

Dojo

Process material



Viktoria Sørsdahl Holo
Diploma Spring 2024

Supervisors:
Beate Marie Høimebakk
Chris-Johan Engh

Institute of Architecture
Oslo School of Architecture and Design

Research

Dojo
Martial Arts in Norway
Martial Arts - Four Style Forms
Program
Visitation



Dojo

”The place of the way”

Do = Way/path

Jo = A term to denote castle or great structure

The word dojo originates from Buddhism. It were a space adjunct to temples that were used by monks for study and meditation. Dojo is a term that can be implemented for any place where one can “learn a way”. In Japanese it is used for any facility for physical training. In the Western world, the term is exclusively used for facilities where people practice Japanese martial arts.

The traditional dojo follows specific pattern in how it is built. The building patterns are highly based on rites from Japanese culture as well as the rituals embedded in the martial arts that are being practiced.

In a traditional dojo, the different walls, floor and marked spaces, each bear a different significance. The entryways into the dojo are used based on the students and instructors rank, thereby influencing their circulation in and out of the main training hall. Students will enter the lower-left corner, in reference to the Shomen (front/main wall), whereas the instructors in the upper right corner. Equipment such as weapons and other training gear are normally on the back wall (Shimoza). In a traditional dojo there is typically a Shinto shrine displaying statues at the main wall, depending which martial art style is practiced. There are usually other meaningful artifacts through the dojo such as drums (taiko) or armor (Ō-yoroi). There is usually no Shino shrine or artifacts in modern European dojos.

Shomen: Main wall/Front
Shimoza: Far end wall
Joseki: Right wall
Shimoseki: Left wall
Taijo: Floor
Shiαιο: Marked competition mat

Dojo

"The place of the way"

The western world exclusively use the term dojo for facilities used by Japanese martial arts. The term is still used for this thesis regardless of the martial arts origin, as these structures are meant to cater to more than just the four chosen style forms. Structured around rituals and traditions, these buildings bare a sacramental value and are considered to be more than just spaces for training. When studying both traditional and modern dojo's one can see a pattern of significant elements and functions that are crucial for the dojo to be optimal.

Spatial layout

A dojo must have enough space for multiple people to practice both kata (detailed movement patterns) and kumite (fight). The optimal spatial layout depends on which martial art is practiced, yet all requires open rooms with no obstacles.

Orientation

Traditionally, dojos face the rising sun. The cardinal orientation of the dojo is more significant for some style forms than others. Yet, the interaction with light is crucial for optimal training. A well lit room is essential for correcting movements, but direct light is not ideal, as it can be distracting and result in injuries.

Functional zones

In addition to the training spaces, the following rooms are needed: Warderobes, toilet, equipment storage, technical room and a waiting space which can be implemented for reflection.

Acoustics

Due to fast past fighting techniques, intentional yelling and throws to the floor, it is important to pick materials that absorb, or diffuse sound.

Climate control and ventilation

Proper ventilation is important when many people practice together. The option to open windows for manual ventilation is often a desirable element.

Material selection

Timber is typically used in dojos as it bares cultural meaning, as well as being optimal for practice. Smooth wood floors are most optimal when training with bare feet. For some it is crucial to have a cover on the floor due to throwing techniques. Tatami mats are then implemented to soften the falls.

Rituals

Martial arts are highly ritual based. For the practitioners the dojo itself is an honored space and should therefore accommodate for the specific rituals each martial art execute. This includes the smaller rituals like greeting and cleaning the dojo, as well as the ceremonies and the rituals embedded in the movements performed.

Martial Arts in Norway

The Norwegian Martial Arts Federation (Norges kampsportforbund) has seen the need for facilities in the martial arts community, and conducted a concept study in 2019 for a championship arena in the regions Viken and Oslo.

Through this study there was registered 41 000 members across the country divided on 400 clubs. In Viken and Oslo, there is approximately 25 000 active martial art practitioners. This is divided on 200 clubs and 30 martial arts leagues.

Looking into ideal facility sites, they narrowed it down to Asker, Bærum and Drammen as prominent suggestions. Out of these cities, it is Bærum that has the most active members per club, yet all cities redeemed fit due to easy access through public transportation.¹

As the premise of the diploma were to adapt dojos after movements and rituals, the study were only used as a technical startingpoint for further research.

Municipality	Active members	Dojos
Asker	723	9
Bærum	1 049	7
Drammen	1 713	17

*Gathered statistics from NFK's concept study

Is there a need for an adapted dojo?

The Norwegian martial arts federation (NKF) has clearly stated the need for a martial arts arena. Annual mapping of the facility situations for the different clubs, conducted by the martial arts federation, shows that most of the dojos consists of gym halls, basements, old bomb rooms and other smaller locales. They lack space, favorable training times due to shared locale and storage for equipment. Even though a dojo can be in any space, no matter size or location. In the premise of these mappings and reports, the martial arts federation have drawn up a development plan for the next few years. There is a clear need for suitable facilities for daily training that are adapted to the activity.

Martial Arts - Four style forms

Martial arts can be categorized into four main style forms: Striking martial arts, Grappling martial arts, Armed martial arts and Non-combat martial arts. I have chosen one martial art style from each of these four groups to adapt the dojos to. This allows for further use by other martial arts, based on which main styliform they belong to. This was an important choice for the project as to not undermine the lesser-known styles or smaller clubs.

Striking martial arts

Focus on striking and blocking the opponents' movements with force and speed. Fast, linear movements practiced alone, paired or in synchronised groups. Example: Karate, Taekwondo, Kung Fu, Kickboxing, Wing Chun, Capoeira, Muay Thai, Pencak Silat, Boxing.

Grappling martial arts

Focus on taking control of the opponents' movements to one's advantage, often redirecting it into throws. Circular movements of continuous close contact practiced in pairs. Example: Judo, Jujutsu, Brazilian Jiu-Jitsu, Aikido, Sumo, Hapkido, Kung Fu, Sambo, Wrestling.

Armed martial arts

Focus on weapon-based techniques. Used in both long range and close-range combat, the style form includes the use of different sized weapons such as sticks, knives, swords, archery etc. Example: Kendo, Kobudo, Kyudo, Bojutsu, Eskrima, Silat, Kalari-payattu, Kenjutsu, Fencing.

Non-combat martial arts

Slowed movements, concealing their true nature as fighting techniques. Paired with knowledge, the focus is on the improvement of wellbeing, health, confidence and stress, without the use of combat. Example: Qigong, Tai Chi, meditasjon, Baguzhang.

Program

Estimate of space requirement

Each dojo must contain following rooms:

6 m ²	Entrance + shoestorage
100-250 m ²	Training hall
60 m ²	2 Changing rooms
6 m ²	Hc wc
10 m ²	Storage for daily equipment
10 m ²	Maintenance + technical room
---	Waiting area / space for reflection

Each dojo will approximately be between 200-340 m², depending on required spatial needs.

Ceremonial/Gathering building must contain:

6 m ²	Entrance + shoestorage
6 m ²	Maintenance + technical room
6 m ²	Hc wc
10 m ²	Storage for salable equipment (gi, gloves, new belts, etc...)
---	Space for ceremonies and gathering

*Each dojo is adapted for 15 practitioners as this is the average amount of practitioners per practice. The larger clubs usually divide their sessions into either age or aquired belt rank, so the sensei (teacher) will have a better overview of the practitioners. The style forms training in pairs will be adapted for an even number.

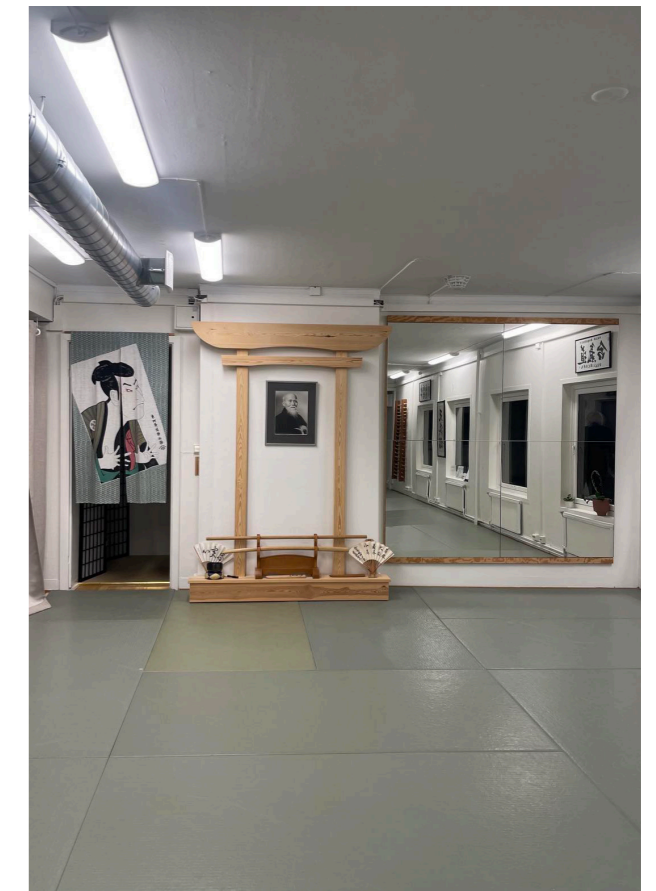
Visitation of the style forms

Joining the chosen martial arts were an important part of the process. Gaining a better understanding of the unique movements and rituals, as well as a clearer insight into the existing dojos in Oslo and Viken.

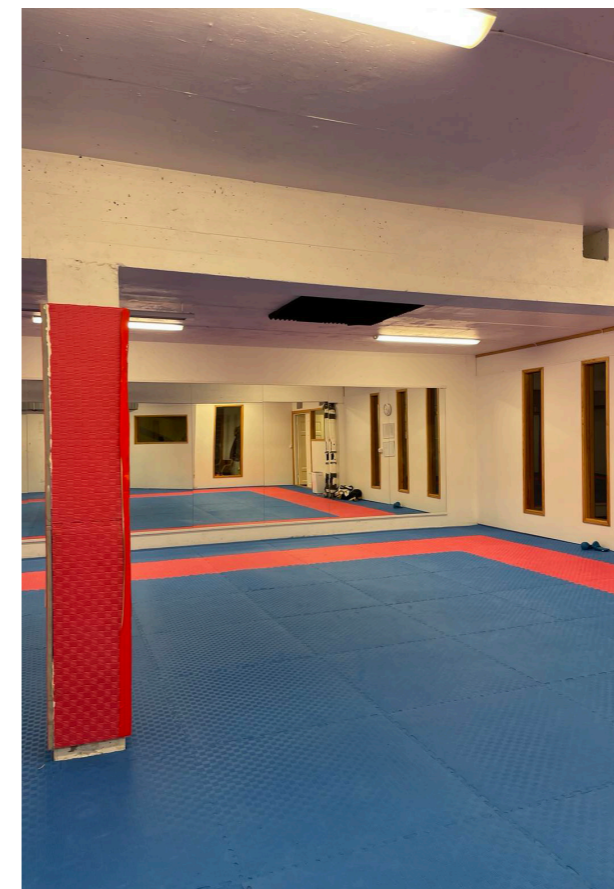
As the practice of Kendo requires a set of protective gear as well as special-ized weapons, it was not possible for visitation. The style form was therefore research through literature, videos and gathered information from other practitioners.



Karate dojo, currently a school gym



Aikido dojo, priorly an office



Karate dojo, priorly a basement pub



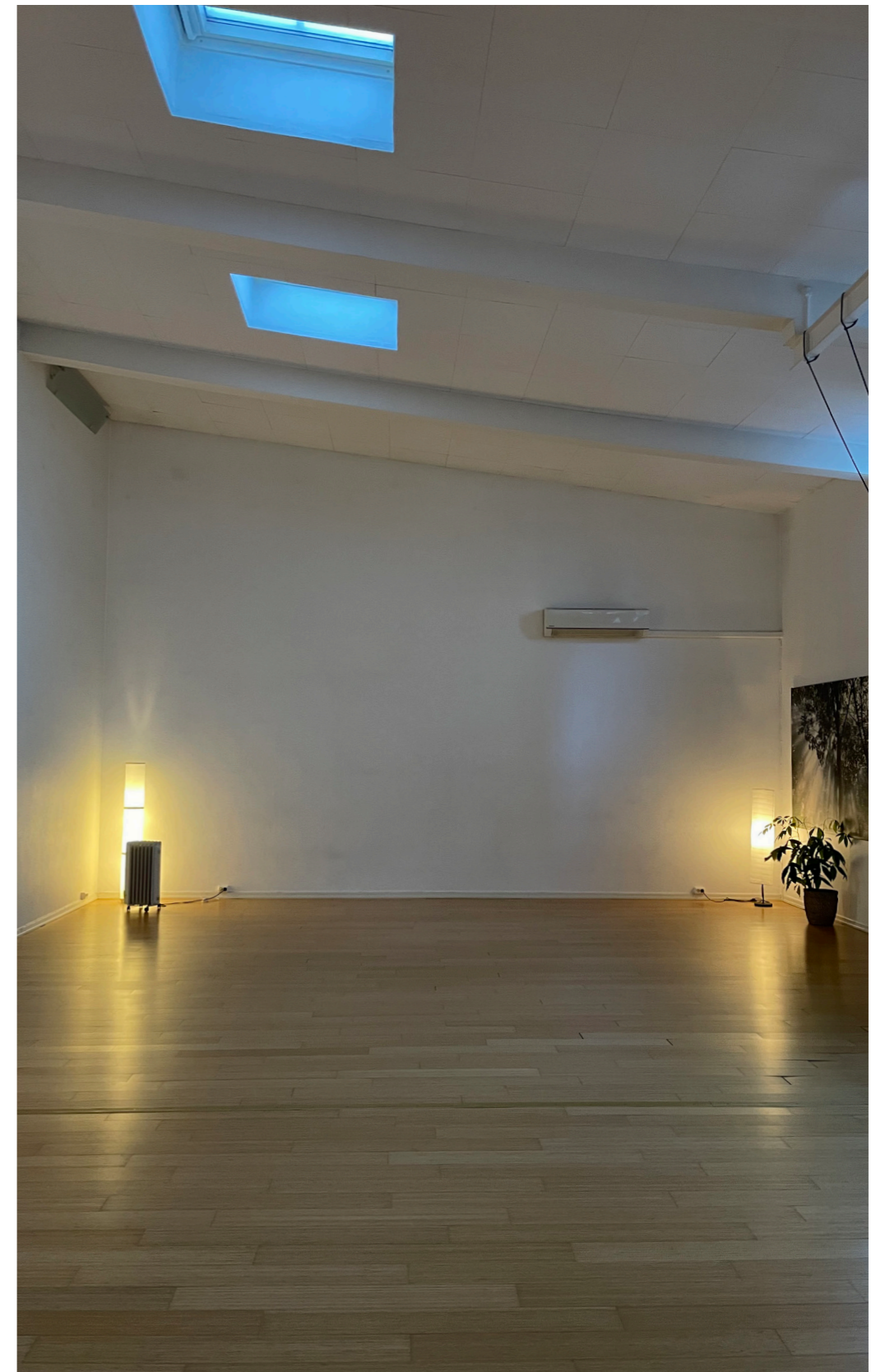
Qigong kwoon, priorly a music studio

Main circulation differences

Style form	Martial art	
Striking	Karate	Upright stances that stresses speed in its long and middle range techniques
Grappling	Aikido	Flowing movements transmitted into grips, throws and locks
Armed	Kendo	Paralell movements, distanced by weapons
Non-combat	Tai Chi	Soft, fluid movements combined with breathing techniques

Qigong

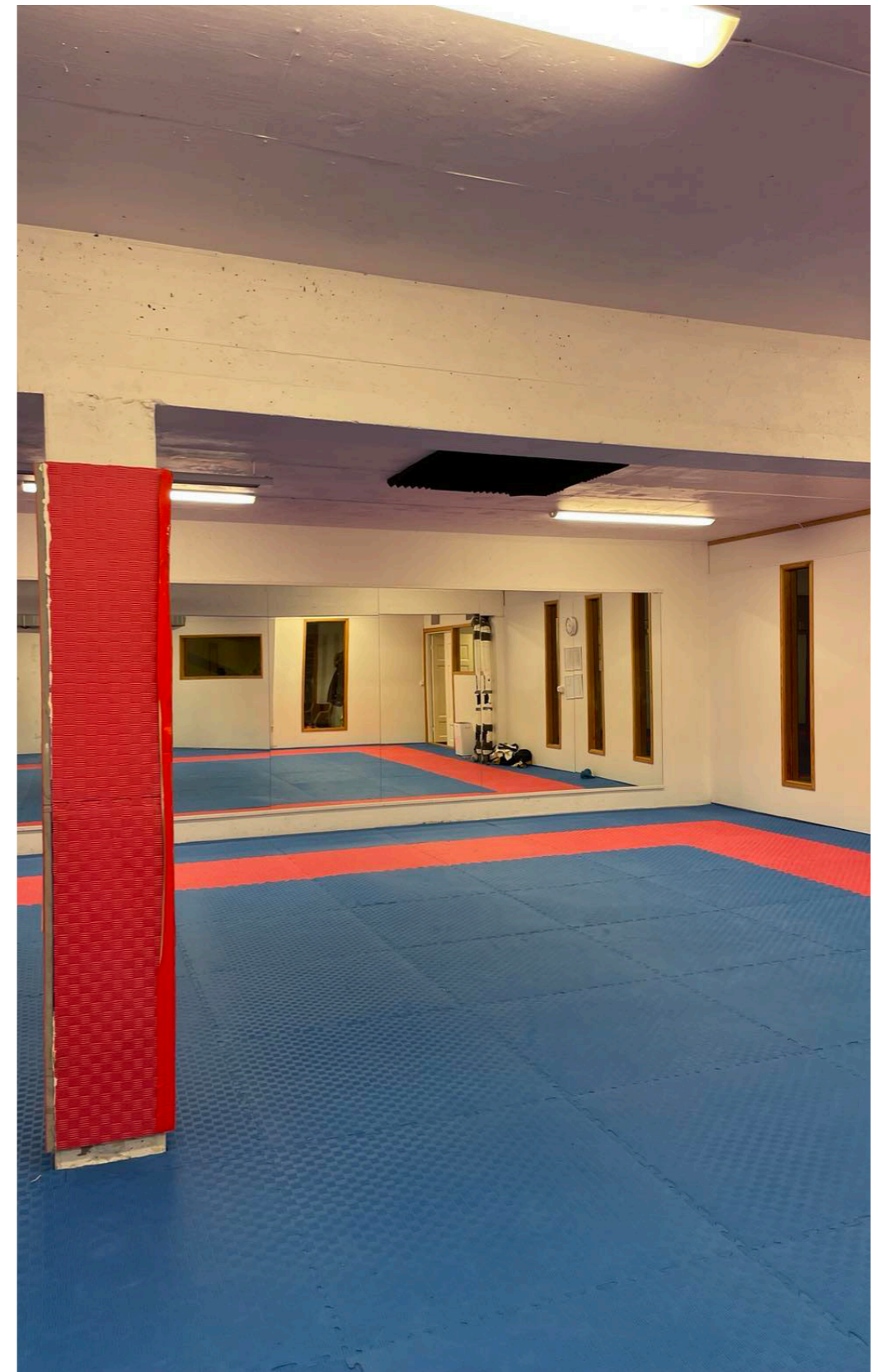
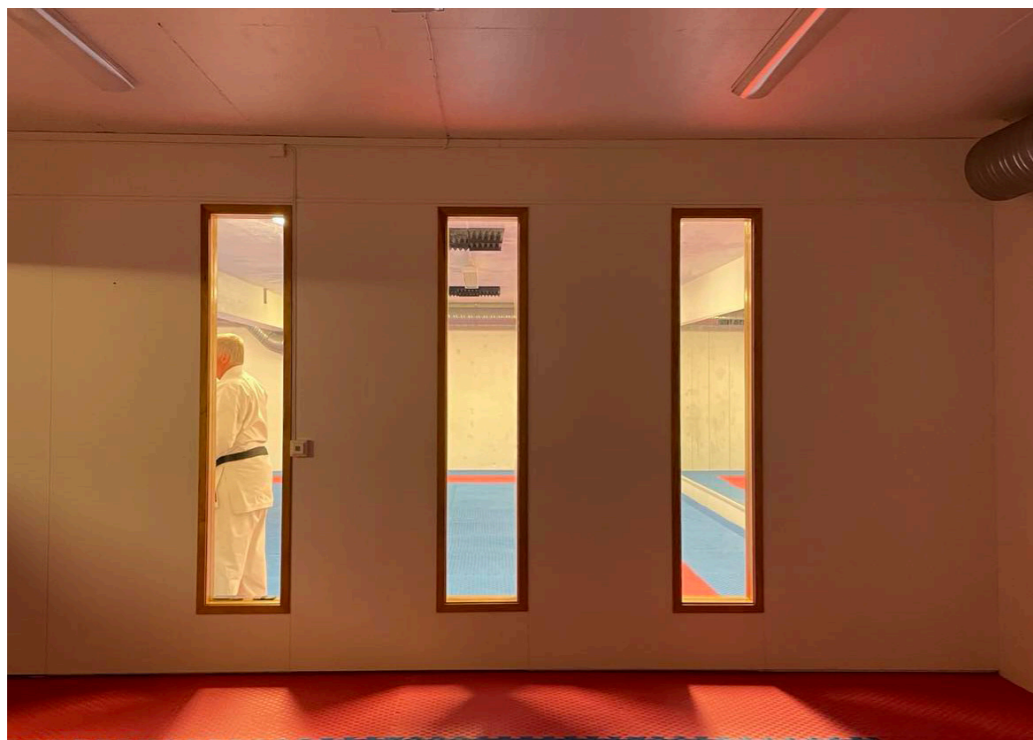
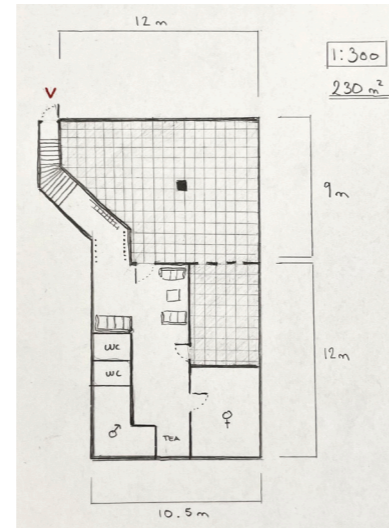
Qigong centre at Grønland, Oslo



