression of Snøhetta’s experimentation with boundaries. As a landmark for Southern Norway, Under proposes unexpected combinations of pronouns and prepositions, and challenges what determines a person’s physical placement in their environment.” (Snøhetta, 2019)

Rock between the rocks

Trælvikosen - Snøhetta

“With a view towards the famous Torghatten mountain, the trail of stones is taking the visitor from a beach across the sandy sea bottom towards a small islet. The installation invites visitors to be immersed in nature, experiencing it, bringing awareness and attention to details.

The sea bottom of Trælvikosen contains beautiful natural elements. As the tide retracts and advances, new details are revealed, minute by minute, inch by inch. The small pyramids of the lugworm, traces of snails moving through the ground, stones in unique formats, and the river meandering in an ever-changing trajectory. The surroundings and experiences change all throughout the day.

Bringing the idea of the tidal installation to life required comprehensive testing and thorough research, among other things, for the foundation. It was tested for an entire year with four stones, resulting in the conclusion not to cast the foundation but to use crushed stone for stability. The tide itself gave the team some extra challenges while installing the stones, as there was only a four-hour window before the water took charge of the site.” (Snøhetta, 2022)

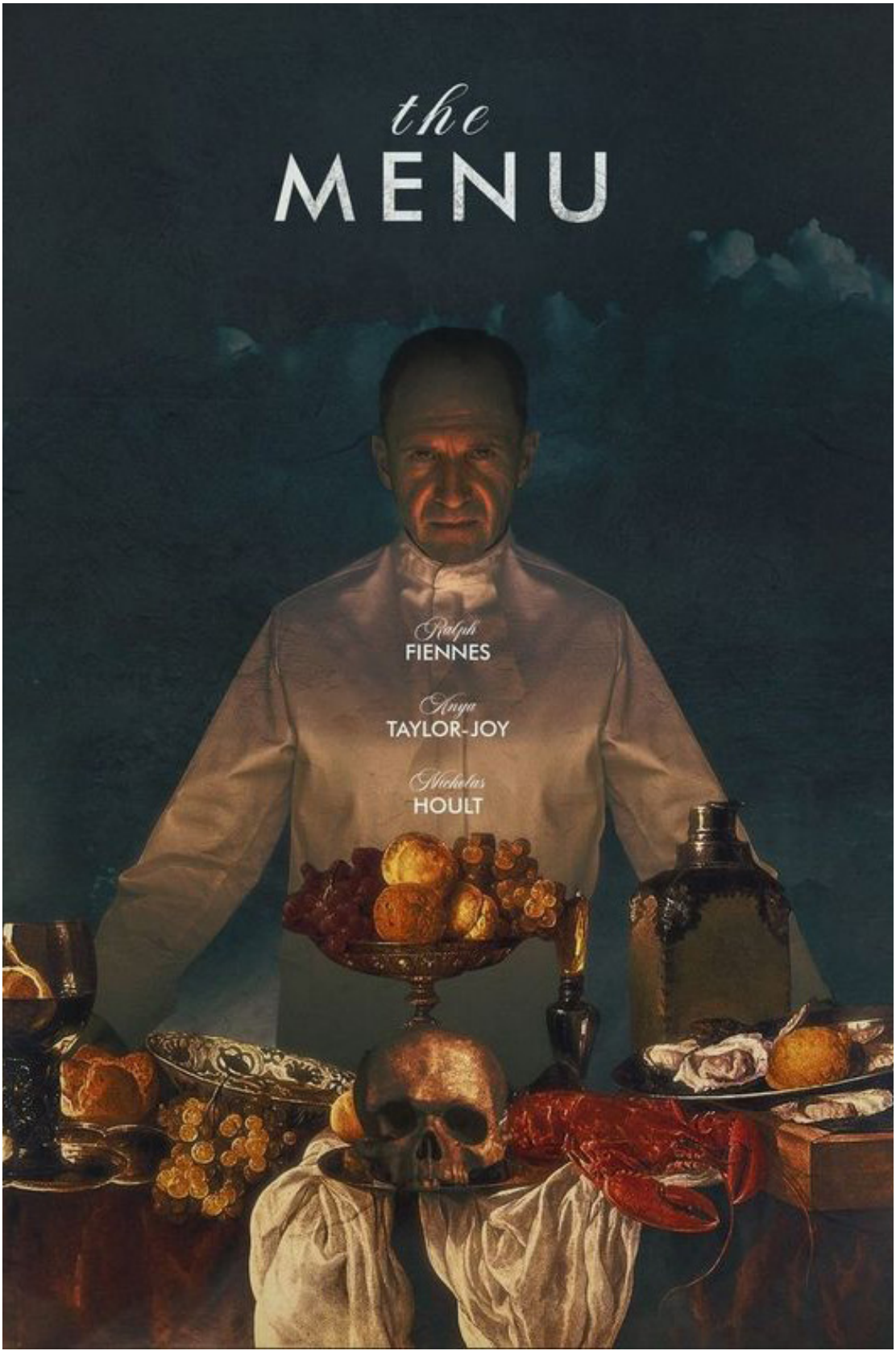
Unique Mount EMEI Theater - WG Studio + BIAD-BOA Studio

