Atlas of Details

the form work
associazione culturale
cultural association

M. Breuer, B. Zehrfuss, P. L. Nervi, UNESCO Headquarters 1953-1958
Author(s): Davide Bergo

URL: https://www.detailsinsection.org/projects/unesco-headquarters

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Atlas of Details is a research project to demonstrate how insightful a section can be, in order to represent the complexity of the architectural artifact, since it allows the simultaneous perception of materiality and form, of building envelope and interior spaces. Atlas of Details is a project by The Formwork, an association established by professors and PhD candidates with diverse academic backgrounds (history, architectural design, technology, preservation) working at the IUAV University in Venice and at the Milan Politecnico. For more information about the Atlas of Details and The Formwork, please contact info@theformwork.org.

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UNESCO Headquarters
1953-1958

Text
Davide Bergo
IUAV Venezia

Drawings
Davide Bergo
IUAV Venezia

Architect
Marcel Breuer (1902-1981), Bernard Zehrfuss (1911-1996)

Name of the building
UNESCO headquarters, Conference building

Site
Place de Fontenoy, Paris (FR)

Client
United Nations Educational, Scientific and Cultural Organization (UNESCO)

Contractors
Soc. Fourré & Rhodes (absorbed by Groupe Eiffiage SA.);
Soc. Dumez (absorbed by Vinci Construction)

Engineer
Pier Luigi Nervi (1891-1979)

Other actors
Luther H. Evans (UNESCO Director-General);
Eugene H. Callison (chief engineer of the technical office);
Lucio Costa (member of "Comité des Cinq");
Walter Gropius (member of "Comité des Cinq");
Le Corbusier (member of "Comité des Cinq");
Sven Markelius (member of "Comité des Cinq");
Ernesto N. Rogers (member of "Comité des Cinq")

Building permit
1953

Start of construction works
1954

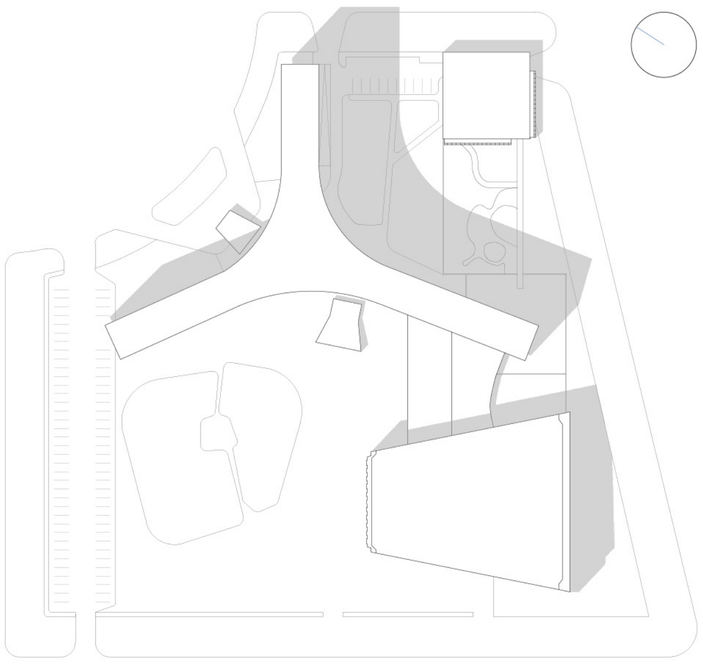
Project variation
1952: first project in Bois de Boulogne

End of construction works
1958

Construction system
Large concrete roof, undulated with variable undulations depending on the variation of the moments. This particular structure is rigid and statically completed by a slab of variable thickness that starting from the lower edge of the waves rises to the top to give the necessary resistance to the positive moment.

The structural principle

The pavilion rooftop is defined by a corrugated plate in concrete, free from intermediate structures, except for a central line of six pillars. At the cover extremities, the plate curves assuming an almost vertical course forming the two closed walls, also corrugated. The structure obtained is like a three-dimensional frame with two spans, in this case the covering plate is mainly subjected to bending stresses; to increase this resistance Nervi decides to insert a concrete slab, in order to absorb part of the compression stresses. The corrugated walls of the SE and NW facades are supported on bases made of a series of pillars; the bases are located in the underground floor, where a dens mesh of beams and pillars, practically independent from the rest of the structure, supports the ground floor.

