

INTRODUCTION

The constructive turn, roughly the period from 2020 to 2050, is currently probably the most talked-about era in the history of construction. Some see this turn as a sharp break from the digital world, a time resulting in disconnection from an intense establishment of data driven interconnectedness. Others though, have tried to make the constructive turn into a non-event, a mere illusion of retrospection.

More circumspect scholars nowadays, however, recognize the many important continuities between the scientific and later the digital era and the constructive turn.

During this era the digital world brought visibility to how the migrations of people, pandemics, natural disasters, wars, construction and even our actions were interconnected. It was not that these things did not exist previously, but with this new visibility, people realised just how interconnected things were and how disconnected they have become from the effects of their actions and the physical world.

Up to this point scientists, whose increasing specializations reduced their focus to narrow topics of study and objects in isolation, and whose methods seemed to emphasize dissecting rather than synthesizing approaches, actively discouraged questions of our instinctive being in constant exploration for comprehension or connection with the physical universe.

For a moment people thought this void would be filled, as big data teamed up with scientists, politicians, and businesses, promising a symbiosis between the people and the planet that will lead to prosperity. Architects started to pledge for processes of de- and re-

materialisation, as they reframed the territory of architecture, not differentiating between natural or manmade environments, understanding, and approaching our world as objects with properties to be controlled. The collaboration between big data and scientists, politics, and business made it possible to revisit the modernist dream. However, with data and technology taking centre stage, it did not take long before questions arose about how it was measured or collected, disagreement about its interpretation led to court cases, and misuse of its control lead to suppression and profit.

Being confronted with a growing sense of disconnection with the physical universe, humans starting gravitating towards ideologies or conspiracy theories for meaning. However slowly a new approach seemed to arrive, in different professions, and in architecture, the alchemist, promised to reconnect humans with the physical universe, by unravelling moments of resonance between scientific observation and our human perception of the world. This turn was particularly described by some, as a new way or arguably a very old way humans could engage with the physical universe, which rather than trying to define and control it, was focussed on establishing new relationships and becoming part of it.

New ways to construct and make space was seen as way of interacting with and relating to the world, rather than giving meaning to it, which brought – as a basis for its eventual success – worlds of beauty and promise that we stopped daring to imagine and as such had forgotten how to see. When thinkers after the turn looked out on the world, they

saw again a cosmos in the true Greek sense of that word, a well-ordered and arranged whole. They saw the various components of the physical universe tightly interwoven with one another and our consciousness. Humans were not seeking their place in the universe anymore but had realised they were part of it all along.

BRIEF

Late in 2032, a brilliant new material (**fig. 1**) appeared in front of people's eyes. French observers were the first to note its arrival but over the following weeks, as it grew in size and brightness, eyes all over Europe turned towards this heavenly spectacle. In Italy, France, Germany, Switzerland, Belgium and elsewhere observers tracked and recorded its motions and changes. Some took careful measurements and argued over calculations of the materials' scale and origins, and whether its path through its presence would be curved or straight. Some observed it with the naked eye, others with instruments such as a heat meter, an instrument then just about ten years old. Some tried to predict its potential savings on the Earth, on the disastrous evolutions of the weather, on the quality of the air, on human health and on the affairs of women and men and the fates of states.

Some saw it as an opportunity to understand its potential to use less materials or new environmental ideas, others saw it as a divine portent for good or the impossible, and many saw it as both. Pamphlets flowed from printing presses, articles and contentions appeared in the new periodicals devoted to natural phenomena, people discussed it in princely courts and academies, in coffee-houses and taverns, while letters full of

ideas and data shuttled back and forth among distant observers, weaving webs of communication across political and confessional boundaries. All of Europe watched this spectacle of nature and strove to understand it and to learn from it.

The material of 2032 provides but one instance of the ways which 21st century Europeans paid close attention to the natural world around them, interacted with it and with each other. Peering through ever improving tools, they finally used their senses as the tool and saw immense new worlds, undreamt of buildings with where interior and exterior are undefined, open and permeable structures that rethink their life span, devote of having one meaning. They sought finally again for their relationship to their surroundings, for causes and messages hidden in the world, for the traces of Gods, and for ways to re-establish a balanced relationship with the worlds they encountered with both new technology and hidden ancient knowledge.

Sorption curve of a material, even with a very high relative humidity, the water content in the material stays very low. And even if it would be high, it would not lose its insulation capacities.

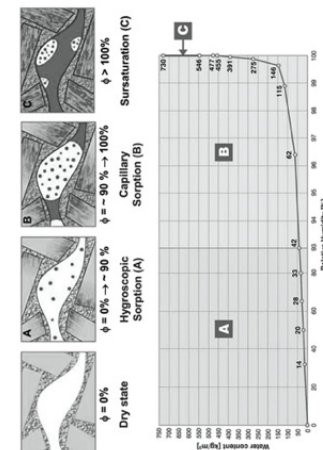


fig. 1. Evrard.A, ETH Zürich, Chair of Sustainable construction, 2022

REFERENCES

There have been all kinds of playful presences throughout the day in the studio FORAGE at Sint-Lucas Ghent, with waves of people passing through the space. Small pockets of music, surround the students, from Schubert to what sounds like a diesel-powered UFO landing and everything in between, as they come and go, breaking down the products that arrive in the atelier, visiting the chapel workshop or gathering for a discussion or gossip.

Around 3pm, foragers arrive carrying large baskets that they have emptied in the temporary storage shed next to the chapel. They have scoured the mountain, woodland, city, building sites etc. sourcing the products and materials that are intrinsic to the studio's identity – marble, rubber, scurvy grass, two silver earrings, expanded polystyrene, samphire, a goldfish, reeds, Hemphshives, galvanised steel profiles, cholla wood and natural sponge (fig. 2), a beach mustard, old doors, purslane, OSB, sand, a half-eaten sandwich etc.

Studio at the UIC, led by Johannes Berry in 2019, where students were tasked to create architecture inspired by two similar looking materials.

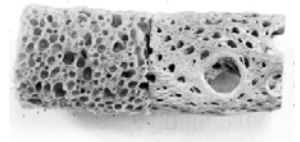


fig. 2 Sponge & Wood, 2019, J. Berry

Throughout the afternoon, groups are having discussions in the makeshift test lab, which turns out new constellations of experiences through materials and construction. The herb garden fills the studio with an earthy, organic smell, sharply contrasted by a pungent smell of burned rubber, from an

unknown source There is a large rack of shoes by the door, as per tradition, everyone at this studio puts on clogs (fig. 3) when they enter the workspace.

Wooden Clogs, are heavy work shoes that were typically worn by French and Dutch peasants up through the beginning of the twentieth century.



fig. 3 Clogs, 2017, wikicommons

 Steven and Johannes are having a discussion with some students, questioning the romantic notion of truth to materials, and whether Louis Kahn could really speak to bricks. They are asking if time has not proven, that we really are not masters, and instead this quest of mastery has left us with an excess of information and materials that we struggle to make sense of. They go on to ask whether the attitude of the forager, unbiasedly scouring the environment enchanting phenomena and materials, not for their value, but for their potential, would not be a more relevant attitude today.

A student is speaking to some passers-by, she is telling them about the lecture tonight, by some Danish chef, who will be sharing his motivations for foraging, and that in two weeks some Russian Trucker who worked in Africa, will be speaking about the importance of another kind of foraging, one that anticipates your truck not breaking down in the middle of nowhere.

The student continues, that as she understood, or at least what interested her in the studio, was the freeing attitude of looking at contradicting phenomena, not to define its

properties and to control it, but rather to establish relationships with and become part of it.

The habitual route of a fish appears when the tank of the fish is divided by a wall.

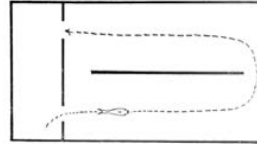


fig. 4 Jakob von Uexküll - A Foray Into the Worlds of Animals and Humans, 2010.