““Only Mount Emei” Drama City is located beside the main scenic area of Sichuan, Emeishan City, Sichuan Province. It is a large-scale situational experience drama created by the famous Chinese director Wang Chaoge by Emeishan Tourism Investment Development (Group) Co., Ltd. The total area of the project is about 6 hectares, including the Yunshang Performing Arts Theater, the Yunzhong Scenery Garden, and the Yunxia Scenery Theater transformed from the original villages in the base.

The architecture is closely related to the title “Emei” and uses “above the clouds” as the entry point for architectural context and literature. She draws on Emei and the sea of clouds, the world of Buddha and the world, distilling natural images into literary expressions, and then translating the semantics of literature into Building image.” (Luo, 2021)

This building reminds me of the rooftops protruding above the dikes. The building blends into the surroundings and only reveals a small part of itself.

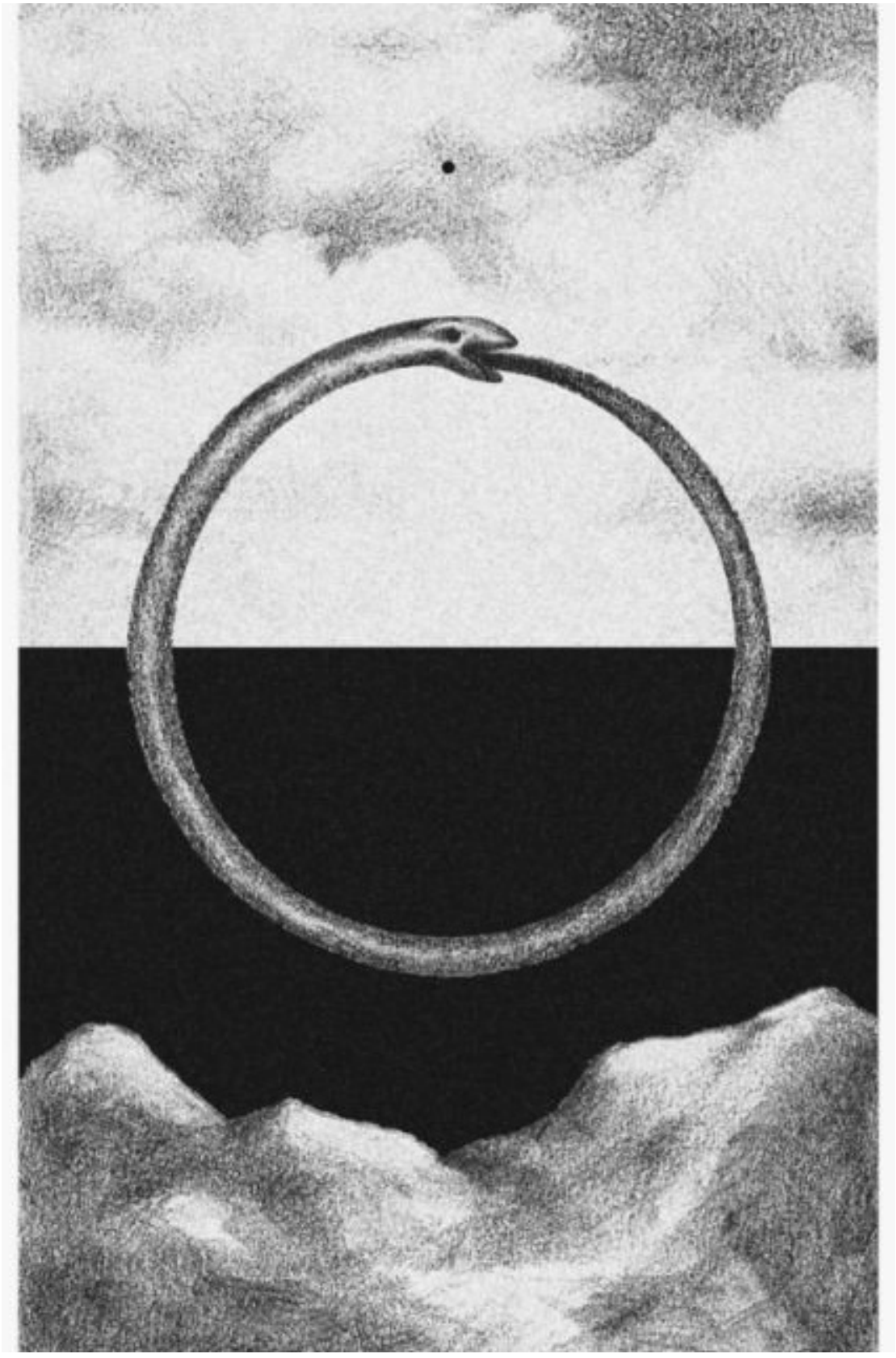
(Geert Coumans)