Kwoon, priorly a music studio at Grønland, Oslo

Karate

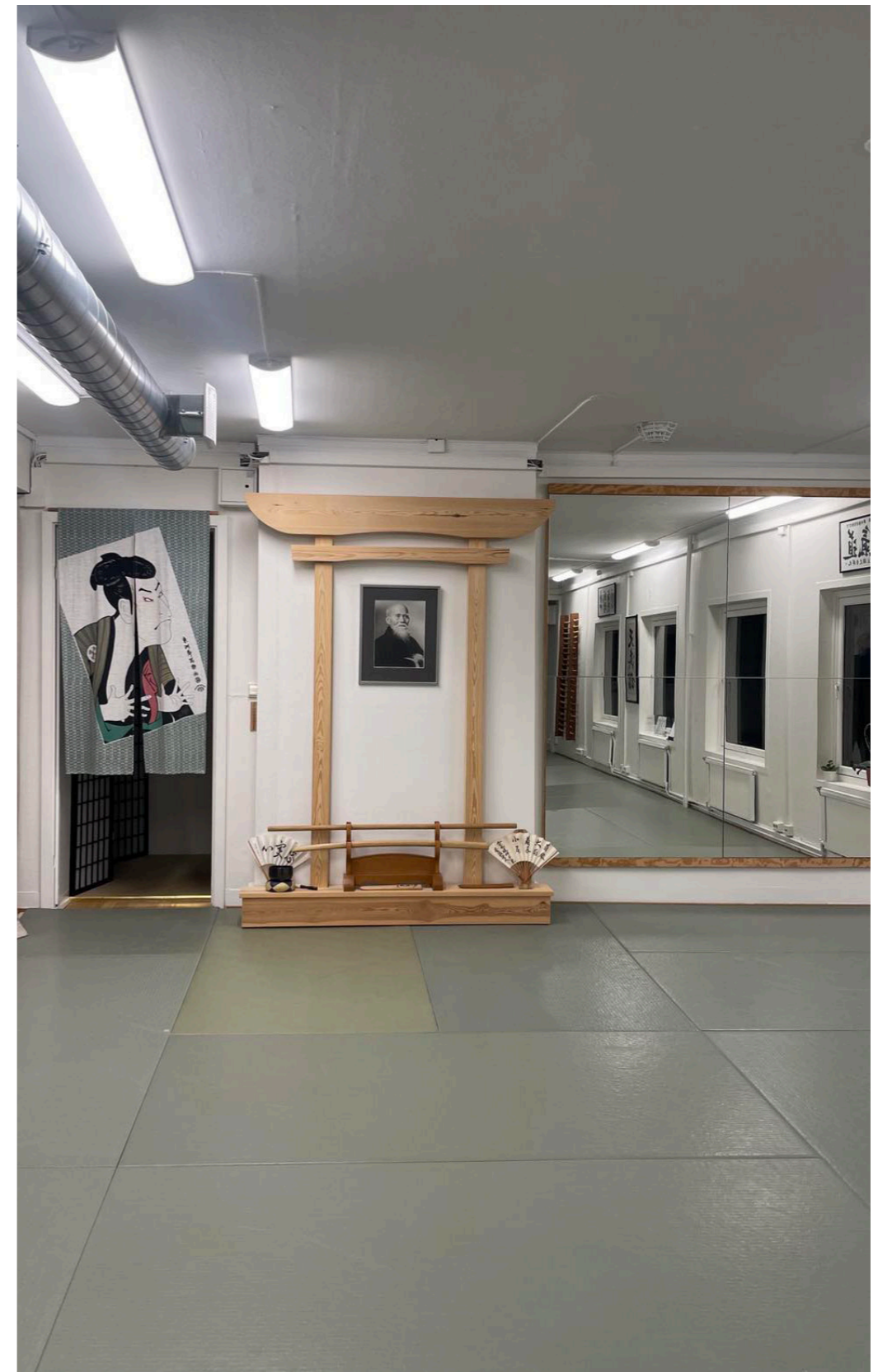
Asker Karate club in Asker centrum



Dojo, priorly a basement pub at Asker centrum

Aikido

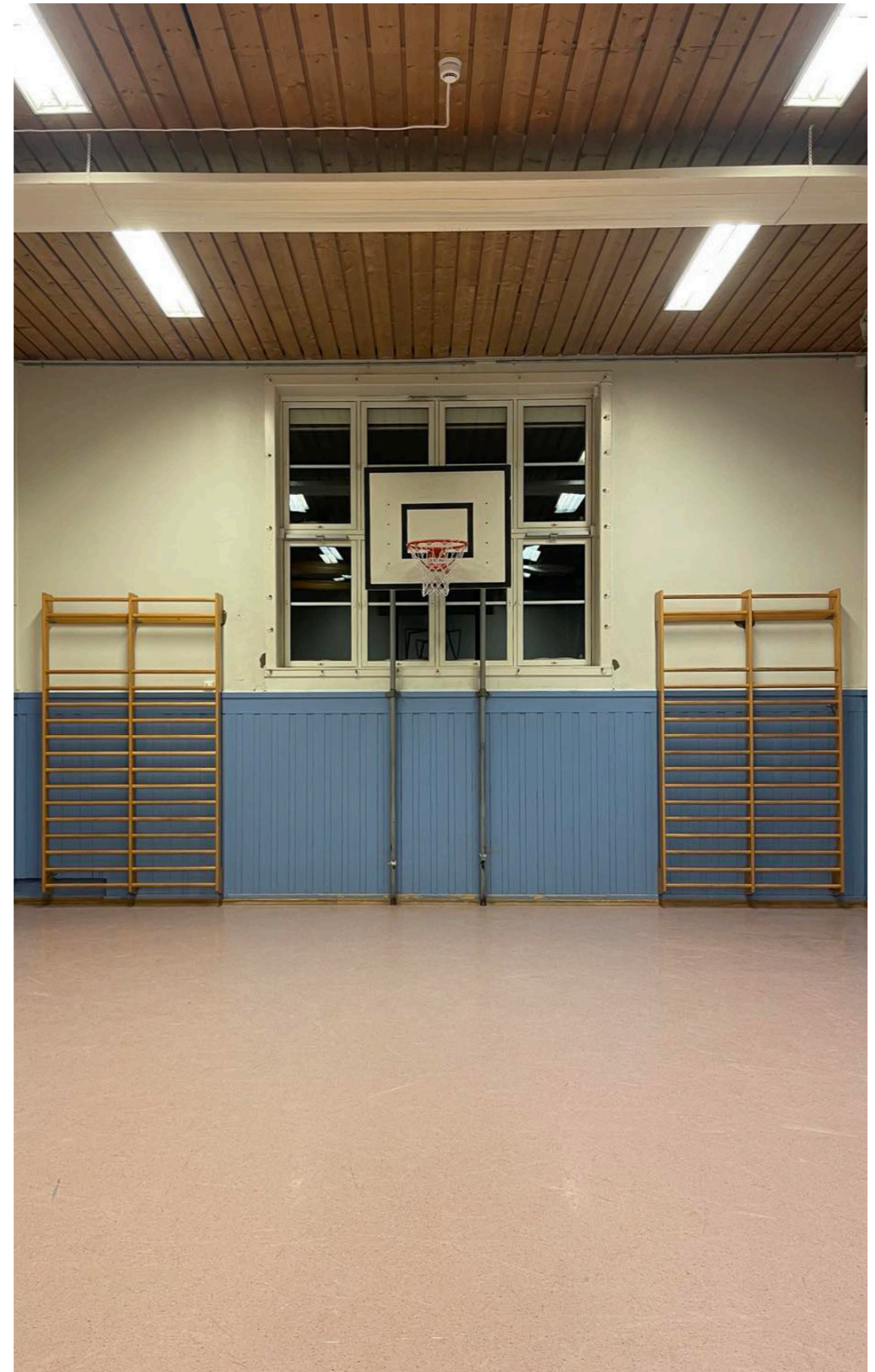
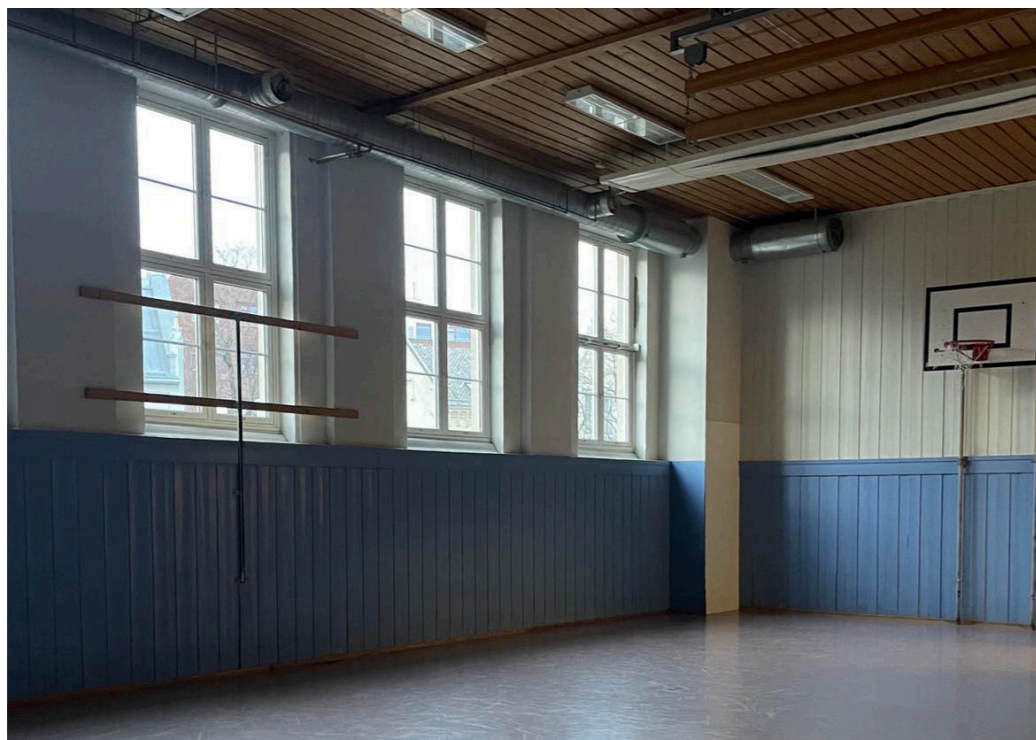
Tenshinkan Aikido club at Ensjø, Oslo



Aikido dojo, priorty an office at Ensjø, Oslo

Karate

Santokai Karate club, Bislett Oslo



Karate dojo, currently a high school gym at Bislett, Oslo

Mapping

Existing dojos

Site suggestions

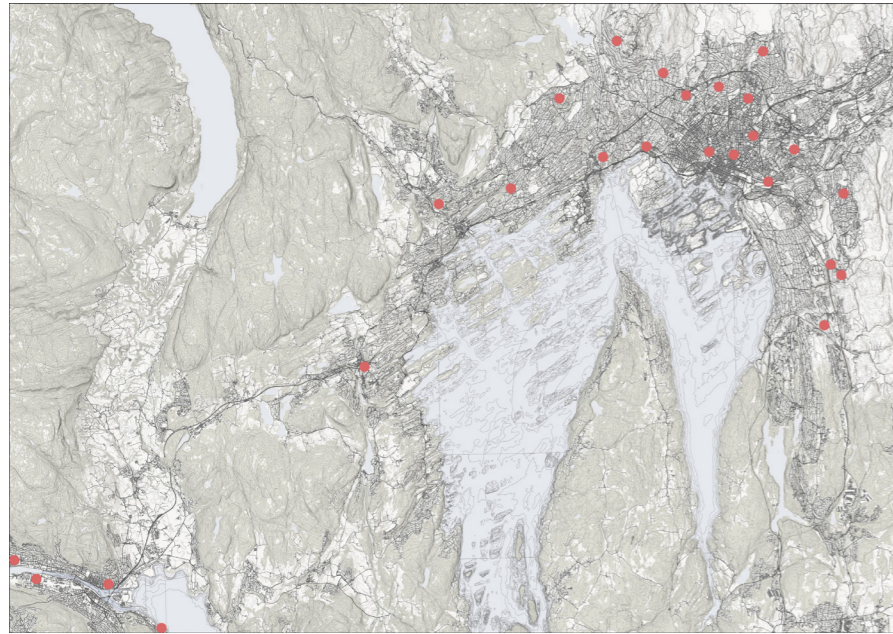
Chosen site

Site visit

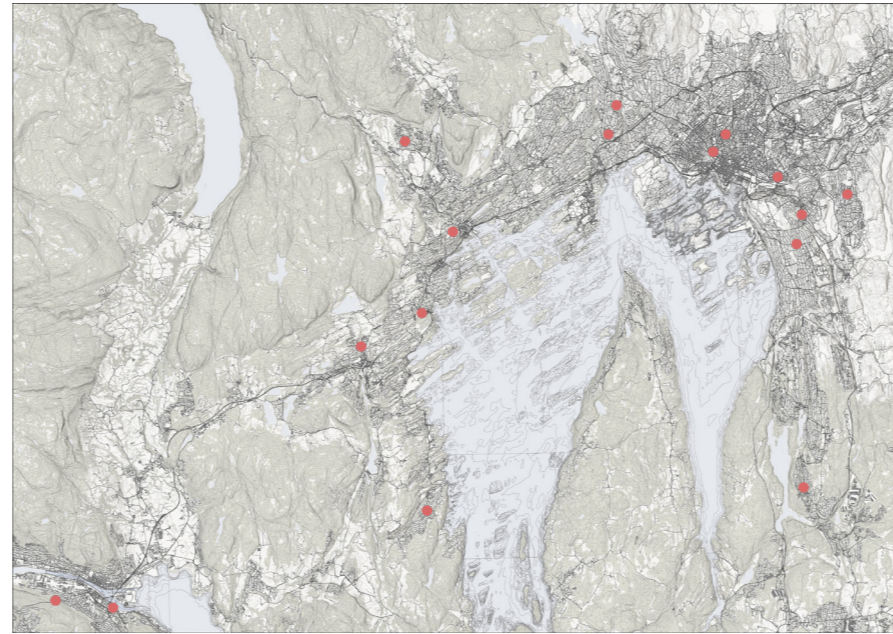
Wood constructions



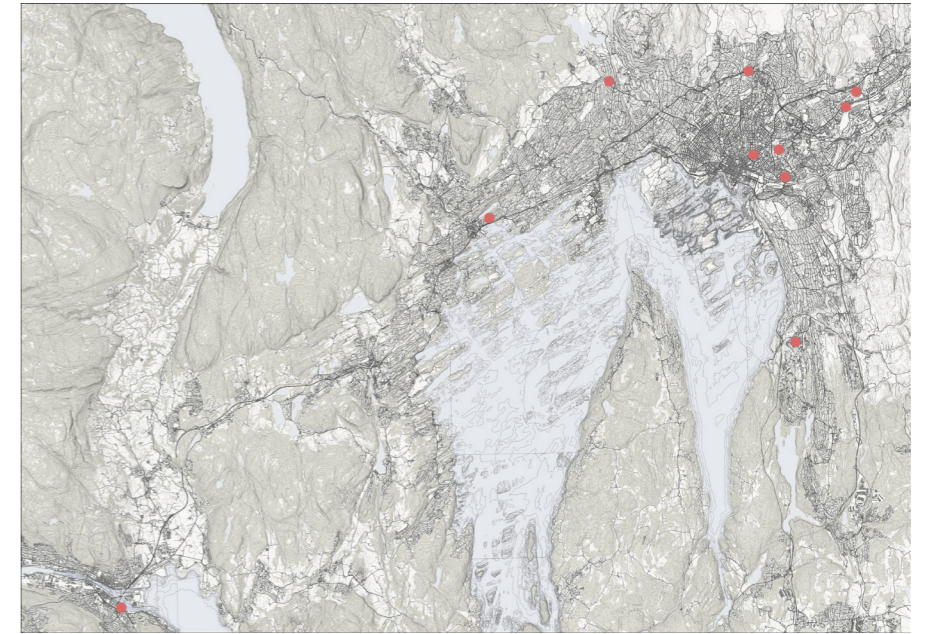
Striking Martial Arts



[Karate]

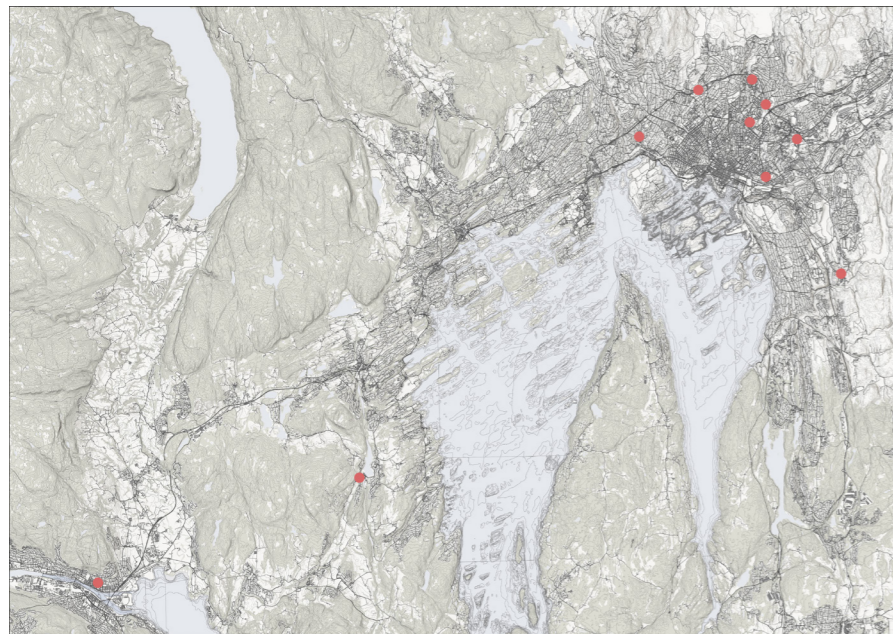


Taekwondo

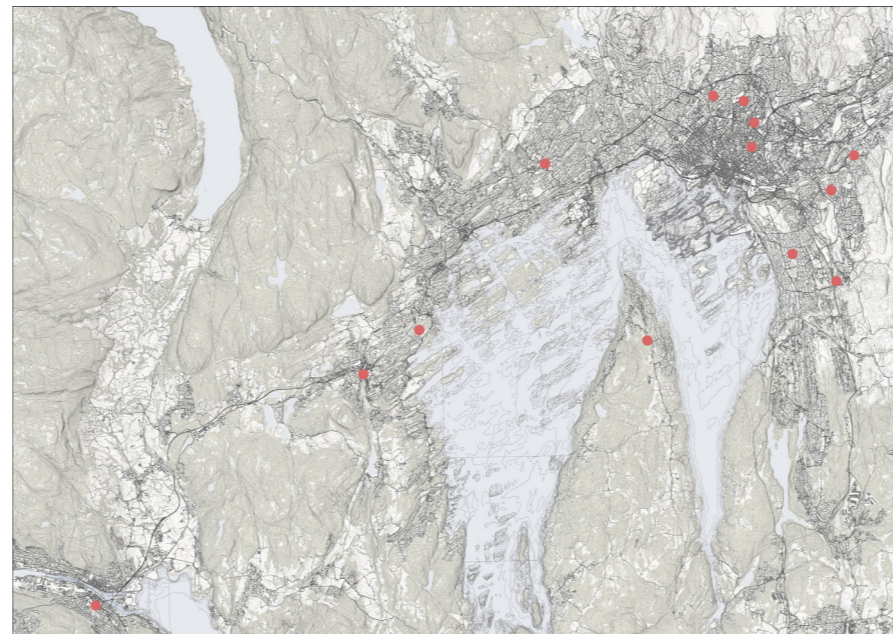


Kung Fu

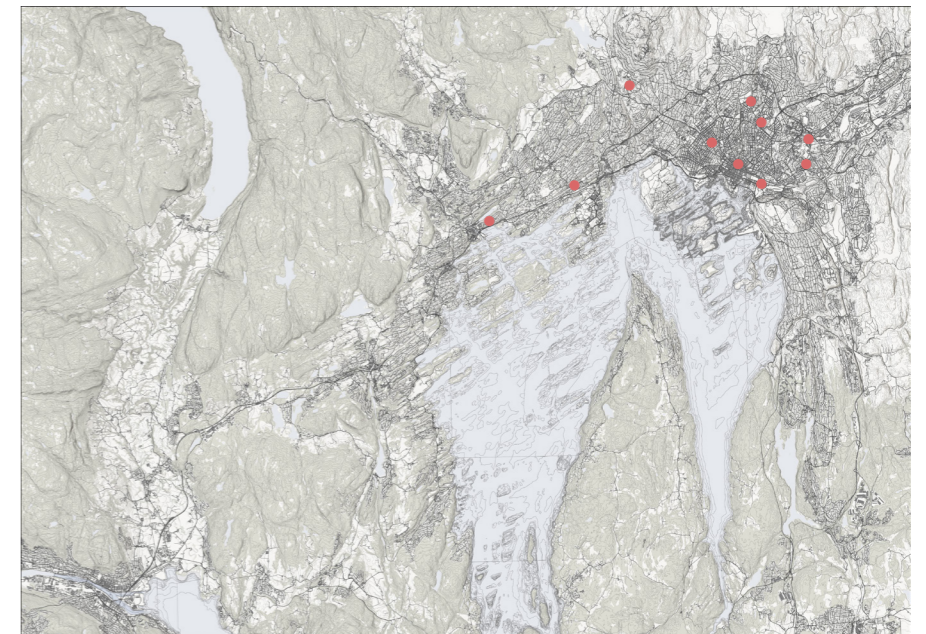
Grappling Martial Arts



[Aikido]

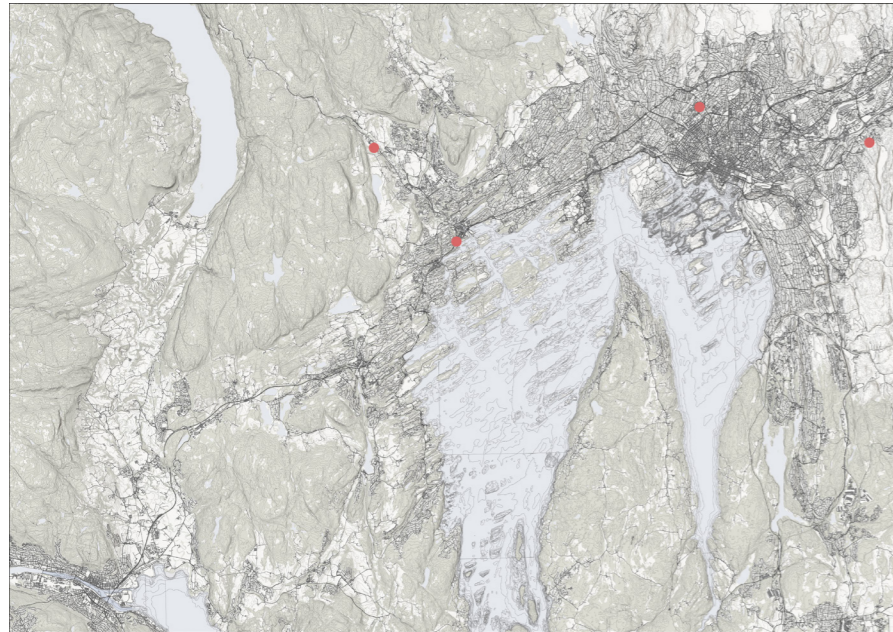


Judo

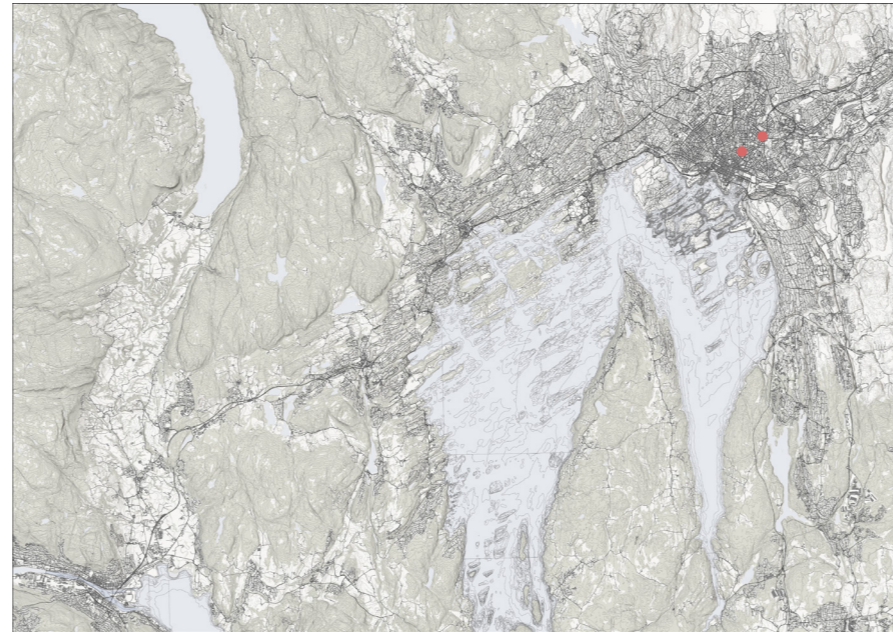


Jujitsu

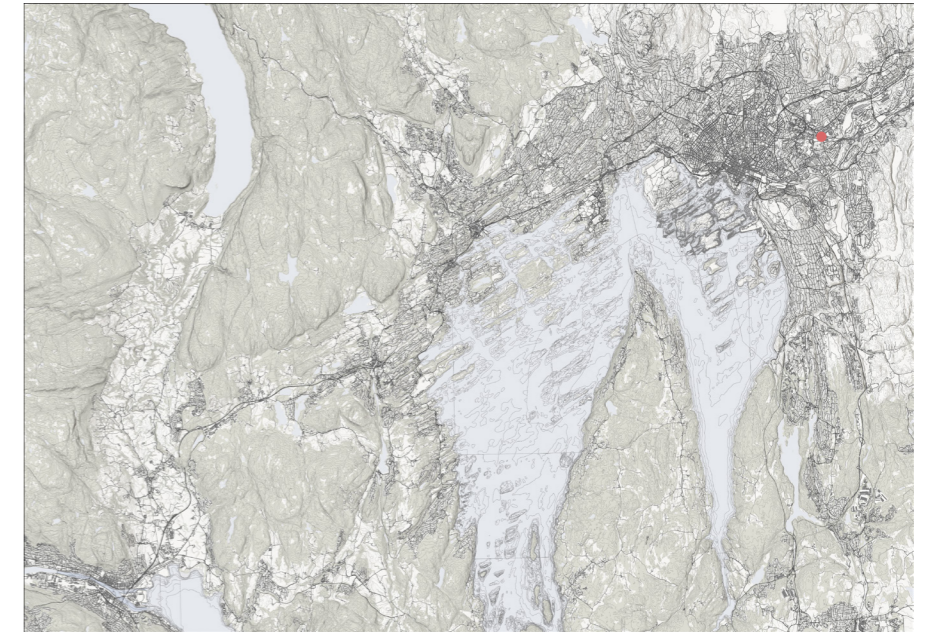
Armed Martial Arts



[Kendo]

