



STRUKTUR I LANDSKAP 2009

PHOTO: EIRIK ACKERMANN



NTNU Faculty of Architecture and Fine Art

Bjørn Otto Braaten and Gro Rødne

Transformative Learning in Architectural Education





MAKING IS THINKING* *Hands on introduction to Architecture*



LIVE STUDIO

Real life experience on Master level



* Richard Sennett. "The Craftsman". 2008. Acknowledgments. Photos. 1: Gro Rødne. 2 and 3: Pasi Aalto.

The very first project our students are assigned, is to complete a small scale scenario of the entire design process from idea to construction.

The program and sites vary each year, but have in common that they demand an architectural interpretation of the qualities of a place in making spaces for people to meet. It ends up as a big outdoor exhibition open for the public



14 days model work 1:10



14 days of building 1:1

“WOOD-li- DO”

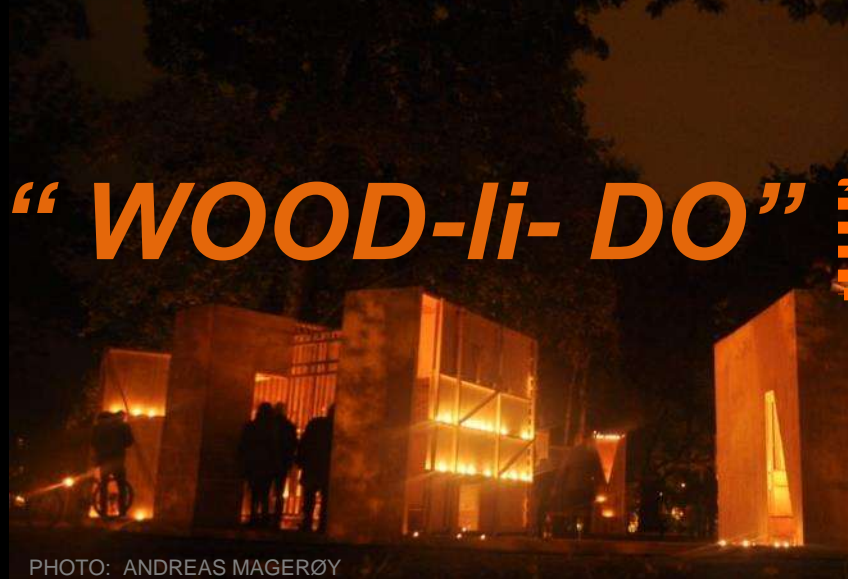


PHOTO: ANDREAS MAGERØY



They have to consider:

Tectonics:

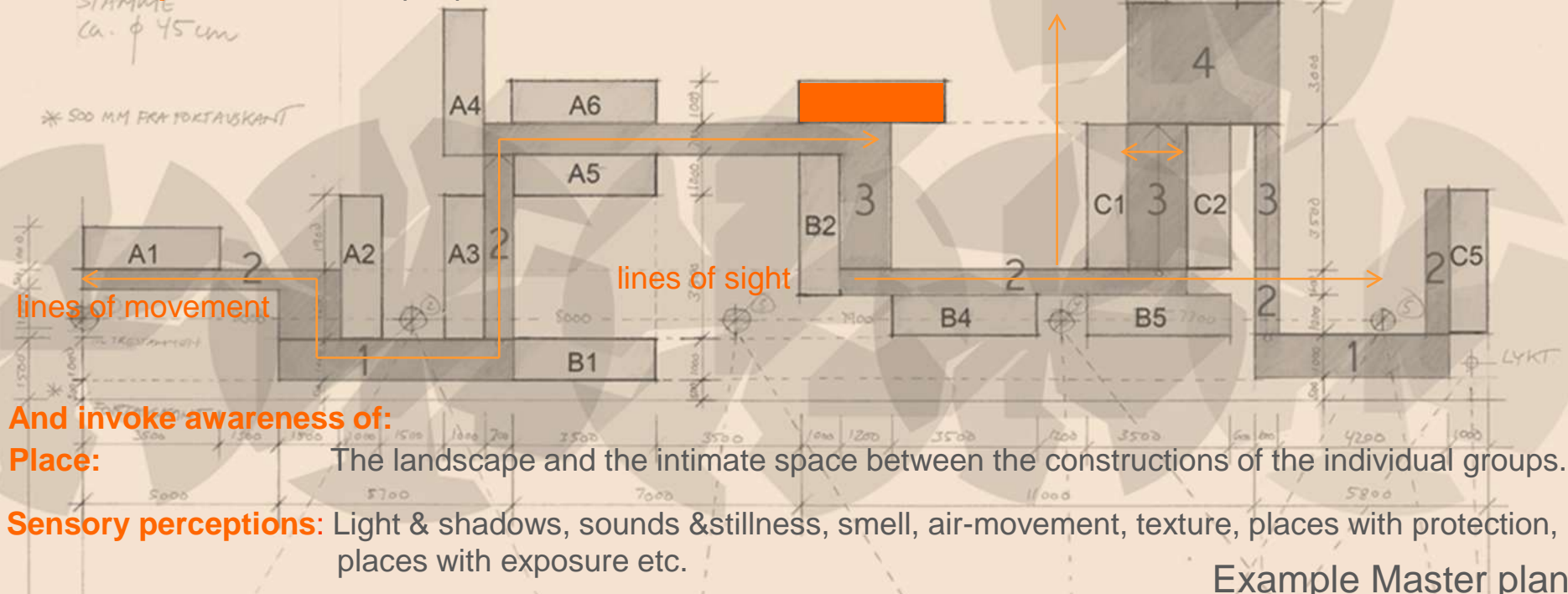
How forces act within a construction, and how this can become fully integrated in the architectural expression and the potential of wood as a building material.