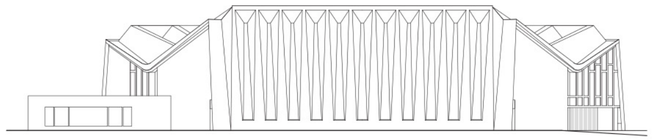


General plan
Scale 1:1500

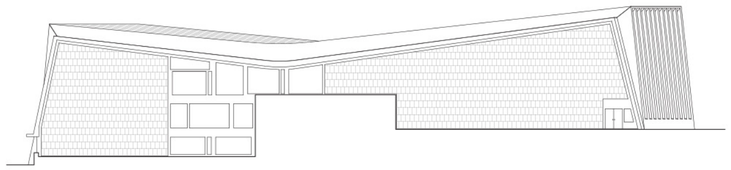
0 15 150 m

First floor plan +44.00 m
Scale 1:200

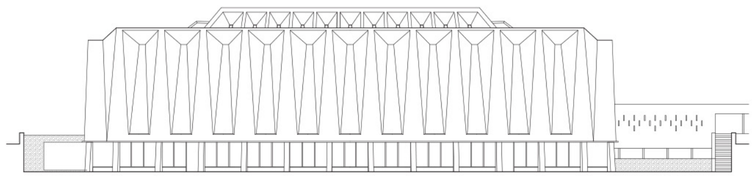
0 2 20 m



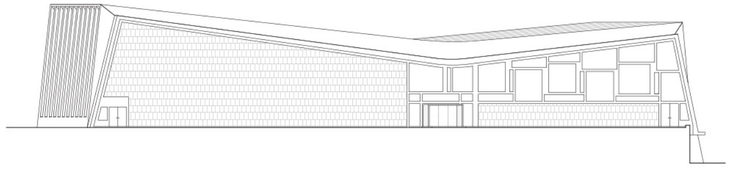