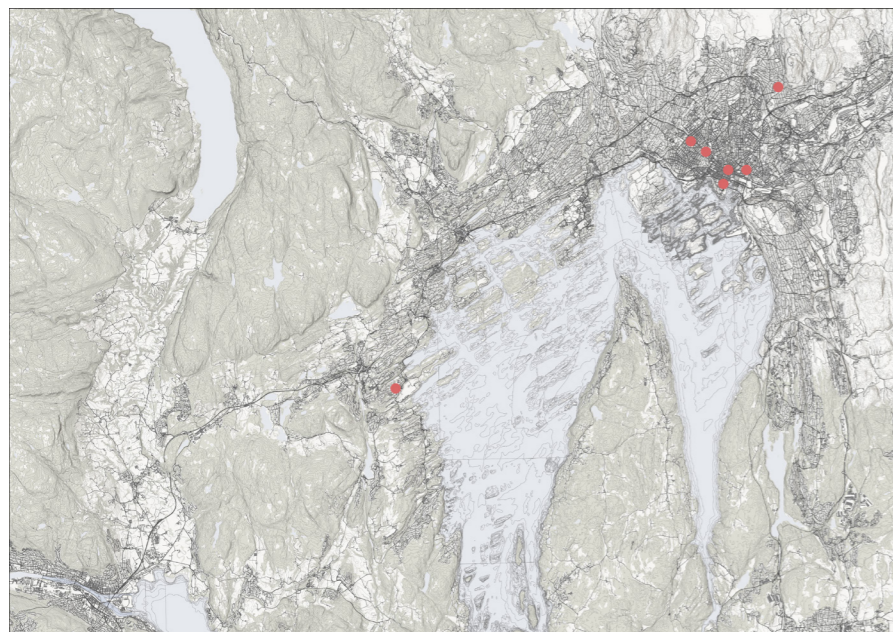


Kobudo

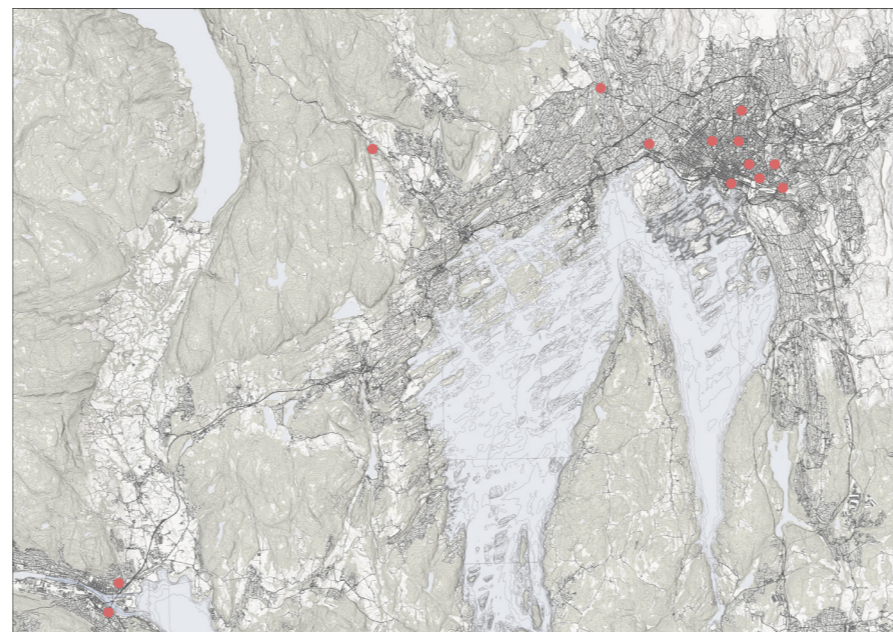


Kyudo

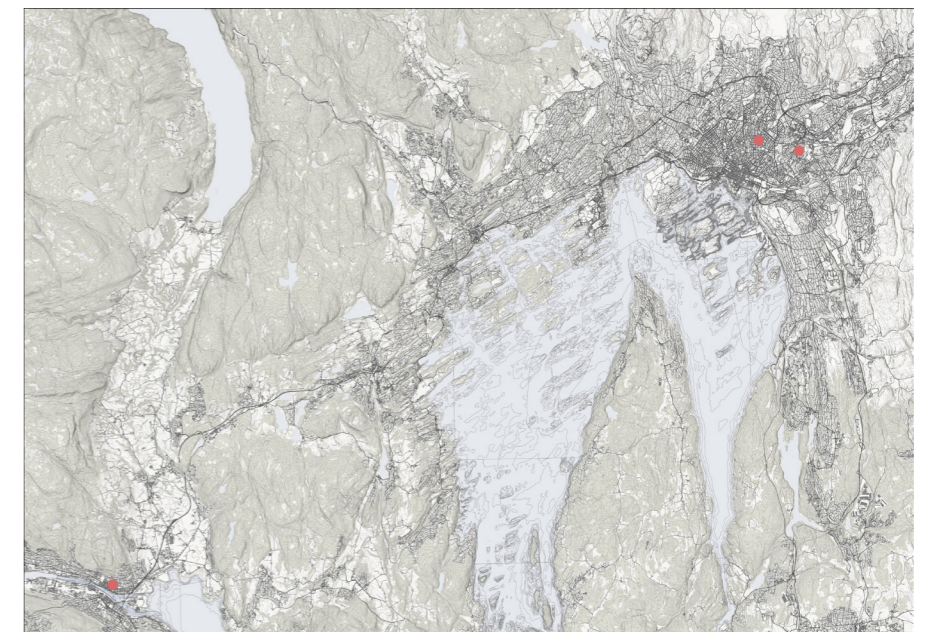
Non-Combat Martial Arts



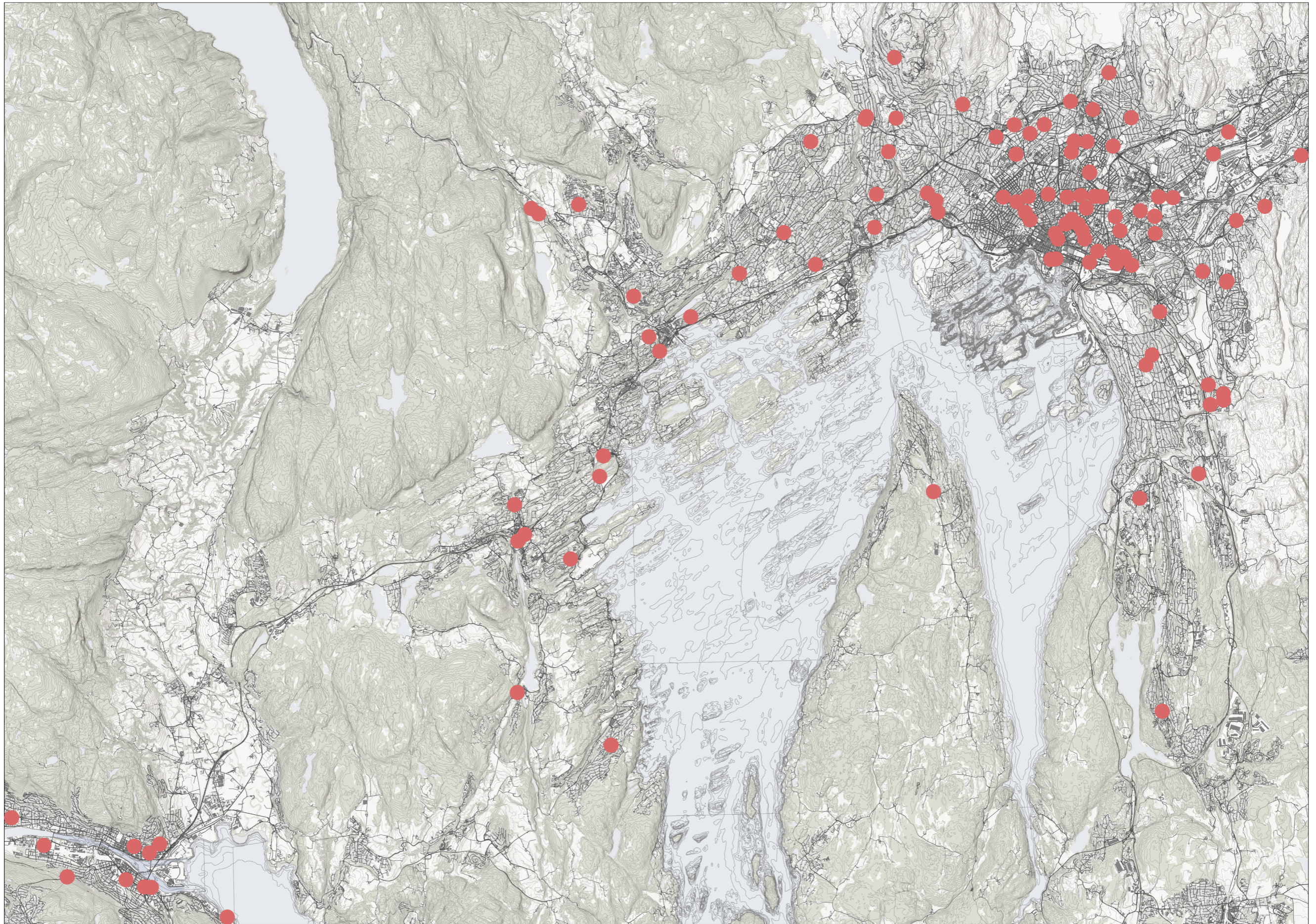
[Qigong]

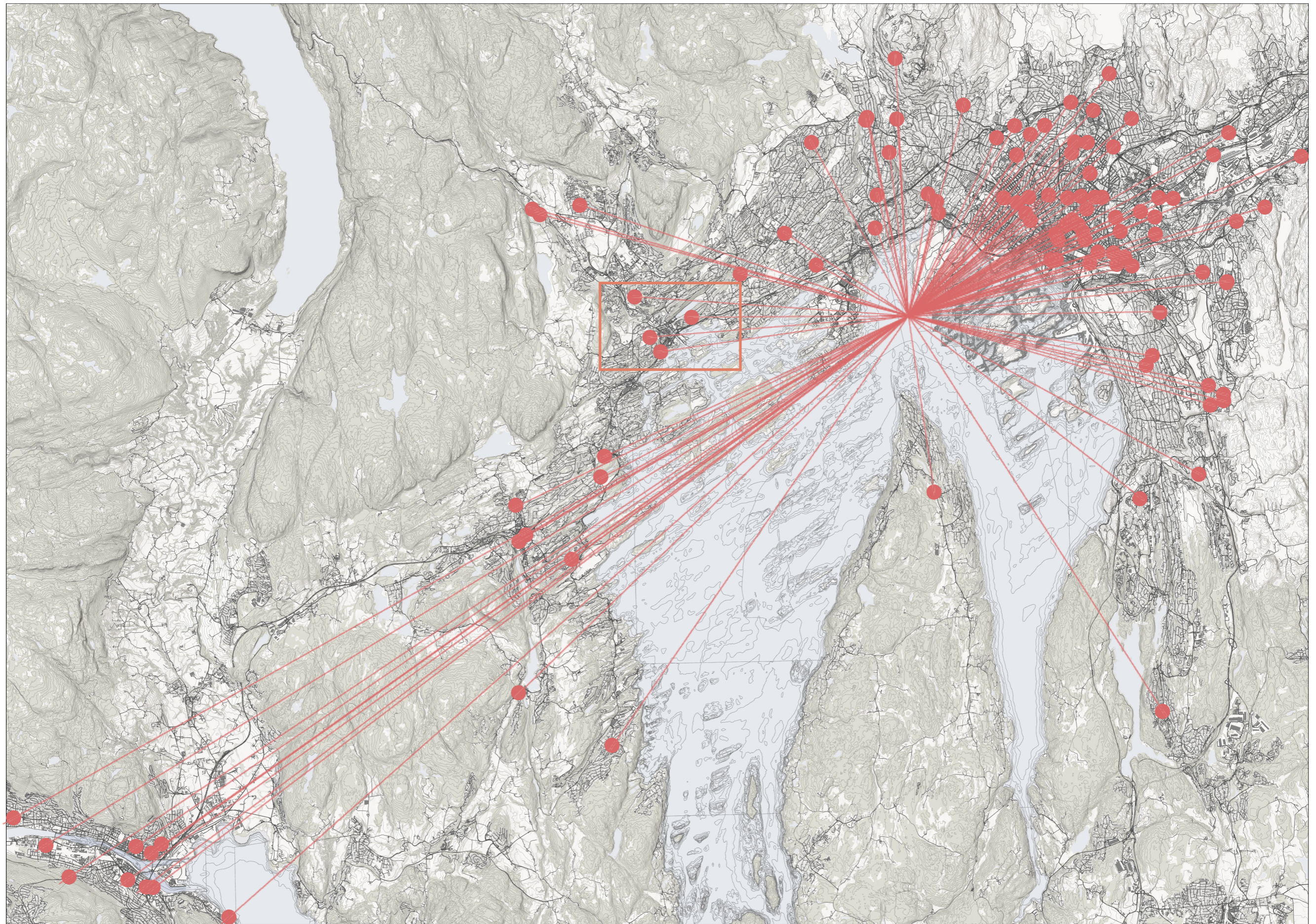


Taichi



Other N.C.Martial arts





Existing Dojos in Oslo region

Out of the municipalities proposed by NKF, Bærum is closest to the meeting point of existing dojos.
It was important that the site would be easily accessible, making Sandvika the best choice.

Site selection



Borgen, Asker*

Area	3000 m ²
Centrality	1.3 km from Asker train and busstation, reachable by bus
Qualities	There has been built a new training facility near the school at Borgen. The nabouring site is today a gravel-field used for football. The site is surrounded by a residential area, a school and multiple footballfields.



Marienlyst, Drammen*

Area	8000 m ²
Centrality	700 m from Drammen train and buss station
Qualities	The site is close to the city centre, where multiple martial arts clubs are located today. The site is surrounded by a populated residential area as well as multiple schools and a swimminghall.



Risenga, Asker*

Area	7000 m ²
Centrality	1.2 km from Asker train and busstation, reachable by bus
Qualities	The site is placed between the new highschool and the existing swimminghall. The site is surrounded by a small forest and multiple sportshalls and a school.

Chosen site



Sandvika, Bærum

Chosen site

Area	8000 m ²
Centrality	600 m from Sandvika train and buss station
Qualities	The site is percived as calm and remote due to the meandering river that encloses the site and divides it rom the city centre and surrounding roads.

*Site suggestion from NKF

Limtomta

Since this project will not be realised, the site was chosen to further explore the meeting between the set parameters and site conditions. The site is not regulated for building but aspects such as accessibility and logistics has been considered to give the project a base in reality.

The choice of site is based on a concept study by NFK (Norwegian Martial Arts Federation), that explored possible municipalities for a martial arts arena. Bærum was chosen for this project, as it had the most practitioners divided on the fewest dojos. As the administrative centre in Bærum, Sandvika was the most accessible. Placed 600 m from the city's train and bus station, and in proximity to the highway, Limtomta adhered to all the logistical needs.

Containing an open park, forest, a river and floodable areas, the site gave contradicting conditions to adapt to. As martial arts are highly ritualistic, the site itself were a fitting choice. The ritual of entering the dojo itself is an important ritual as it aids in shifting the mindsets of the practitioners into a state of awareness. In comparison, the site acts as a transition, guiding people out of the city centre and into a world of its own. The meandering river enclosed by trees carve the site out of the city context, allowing the dream of a martial arts peninsula to be explored.



Site visit



Existing structures - Sandvika High School



River



Forest clearing



Floodable area



Public park



Nothern circulation

Parameters of the dojo

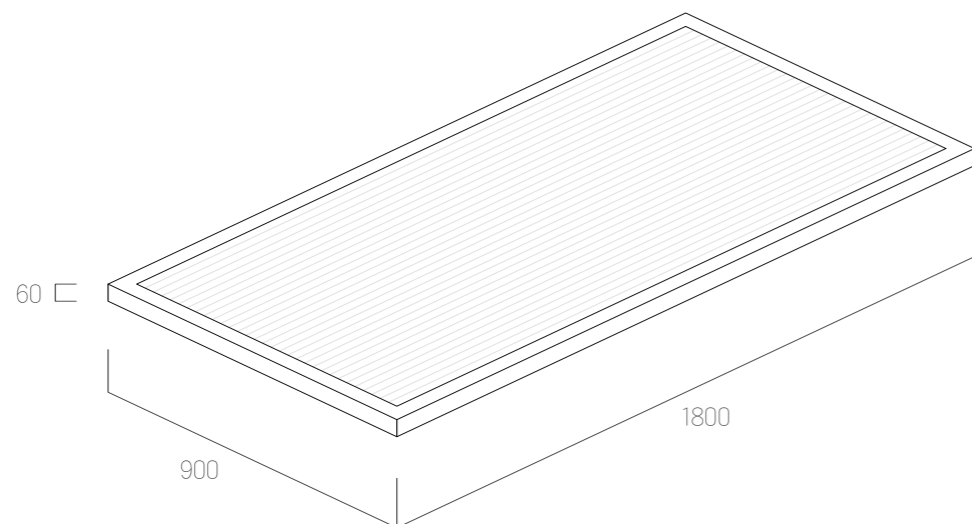
Traditional systems - Tatami
Movement patterns
Ritualistic aspects

