'A Place to Sit'

Tectonics as Method in Architectural Education

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'A PLACE TO SIT'

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PREFACE

This small book gathers and reflects upon three years of teaching tectonic method in architecture using the furniture scale as a learning basis in the course 'Tectonic Studies & Experimentation' taught at the 1st semester of the Master in Architecture Programme at The Department of Architecture, Design & Media Technology at Aalborg University in Denmark. Simultaneously, it represents three years of mutual teacher/student work having taken our cooperation all the way from the studio, the library, and the workshop to public exhibition three years in a row, in three radically different physical contexts.

In my own studies, my professors Claus Bonderup, Poul Henning Kirkegaard & Anna Marie Fisker opened my eyes to the critical tectonic relation between aesthetic drive and technical skills in architecture. In their teaching, they offered us students the opportunity to experiment with - and try to grasp this potential by building 1:1, and by exposing us to the task of publicly presenting our work. Their passion has evidently shaped me as an architect engineer and motivated me to pursue teaching myself. Also, I am deeply grateful to the Spar Nord Foundation for making this book publication possible, to Tech College Aalborg for opening their workshop to us offering us their construction expertise, and to Digisource Danmark A/S & Keflico A/S for helping us with printing and material supplies.

THE FURNITURE SCALE

T*he quality of the general architectural practice is increasingly challenged within the midst of the rapid multidisciplinary economical and technical development in construction practice: Within this multifarious context that of transmitting a sense of interiority: of being together, of contemplation, or even of being in love, which is in my understanding the finest potential of architecture, is easily oppressed (Hvejsel 2011). As dwellings, schools, hospitals, offices etc. are increasingly experienced as raw structural frameworks rather than inviting spaces for residing, there is an urgent demand of architects to regain and expand our engagement with the building industry. Referring to the fundamental architectural task of uniting aesthetics and technique, the notion of the tectonic is crucial in this matter as it forces the question of how we go about this task. Hence, that of addressing the demands for the future education of architect engineers capable of both aesthetically articulating and technically realizing this spatial potential of architecture as a sense of interiority in practice calls for a critical exploitation of the notion of the tectonic in teaching that the work presented in this small book addresses.*

S*ince its emergence in German architectural theory around 1850 and continuing through its reintroduction in Eduard F. Sekler, and especially, Kenneth Frampton's seminal work in the 1990's, tectonic theory has found application as a means of architectural analysis and criticism (Bötticher 1852, Semper 1861, Sekler 1964, Frampton 1995). Recently, the notion has also become associated specifically with the development of digital fabrication*

and certain experimental material technologies and fractal geometries (Leach et.al 2004, Reiser & Umemoto 2006, Hensel 2013). In an attempt to link the tradition of critical analytical tectonic studies on the one hand and contemporary experimental tectonic studies on the other, the work presented in this book suggests a methodological conception of the tectonic: This forces an individual positioning on behalf of the students as to how they go about the task of uniting aesthetics and technique. It is my hypothesis that the furniture scale holds a crucial educational potential in this matter that I explore as a pedagogical strategy in my teaching (Hvejsel & Kirkegaard 2014a, Hvejsel & Kirkegaard 2014b, Hvejsel, Kirkegaard & Laursen 2014):

***W**ell-designed furniture tells a story that, through its proportions, materials, colors and details, can inspire, control, and force a reaction in our experience of the surroundings. Furniture addresses us by means of clear 'gestures' resembling our bodylanguage inviting us to relax, recline, converse, or simply to sit up straight and listen carefully. Likewise, the elaborate detailing 'principle' and structural clarity of furniture design form an experimental tectonic basis for architecture (Hvejsel 2011 p.124-139). Furthermore, it is my observation that such conception of furniture as an epistemological and methodological basis of architecture has evidently characterized the unique quality and identity of Danish and Nordic architecture tradition, and that it simultaneously forms a central element in its future development. For the*

educators Kaare Klint and Kay Fisker, whose influence on the international rise- and impact of Danish Modernism was seminal, the furniture scale formed a theoretical and practical foundation (Zahle et al. 2000). Especially in Klint's teaching, this architectural foundation in the furniture scale was exploited both as a means to grasp the subtle nuances signifying the aesthetic dimension of architecture and in developing the technical insight necessary to tectonically join structural elements, which became evident in the works of architects such as Mogens Lassen, Arne Jacobsen, and Jørn Utzon (Klint 1930, Wohlert 1989).