North-west elevation
Scale 1:500



North-east elevation
Scale 1:500

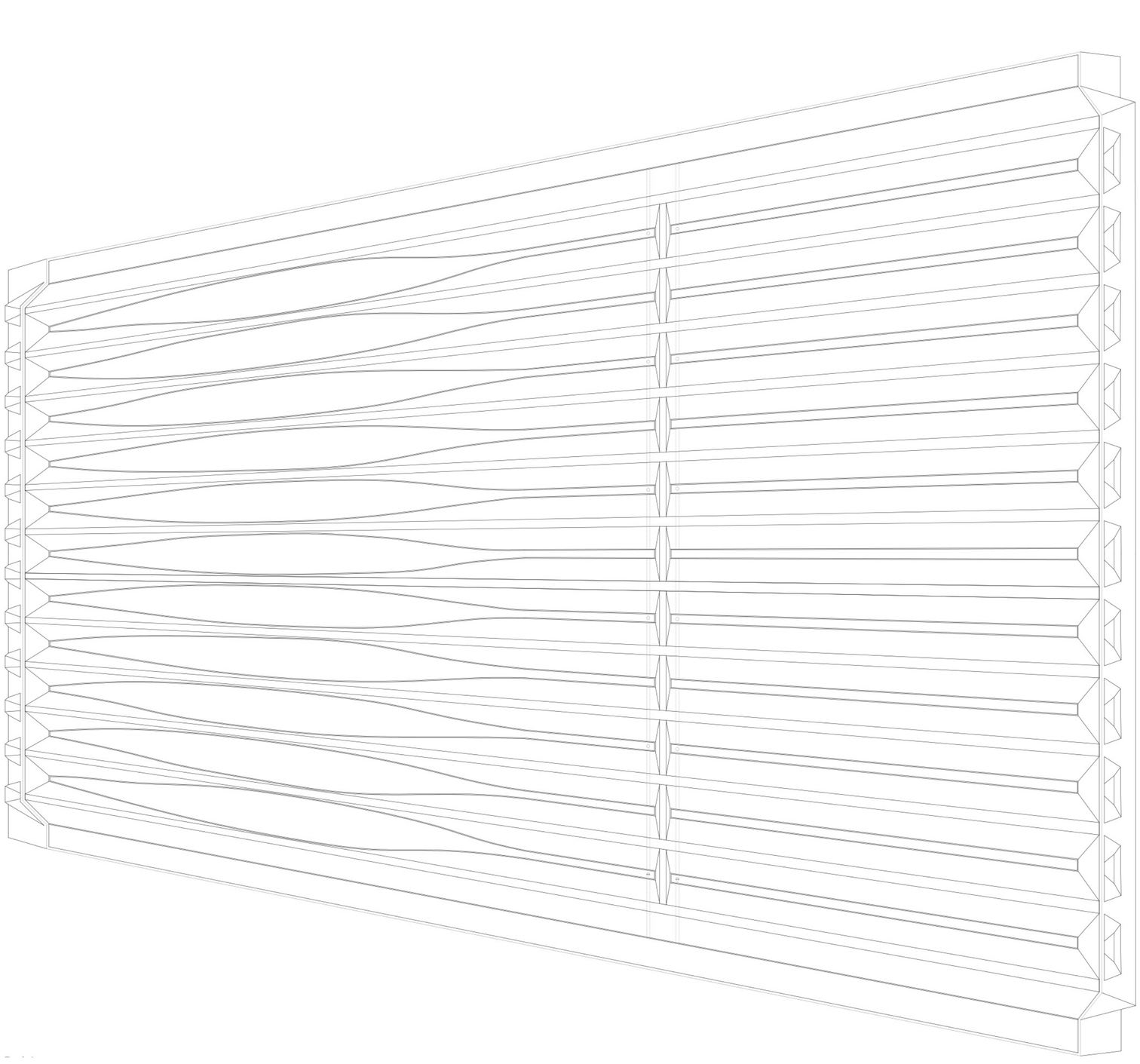


South-east elevation
Scale 1:500



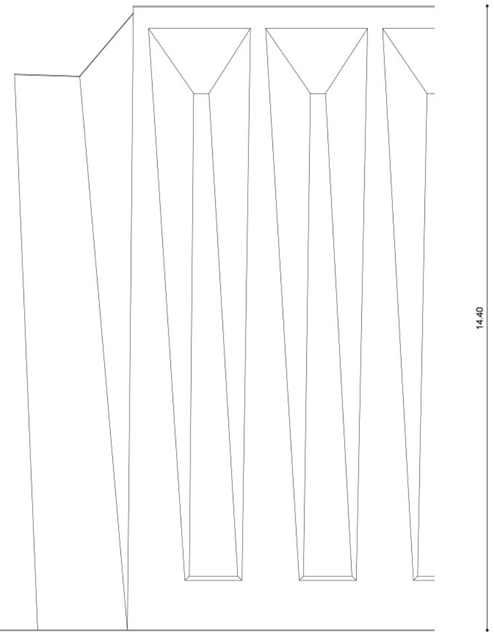
South-west elevation
Scale 1:500

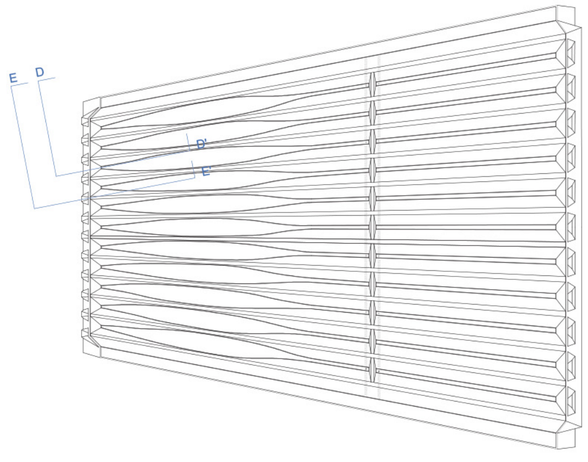