 To illustrate such a phenomenon, she mentions an experiment where a divider was installed in a fish tank. Even when food was placed close to the fish, instead of making the quicker route, the fish took the longer habitual route by going around the divider. (fig.4).

Another student chimes in, he mentions that this attitude of finding relationships, even if objectively they might be wrong, reminds him of Ibn al-Haytham who introduced a compromise in describing the planetary positions and their movement.

Dealing with the perhaps vastest space of perception, and with no reason not to believe the earth was at the centre, his model of spherical planetary movements introduced a varying thickness to them, which meant while they were not centred on the earth, the overall system still was.

This model, which is scientifically wrong, accounts perfectly for our observations of the planetary movements, which confirms the legitimacy of the model, and that sometimes being wrong can be right. (fig.5).

Thick-spheres model, is a descriptive model that accommodates for the

planetary positions and contradicting observations while keeping the earth still in the centre of the universe.



fig. 5. Ibn al-Haytham, 965-1040.

 This attitude, he says, can also be found in the studios way of looking at the materials and techniques at hand, for what they can become, rather than the restrictive attitude of looking for specific materials and techniques best suited to materialise a pre-existing idea.

A good example of this he says, is reflected in an experiment by the French artist Hubert Duprat, who substituted the caddisfly larvae's' environment with precious stones, pearls, and gold. Without hesitation or considering the meaning of the new materials, the larvae spun them into cocoons (fig. 6).

Trichoptera, is a collaboration between the artist Hubert Duprat, and the Trichoptera (caddis larva), between 1980-2000. Duprat provided gold, pearls, turquoise which the larvae spun into cocoons.



fig. 6. Trichoptera, 1998 - 2000, Frédéric Delpéch

 Another good example of this, the first student responds, is the mammoth bone shelters (fig. 7) that our ancestors built after the peak of the last ice age. As the climate became very unpredictable and hostile, our ancestors had to make do with what they could get. The bones of mammoths that froze up north, were washed down the river after rapid defrost.

Mammoth Bone Huts, were found in Central to Northern Europe. After the peak of the last ice age.



fig. 7. Mammoth Bone Hut, unknown

She tells explains that she sees in this example an approach, in very uncertain times, where symbolism must make way for pragmatism, which is not only relevant for today but also refreshing, as it allows us to reconsider our relationship with the physical world through architecture.

Manchester, is a photograph by the artist Richard Wentworth in 1996, of a chair seemingly keeping a window open.



fig. 8. Manchester, 1996, Richard Wentworth

One of the passers-by, thinks she gets it, and mentions that this *making do* attitude reminds her of a photo by the artist Richard Wentworth, of a chair keeping a window open. One can imagine, she says the need for ventilation on a hot day, and the chair seems to fit perfectly to keep the broken sash window open in that photo (fig.8).

Another example, springing to mind now, she says, is an artwork by Francis Alys, a shelter, made of election posters tied to a ventilation grill and held up by the rising air (fig. 9). She feels that if she

her understanding of the studio is correct, that rather than trying to solve the issues of the world, there is enough potential in the site, available materials, and techniques to inspire new forms of architecture, and ways to look at the world.

Vivienda para todos, is an artwork by - Francis Alys from 1994, looking at the city as a resource.



fig. 9. Vivienda para todos, 1994, courtesy of the artist.

Gabarnmung Rock Shelter, is an approximately 45000-year-old rock structure in Australia, conceived through the excavation of soft sandstone, which in technique mimics the wind erosion in the area.



fig. 10. Gabarnmung Rock Shelter, 2019, B. David

Le Massif du Mont Blanc, is a study by Eugène Viollet-le-Duc 1868-1876, where he attempted to deduce the ultimate form of Mont Blanc, by reverse engineering it.

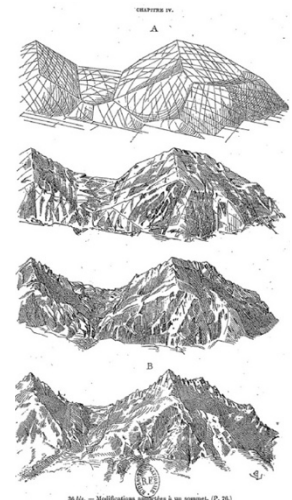


fig. 11. Le Massif du Mont Blanc, 1868-76, Eugène Viollet-le-Duc

Asphalt Rundown, is an artwork realised in 1989 by Robert Smithson in Rome, Italy. Asphalt was poured onto the slope of a hill, which gained form as a result of the shape of the hill, gravity and the process of drying and setting

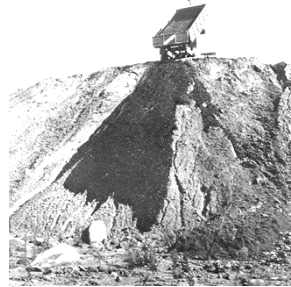


fig. 10. Asphalt Rundown. 1989. Courtesy of the Artist.

Pine Concrete House, realised in 2020 by sugiberry, where timber formwork to cast the concrete was reused unaltered as walls and floors.



fig. 12. Pine Concrete House, 2020, sugiberry

Textile Stone Utilities, realised in 2019 by sugiberry, where one stone slab was used in its entirety to make diverse utilities for a wellness centre.



fig. 13. Textile Stone Utilities, 2019, sugiberry

Care home, is a shed building with a massive homogeneous hemplane construction where interior and exterior can be effortless interchanged. Inside plants grow everywhere on the lime finish and the building has no heating and only natural ventilation.

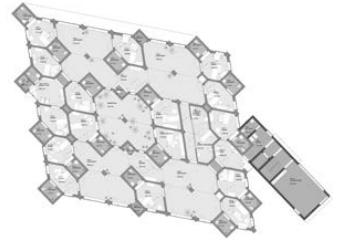


fig. 14. Sint-Niklaas, 2021 - 2024, Schenk Hattori. (In tender phase now)

Entrance pavilion Palingbeek, is a pavilion which is always a part of a bigger whole. It is the complement of each fragment of the landscape when moving around.



fig. 15. leper, Belgium, constructed in 2020 by Schenk Hattori.

Longest bench in Antwerp, is a project diving and unifying a courtyard. Its curved form and its triangular feet need each other for the bench to stay upright. A magical appearance.



fig. 16. Antwerp, 2022, Schenk Hattori.

House in a forest, is a building receiving only properties from its surroundings. It is a construction floating on the land not intruding any of its beach tree rootlife.

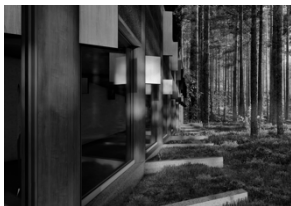


fig. 17. Essen, 2020 – 2023, Schenk Hattori.

Vai Pavilion, in 2021 by sugiberry and Schenk Hattori, where the institutions archived scenography materials were re-used to build a pavilion.



fig. 18. Vai Pavilion, 2021, sugiberry & Schenk Hattori

Stick chart, is a man made composition made by early modern alchemist to describe recurring swell movements.

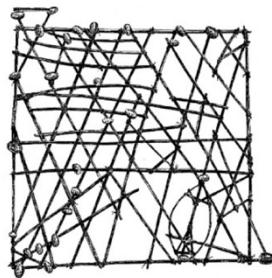


fig. 19. Marshall Island, 1870.

Opera Philosophia et mineralia, describes the hidden knowledge of magnetic forces between materials..

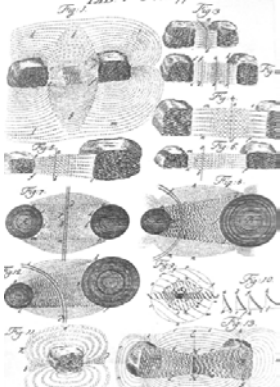


fig. 20. Opera philosophia et mineralia, 1734, Emanuel Swedenborg.