Collaboration:

Essential skills in teamwork, in contrast to the delusion of the architect as architect as a solitary genius.

Public response:

How people take the construction into use.



And invoke awareness of:

Place:

The landscape and the intimate space between the constructions of the individual groups.

Sensory perceptions: Light & shadows, sounds & stillness, smell, air-movement, texture, places with protection, places with exposure etc.

Example Master plan



Photo: Nina Haarsaker

This hands on start gives our students a basic understanding of **materiality** and **construction**

They will experience **space** and **scale** and how the structures are taken into **use**

They will have to **cooperate** and be aware of the surroundings and how they are changing a **place**
In addition they will gain a basic, although modest skills in building

And they will discover the possibilities of **WOOD**



PHOTO: 1 and 4: ERIK HOFBRO 2 and 3 GRO RØDNE



The **constructive potential**, **availability**, and **easily manageable**

dimensions make **wood** a particularly suitable material in this context. It has got a wide range of **possibilities of expressions** it's **easily workable, easy to change** - and finally to **dismount and reuse**



STRUKTUR I LANDSKAP 2011 PHOTO: ANDREAS MAGERØY

This is a demanding way of teaching but has proved to give positive results and a valuable knowledge of wood as a construction material.

It is a result of an intentional priority area on full-scale building, especially on wood as a building material, over the past 12 years.

The national wood-center (TreSenteret) has been a central contributor in this work.

Both the Faculty and the wood industry undoubtedly benefit on the exposure these projects implies.

Remember: Todays Students are tomorrows leaders, byers, builders, inventors....

In order to increase the competence and the use of wood we must start with the students.

Photo: Gro Rødne



“Making is thinking” addresses a much needed re-examination and re-description of how to understand and develop skills connecting the body and mind and is one of five work packages in the new Centre TRANSark

Student work, both in the first year and in the master course “Making is thinking” are targets for this work package.

The assignments used as objectives, span from full-scale building to other “hands-on” experiences, in the overlap between artistic and architectural methods. “Doing” as a source of new knowledge is the common denominator:

making is thinking

Making is thinking **seeks to investigate the transformative aspects the students experience through this direct learning by making.**

We will also examine **if** -, and in which case, **how** this way of learning changes how students understand and practice Architecture. The presumed insight will be used in the redesign and development of the current courses.

Read more: <http://www.ntnu.edu/transark>



The way we teach
In this assignment
is something in between
Master and Apprentice
and
letting the students
find their own way



«For the things we have to learn before we can do them, we learn by doing them». Aristotle

*I hear and I forget
I see and I remember
I do and I understand*

Kung Fu Tse



Photos: Gro Rødne

Architecture belongs to the “**Making disciplines**”
But the traditional design studio cannot mimic the embodied experience that is achieved through a “live” situation of making. The students will gain a knowledge that not only covers professional and academic skills, but also contextualizes tacit knowledge.



“We can easily conclude that this assignment is indeed an ancient one”

Rules, regulations and software are constantly changing. But certain factors do not change rapidly: How we **experience space** is related to our beings as “biological and cultural creatures” (Juhani Pallasmaa) Our students get this **embodied experience** of their own architectural work from the very beginning of the study.