0 5 50 m

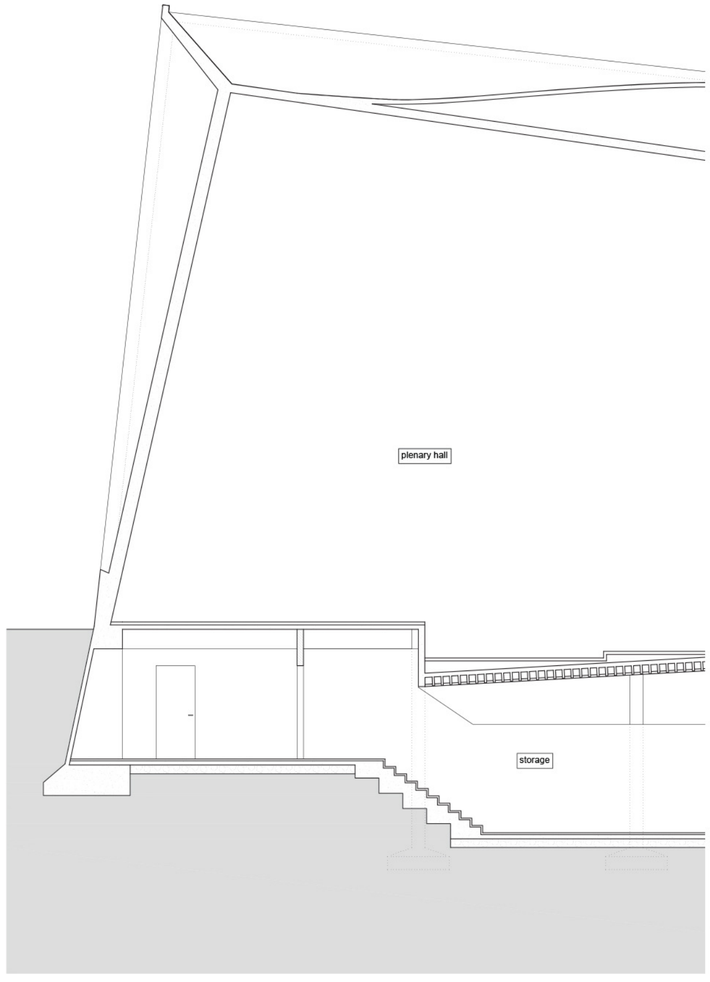


Roof plan
Scale 1:200

0 2 20 m

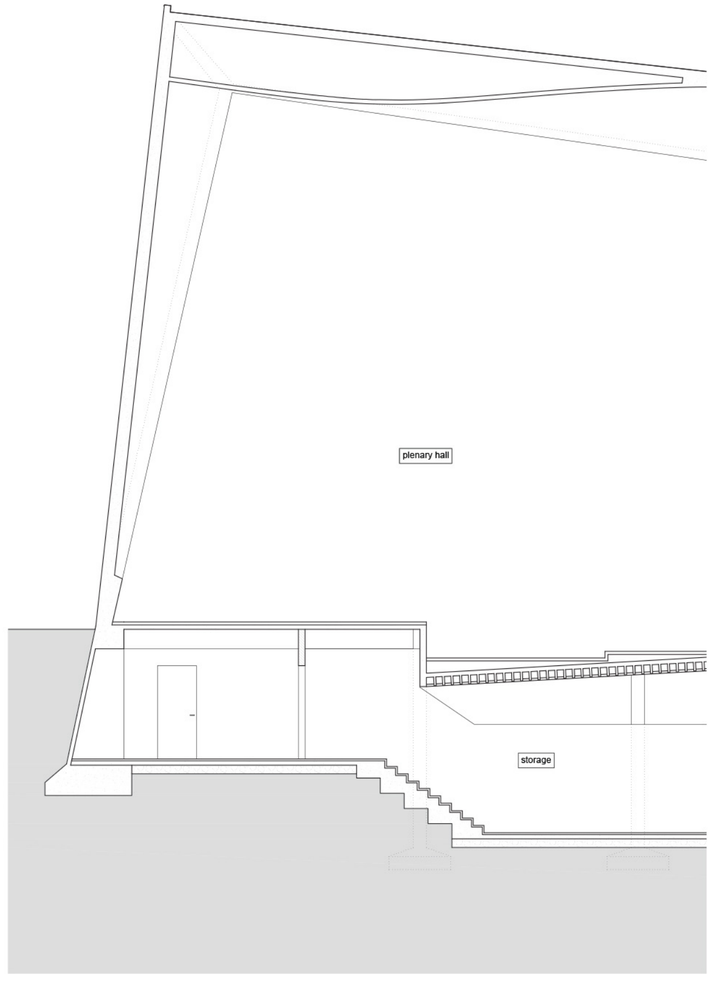






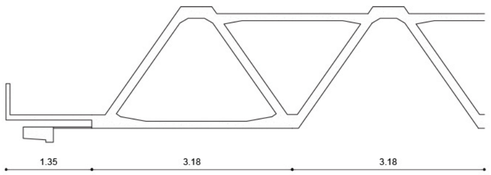
DD'. Section
Scale 1:100

0 1 10 m

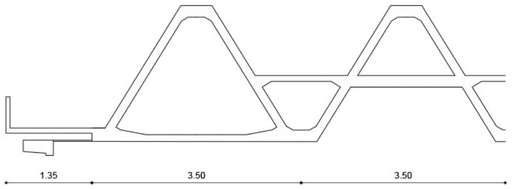