Movement, is study on how a butterfly

is connecting to its territory by mapping its recurring movement that connects to the plat type and its physiognomy.

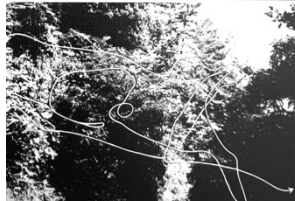
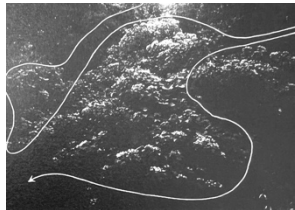


fig. 21. Jakob von Uexküll - A Foray Into the Worlds of Animals and Humans, 2010.

STUDIO

A traditional studio is often structured along a hierarchical approach in which the focus is on the properties of architecture itself, to be mastered. This studio however is more fluid because it focusses on our interaction with the physical world, which is something each member of the studio experience and know.

There is an intense focus on the power of enchantment and the relationship of our humanness with the world.

The testing areas resist the rigidity of many common atelier spaces. Each student needs to know how to make and interact, understand actively the instinctive act of exploration, and how to share that comprehensibly with the group. All these tasks are accomplished with a brisk, intense energy that verges on mania.

Burning of things for example is done outside on a charcoal-fired kettle. Early in the day, spaces and mock-ups are partially assembled. Some of the work is done with medical-grade tweezers and other instruments familiar to those

who perform surgery. The testing process at the studio is particularly complex with multiple items - layered on top of each other and arranged in displays that are part building, part landscape, without clearly differentiating between inside, and outside.

TEAM

Curious visitors are visiting the studio to see if the work is as provocative as some say, which apparently shows spatial configurations addressing phantasy in simultaneity with current challenges, like the environment, society etc., facing our world. The students are presenting these experiments to the studio lecturers Johannes and Steven, with a focus on what architecture and space could be, and how it might be prepared.

Johannes Berry, Architect:



2006 Msc in architecture with distinction (Laureate), Catholic University of Leuven, Ghent, BE
 2012 – 2016 Worked for Wim Goes Architectuur, Ghent, BE
 2015 – Lecturer leading a design studio, Catholic University Leuven, Brussels, BE
 2016 – Established SUGIBERRY with Mayu Takasugi, BE / JP
 2018 – Established Gallery Magazine with Jonathan R. May, BE
 2019 – 2020 Garofalo Fellow, University of Illinois Chicago, Chicago, US
 2020 – PhD. Architecture, In the beginning, and the end, Catholic University Leuven, Brussels, BE
 2021 – Assistant Professor, University of Illinois Chicago, Chicago, US

Steven Schenk, Architect:



2009 MSc. Architecture, Summa Cum Laude, University of Antwerp, Faculty of Architecture
 2009 – 2011 MSc. Architecture, Accademia di Architettura Mendrisio, CH
 2010 – 2014 Worked for Miller Maranta Architekten, Basel, CH
 2013 – 2014 Design Assistant at Chair Emanuel Christ and Christoph Gantenbein, ETH Zürich, CH
 2014 - Established Schenk Hattori with Daisuke Hattori, Antwerp / Kyoto, BE/JP
 2014 – 2016 Guest lecturer leading a design studio, University Antwerp, BE
 2015 - Guest lecturer leading the design studio, Catholic University Leuven, Brussels, BE
 2016 Guest lecturer leading a design studio, Academie van Bouwkunst Rotterdam, NL
 2020 - PhD Architecture, Enchantment and wholeness, Catholic University Leuven, Brussels, BE
 2022 CAS in Regenerative Materials, ETH Zürich, CH

At another table many people gather around a mock-up being discussed with guest Laura.

Studio Guest:

Laura Saputelli, Environmental Engineer:



2010 – 2017 MSc Environmental Engineer, ETH Zürich, CH
 2014 – 2016 Teaching Assistant at ETH Zürich, CH
 2016 – 2017 Practicum and project engineer at CSD Ingenieure AG, Zürich, CH
 2017 – 2020 Sustainability Specialist at World Economic Forum, Genève, CH
 2021 - Consultant – Sustainable construction at Drees & Sommer Switzerland AG, Zürich, CH
 2022 CAS Regenerative Materials, ETHZ - ETH Zürich, CH

Together with three students she found out that out that ant pheromones are made of the same molecules that are found in lavender and pine as well as lemongrass. Most social insects seem to have some sort of pheromones, but ants seem to have the widest range of flavours. The ants that the students used most in their biodiverse projects create a

sort of acid that's very lemon flavoured as a defence mechanism. The students are proposing, to somehow introduce this animal that has the capability of producing a very wide range of odours, into architecture.

At the makeshift lab, a big focus and exercise is to become omni sensorial. Lars is often a guest at the lab.

Studio Guest:

Lars Junghans, Building Physician:



1992 – 1995 Apprenticeship as a carpenter, Braunschweig, DE

1995 - 2001 MSc. Architecture, Technical University Braunschweig, DE

2002 - 2005 PhD. Science, Optimal Façade Technologies in Tropical and Subtropical Climates, ETH Zürich, CH

2006 Post-doctoral Studies, University of California Berkeley, US

2006 – 2010 Project manager building simulation and energy systems, TeamGMI, Engineering office, Vaduz, LI

2006 – 2010 Project consultant on 2226 energy concept, Baumschlagler Eberle Architects, Lustenau, AT

2010 - Professorship Building physics and sustainable building design, Taubman College of Architecture, University of Michigan, US

Lars, known from the 2226 building, got students to install a DIY lab comprising seven chambers that vary in temperature from -30° C to 60° C and zero to 100 per cent humidity. The hottest chamber is what they refer to as the garum room (garum is a fermented sauce made from the blood and intestines of fish). In the chambers they tested as real alchemists the movement of air, the storage of cold and heat, humidity capacity of materials, ...

In the studio, a student explains, a lot of things are happening, and many things science can be applied to. If you start bringing a bit of

knowledge about the biochemistry or the microstructure of binder compounds, acoustics, or odour, you can get a lot more precise in how you're fine-tuning things.

Working with binders is Guillaume Habert's and his ETH team's area of expertise, which for them is like a kitchen tool in the way that a frying pan or an oven might be used.

Studio Guest:

Guillaume Habert, ETHZ Professor Sustainable Construction:



1998 - 1999 Structural Geology, Monash University, Melbourne, AU

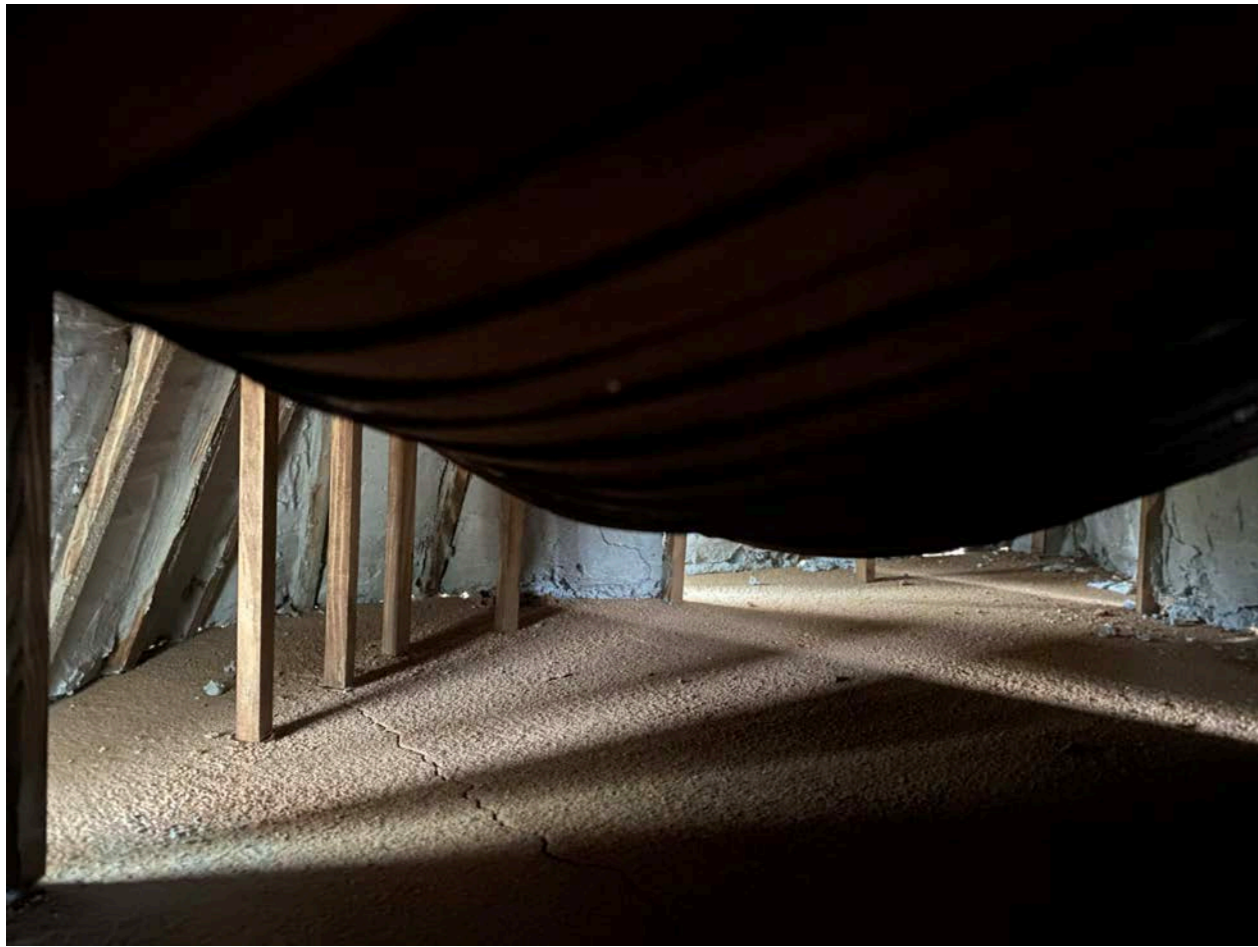
1997 - 2004 MSc. And PhD. In Geological and Earth Sciences

2006 – 2007 Researcher, Universidade Federal de Paraiba, BR

2007 – 2012 Research Associate at IFSSTAR, Paris, FR

2014 - Associate Editor, Materials and Structures, Springer Nature, Berlin, DE

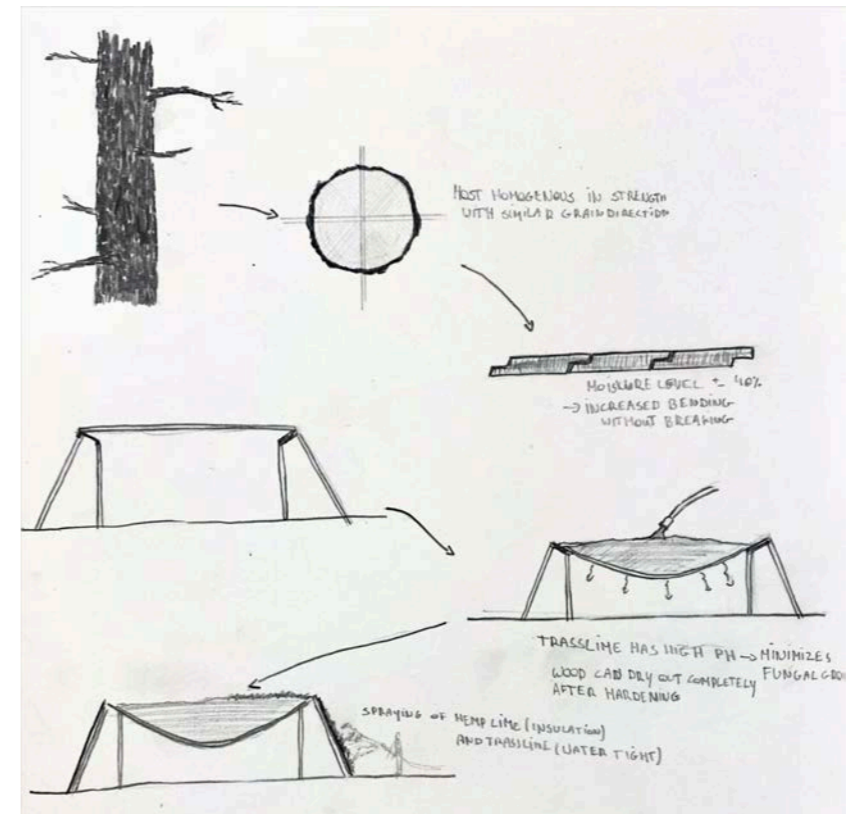
2012 - Associate Professor and Head of Chair of Sustainable Construction, ETH Zürich, CH