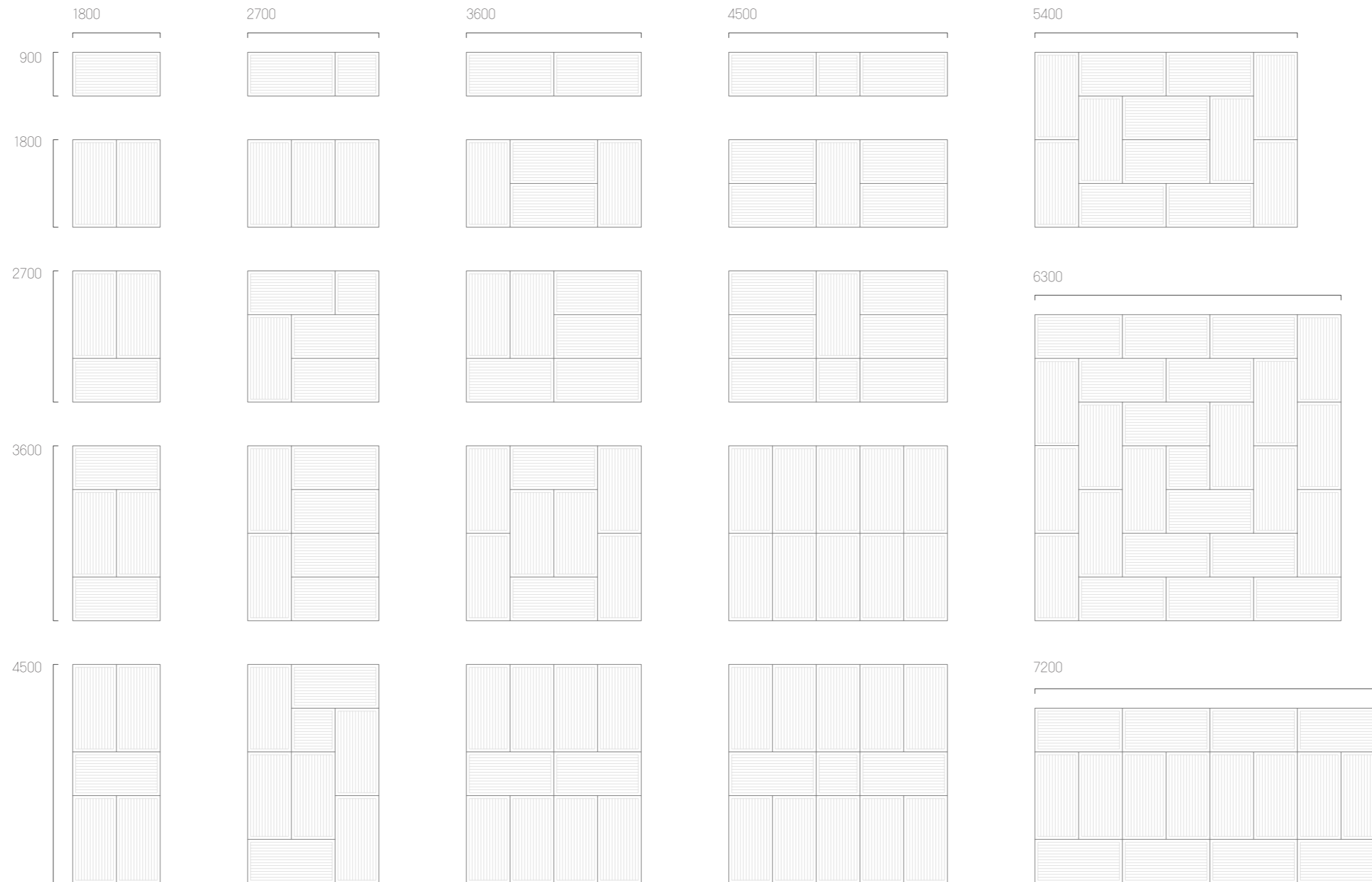


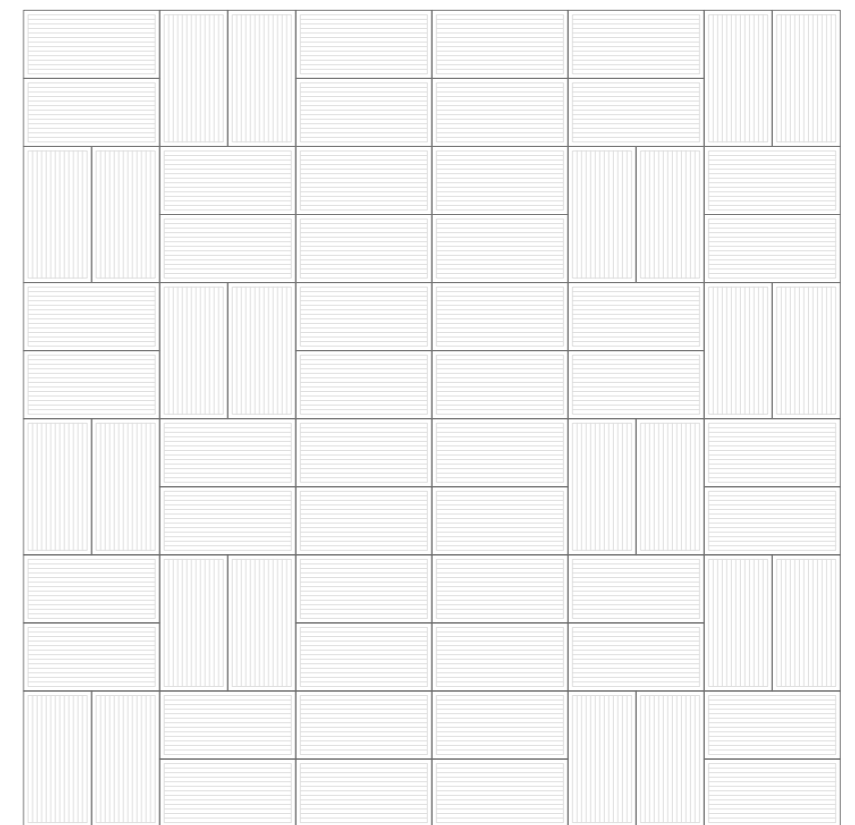
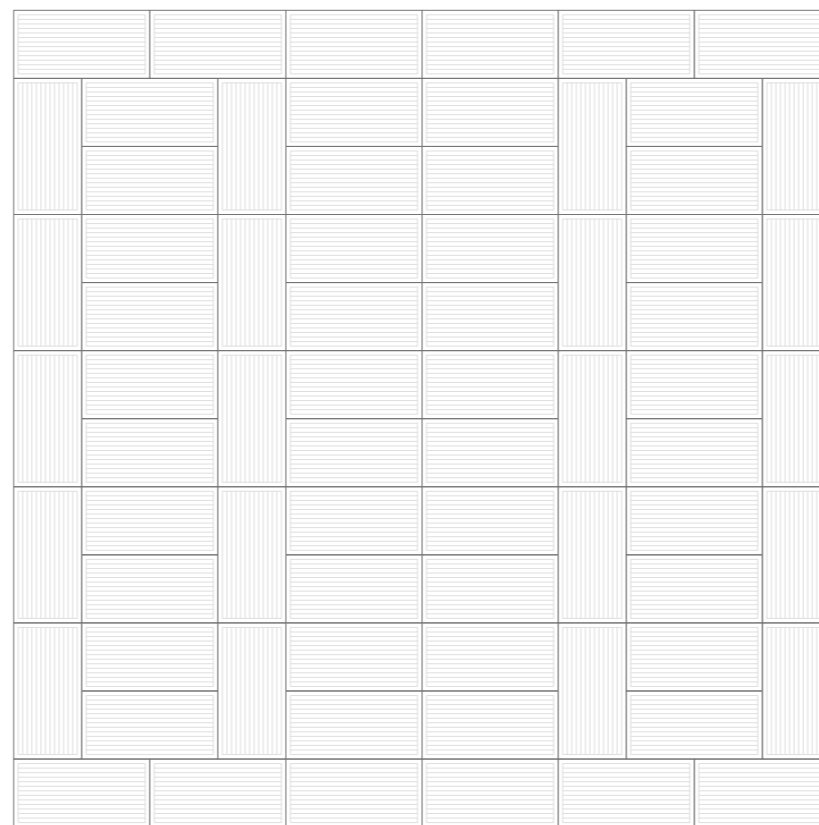
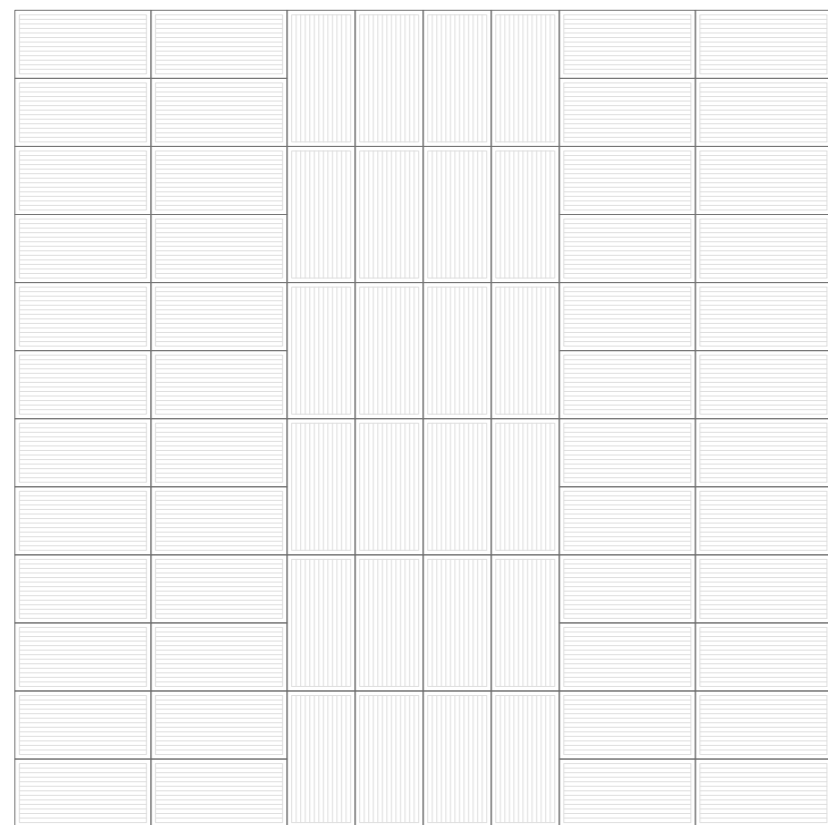
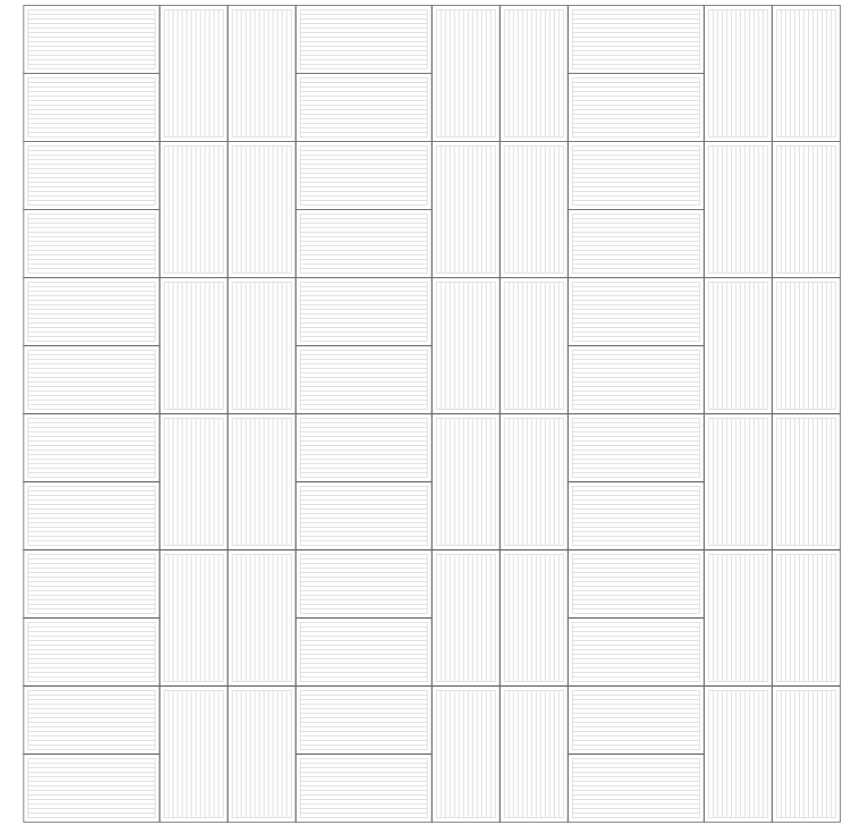
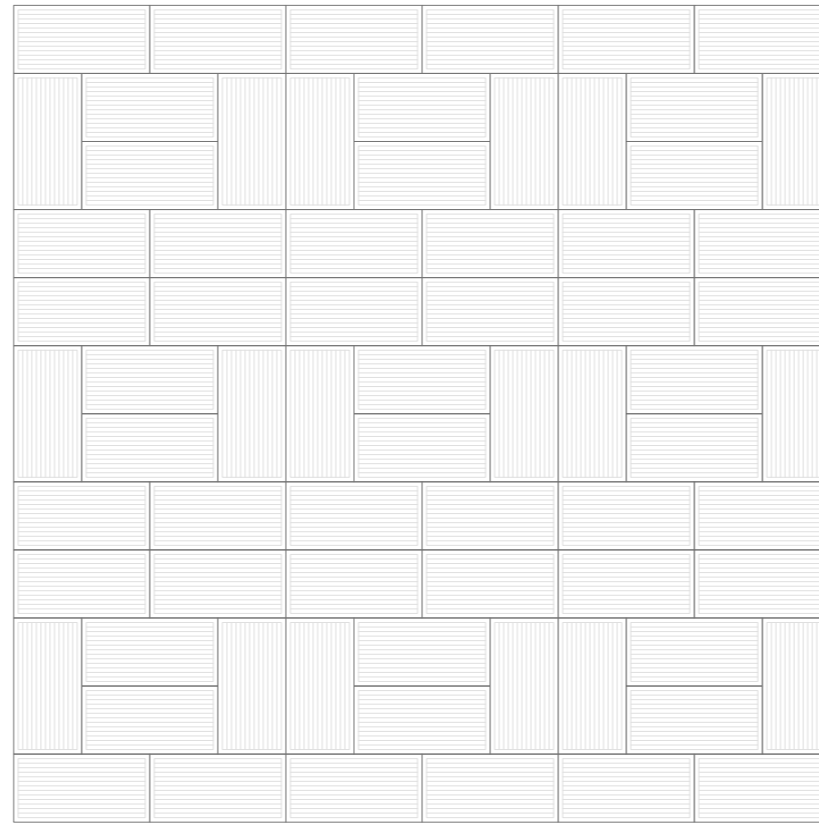
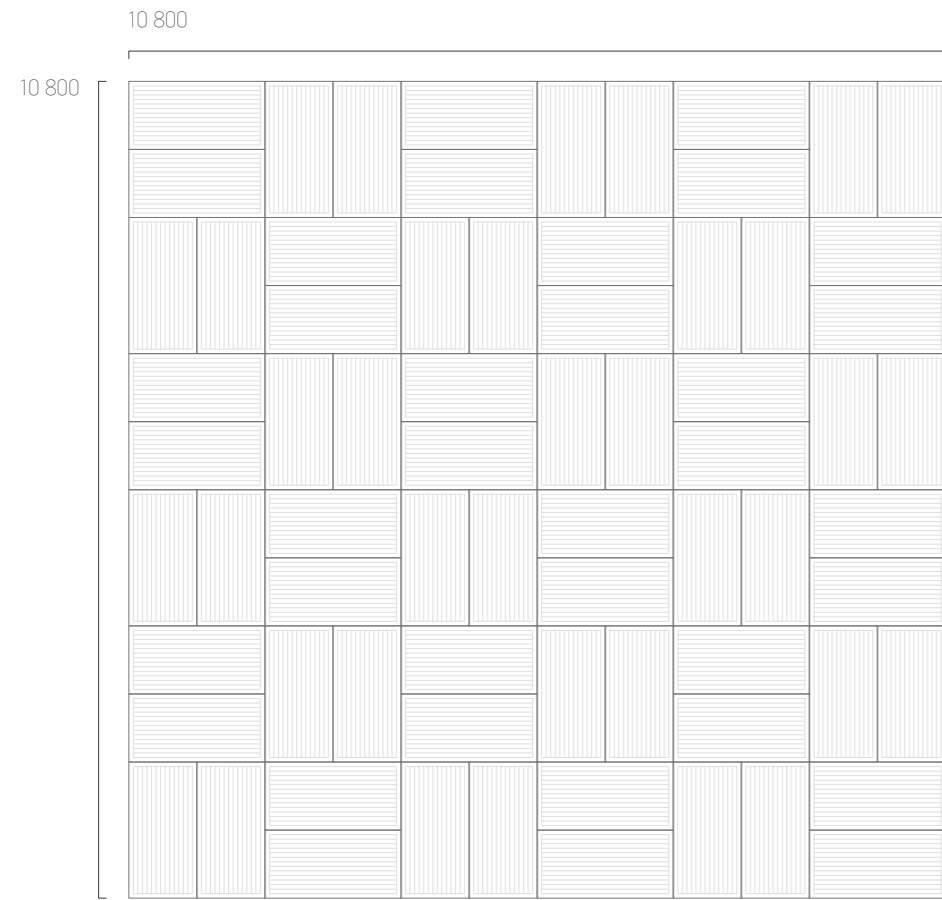
Tatami

The tatami is the traditional Japanese flooring material and is a requirement for grappling martial arts. The implementation of modernised mats is common in dojos used by striking martial arts as well, though this is not a set need. By many, stepping onto the tatami mat is considered a sacral entry into the martial arts zone. In search of a constructive grid, the tatami mats were an optimal choice considering the dimensions of mats being standardized in relation to the average dimensions of the human body. Based on the length of an average person lying down and the width accommodating the distance between a person's knees when sitting in seiza position. (A traditional Japanese sitting posture used in the opening and ending ceremony in martial arts.) The mats measuring 900 mm by 1800 mm, were optimal grid seen as the movement patterns of the martial arts lined up with the same dimensions.

The modular nature of tatami mats enables flexibility in different grid layouts by combining full sized and half sized mats. The grids have been used for placement of the constructive elements as well as wall placement and room layout.

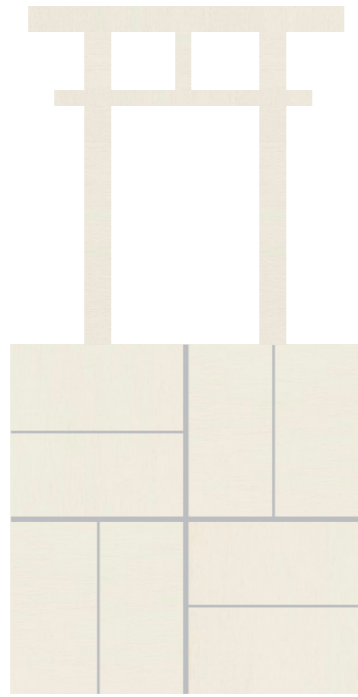






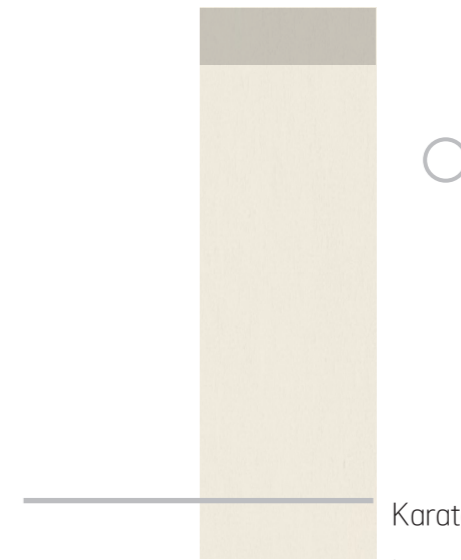
Tatami grid exploration

Mat placement for Aikido
Measurements in millimeters



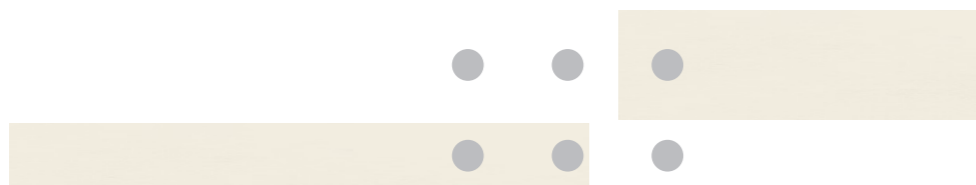
Aikido

Circular movements confined by the modular composition of the tatami mats. Directed to the northern wall, honouring the Shinto shrine.



Karate

Linear and strict, no "free" movements are allowed along the north wall, only in the south. East bearing a significant value



Kendo

Linear movements constricted to a parallel system. Pairs divided by weapons and belt rank.



Qigong

Organic room placement, breaking the common strict pattern

Process

Sketches
Paper models





Early concept models

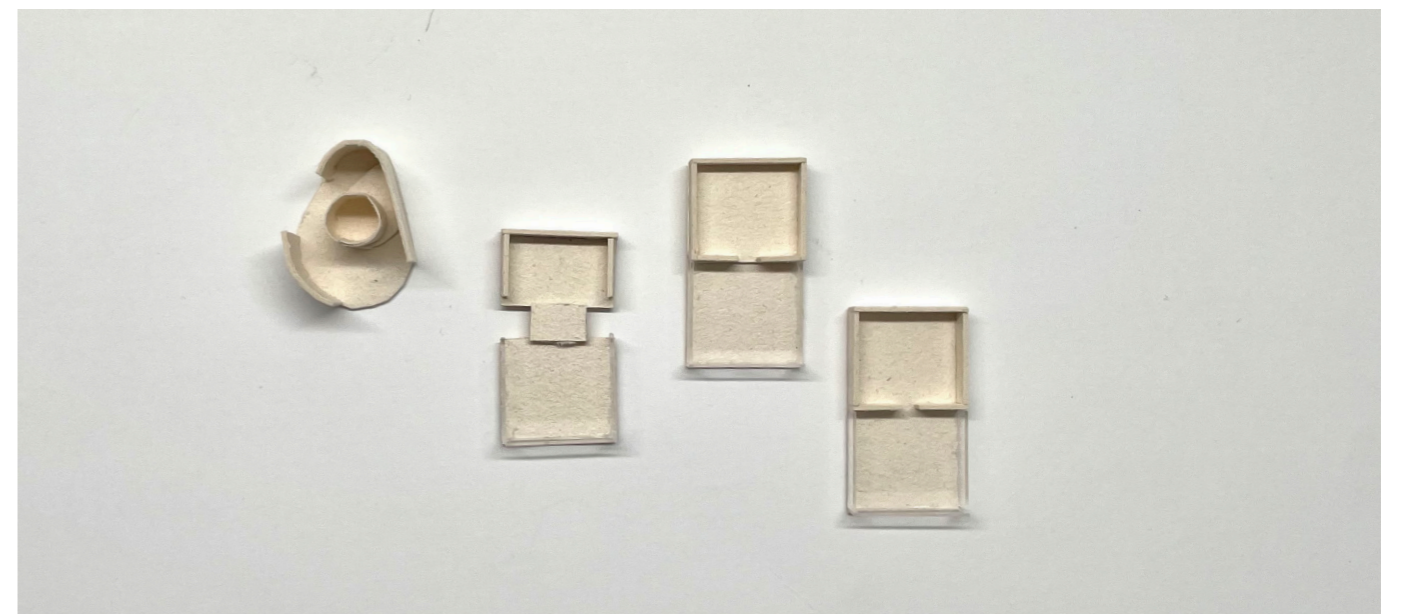
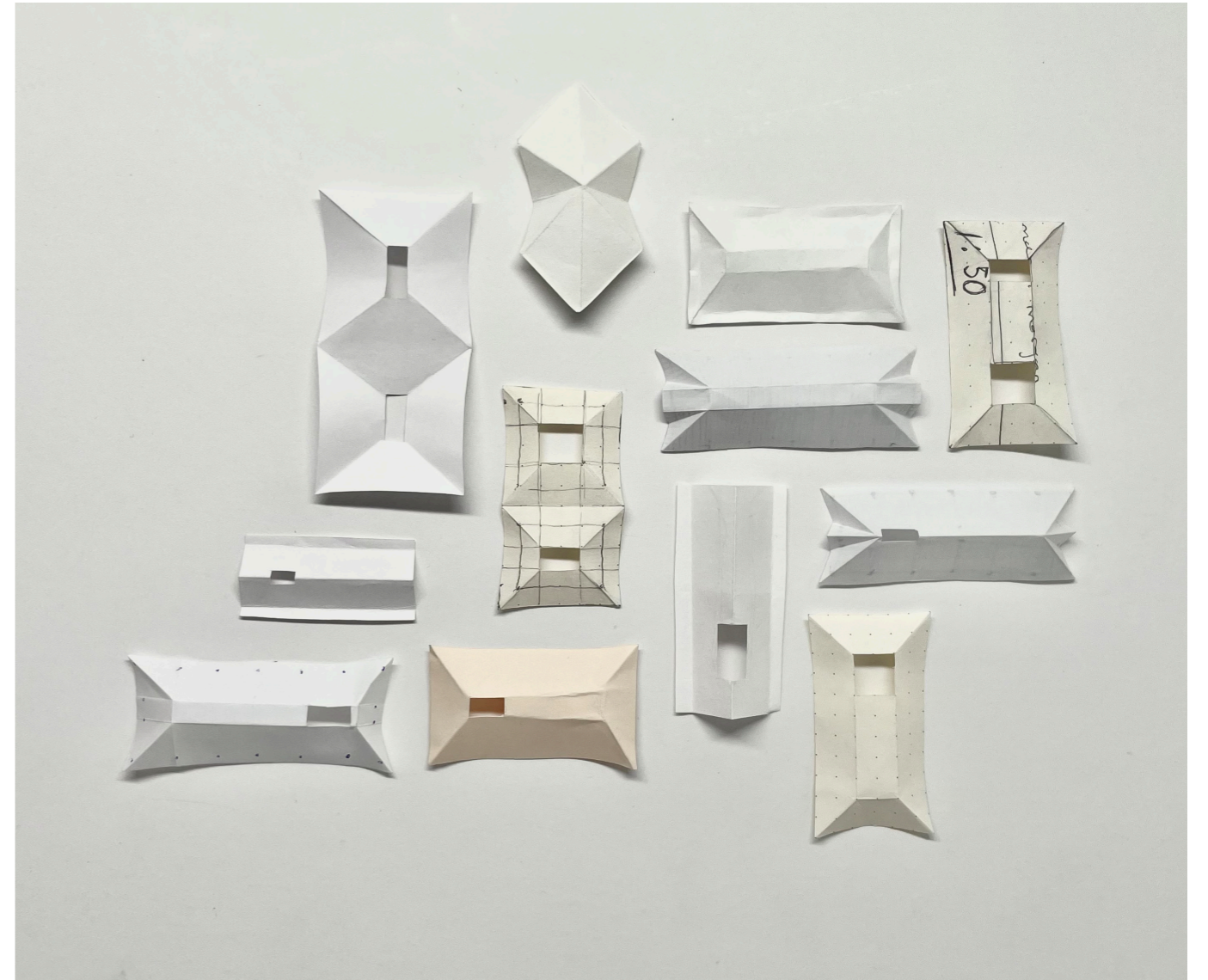
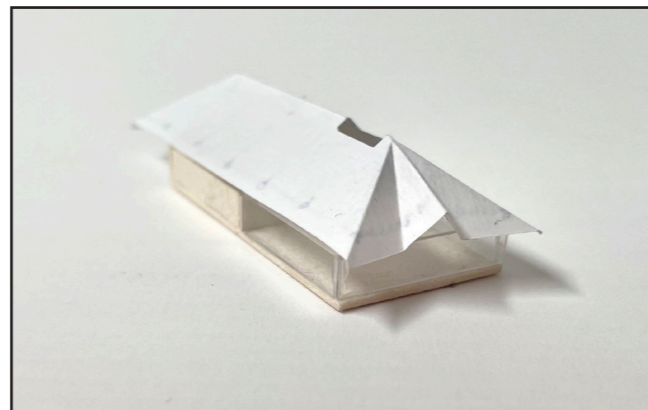
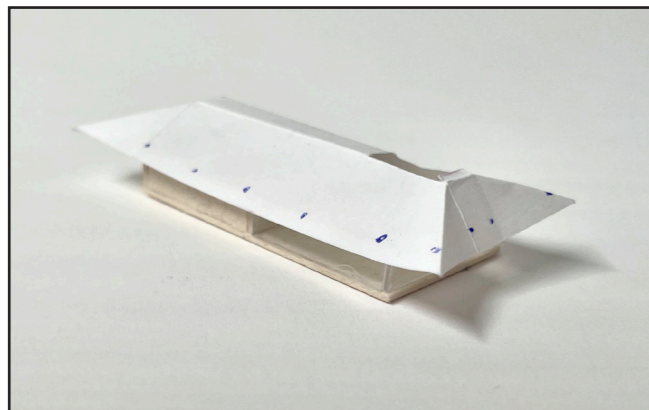
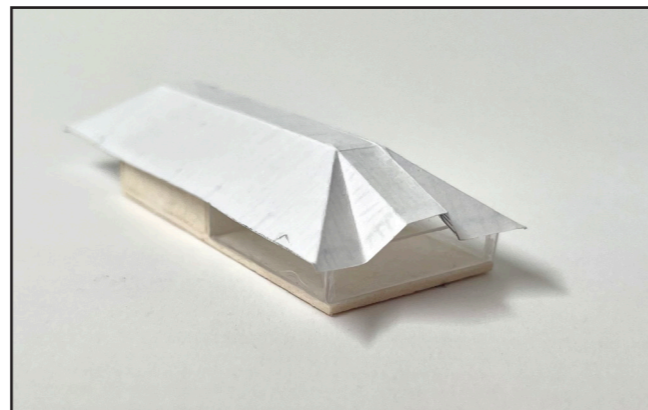
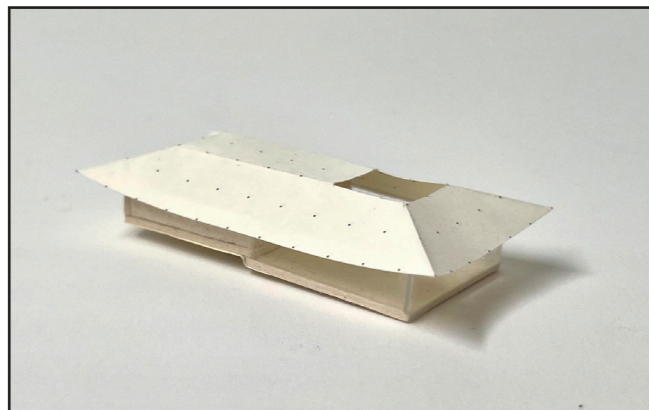
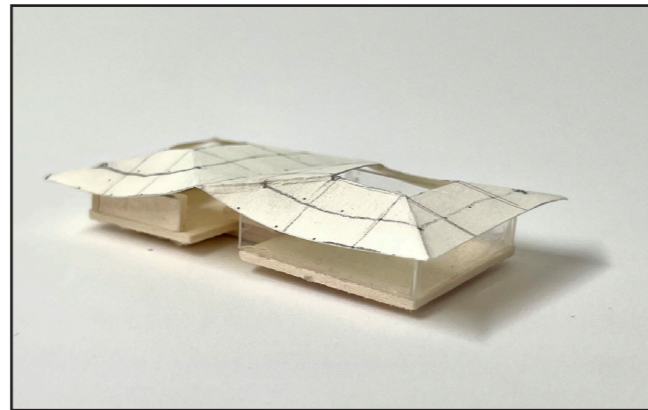
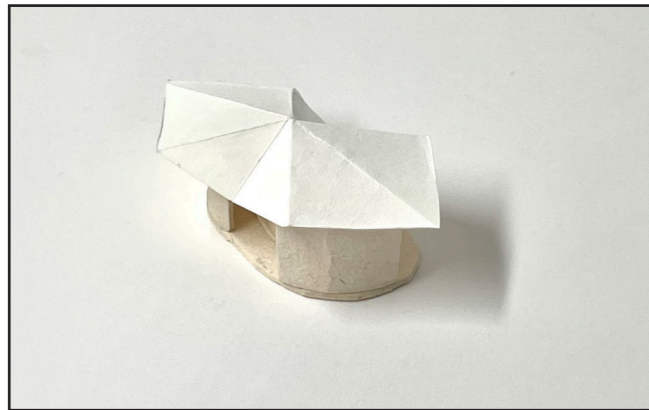


Courtyard - bringing the dimensions of tatami out in the open



Qigong

Qigong has a spiritual approach to the natural forces, connecting with slow, vertical movements combined with breathing techniques. Roofs to connect up, down and out were explored. The roof a further extension of the forest claring it relates to.

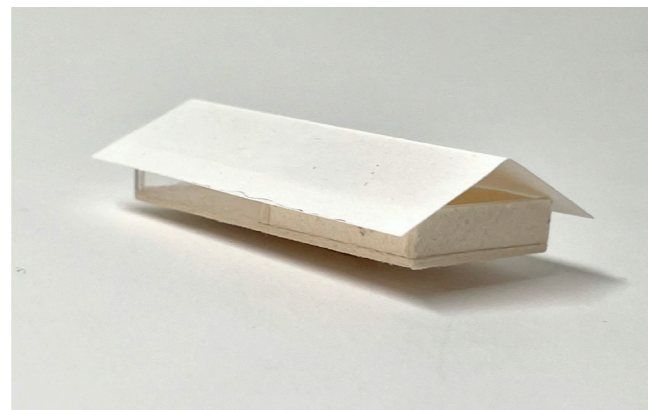
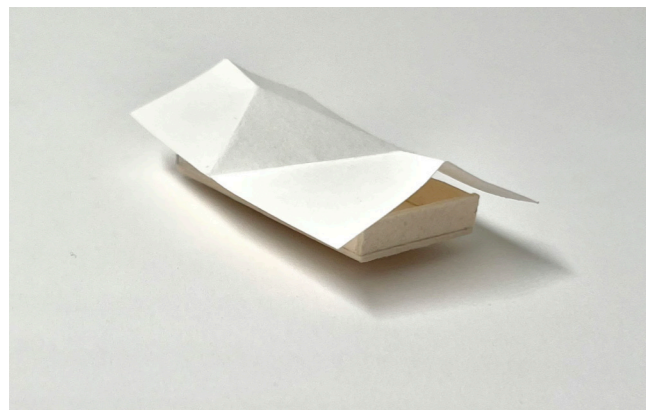
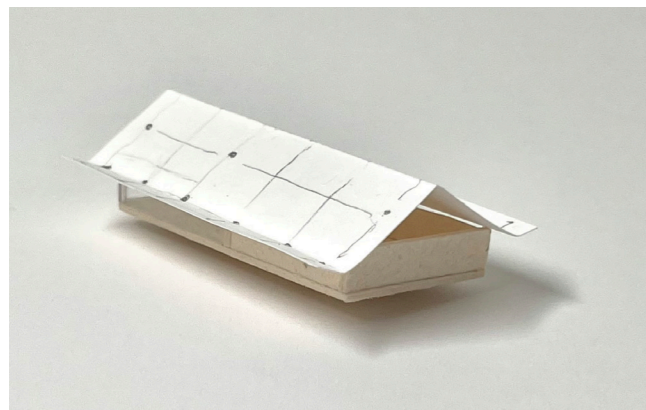
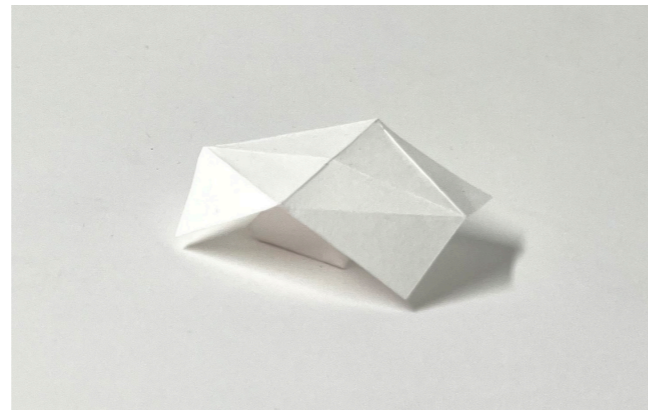


Paper models

Exploring the accomodation of ritualistic aspects and movements through roofs

Aikido

Aikido in essence work with two levels of stance, upright and laying down. A roof that pulls up and brings down were explored. Further in the process, it was important that the roof fitted the implementation of the shinto shrine as a constructive element, due to its significance for the style form.