EE'. Section
Scale 1:100

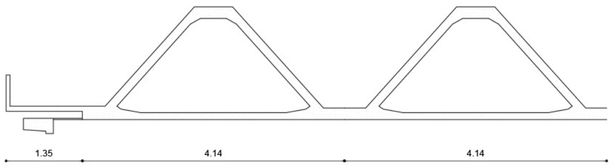
0 1 10 m



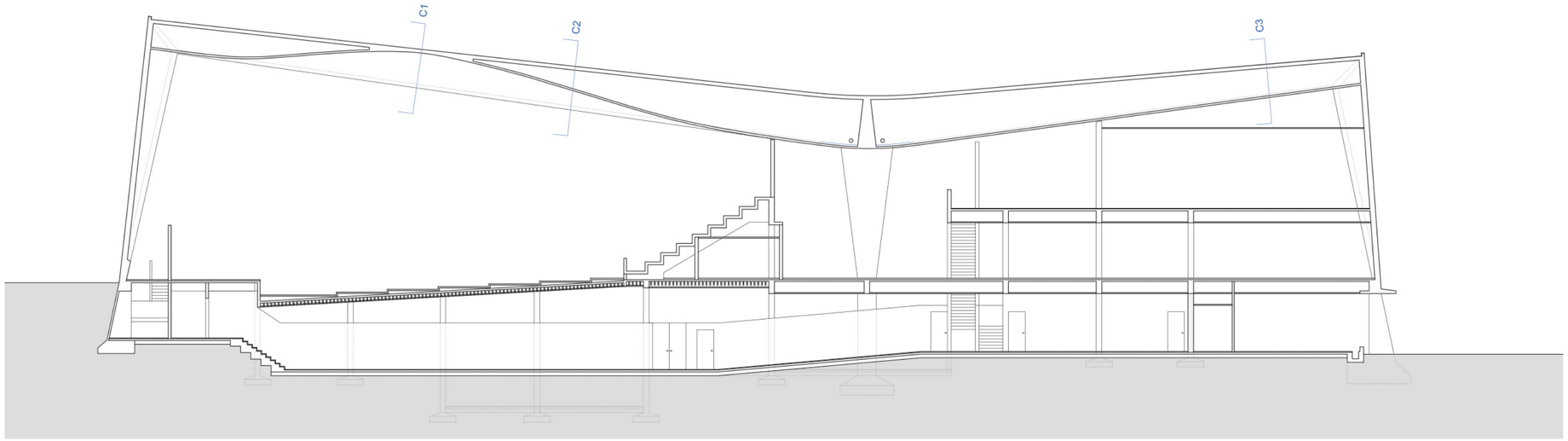
C1. Detail
Scale 1:75



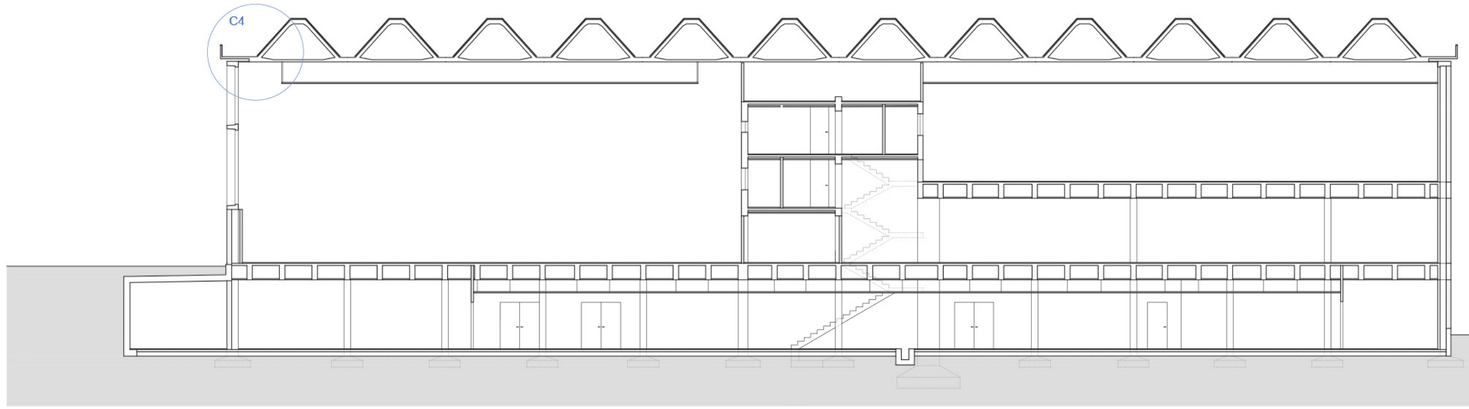
C2. Detail
Scale 1:75



C3. Detail
Scale 1:75