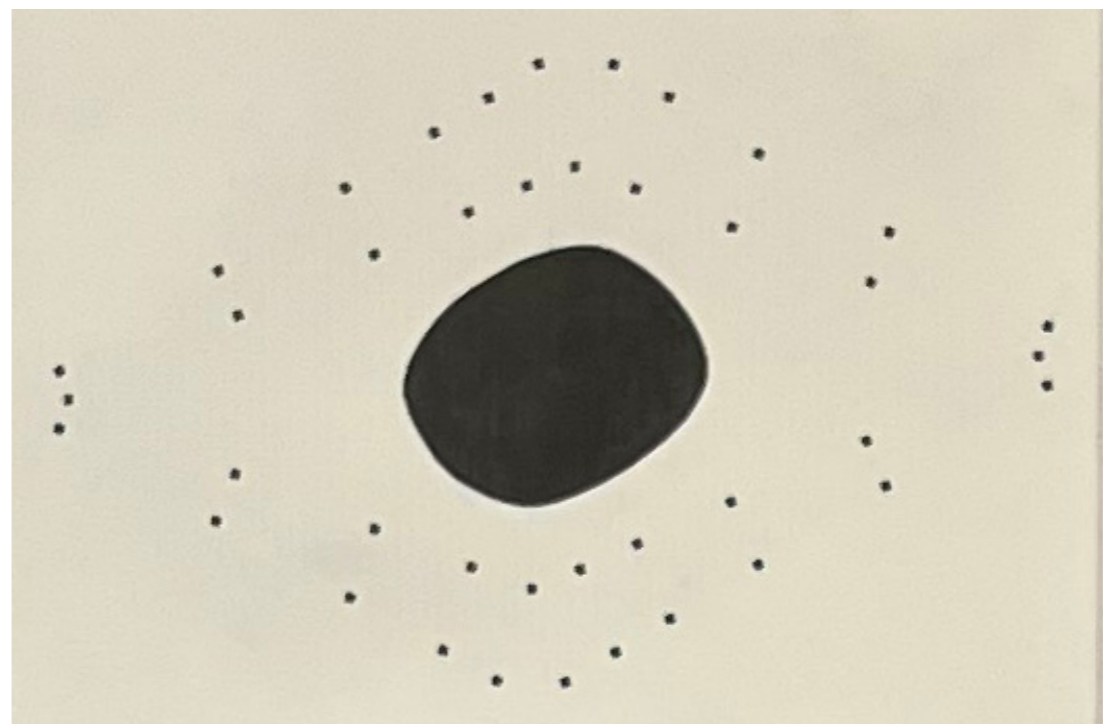
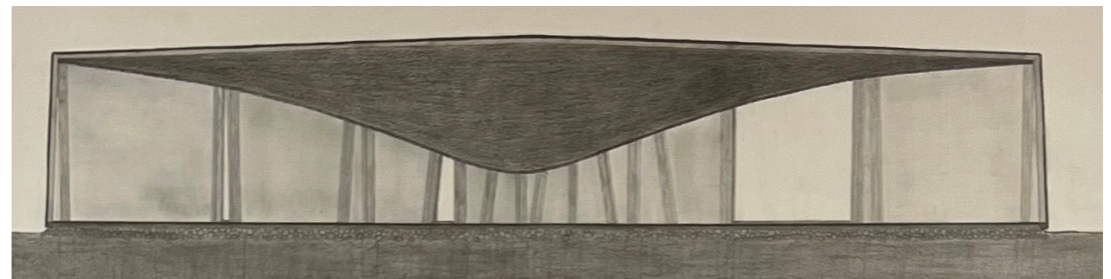
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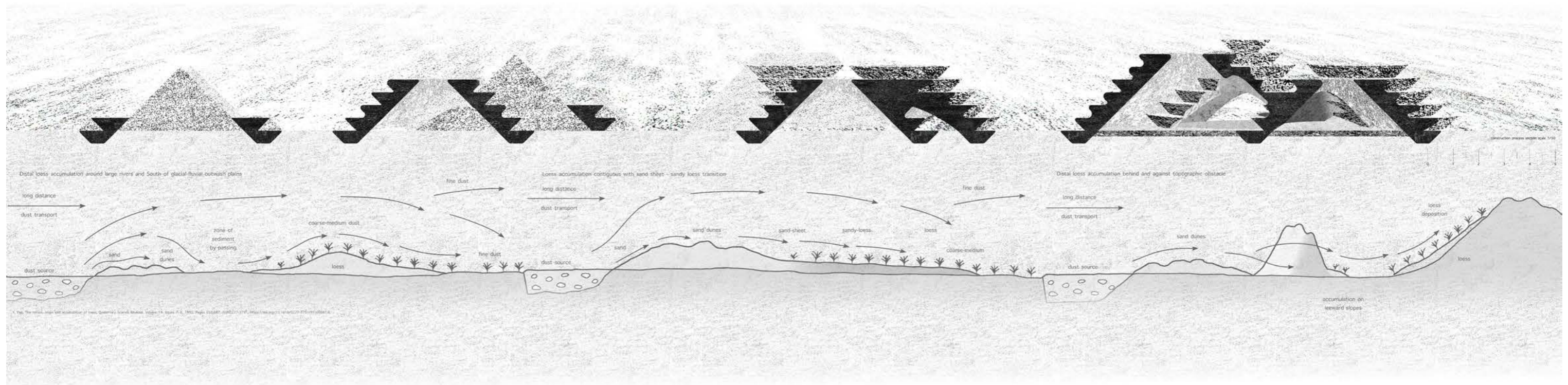
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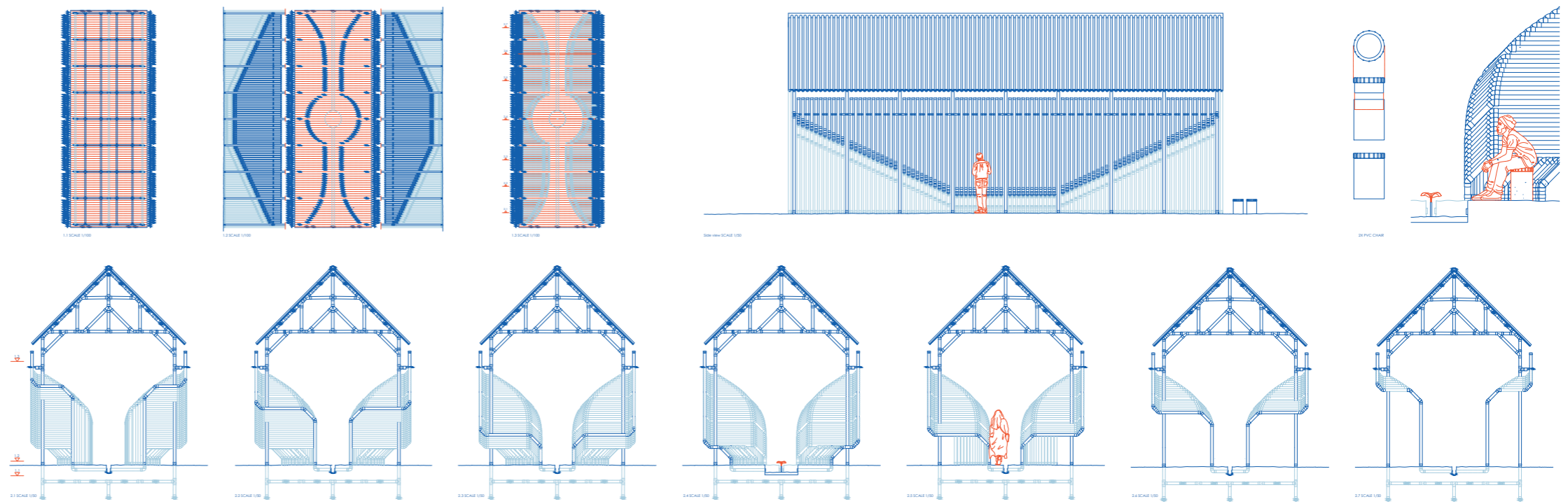
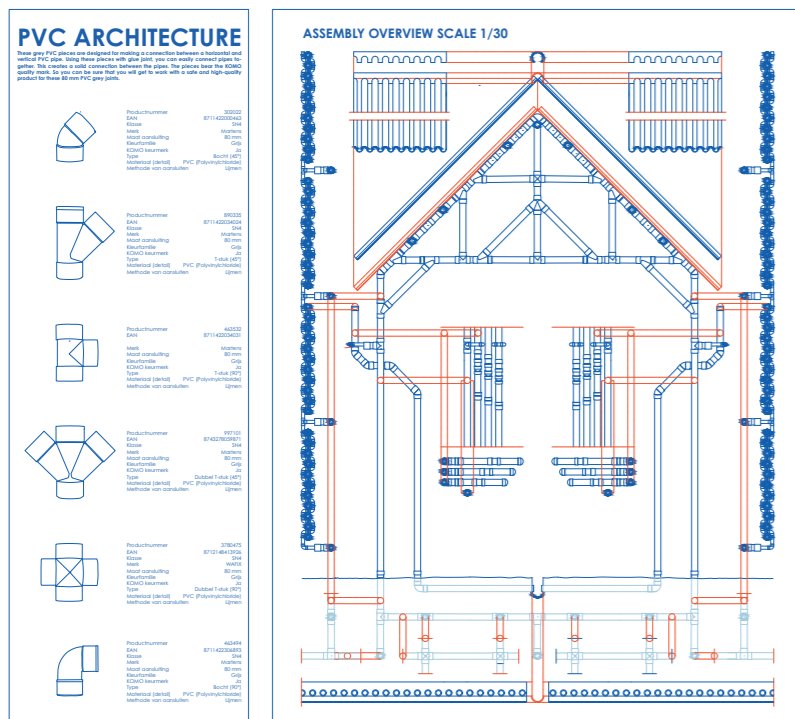