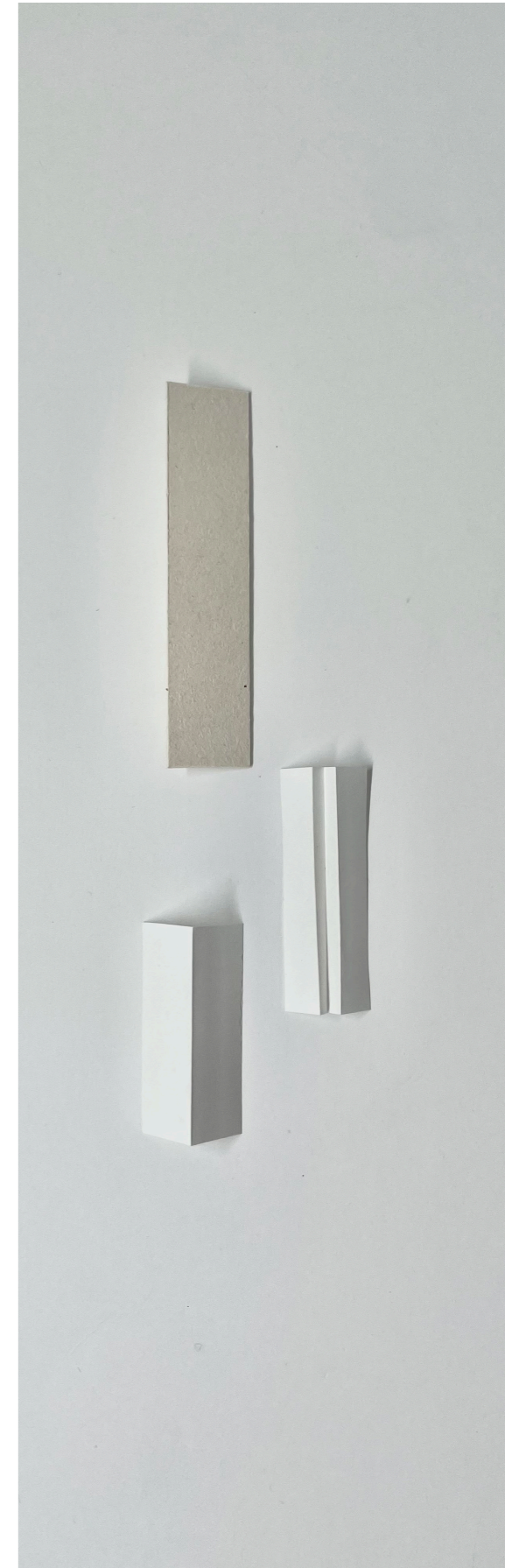
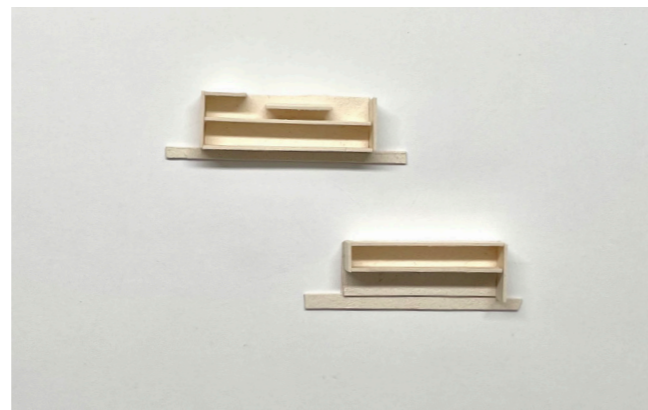
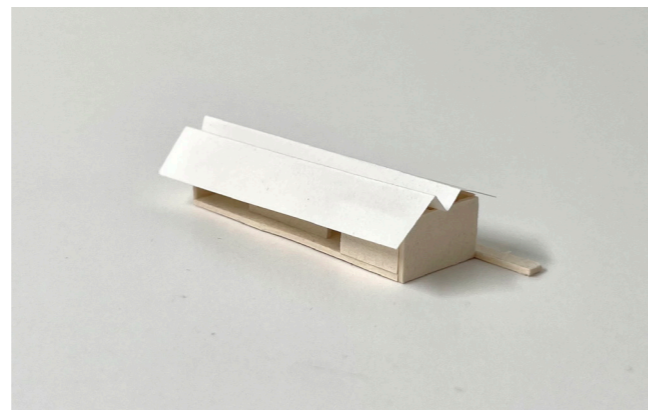
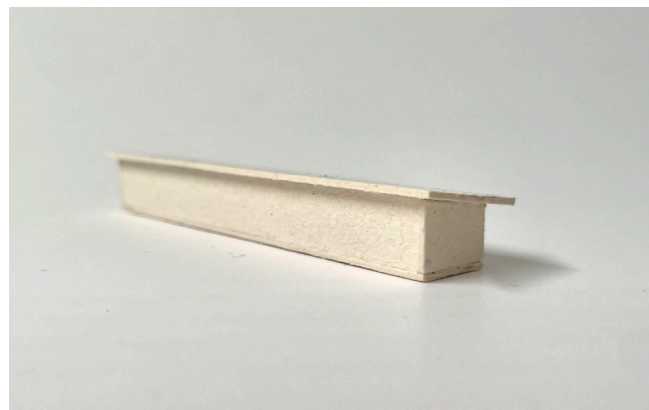
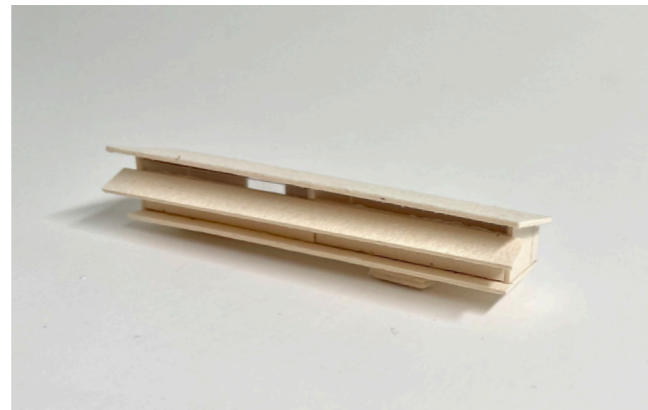


Paper models

Exploring the accomodation of ritualistic aspects and movements through roofs

Kendo

Linear movements performed in pairs, never meeting as the practitioners are distanced by their weapons. Paralell elements were explored. The practitioner with the highest belt rank conveying knowledge of the art to their paired opponent. Roofs adhering to the shift in honor, slanted by elevation on one side.



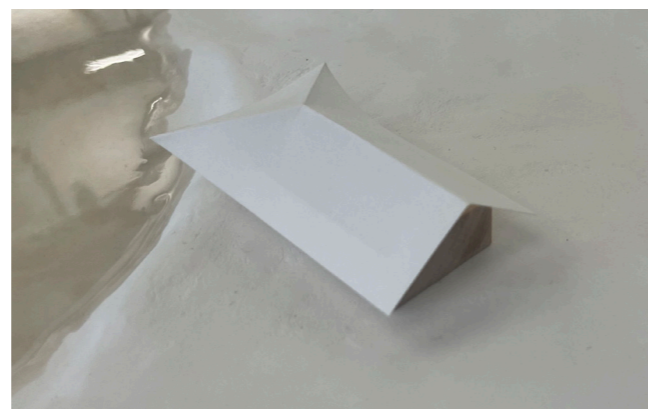
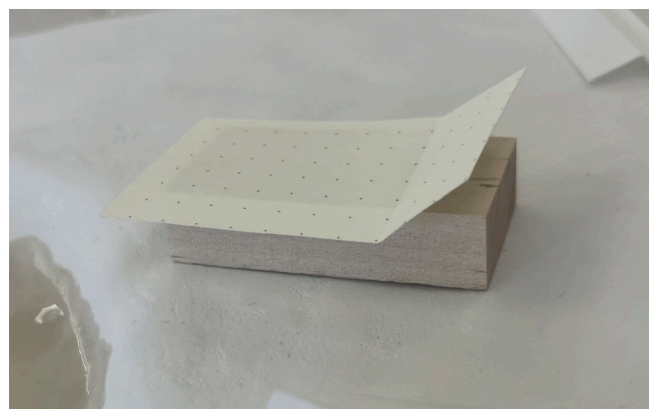
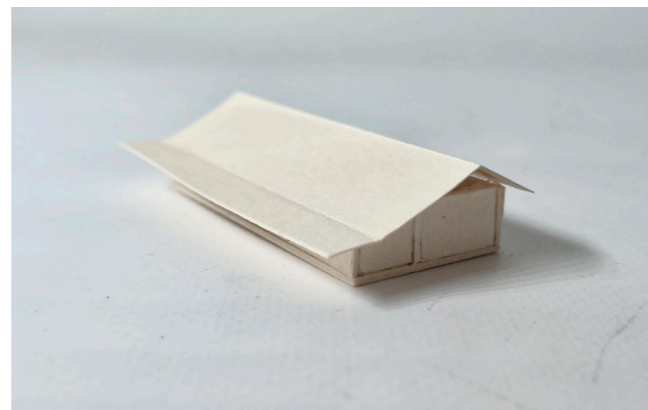
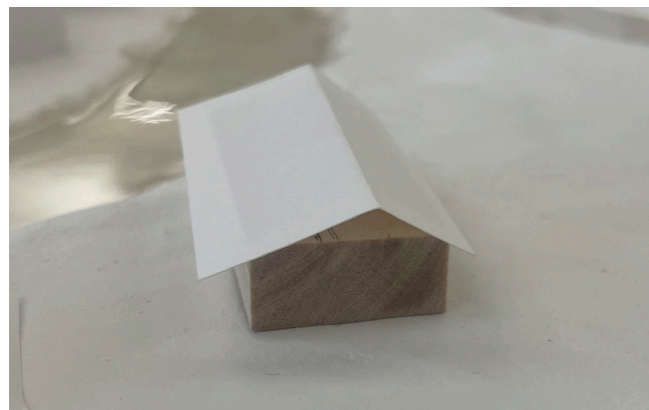
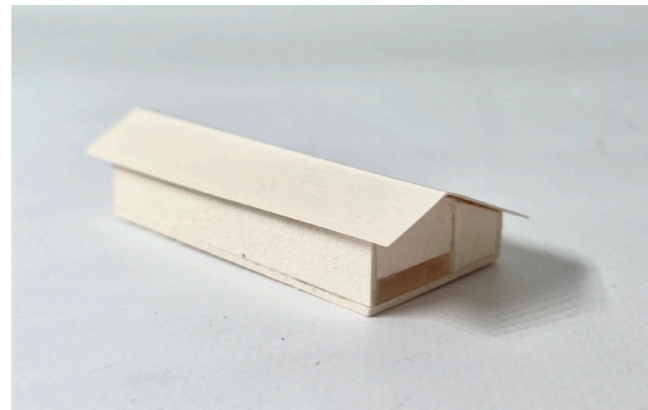
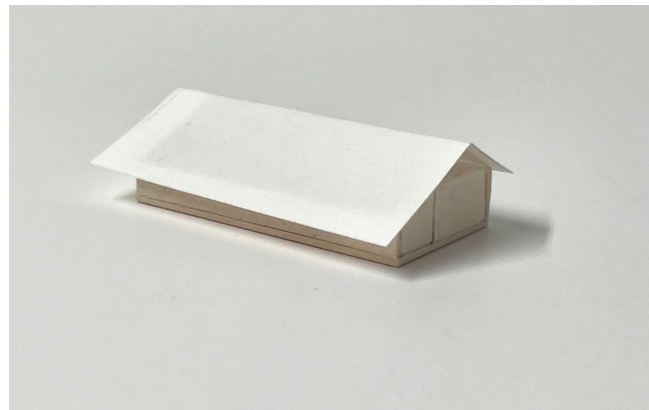
Paper models

Exploring the accomodation of ritualistic aspects and movements through roofs

Karate

.....

A roof that opens up towards east,
sensei in the north, free movement in the south.....



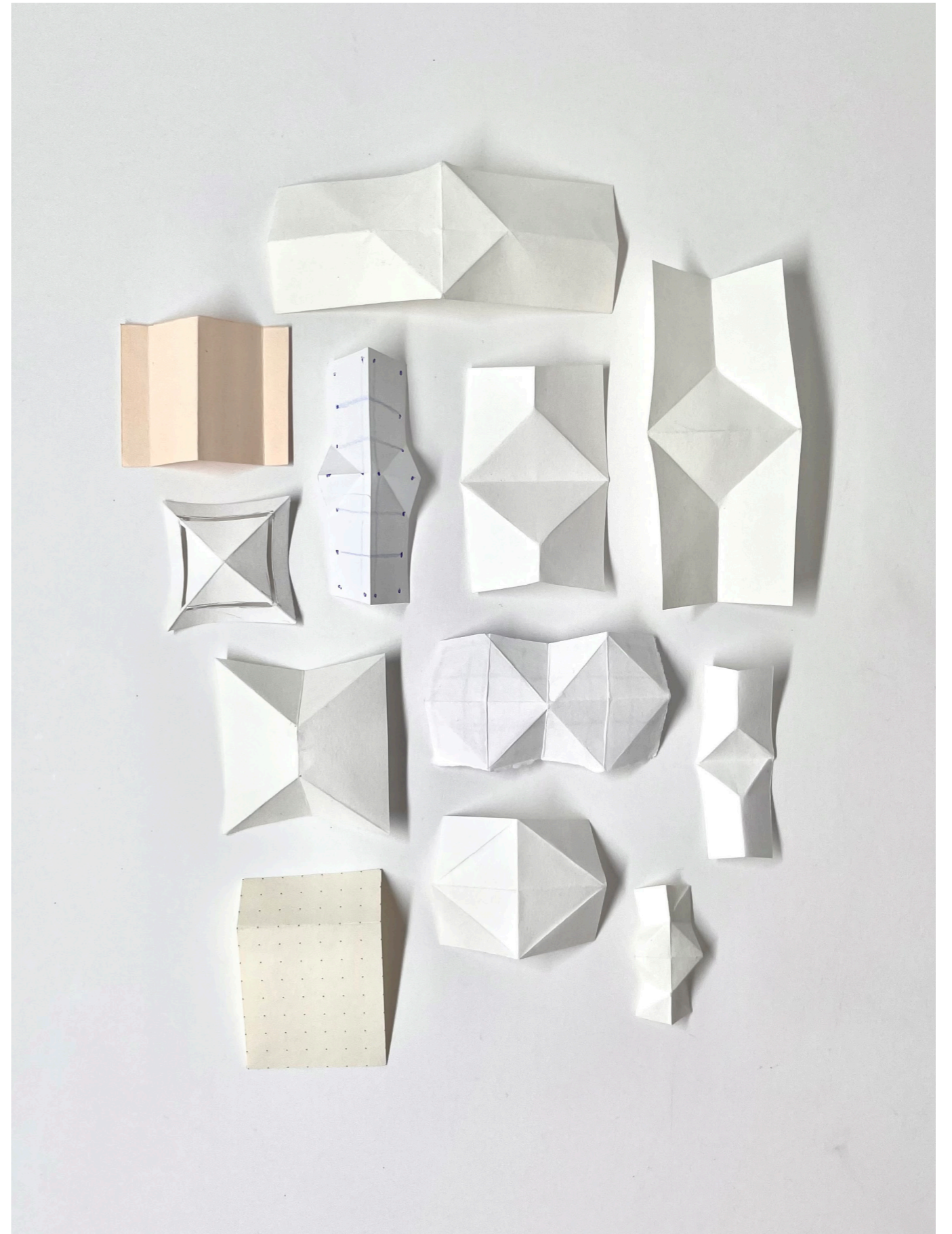
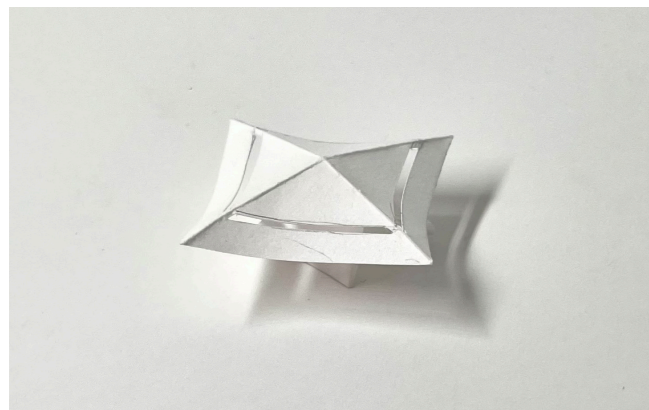
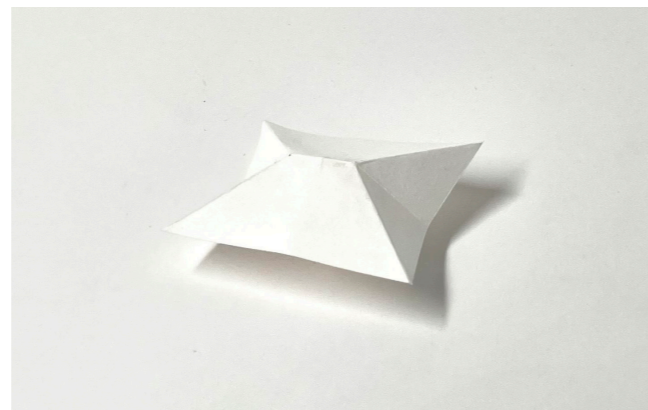
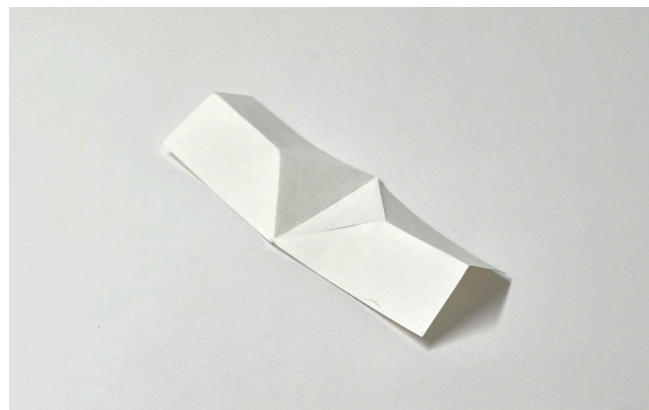
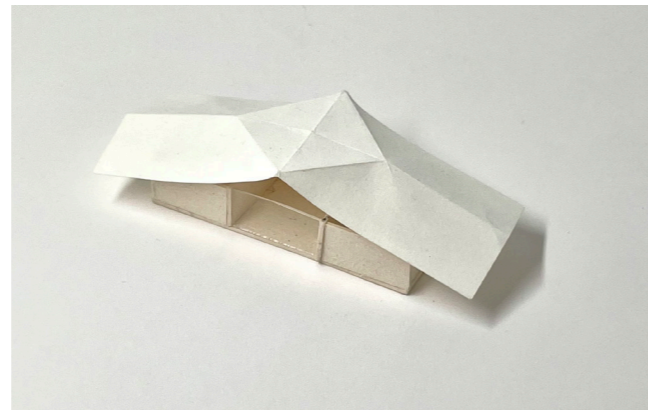
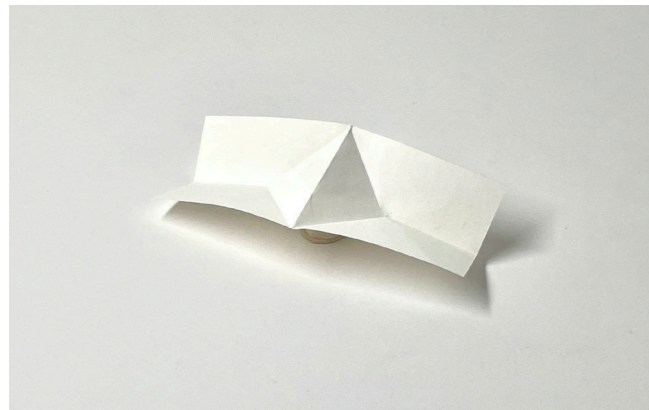
Paper models



Exploring the accomodation of ritualistic aspects and movements through roofs

Ceremony

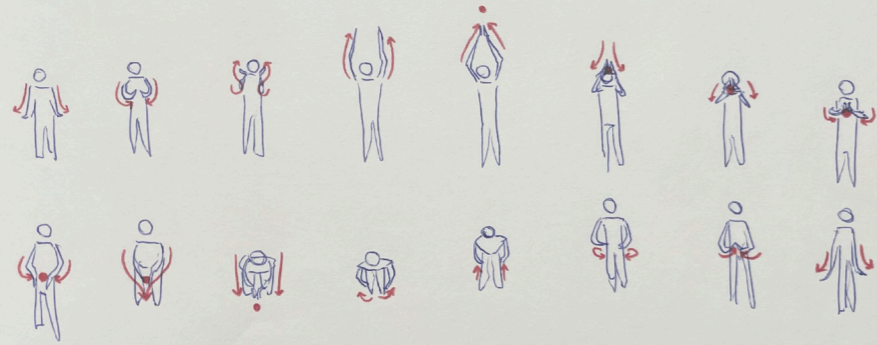
A ceremonial place for everyday use. A meeting place for the practitioners as well as an inviting space for curious people. Exploring structures that opens up towards the park. A gathering roof to invite people in.