***I**n the works presented in this book, this dual aesthetic and technical - tectonic learning potential of the furniture scale has been explored by future architect engineers studying at the 1st semester of the Master Programme at The Department of Architecture, Design & Media Technology at Aalborg University through the course 'Tectonic Studies & Experimentation'. In this matter, the course presents and analyses selected engineering and architectural works and theories in relation to historical as well as contemporary conditions and challenges of construction practice in which the furniture scale is used as a critical medium intended to enable a methodological linkage of architectural theory and practice. Consequently, the task that I ask of the students is dual. Firstly, I ask of the students to make a critical tectonic analysis of a chosen architectural detail (their favourite!)*

by means of a paper, demonstrating their individual ability to critically analyse and reflect upon the tectonic quality of a spatial detail. Secondly, I ask of them to do a specific design work in groups designing 'a place to sit' exploiting the particular tectonic potential of plywood 1:1 using only two standard sheets of plywood. In both analysis and design the notions of 'gesture' and 'principle' derived from the intimacy of the furniture scale are applied as a vocabulary and method describing the tectonic relation between aesthetics and technique in architecture. Hence, by zooming in and utilizing the furniture scale as a critical developer it is the intention to foster a detailed view at architecture in general; an understanding of the fact that the smallest of details are decisive to our sensuous experiences of our surroundings, even in large-scale urban structures.

GESTURE
What the Space Does to Us

–

PRINCIPLE
How it Does it


STAEDTLER pigment liner 0.3

ANALYSIS & DESIGN

T*heory and practice are inevitably linked if we are to understand the relation between how we experience the surroundings that simultaneously form the historical and epistemological ground of the field of architecture and how we create them. In details like Gunnar Asplund's sweeping wall at the Woodland Cemetery in Stockholm that 'gestures' us with an embracing seat, the finest potential of architecture to transmit a sense of interiority seems clearly exemplified. But, in order to learn from Asplund, we must be able to grasp not only the quality of this aesthetic 'gesture' experienced in the physical interior but also the technical 'principle' that reveal it; it is in other words necessary also to try to understand Asplund's interior vision and method. Consequently, the first part of the course consists in analyzing a chosen existing architectural detail at the furniture scale intended to provide the students with a critical understanding of the methodological relation between the spatial 'gesture' and the structural 'principle' of such details. The students have, for example, analysed the pivoting openings of Steven Holl's 'Storefront for Art & Architecture' in New York that spatially connect and furnish interior and exterior transforming the urban space into an inviting interior, and the roof structure in Sverre Fehn's pavilion at the Venice Biennale that transmits a Nordic furnishing 'gesture' of light in Venice by means of an intersecting system of planar beams acting almost as shear walls.*


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refabricating ARCHITECTURE

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GENNARO POSTIGLIONE WITH FRANCESCA ARCHIVIO

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ARKITEKTEN
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VITRUVIUS

THE TEN BOOKS ON ARCHITECTURE

DOVER

WHO WAS LE CORBUSIER?