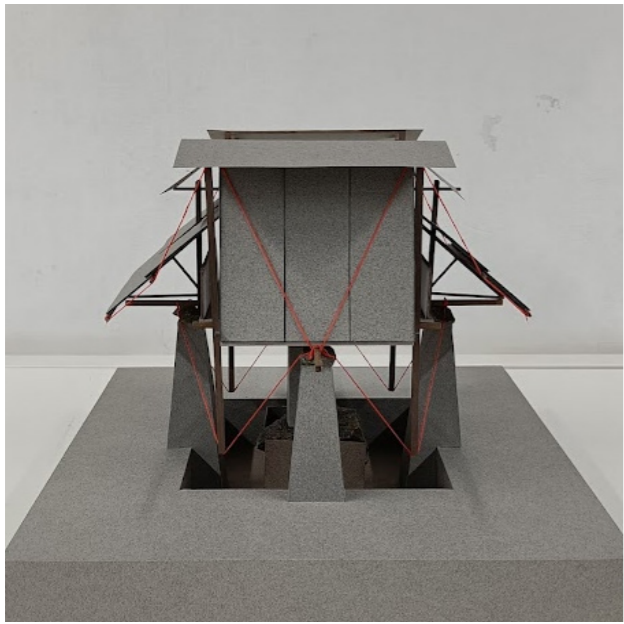
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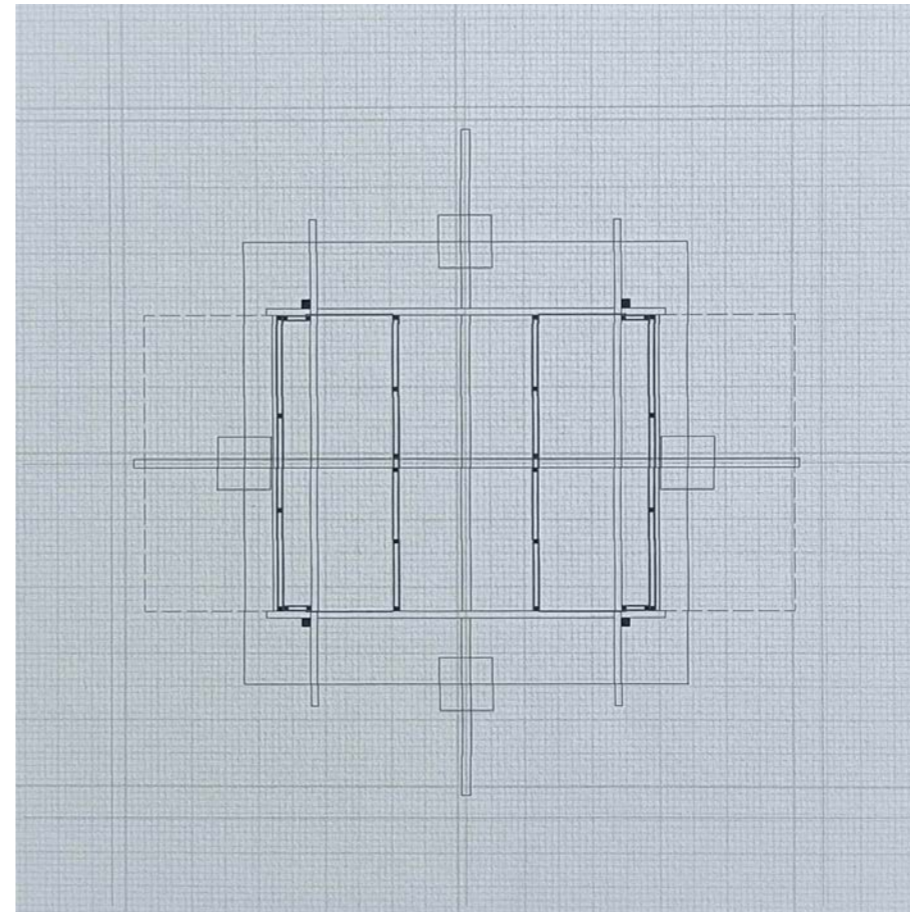
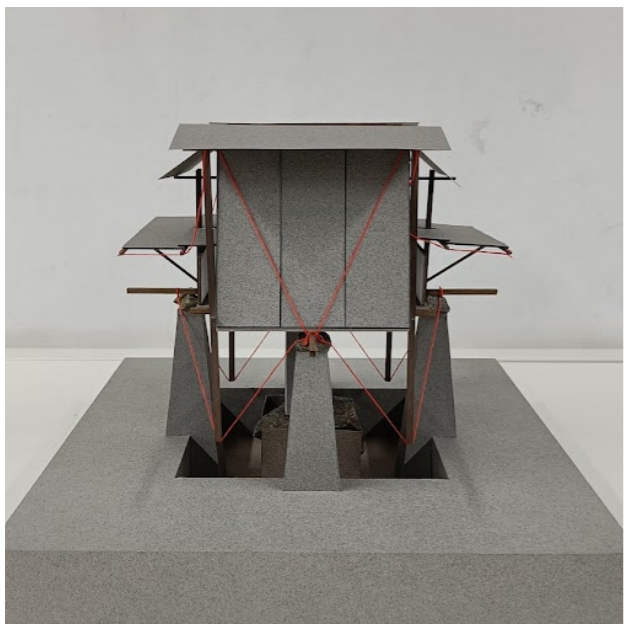
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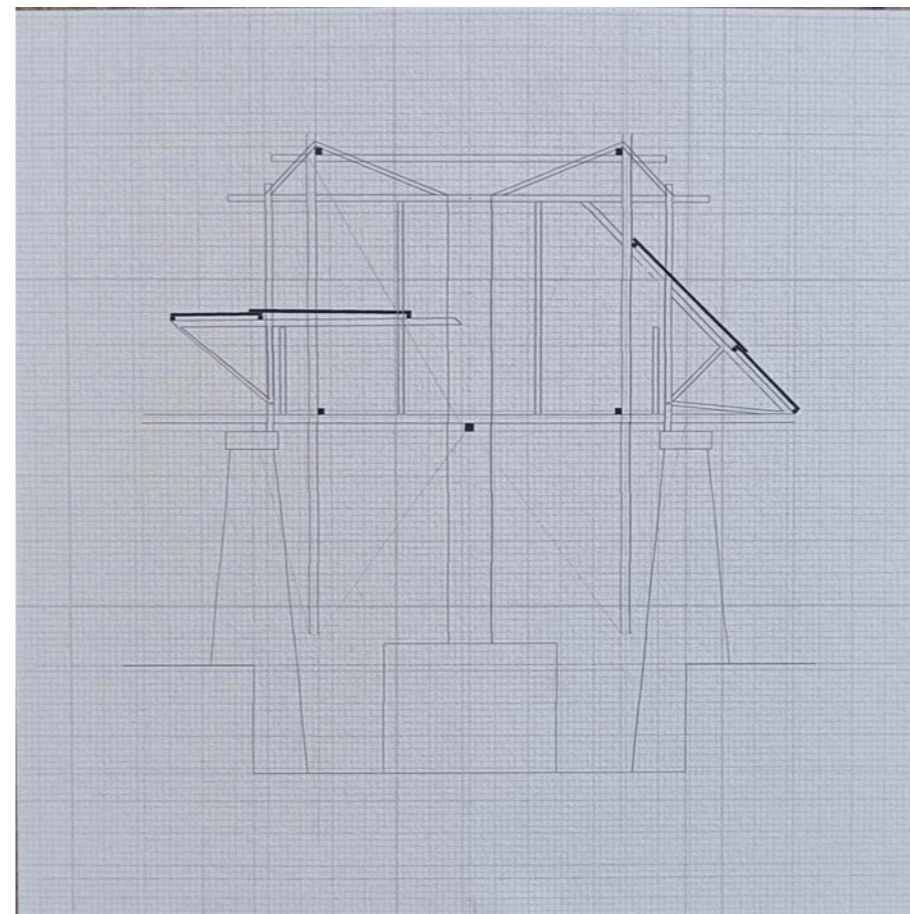
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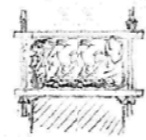
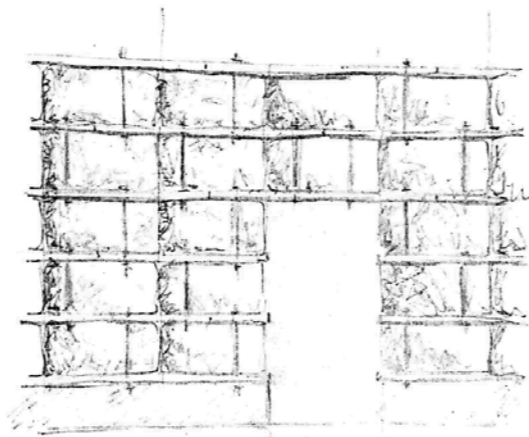
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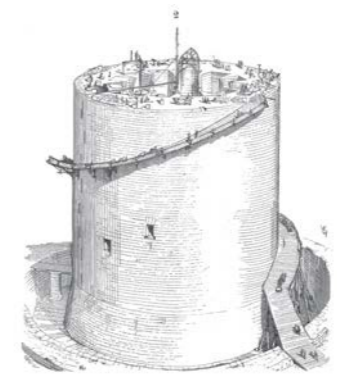