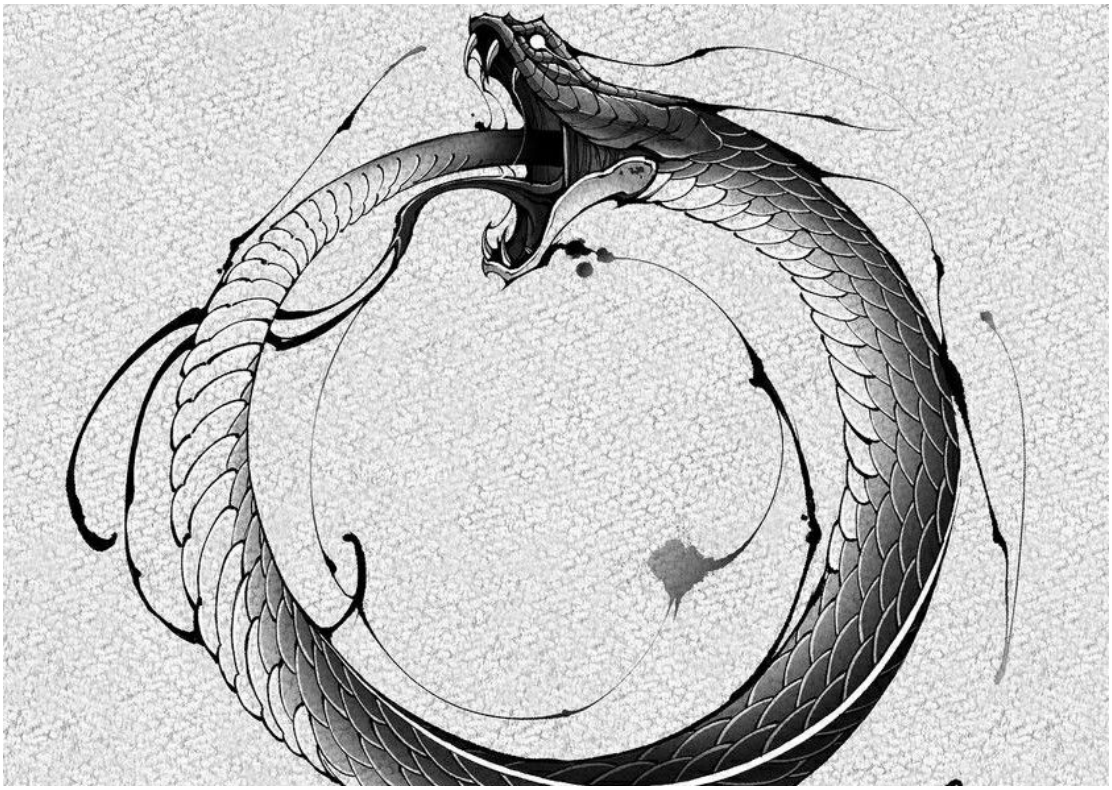
The Menu - Mark Mylod

“Expecting nothing less than the best of everything haute cuisine has to offer, a group of ultra-wealthy gastronomes with a demanding palate arrive at the Hawthorn: an exclusive culinary temple run by highly regarded gourmet chef Julian Slowik. And prepared for an exquisite multiple-course meal and the experience of a lifetime, obsessive epicurean Tyler and his unimpressed plus-one Margot enter the private minimalist restaurant. At last, the long wait is over. However, no one knows that the cryptic genius in the kitchen has big plans for tonight. After all, the imperious culinary artist has been stretching the boundaries of taste and fine dining for decades. Now, the host can finally unveil his magnum opus. But is the blasé clientele ready for Julian’s creative madness?” (Riganas, 2022)

What I love about this restaurant is the entire experience you get besides just eating. It starts with taking the boat from the mainland to the island where the restaurant is located. All ingredients are produced on this island, and all the staff also reside here. Everything contributes to an incredibly exclusive atmosphere. The kitchen is completely open, right next to the dining area where guests eat. Everyone can easily peek inside and see exactly how all the dishes are prepared. Not just coming or going to the island reminds me of the tides of our location and how it could also affect the accessibility of the building.