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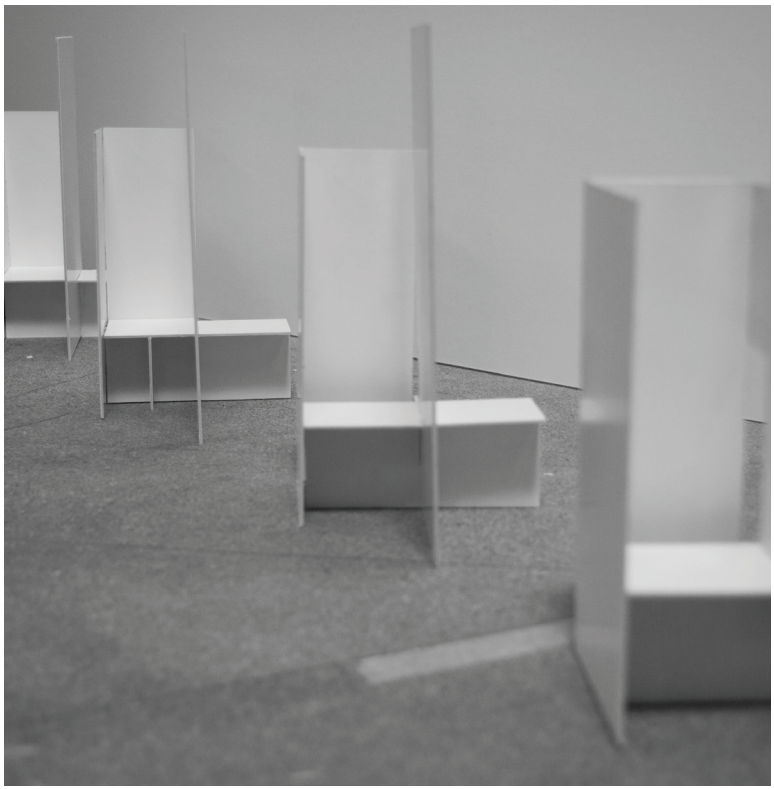
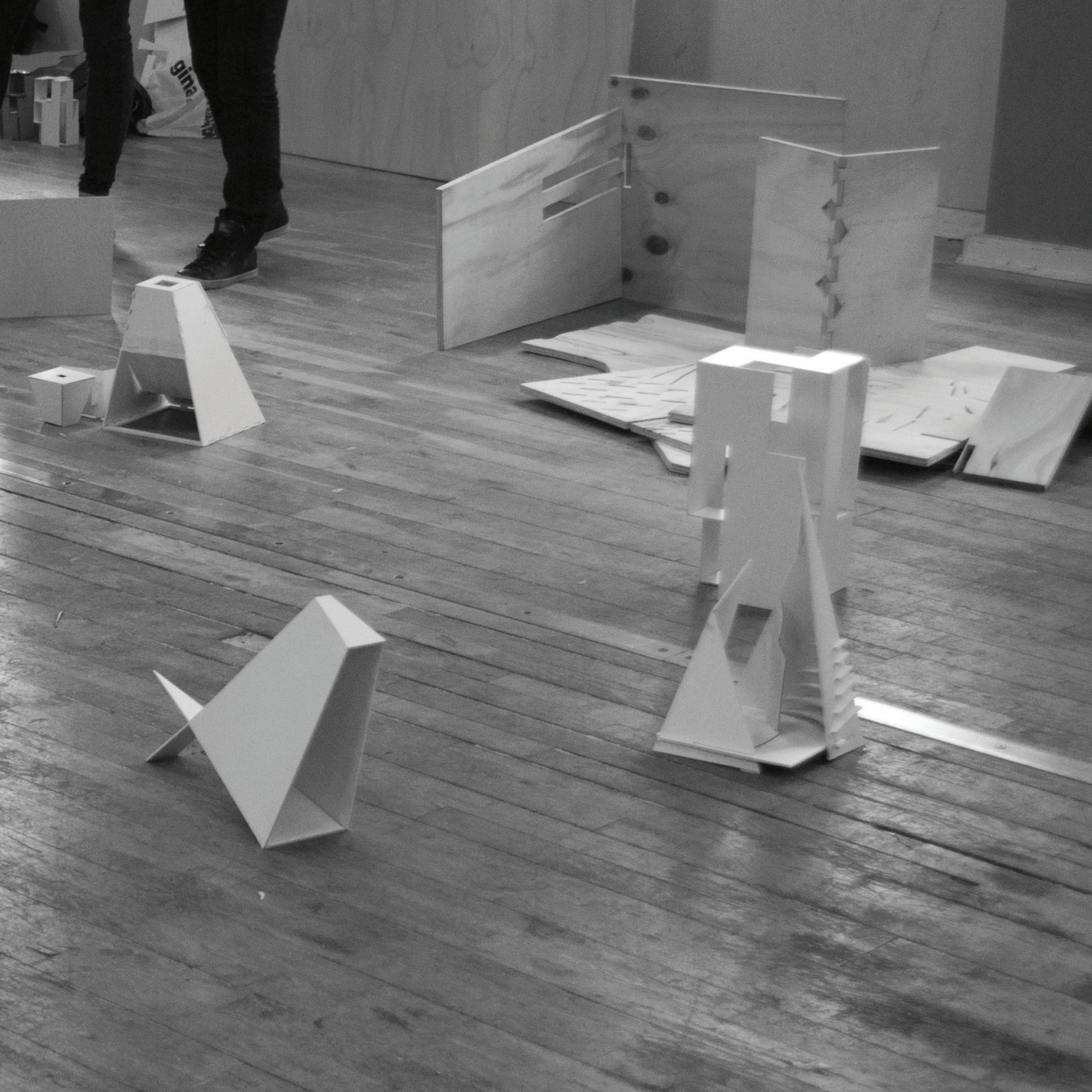
THEORY & METHODOLOGY