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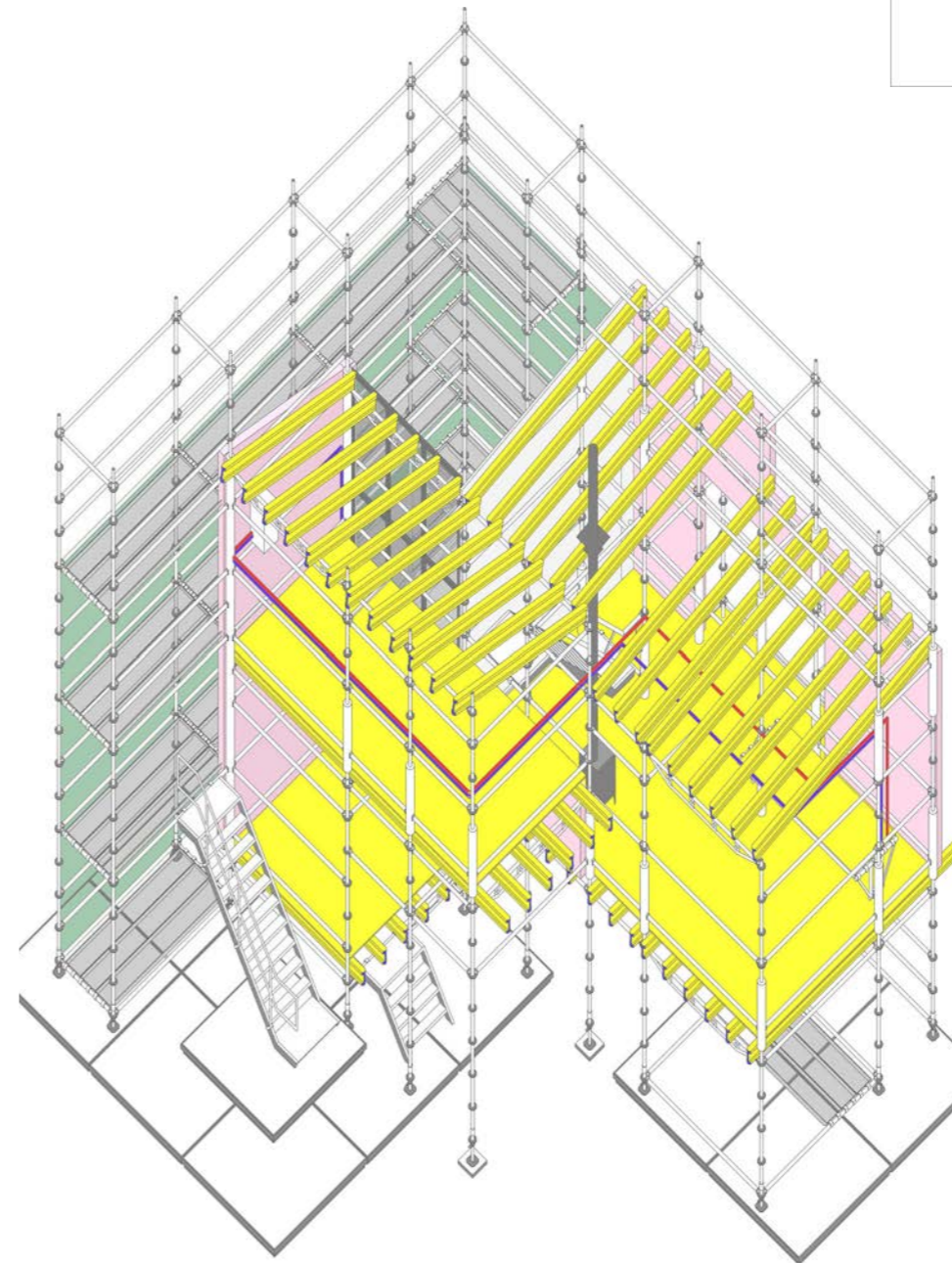
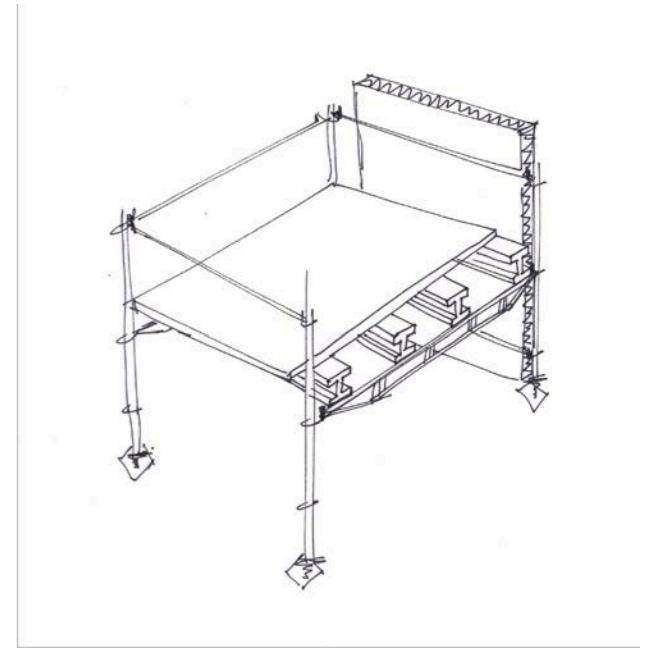