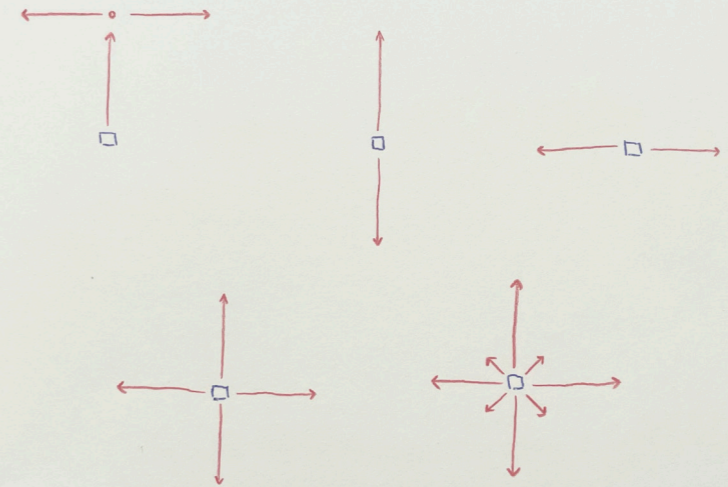
Paper models

Exploring the accomodation of ritualistic aspects and movements through roofs

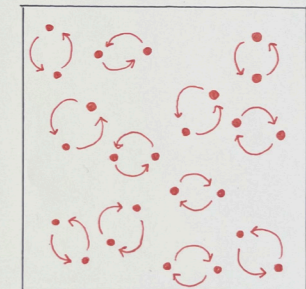
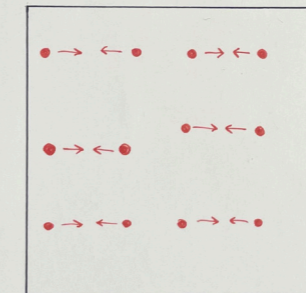
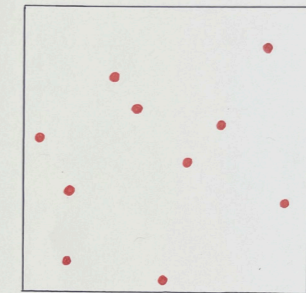
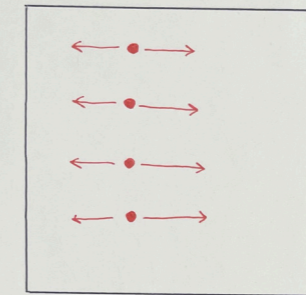
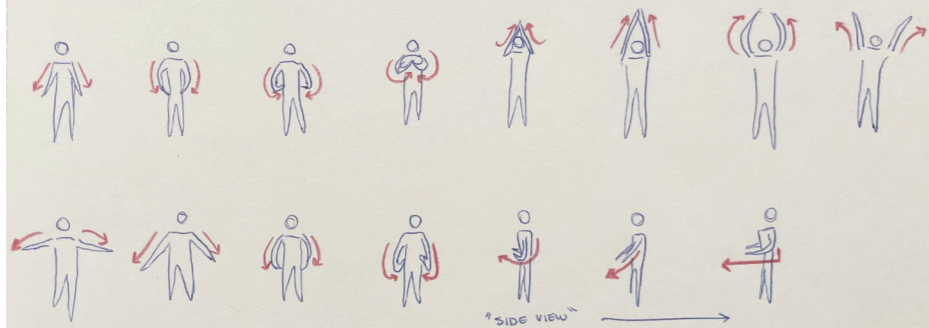
QIGONG

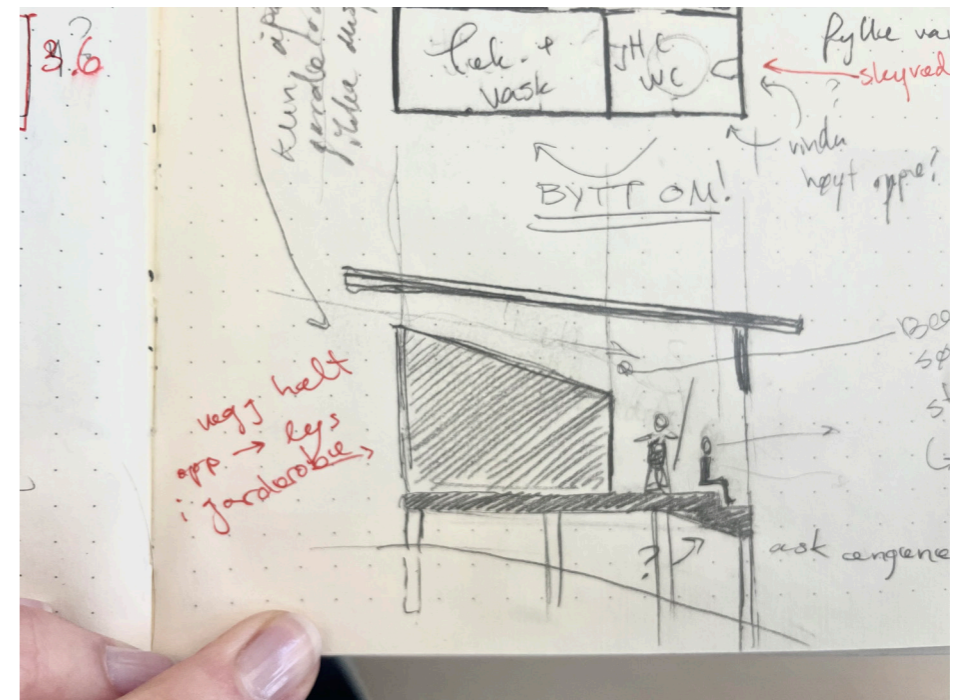
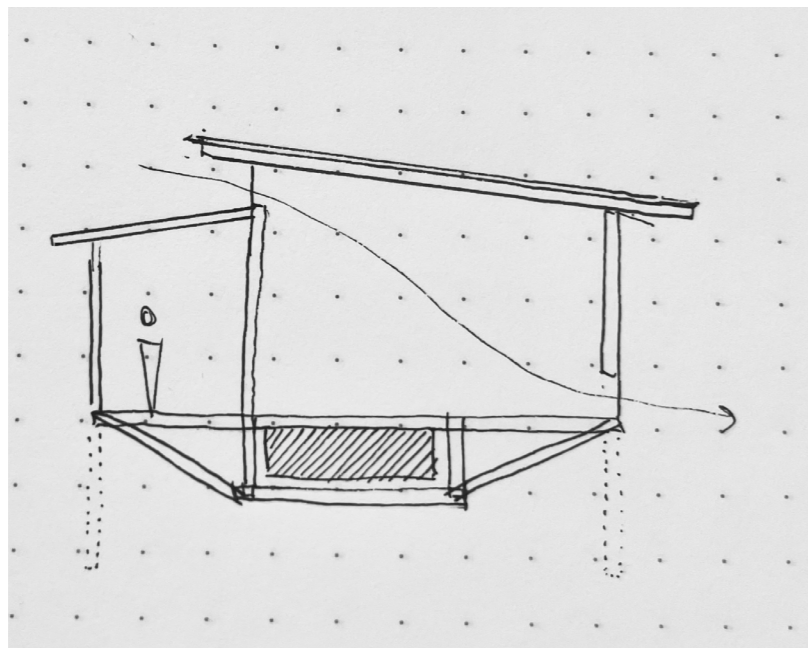
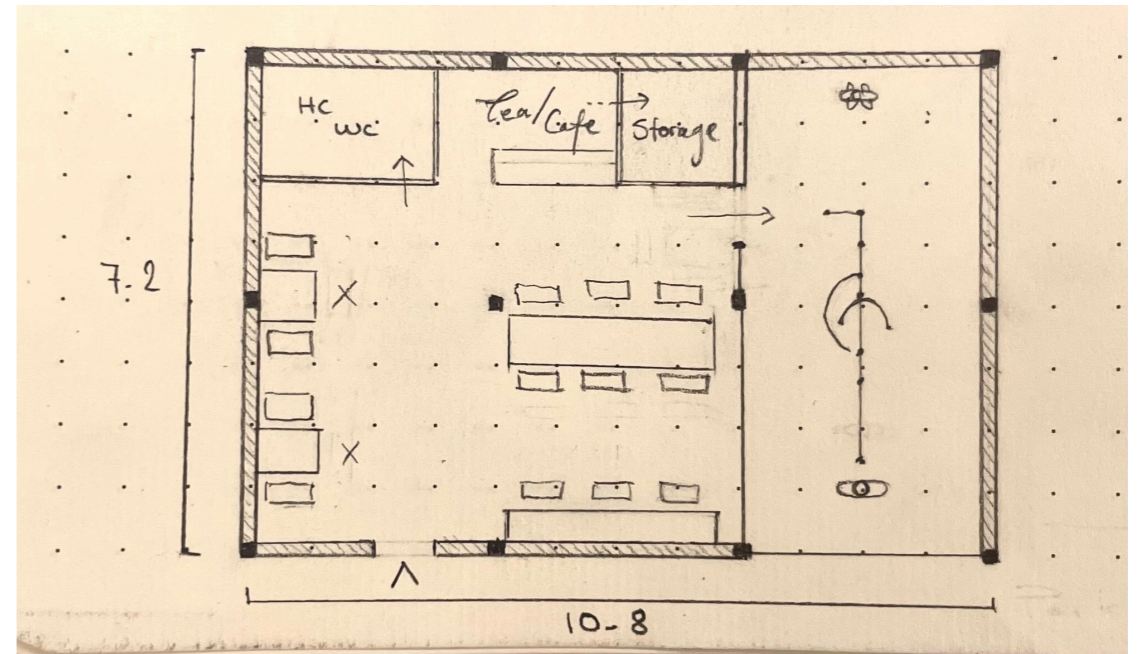
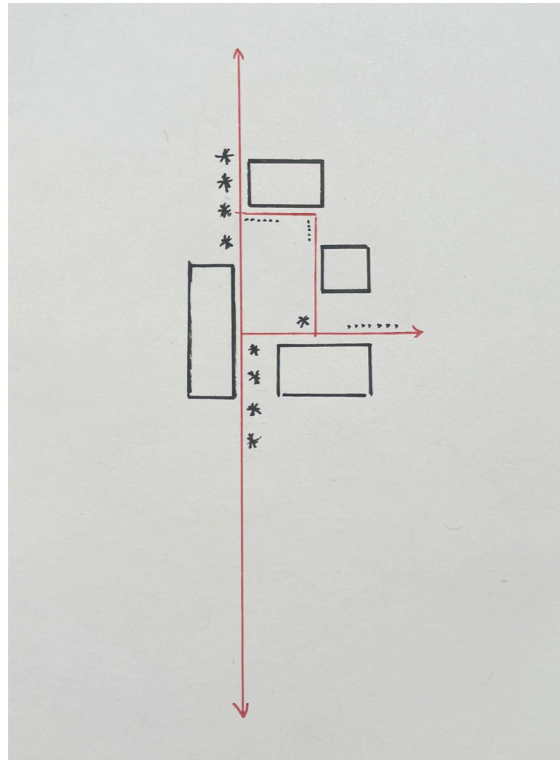


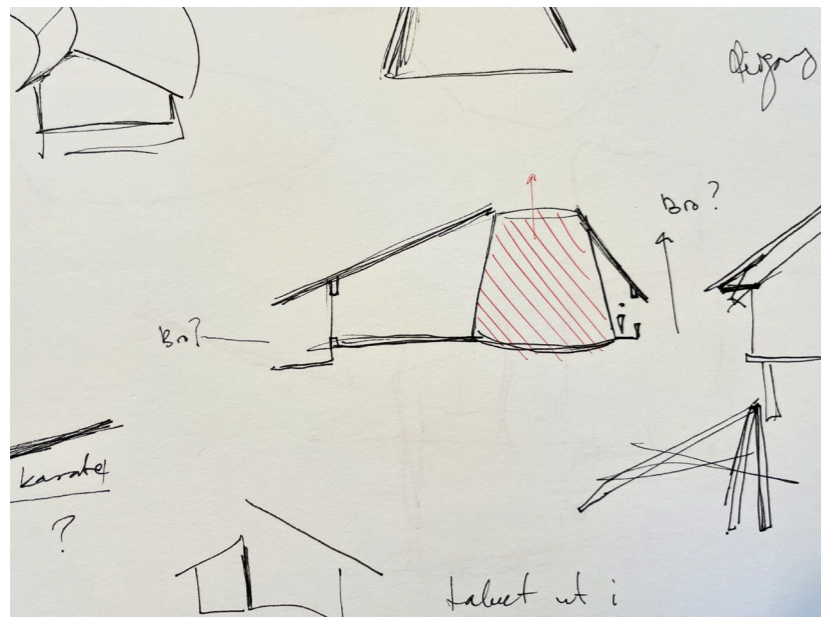
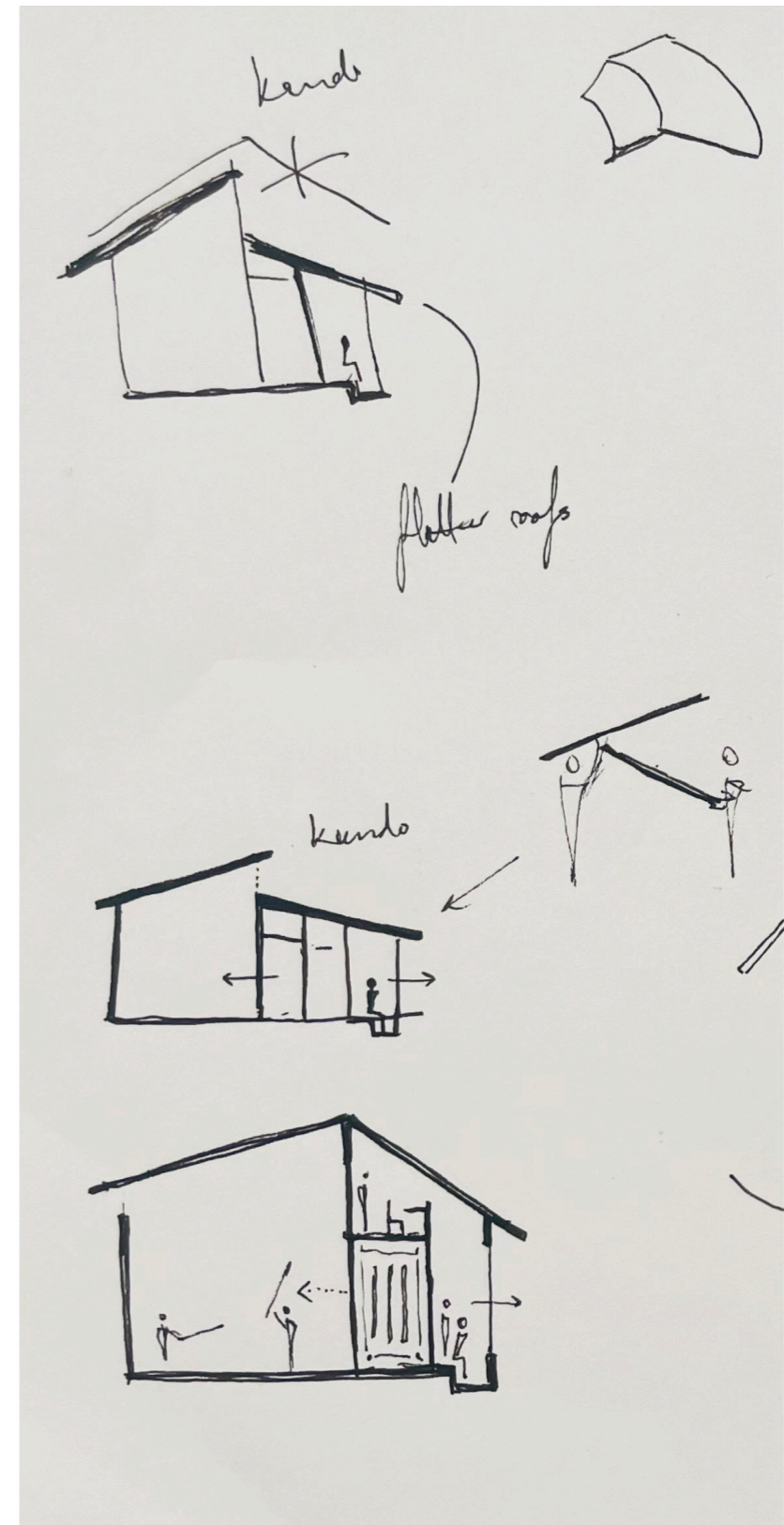
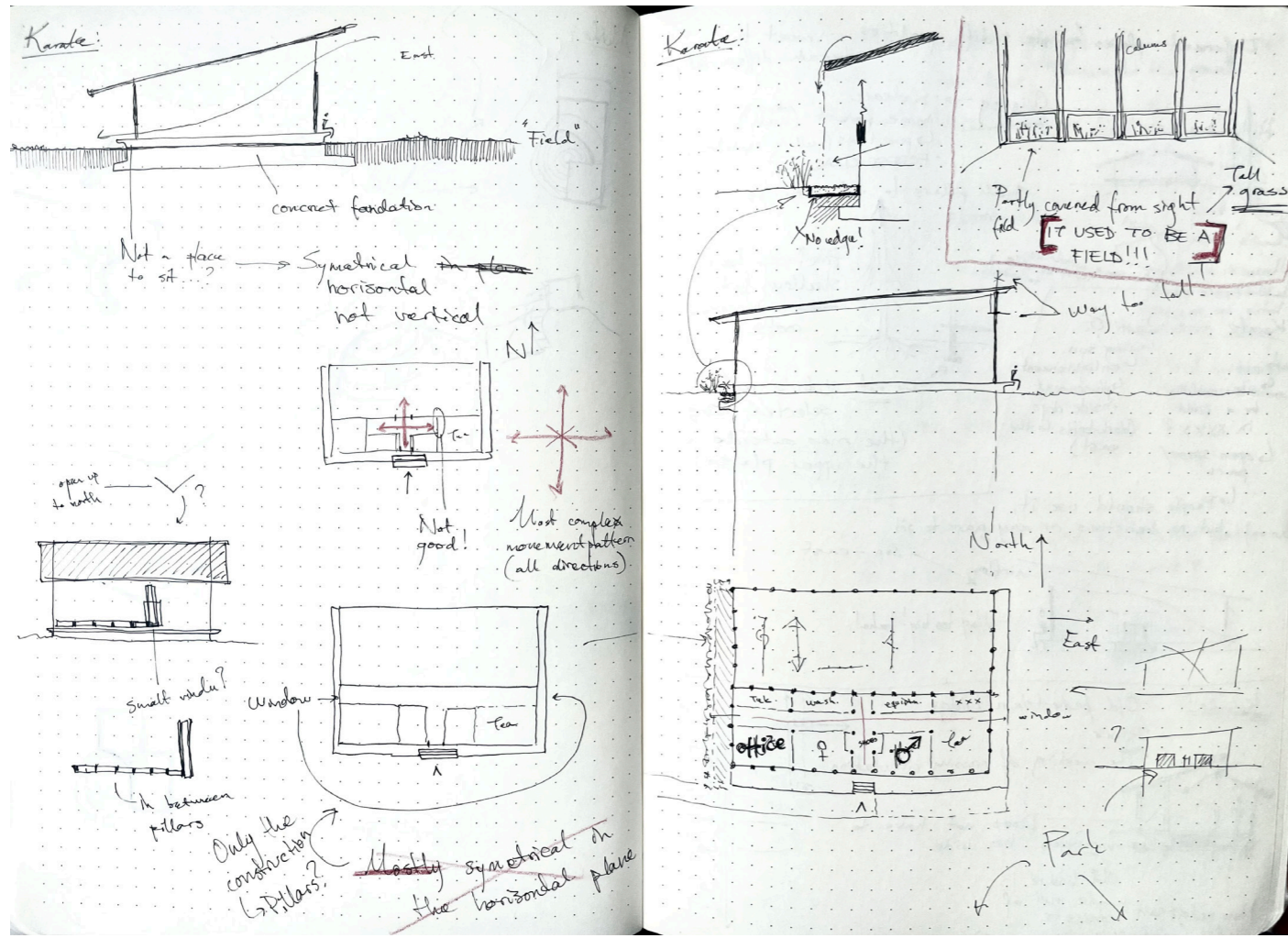
KARATE (KATA)

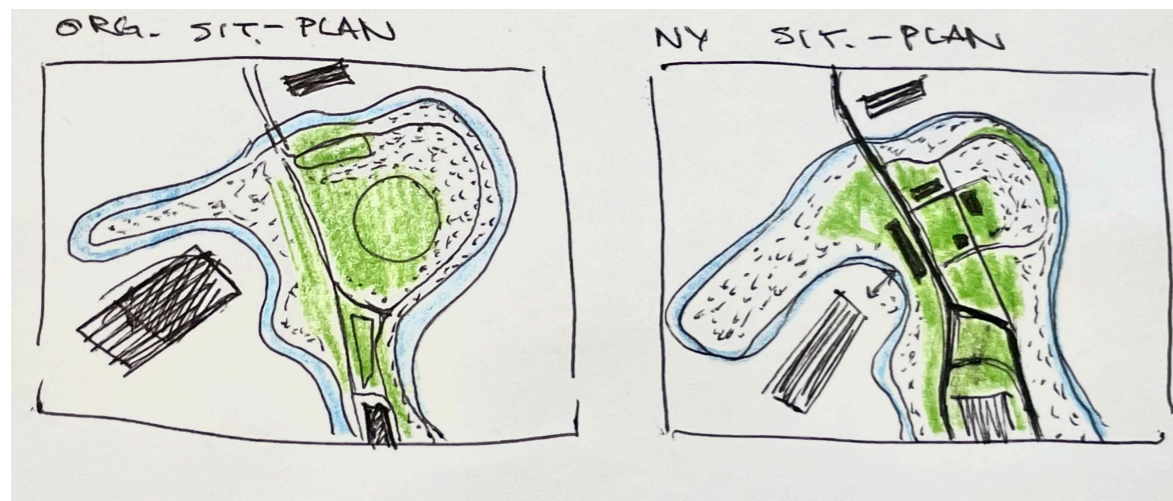


QIGONG









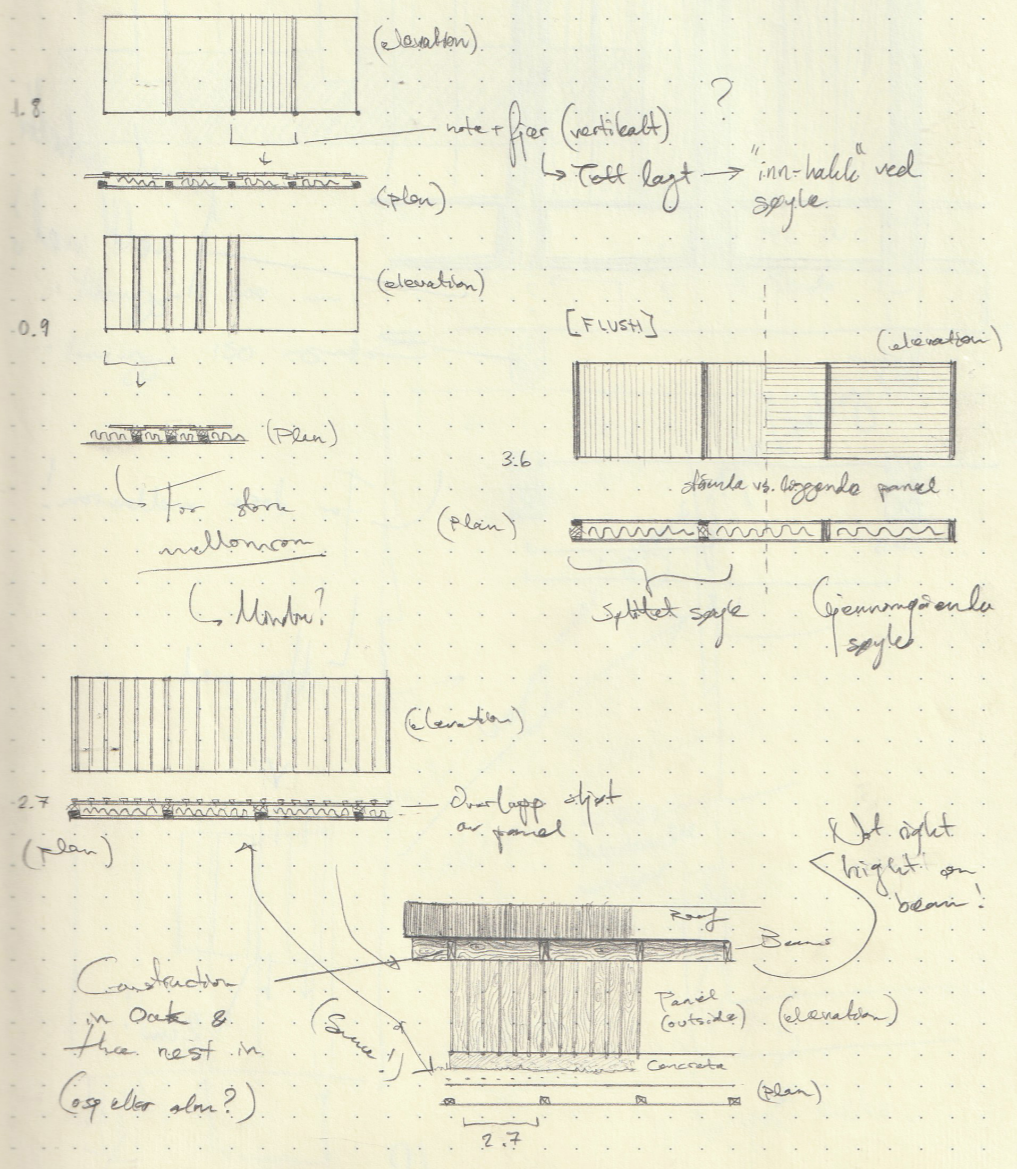
for under

like + singel

NO! no "extra" stuff!

No unnecessary additions/movements!