The suggested tectonic relationship between spatial 'gesture' and structural 'principle' has been applied as a methodological linking of theory and practice in the course work. In moving from analysis to design, the students apply the vocabulary of 'gesture' and 'principle' as a means of critical reflection. In this way that of zooming in and analysing the spatial effect and actual construct of a specific detail at the furniture scale provides a critical view on architecture in general. The spatial vision and careful construct of the analysed details opens up ones eye to the spatial potential of the wall, floor and ceiling surfaces; to the fact that as architect engineers, it is our finest responsibility to give shape to these surfaces transforming them into inviting spatial 'gestures'. In continuation hereof, the task of designing 'A Place to Sit' from only two standard plywood sheets has provoked detailed investigations into the envisioning of spatial sitting 'gestures' and the simultaneous development of precise structural 'principles' for constructing and crafting these spatial experiences in practice. Herein the reference to the analyses of details in exemplary existing works of architecture has provoked a critical addressing of this practice: As we ask ourselves 'What is a place to sit?', we force our interior imagination; is it an embracing place for one person contemplating in solitude or a place of encounter for two people in love, and how can the structural plywood elements be shaped to provide such 'gestures' that address the human body and mind? Ideally, we should ask ourselves similar detailed spatial and structural questions when drawing a house.

Sketching 'Gestures' & 'Principles'



Scale Model Studies



DETAILING & MATERIALITY

M*aterials work and appear differently depending on the way we treat and apply them. In the task of designing 'A Place to Sit', the students are restricted to use only plywood which challenges the process by demanding a critical knowledge and understanding of the specific material properties of plywood in order to grasp its full potential in unfolding spatial 'gestures' as well as in the development of structural 'principles' of joining. In this matter, the students have made small exercises in the preliminary phase of the design process where they have drawn a 'gesture' of sitting and a 'principle' for joining two pieces of plywood respectively. In the workshop these drawings provided the basis for our tectonic experiments intended to push the boundaries of both aesthetics and technique. Hence, that of experimenting with both the art of joining materials without using any kind of glue, bolts or nails, and the imagination of the sitting place itself have been essential in the tectonic design process characterizing the course work. Inspired by the architectural theoretician Marco Frascari, we understand the detail both as a joining of structural elements and as a narrative joint telling the story of the work in its entirety (Frascari 1984). We herein strive to create architecture that communicates with its inhabitants, that expresses 'gestures' of interiority resulting from a skilled and experimenting development of innovative structural 'principles'. In this matter, the unique layered structure of plywood, its specific quality as an industrially produced structural plate, as well as its unique organic patterning stemming from the individually grown tree have been explored.*

Processing Plywood

Joint Detail

Hammar and Chisel

Joining Elements

CREATING & EXHIBITING

A*s stated in the preface, aiding the students in taking their work all the way from the studio, the library, and the workshop to public exhibition has become an integral part of the pedagogical strategy of the 'Tectonic Studies & Experimentation' course. Hence, by the end of each of the three fall semesters we have finished off the course work by preparing an exhibition of the created sitting places. Designing an exhibition is an architectural project in itself that I like to present to the students as it forces them to relate to a specific physical context, to make - and be responsible of curatorial choices in cooperation with me, to work in a professional context meeting a budget, and most importantly to succeed in presenting a finished product. From a teaching point of view, these exhibitions likewise hold a potential of pedagogical self-evaluation that I find of critical value.*

A*s it is visible on the following pages, the result of the last three years of course work is three architecturally different exhibitions, in three radically different physical contexts. However, if understood and evaluated in relation to the hypothesis of exploring the tectonic learning potential of the furniture scale, it becomes clear that they form a unity. Each one in its own way, they demonstrate an intensified view at architecture by defining experiences of interiority at the human scale for the visitors to enter and engage with that emanate in 'gestures' and 'principles' derived from the furniture scale.*

EXHIBITION 2011/12

The first 'A Place to Sit' exhibition was held within the delicately detailed surroundings of the Utzon Center in Aalborg that, in themselves, form a reference to tectonic method exemplified in the unique ability of Jørn Utzon to unify aesthetics and technique in spaces that evidently transmit a sense of interiority from furniture designs to urban strategies. In the exhibition the students grasped this lesson from Utzon by inscribing the exhibited sitting places in a continuous 'wall' defined by a series of white curtains. In this way they are experienced as details in this 'wall' transmitting a sense of interiority addressing the human scale possibly to be applied in large-scale architectural practice.