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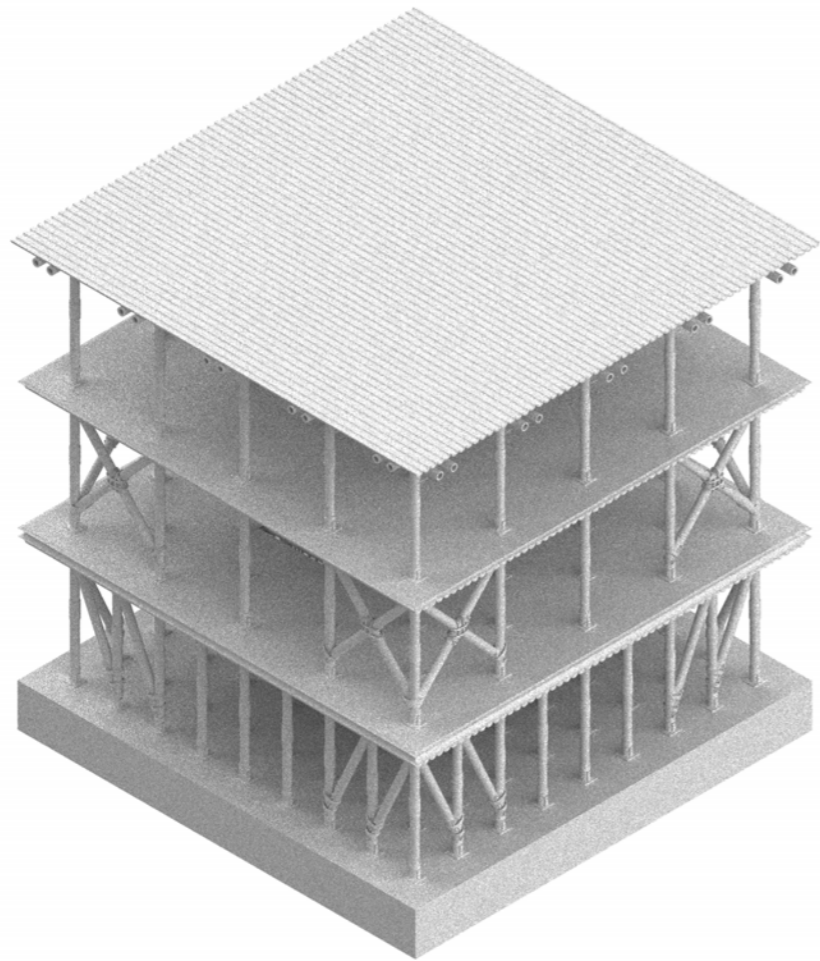
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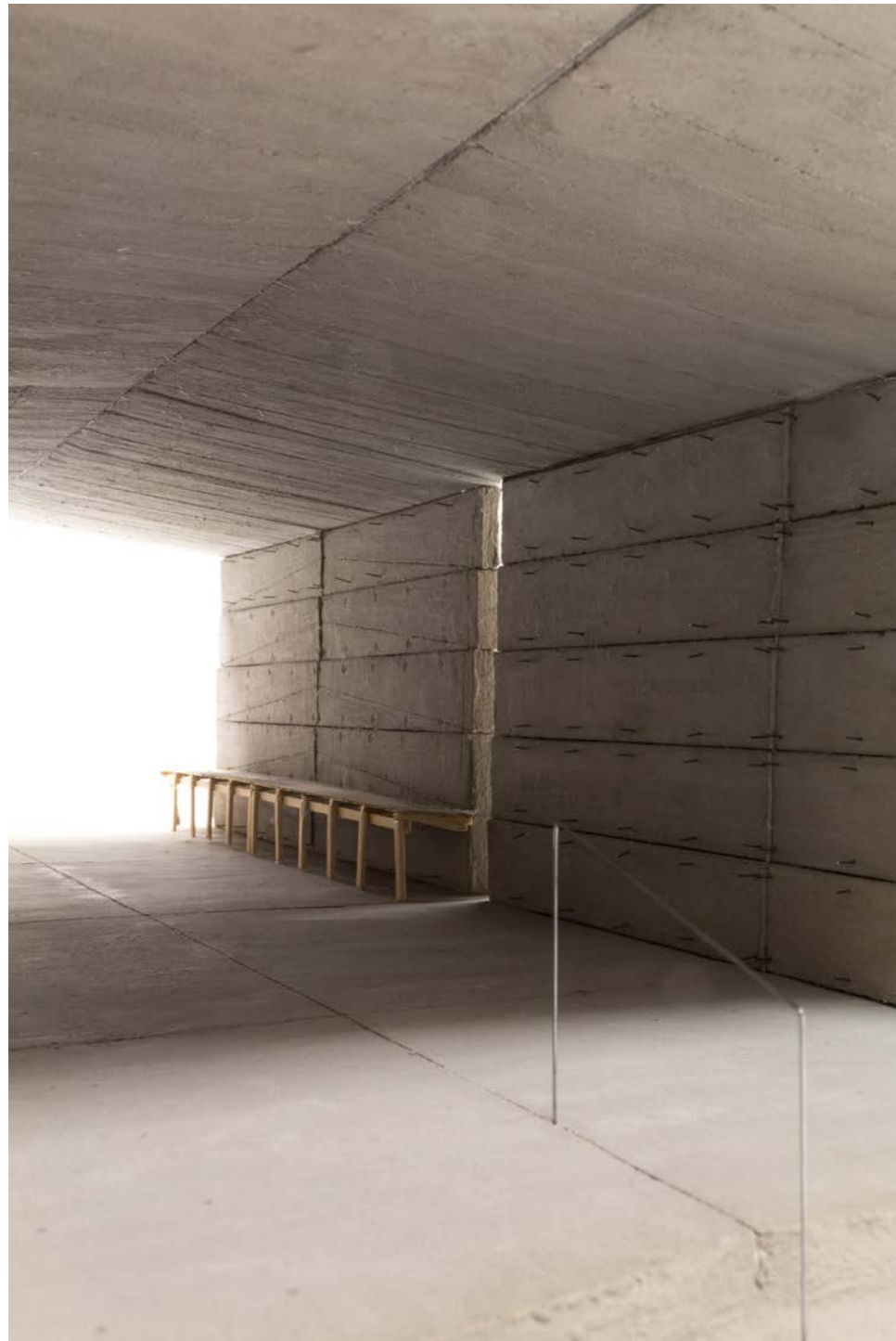
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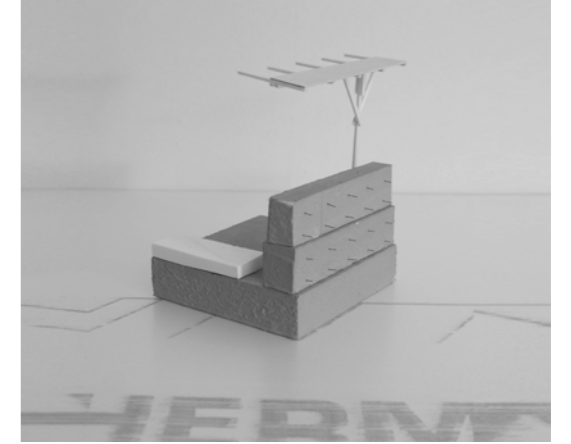
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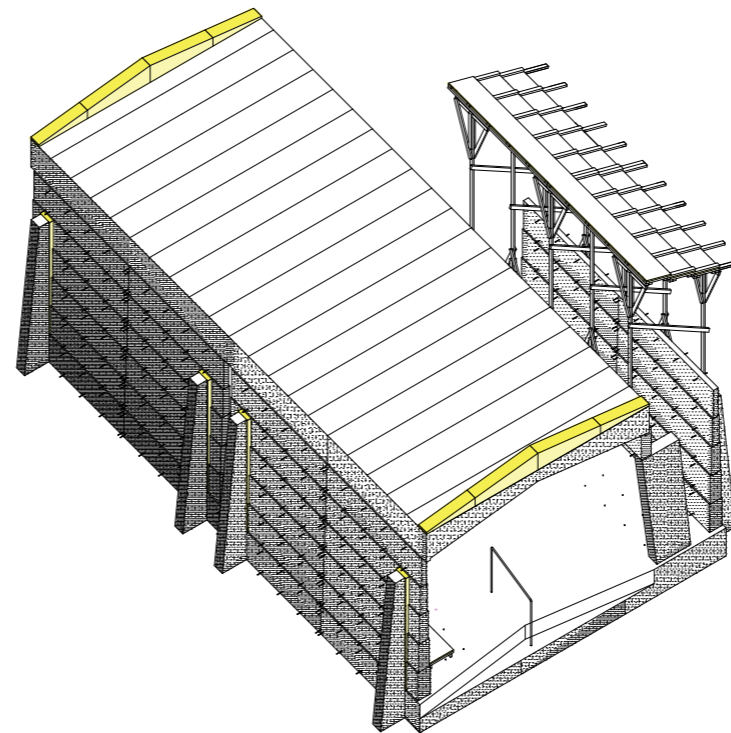


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