Handig fasade test:



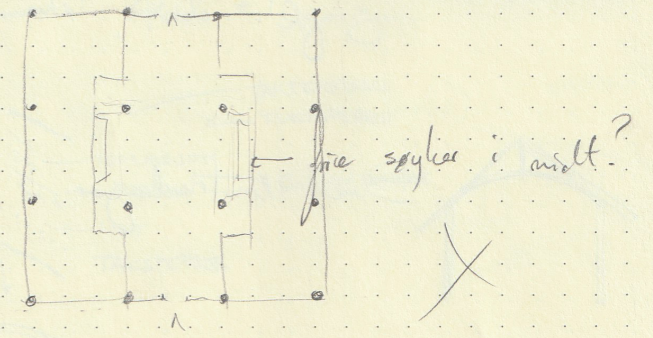
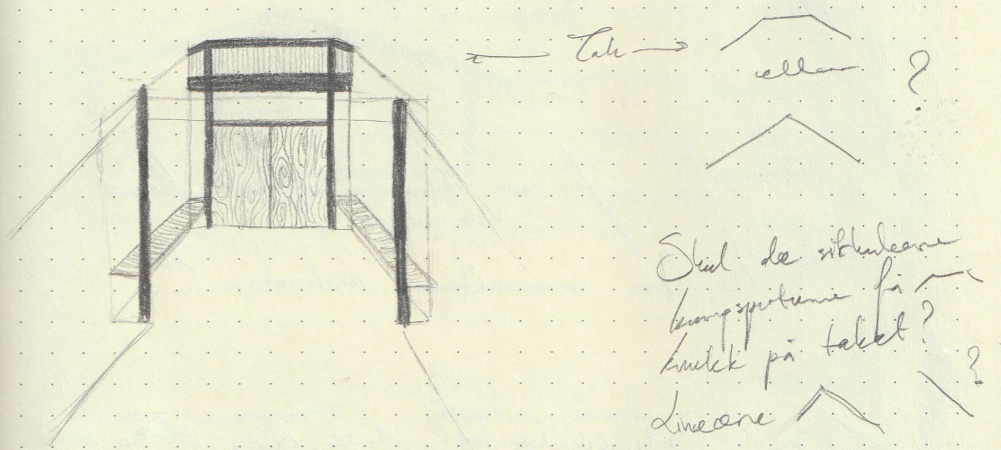
legg inn på fasade → skive → murgang

dimension

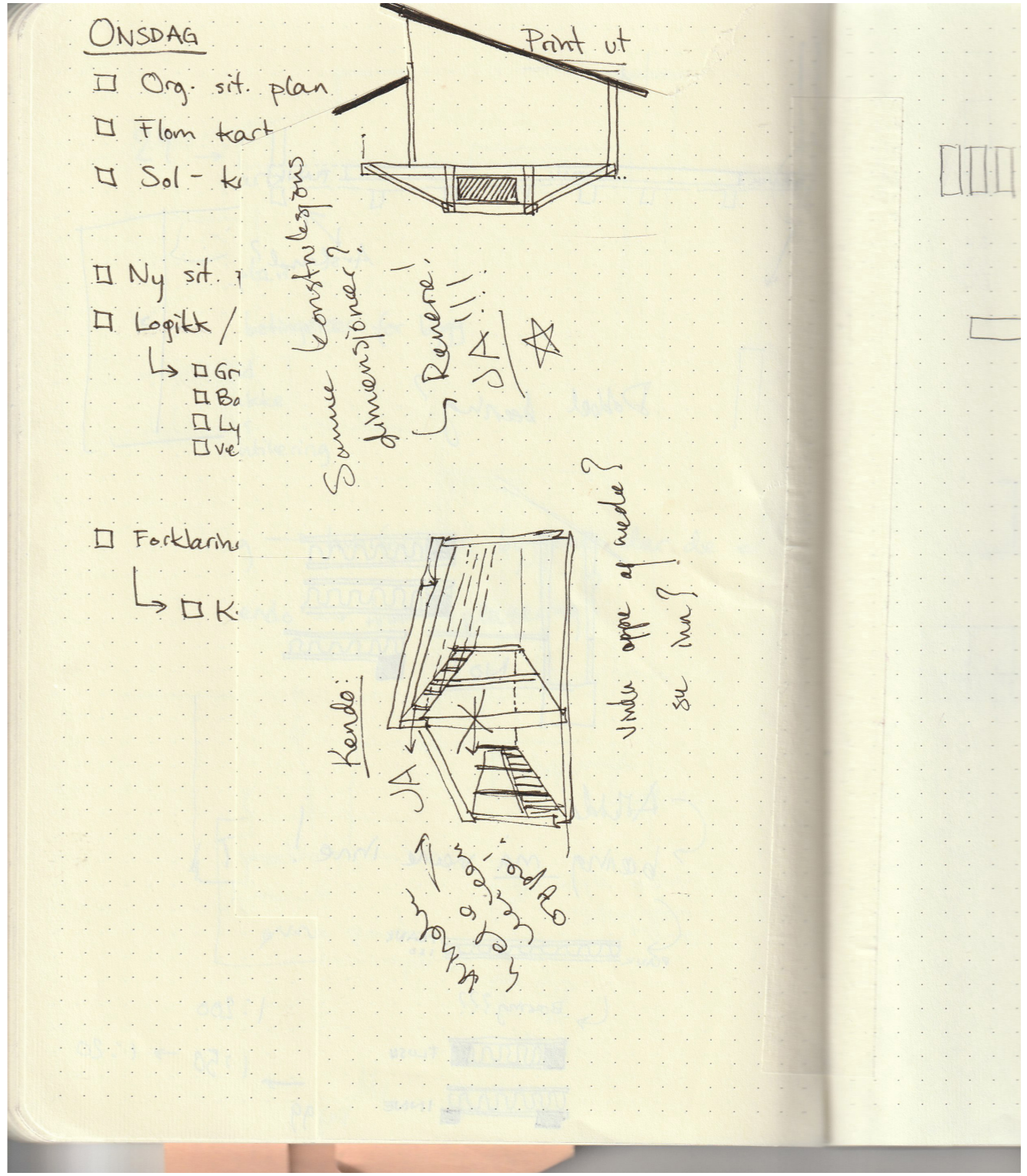
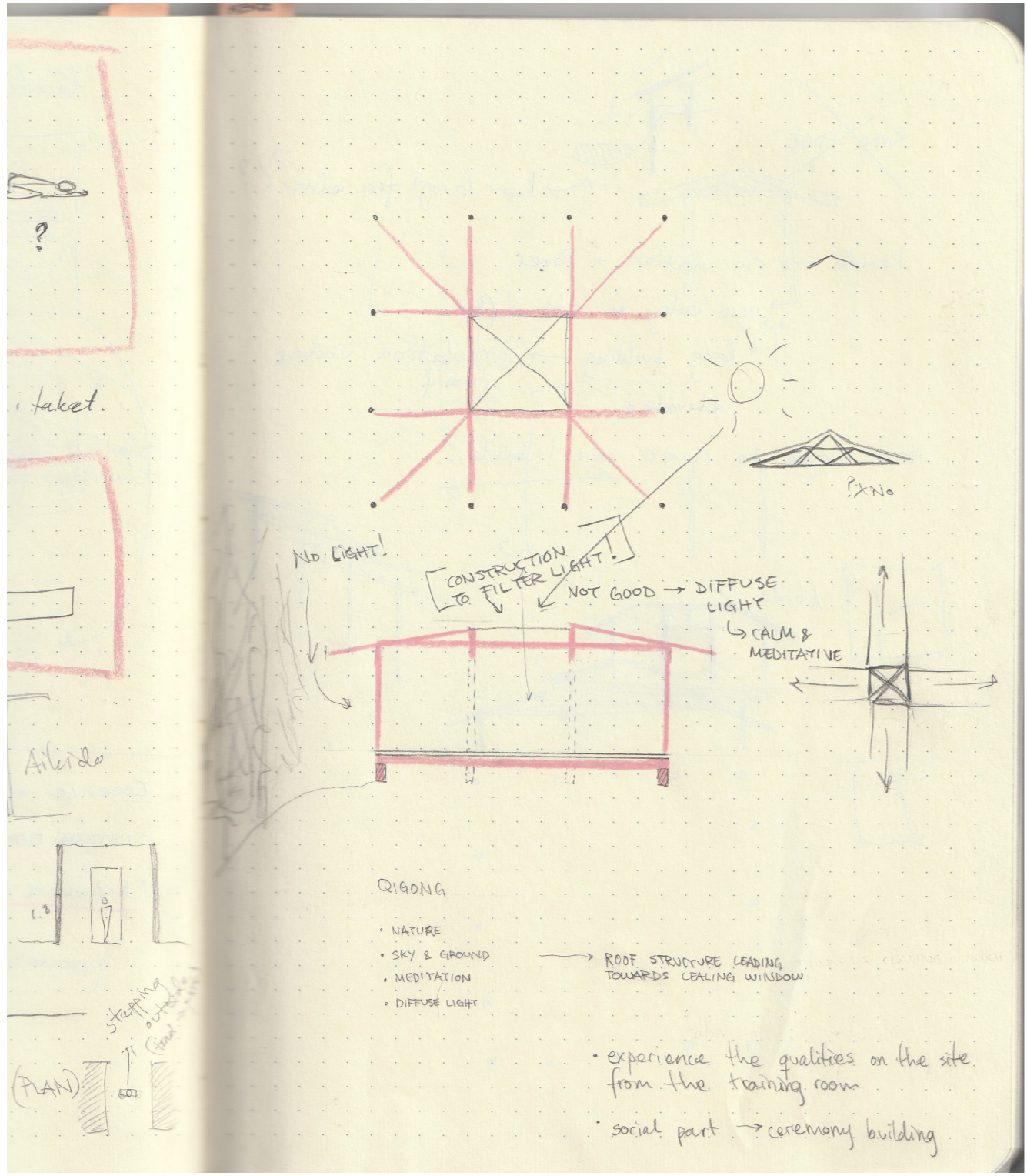
1.8
82)

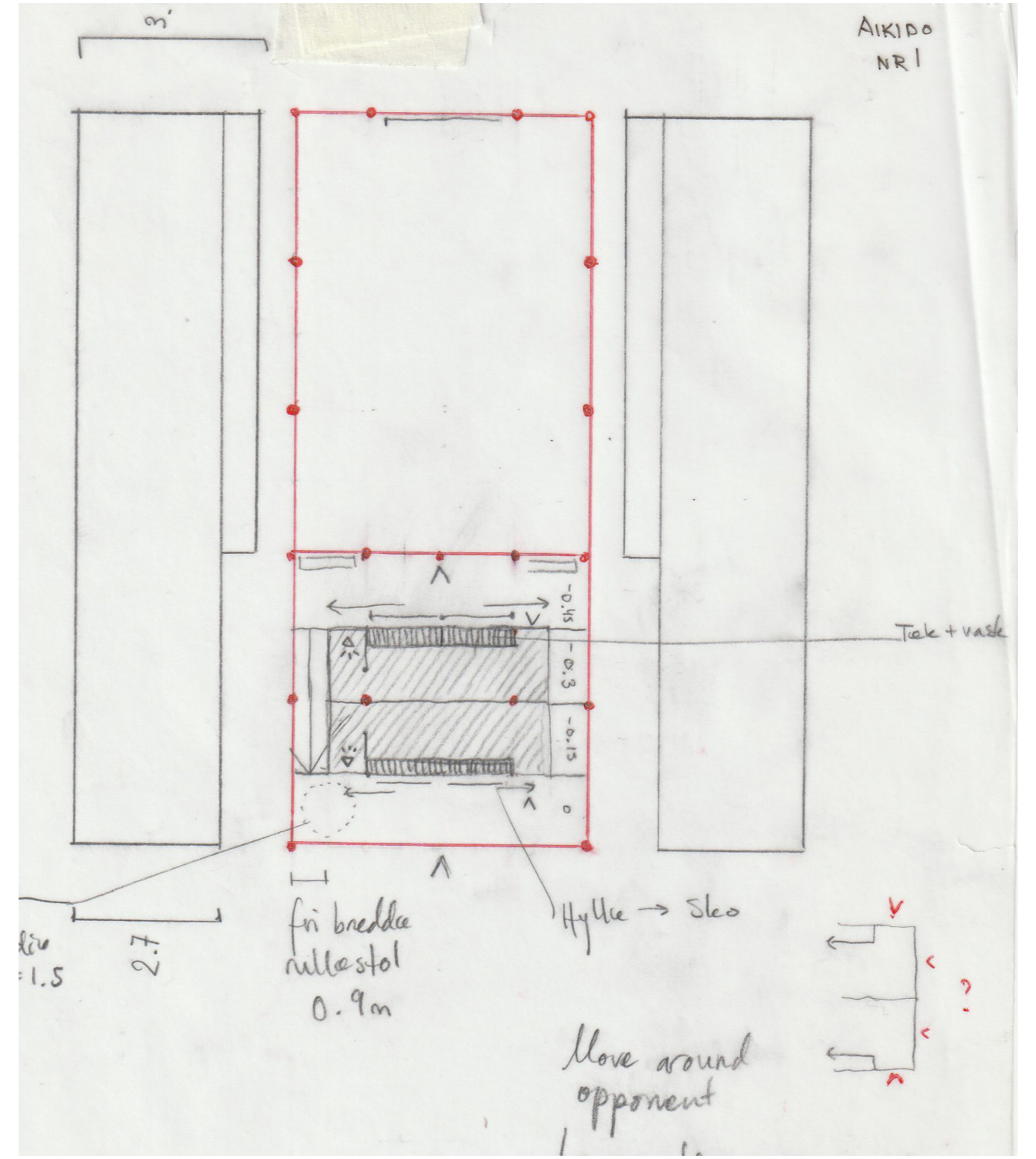
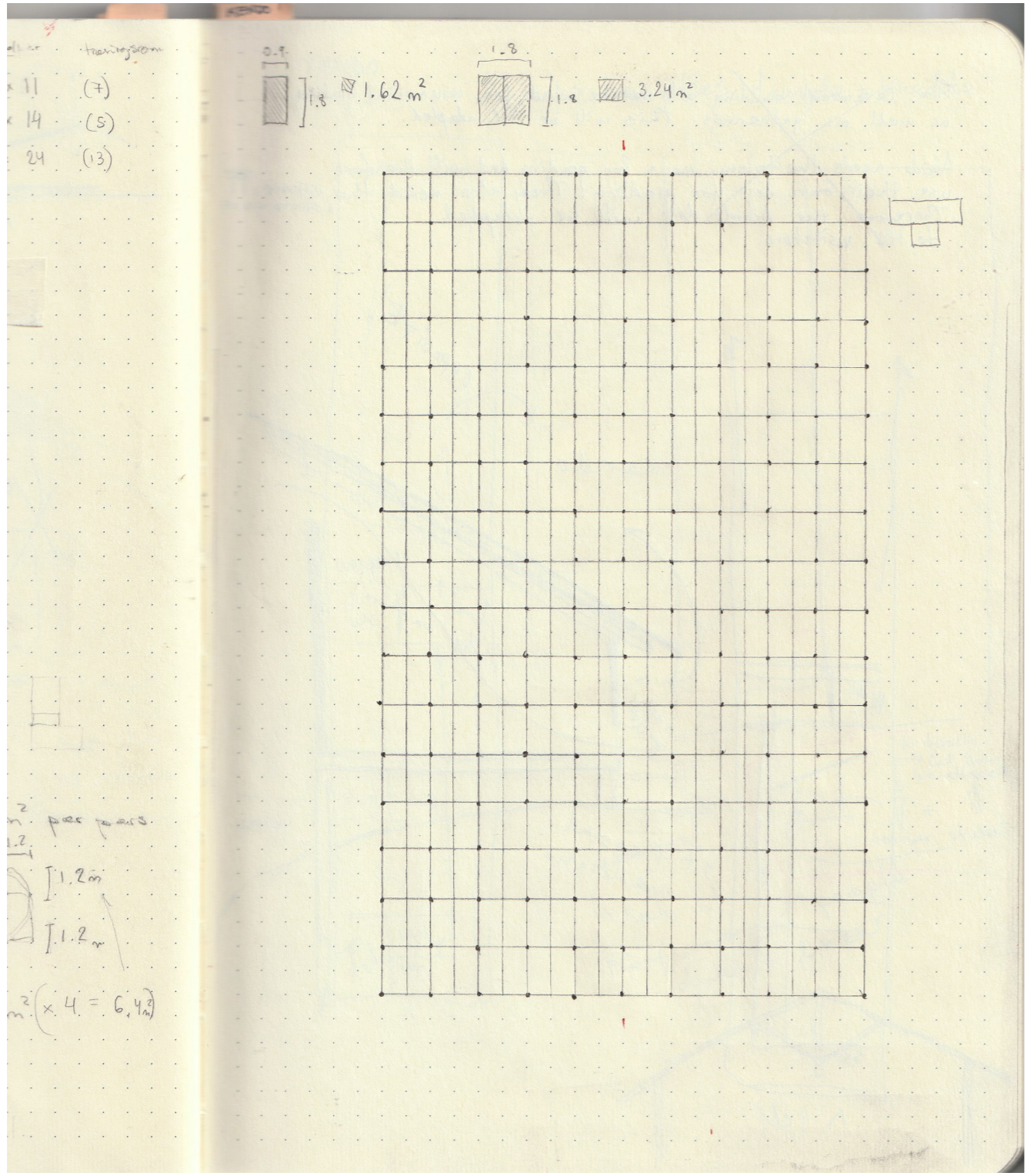
l. balme

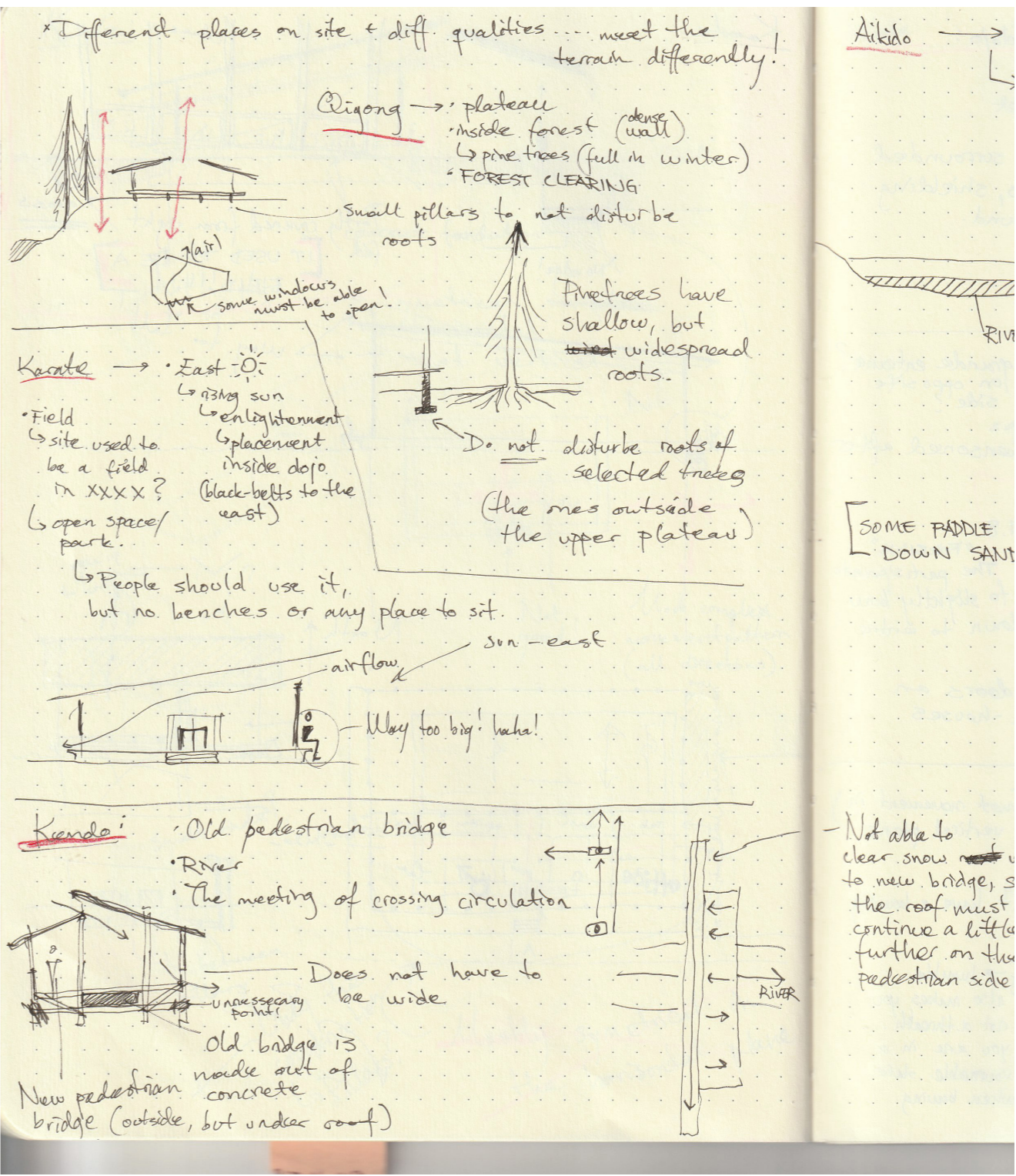
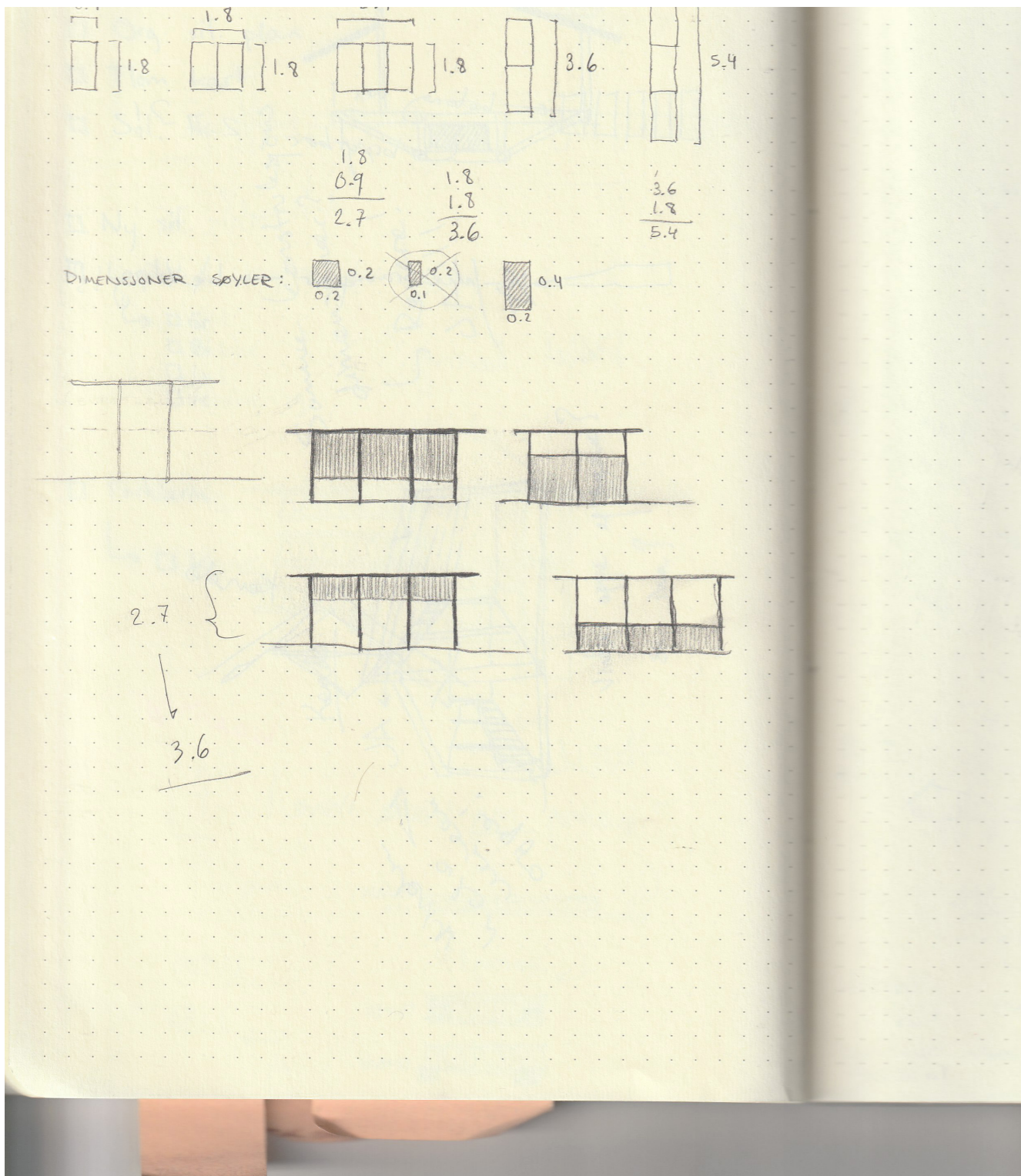
riktig
of balme
(os)



Søyle dimensjoner 20 x 20 cm (mer dimensjonert!)



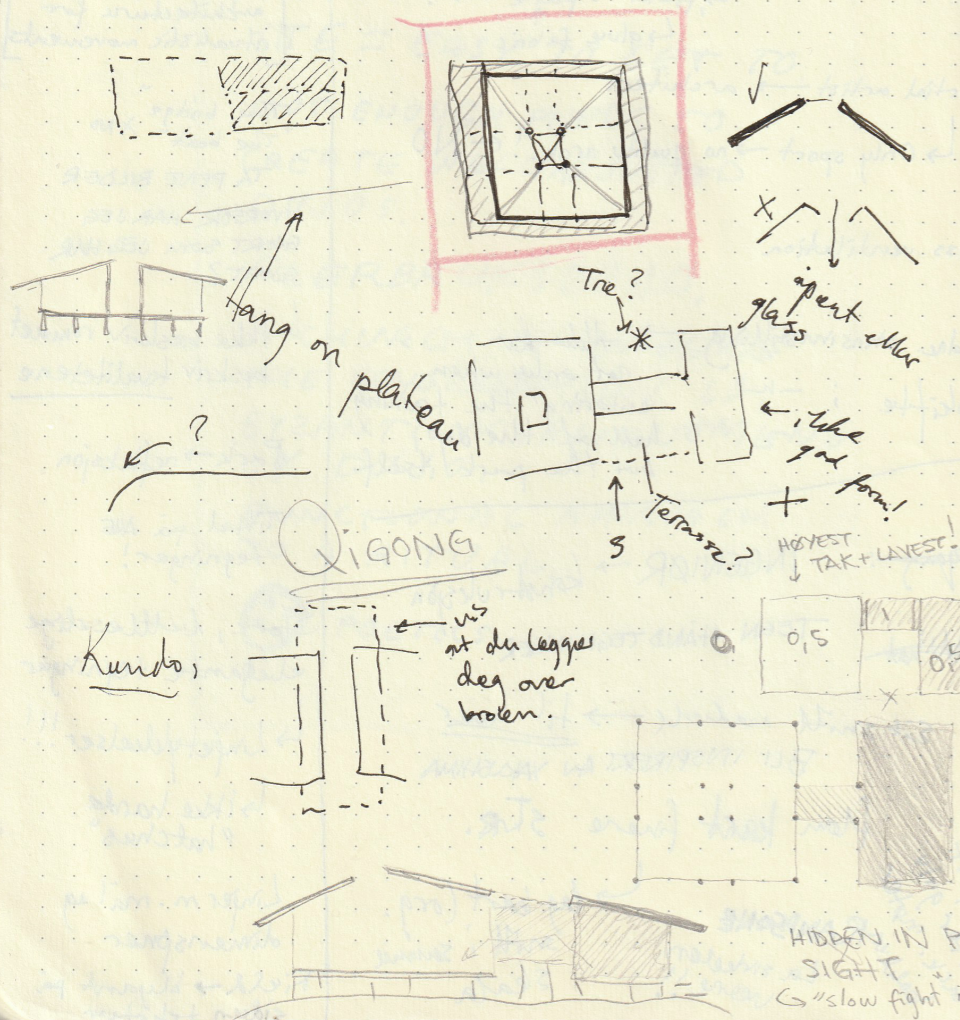




Qigong → "HIDDEN M.A." → slow / non-combat
 ↳ speed up → used in fight
 ↳ shielded / hidden... → solid vs open

"Dette er den perfekte diplom → ikke bli usikker"

- Concrete base → meet the ground
- Roofs
- Main construction → outside? / inside?