Photos: Gro Rødne

Literally it is also building their self-confidence to later implement projects on their own



STRUKTUR I LANDSKAP 2013. PHOTO: ERIK HOFSEBRO



Our students carry out high quality wood projects around the world





THE REAL WORLD FACTOR



The Wave /Bølgen Holzbau 2014, Students at AB fac. NTNU, Studio Beta, AB fac. NTNU, Trondheim kommune

All photos: Students at AB fac. NTNU



TYIN tegnestue

All photos: Pasi Aalto



Safe Haven Library, Thailand, 2009



Cassia Co-op Training Centre, Sumatra, 2011



Boathouse, Aure, 2011

RAKE Show room, Trestykker m/August Schmidt, 2011

Photos: Marius Waagaard



The Prettiest House in the World, Einar Bye & Ola Sendstad, Master 2011



Photos: The Architects



RALLAR architects, Rjukan Town Cabin 2013



Photos: RALLAR



RALLAR architects, Boathouse in Haddal, Sunnmøre 2012



Photos: RALLAR



FRIrom – a place for emotions, St. Olav,
Sunniva Huus Nordbø & Maren Ødegård, Master 2011/2013



All photos: Pasi Aalto



MASTERCOURSES

BUILDING WITH WOOD IN RINDAL

RINDAL 1 Sauna

Mastercourse: Topology/Typology/Techtonics
 Ass. Prof. Finn Hakonsen, dep. BHT
 AB fac, NTNU / Rindal kommune, 2011





RINDAL 2 Birdwatching Tower

Mastercourse: Timber Structures
Prof. Jan Siem, dep. BHT
AB fac, NTNU / Rindal kommune, 2012

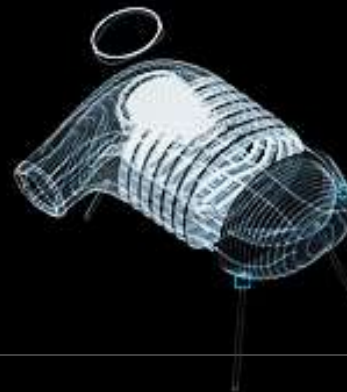
All photos: Pasi Aalto



RINDAL 3

Starwatching Tower

Mastercourse: Timber Structures
Prof. Jan Siem, dep. BHT
AB fac, NTNU / Rindal kommune, 2014/2015



RINDAL 3 Starwatching Tower

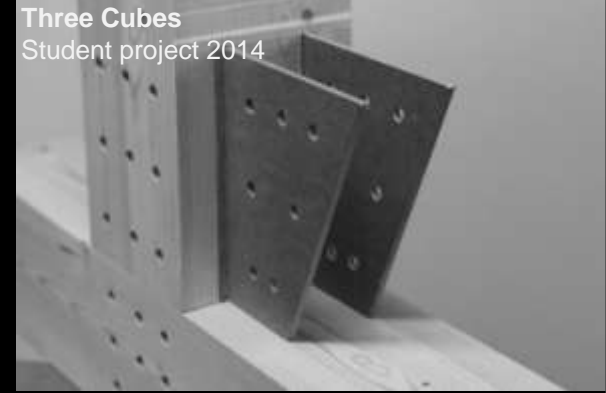
Mastercourse: Timber Structures
Prof. Jan Siem, dep. BHT
AB fac, NTNU / Rindal kommune, 2014/2015



UFO
Student project 2014

Three Cubes

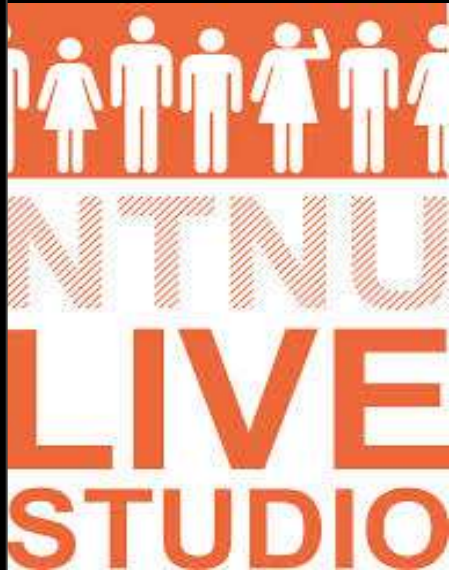
Student project 2014



Balance

Student project 2014





A dual model with a Faculty HUB cooperating closely with the Student HUB, “Studio Beta”, has been developed. The dual approach is to ensure the balance between student independence, professional ownership and the necessary monitoring by the institution.

NTNU Live Studio HUB c/o Hans Skotte, Steffen Wellinger, Elena Archipovaite

Studio BETA c/o Kristin Solhaug, John Haddal Mork Kristoffer Olsen Hauge

Live Studio: <http://ntnulivestudio.org/>



Photo: Trestykker