Ouroboros



“The ouroboros or uroboros is an ancient symbol depicting a serpent or dragon eating its own tail. The ouroboros entered Western tradition via ancient Egyptian iconography and the Greek magical tradition. It was adopted as a symbol in Gnosticism and Hermeticism and most notably in alchemy. Some snakes, such as rat snakes, have been known to consume themselves.

The ouroboros is often interpreted as a symbol for eternal cyclic renewal or a cycle of life, death and rebirth; the snake’s skin-sloughing symbolises the transmigration of souls. The snake biting its own tail is a fertility symbol in some religions: the tail is a phallic symbol and the mouth is a yonic or womb-like symbol.” (Wikipedia contributors, 2023)

Mont Saint Michel

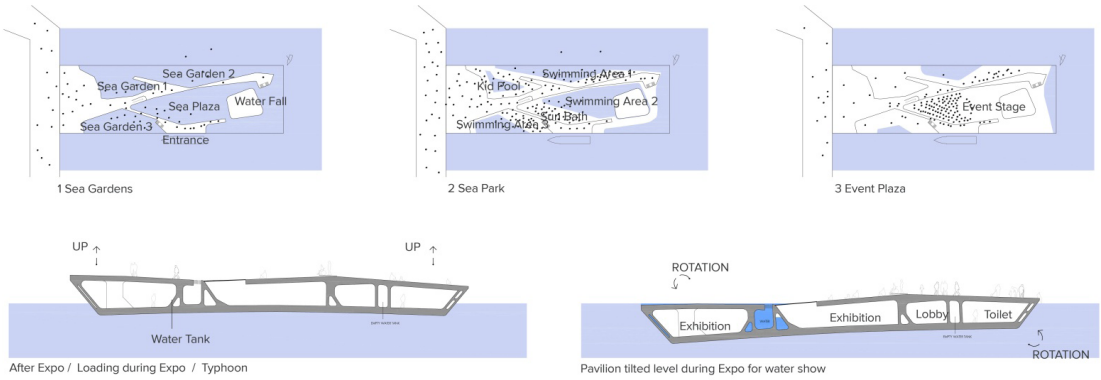
“The tides vary greatly, at roughly 14 metres (46 ft) between highest and lowest water marks. Popularly nicknamed “St. Michael in peril of the sea” by medieval pilgrims making their way across the flats, the mount can still pose dangers for visitors who avoid the causeway and attempt the hazardous walk across the sands from the neighbouring coast.

Polderisation and occasional flooding have created salt marsh meadows that were found to be ideally suited to grazing sheep. The well-flavoured meat that results from the diet of the sheep in the pré salé (salt meadow) makes agneau de pré-salé (salt meadow lamb) a local specialty that may be found on the menus of restaurants that depend on income from the many visitors to the mount.” (Wikipedia contributors, 2023a)

Mar Adentro - Miguel Angel Aragonés

Text description provided by the architects. “The first time I visited this property and took in the desert and the diaphanous, clear water running along a horizontal line in the background, I felt the enormous drive of water under a scorching sun. This piece of land, located in the middle of a coastline dotted with “All Inclusives,” would have to be transformed into a box that contained its own sea –practically its own air– given the happy circumstance that the universe had created a desert joined to the sea along a horizontal line. It was the purest, most minimalist landscape a horizon could have drawn. On either side, this dreamlike scenery collided with what humans consider to be aesthetic and build and baptize as architecture. I wanted to draw my own version, apart from the rest.” (Rojas, 2023)

Water Pavilion in Yeosu EXPO - Daniel Valle



HYDRAULICS. FLEXIBILITY DURING EXPO

The presence of water defines life. The Thematic Pavilion is a hydraulic machine system which allows manifesting various configurations in relationship with the water. By filling in deposits of water distributed along the structural body the pavilion can gain or lose weight and therefore rise or lower its level with the water surface.
The movements can be vertical –up or down- or can be tilted. Each movement will create a differentiated relation with the water defining new movements and usable areas on the pavilion's upper platform.
Hydraulics also allows elevating the pavilion various meters from the water level during loading/unloading exhibition period and during Typhoon seasons – heavy sea.

Installing a water basin makes it very controllable how deep the building is submerged underwater— the fuller the basin, the deeper the building. However, this implies that the building must (partially) float (?)

- APPENDIX -