FREDAG
~~TORS DAG~~

- TAK
- TAKMI
- FIKS SIT. PLAN
- START NY SIT. PLAN
- RING KAROLINE
- SE OVER YAKUSHI
- 2D MENNESKER
- SOL-STUDIE
- ↳
- FIKS FARGER I PLAN
- X-REF → TRÅP

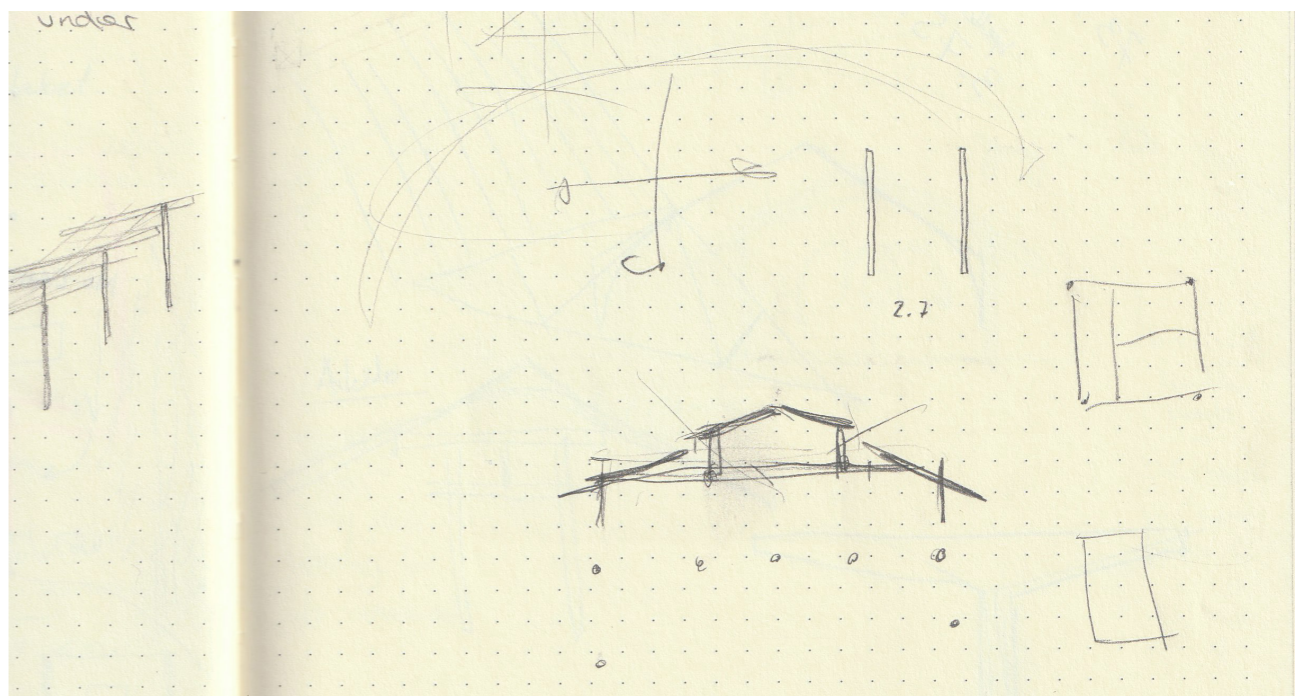
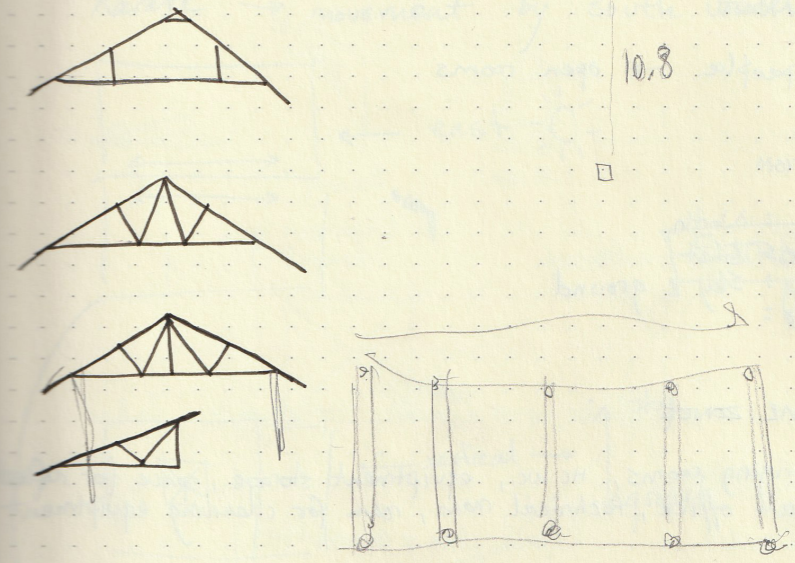
SØNDAG

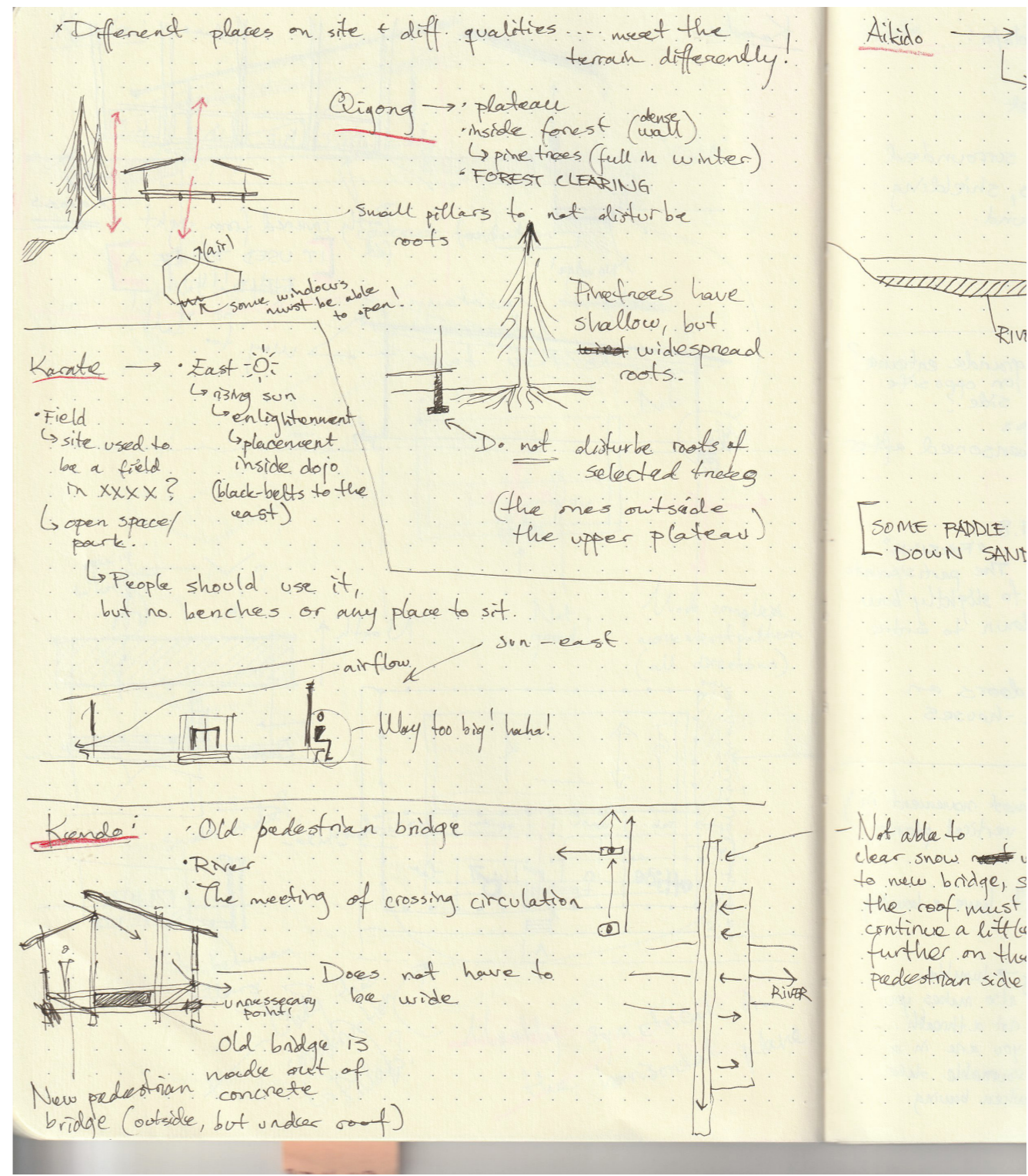
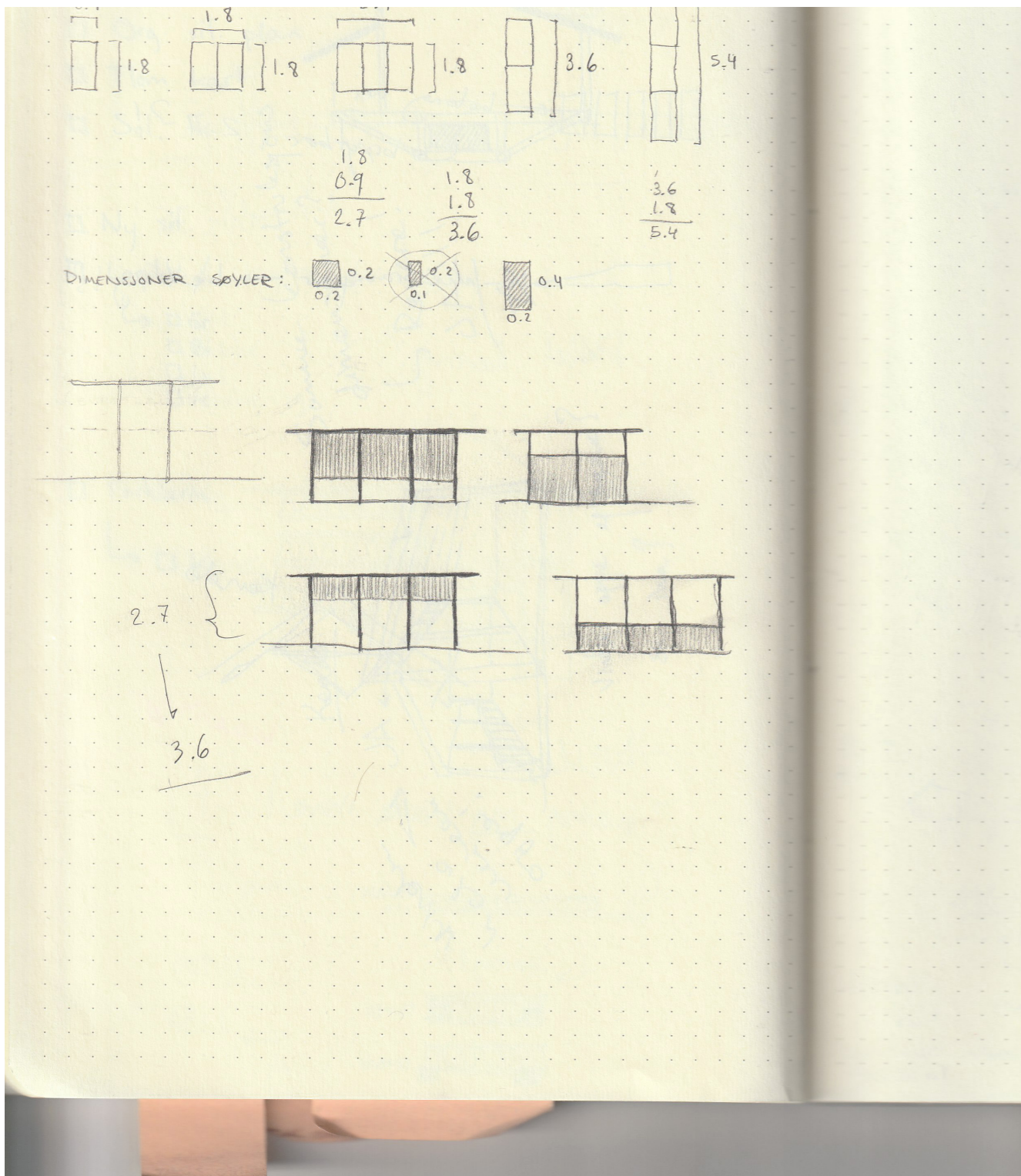
- SAMLE
- SKRIV NED TANKER

Soloppgang

11/11/14

TAKSTOL

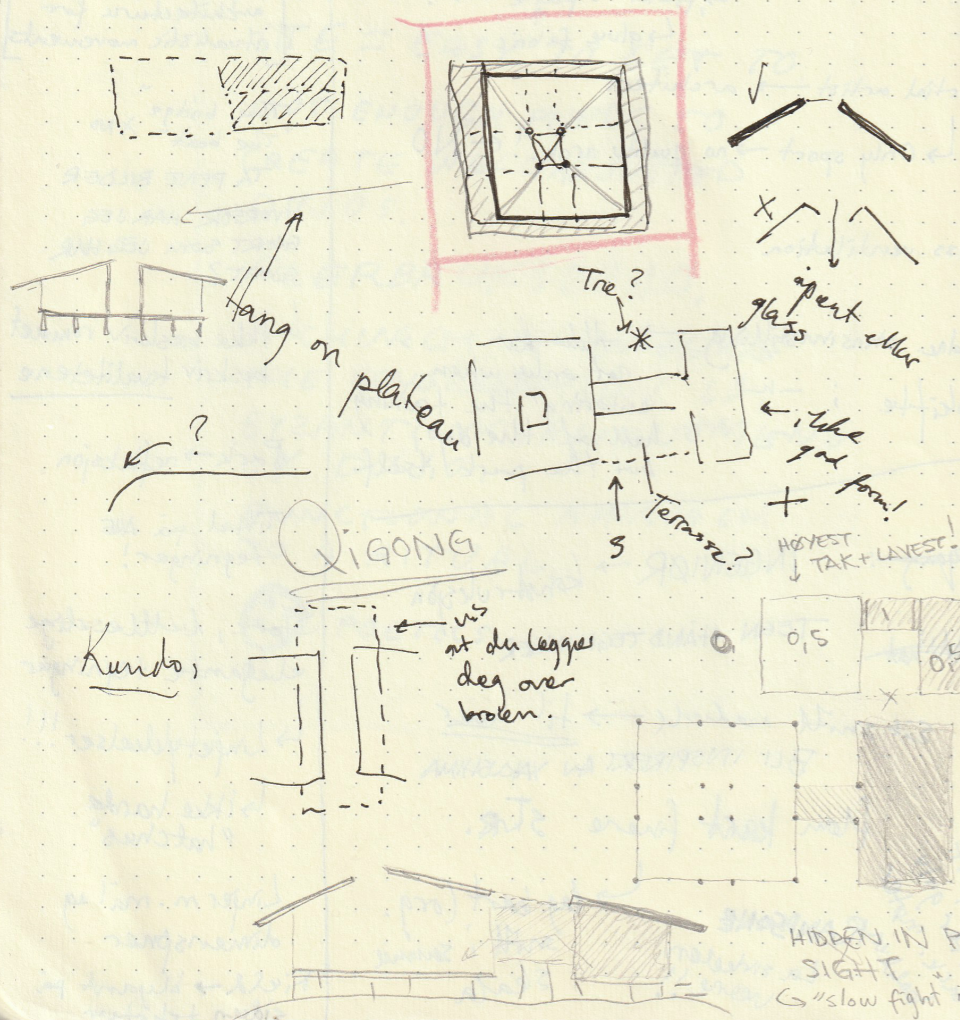




Qigong → "HIDDEN M.A." → slow / non-combat
 ↳ speed up → used in fight
 ↳ shielded / hidden... → solid vs open

"Dette er den perfekte diplom → ikke bli usikker"

- Concrete base → meet the ground
- Roofs
- Main construction → outside? / inside?



HIDDEN IN PLAIN SIGHT
 ↳ "slow fight in public"

FREDAG
~~TORS DAG~~

- TATAMI
- FIKS SIT. PLAN
- START NY SIT. PLAN
- RING KAROLINE
- SE OVER YAKUSHI
- 2D MENNESKER
- SOL-STUDIE
- ↳
- FIKS FARGER I
- X-REF → TRAP

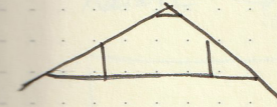
SØNDAG

- SAMLE
- SKRIV NED TA

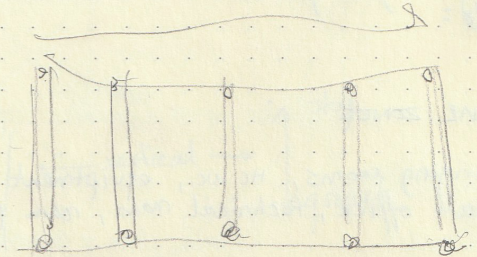
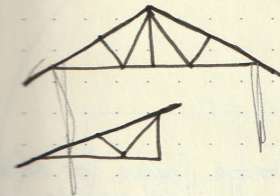
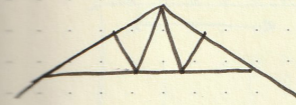
Soloppgang

11/1/14

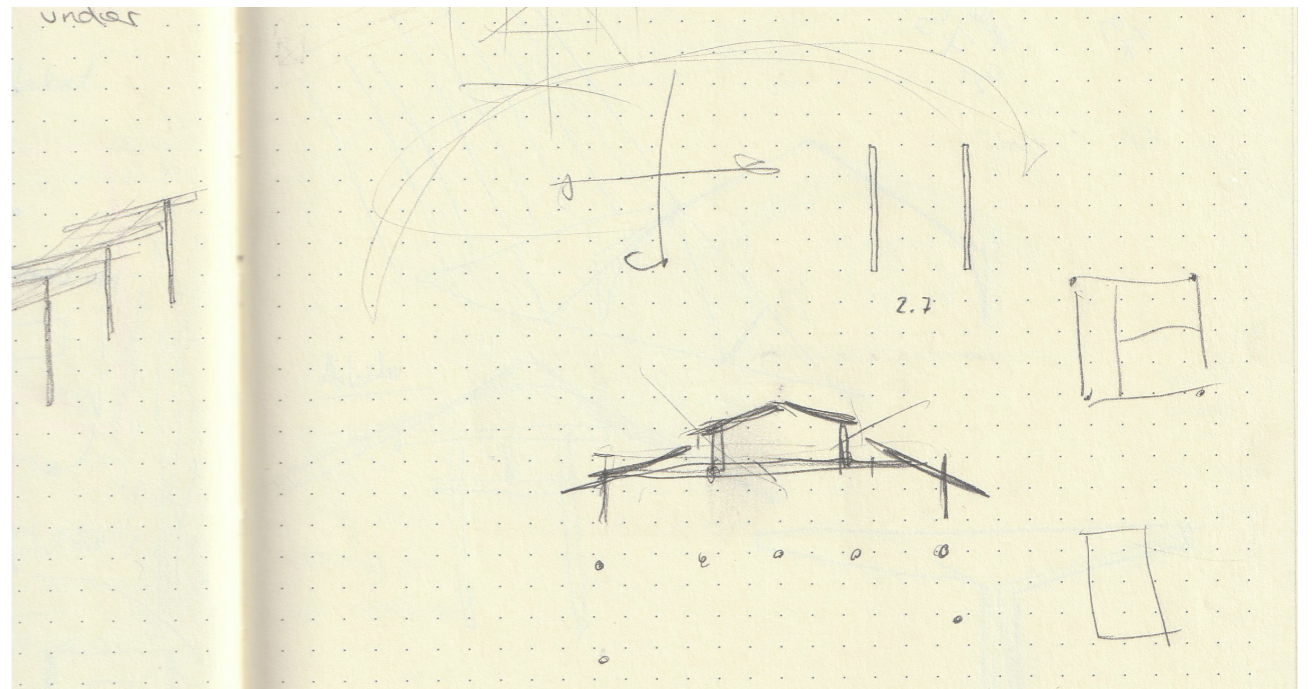
TAKSTOL

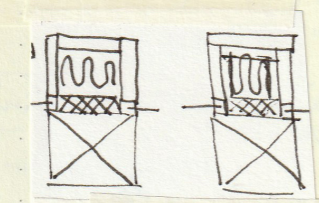
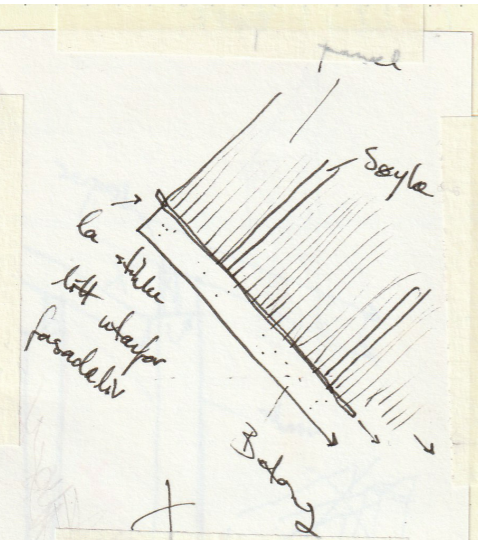


10.8

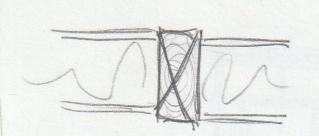


under

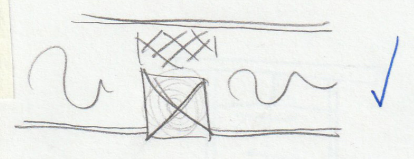
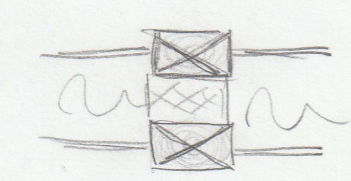




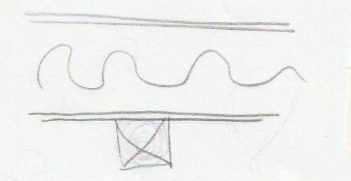
gjennomgående søyler



delt søyler

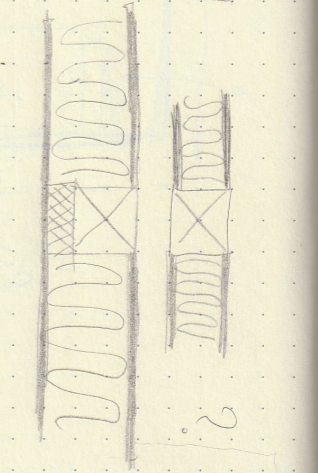
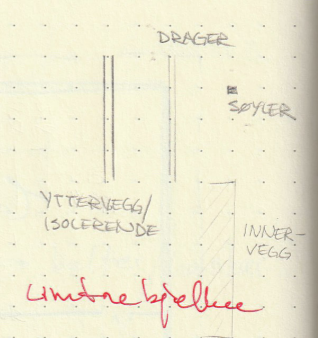
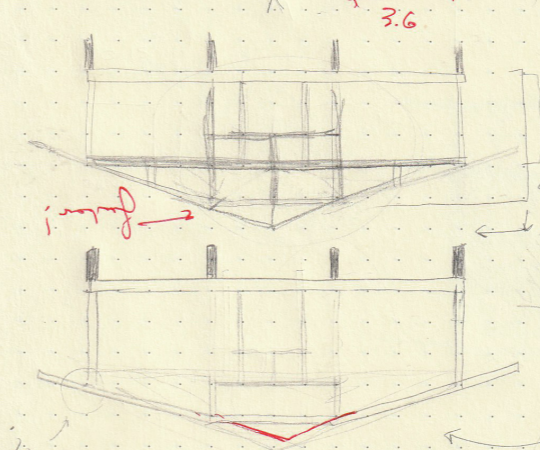
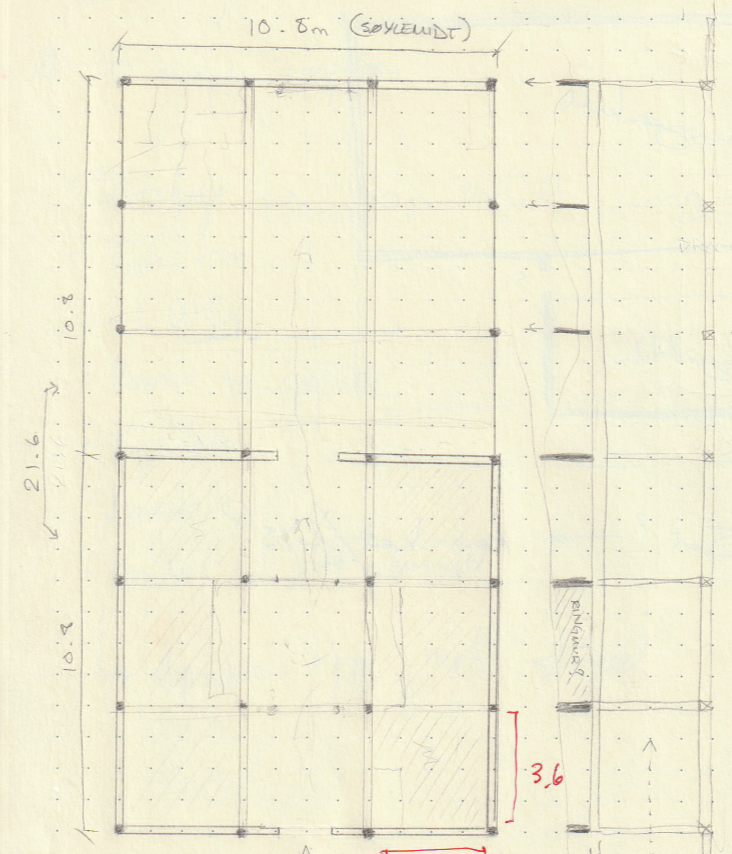


innvendig søyler (flush)



innvendig søyler

Aikido: Søylekonstruksjon.
 • 1,8 x 0,9 → 3,6 x 3,6



FLOM
 ↳ RINGVUR RUNDT AVLØP + VANN

