HOUSE OF A HUNDRED COLUMNS
- Gothenburg’s House of Making -

- Master’s Thesis in Architecture -

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House of a hundred columns is a proposal for a new House of Making situated at Backaplan, in Gothenburg, Sweden. A house of making is a public building composed of a culture house and a fabrication space, where the program is focused on creating physical objects as an act of culture.

The project is also an investigation of what a group of columns can be. Taking departure in historical and modern examples, the thesis project examines the architectural relationship between columns. Based on this research, one hundred unique columns are proposed for the House of Making. Their design is directional, enabling them to define space and give each its own unique personality very much like the people visiting the building. The wooden columns’ identities are further developed through a play with the cross-lamination of the timber.

Gothenburg’s new House of Making is a dense forest. Like trees the columns provide shelter, define space, carry load, let light through and trigger activity.

The project consists of two main parts. The first part is an investigation trying to answer the question what a group of columns can be. And the second part is a proposal for Gothenburg’s house of making, which is a proof of concept for the initial investigation where the learnings from the first part is implemented in the building proposal. In this report the two parts are presented as two chapters: 1. Proposal and 2. Process.
House of a Hundred Columns is created using three architectural elements: the columns (the tree trunks), the roof (the leaves) and the ground (the soil). Together they create the forest which is Gothenburg’s House of Making.

The columns define space without creating bays. They carry load and trigger activity.

The building is proposed in cross laminated timber columns that carry a roof of massive wood. The facades are angulating glass that frames the activities on the inside for the people passing by on the street.

The roof is designed as an ornament using thin wooden battens in different directions; the skin is to give the neighbours a beautiful roof to look at the same time as the pattern on the roof gives hints of the program underneath it.

In designing the proposal for Gothenburg’s house of making, the program is divided into three main parts; a library, a maker space and a public stage with exhibition areas. Each of these three areas is then divided into regions which are defined by the hundred columns of the building each having its own unique personality.
Non-directional columns

Non-homogenous Grid

Columns of varying size

Columns with personality

Seagram Building
Ludwig Mies van der Rohe

Rolex Learning Centre
Kazuyo Sejima + Ryue Nishizawa (SANAA)

Agadir Convention Centre
Ram-Koolhaas (OMA)

GBG House of Making

- Directional columns -

- What can a group of columns be? -
- The columns define the program -

**PROGRAM**

- Space to create
- Public
- Service Space
- Private
- Service Space
- Private
- Make
- Work
- Store
- Utilities
- Utilities
- Read
- Hang Out
- Exhibit
- Display / shop
- Present
- Gather
- Make
- Utilities
- Office
- Share
- Get inspired
- Maker Space
- Office
- Storage
- Construction Area
- Bicycle Stand
- Reception
- Kitchen
- Stage
- Backstage
- Library
- Café
- Exhibition
- Foyer / shop
- Auditorium
- Public Foyer

**AXONOMETRIC VIEW**

- In between the columns -

HOUSE OF A HUNDRED COLUMNS
COLUMNS GRAMMAR
- Family of columns, each with a specific geometry -

- Play with timber cross lamination -
FOREST OF COLUMNS
- Varying density -

ROOF ORNAMENT
- The pattern of the roof reflects the program underneath -
- In between the columns -
INTERIOR
- In between the columns -

EXTERIOR
- Along the facade -
HOUSE OF A HUNDRED COLUMNS

EXTERIOR
- View from the square -
The point of departure of the investigation part of the project was to study columns as architectural elements by looking at examples both historical and modern. The focus was on three contemporary examples: 2 built buildings and one competition proposal: Johnson Wax building by Frank Lloyd Wright, Rolex Learning Centre in Lausanne by Renzo Piano and finally the competition proposal for Agadir Convention Centre by LPM.
Thames Art University Library
Kohei Takagi, Japan
Timber

Bus Stop Prototype
Kengo Kuma, Japan
Concrete

Stuttgart Railway Station
Shigeru Ban, Japan
Concrete

Zaha Hadid Architects
Barcelona, Spain
Steel, Concrete

Rolex Learning Centre
Sanaa
Steel, Concrete

Sanaa

Tokyo, Japan

Sendai, Japan

Barcelona, Spain

Lausanne

Rolex Learning Centre

Phaeno Science Center

Antonio Gaudi

Barcelona, Spain

Sagrada Familia

Frank Loyd Wright

Fallingwater

Concrete

Kunsthalle

Rotterdam, Netherlands

OMA

Benjamin von Eckert Haus

Kumamoto, Japan

Sou Fujimoto

Museum & Library

Concrete

Topp entails

Tama Art University Library

Competition Proposal

Function: Shading, bus stop

Function: Flow of air, water, electricity, light and people

Function: Flow of air, water, electricity, light and people

Structure: Arch-shaped

Structure: Arch-shaped

Steel, Concrete

Massive

Concrete

Concrete

Concrete

Concrete

Concrete

Concrete

Concrete

Concrete

Concrete
SKETCHES
- Variation along the length of the column -

SKETCHES
- Directionality and density of a field -
- PROTOTYPING -
- Columns & landscape -
- PROTOTYPING -
- Stacked ribs columns -

- PROTOTYPING -
- Thin columns & vaulted roof -
- PROTOTYPING -
- Directional columns with fins of cross laminated timber (CLT) -

- PROTOTYPING -
- Roof patterns and openings -
- Prototyping -
- Layering of the CLT Columns -
SKETCHES
- Roof pattern reflects the program underneath -

SKETCHES
- Shifting directionality of the wooden battens add variation -
SKETCHES
- Division of space using CLT columns -
Reflection - House of a Hundred Columns -

Here follows a short reflection on House of a hundred columns. A few thoughts on both what worked well and what still needs improvement. These thoughts are very much a result of the discussion at the final presentation of the project fueled by insightful comments of the jury.

Looking back at the design process I am quite pleased with the balance I found combining computational tools with physical prototypes in my investigations. The leaning from a physical model was constantly taken back into the digital model, revisited and prototyped in a new iteration of the physical model. Another successful aspect of the project is the study of precedents that helps relate the project to a larger architectural discourse namely the one on the column as an architectural element.

The pattern on the roof, although graphically intriguing, could be further developed to be a score readable part of the design. Integrating a gutter system in the roof pattern is an example of how this could be achieved. The variation of the slab height in the building could either be removed altogether or to emphasize the column even further, or developed much more tightly with the design logic of the columns to become a more natural part of the design.

Finally introducing customisation into bowing of the sawn laminated timber is an idea worth further developing. The idea hinted at in a few sketch models has the potential to be elevated to an interior ornament that tells the story of the fabrication process of the CET and also reflects the structural vision of the building.
MANY THANKS TO:
Morten Lund
Daniel Norell
Jonas Lundberg
Elin Ordfell
Erik Jonsson
Jens Olsen
Tabira Nilson
Petter Lundblom
John Ross
Family and friends

Redan Seddighadaleh
Chalmers University of Technology
Fall 2013