EXHIBITION TEAM
Line Nørskov Eriksen
Nikolaj Nedergaard Olesen
Rene Frandsen

'The Staircase'

Detail

'The Corner'

'The Joint'

Detail

'The Wall'

EXHIBITION 2012/13

The second 'A Place to Sit' exhibition was held within the commercial and hastily paced surroundings of Friis shopping mall in Aalborg designed by CF. Møller Architects where commuters and shoppers are constantly on the move through a setting that is not designed as an exhibition space. In the exhibition the students met with this challenge by focusing specifically on the floor as a space defining detail introducing an element of pause within this environment. By creating a black 'floor' that tied the exhibited sitting places to the surroundings they managed to create a place and a sense of interiority that can be grasped on the move but also inspire encounters and pause.

GUEST CURATOR
Line Frier, Practicing Architect
Frier Architecture, Aarhus

EXHIBITION TEAM
Andreas Morsbøl
Rossan David
Tine Sloth


Exploring gestures


'A Place to Sit'
THE FLOOR

'The Cube'

Detail

'The Envelope'

Detail

'The Frame'

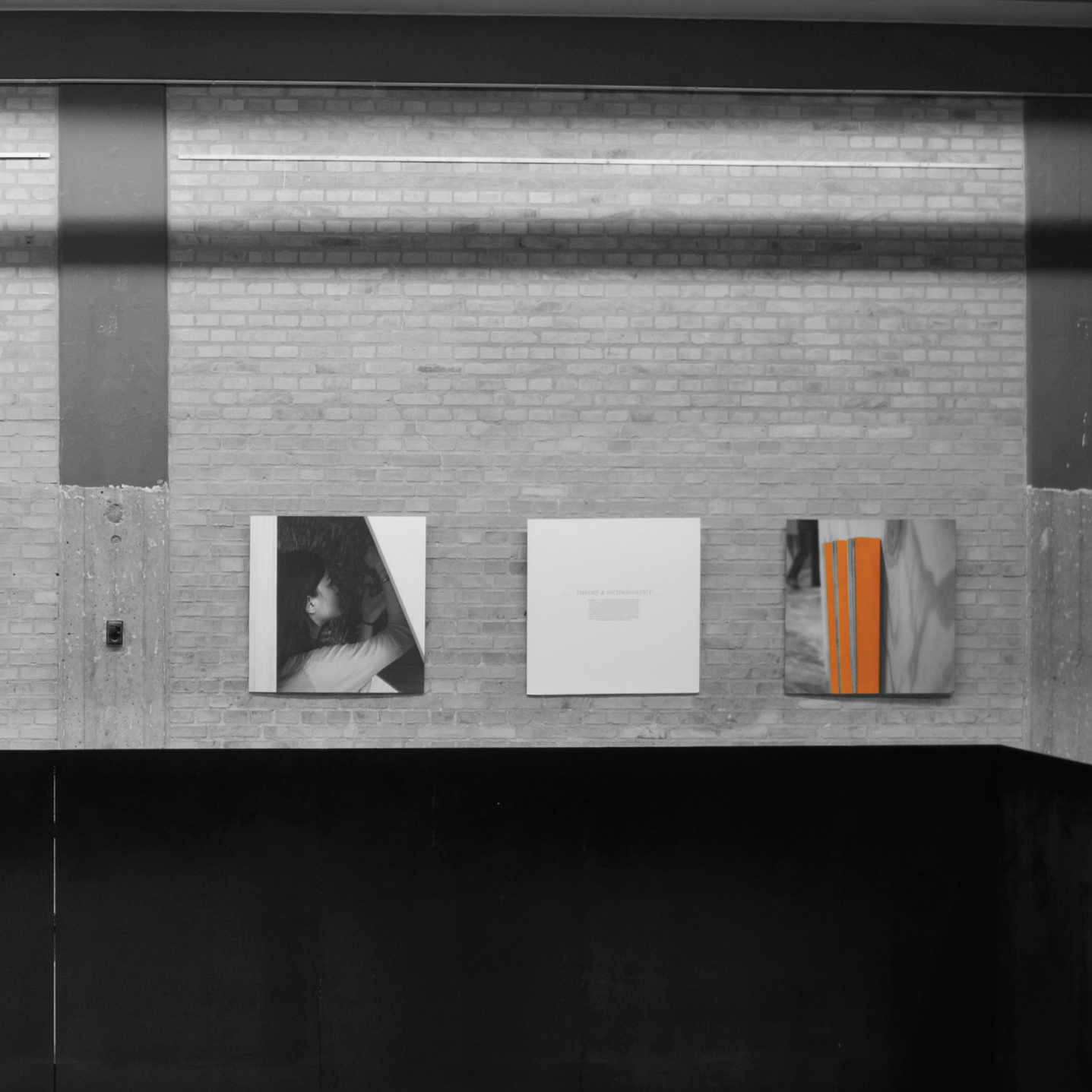
Detail

EXHIBITION 2013/14

The third 'A Place to Sit' exhibition was held within the industrial context of Nordkraft in Aalborg that has radically and successfully been transformed into a multi-purpose cultural powerhouse by Cubo Architects. In preparing the exhibition the students successfully grasped the fact that the delicate materiality of the plywood sitting places would easily visually disappear within the vast volume of the exhibition space in Nordkraft. Consequently, they chose to pick up on and continue the graphical use of orange color as a means of spatial communication employed by the architects. The result is an effectfull spatial integration of the sitting places into the context presenting small intimate points of encounter that address the human scale.

EXHIBITION TEAM
Julie Skovgaard Klok
Mia Marker Marold Bøhnke
Tine Middelhede Brandstrup


ANALYSIS & DESIGN

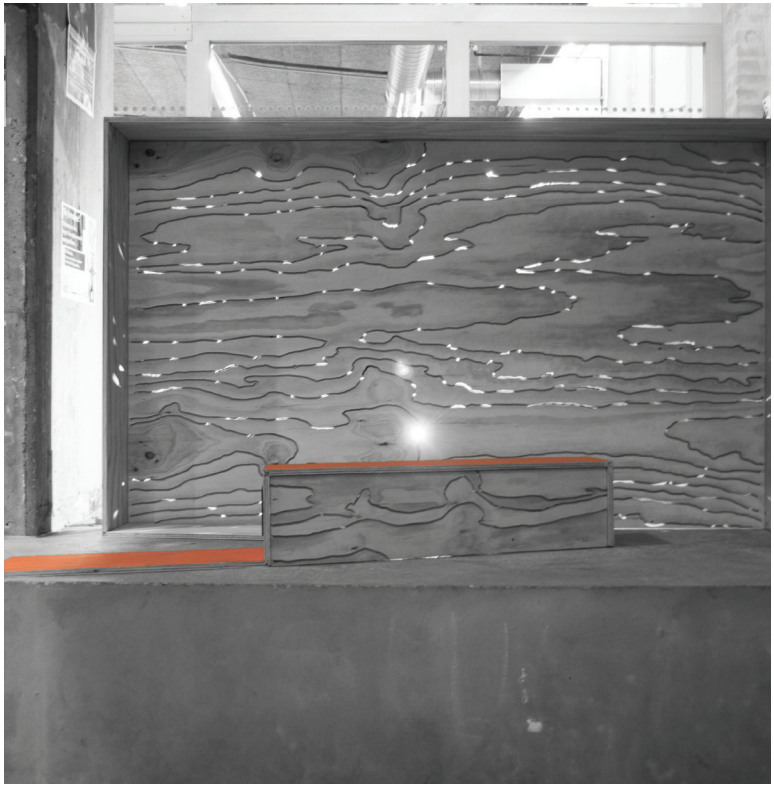

THEORY & METHODOLOGY

'The Portal'

Detail

'The Jealousy'

'The Jealousy'



'The Horizon'

'The Joint'

CRITICISM & PRACTICE

If summarizing, that of learning from the furniture scale provides us with a critical perspective in our work, students and teacher alike, as it stresses the significance of continuously questioning and developing our individual interior view at architecture in general. At the furniture scale the effect of every 'gesture' envisioned and every 'principle' applied is readily experienced as deliberate choices made on behalf of the architect engineer. In architectural practice the quality of the projects realized is increasingly challenged within the midst of the rapid multidisciplinary economical and technical development in construction practice. Within this multifarious context, the furniture scale understood as the breeding ground of architecture reminds us of architecture's finest potential to transmit a sense of interiority: 'gesturing' us to be together, to contemplate in solitude, or even to fall in love, which is evidently needed. Simultaneously, the sensuous scale of furniture allows us to study in great detail the structural 'principles' of architecture needed to realize this potential. Hence, the furniture scale provokes the development of a detailed view at architecture that is simultaneously aesthetic and technical when used as a critical tectonic method in architectural education. It is my hope that the students

will bring this detailed view with them when entering their professional lives as architect engineers: That it will help enable them to envision spatial 'gestures' in future dwellings, hospitals, schools etc. that goes beyond our imagination and that they will apply their knowledge in the development of technical 'principles' that can evidently transform structural elements such as beams, columns and shear walls in the realization of these 'gestures'.

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