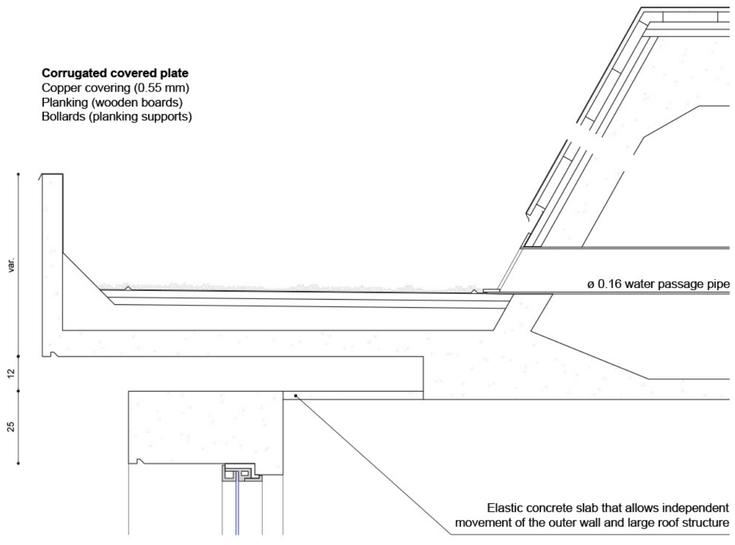


AA'. Longitudinal section
Scale 1:200

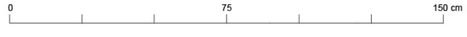


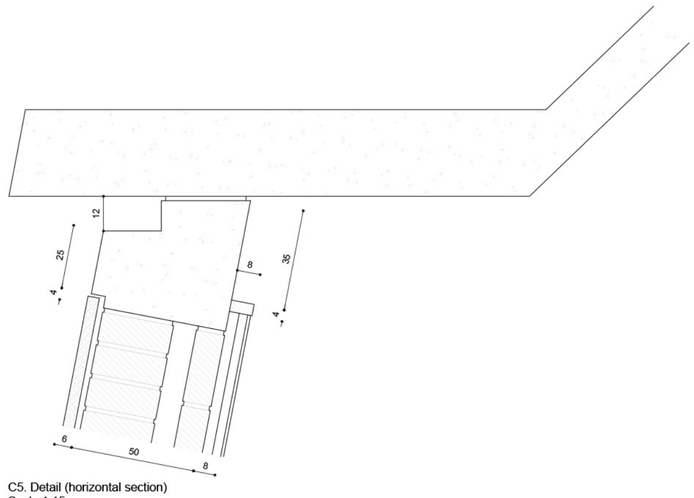
BB'. Transverse section
Scale 1:200

Corrugated covered plate
Copper covering (0.55 mm)
Planking (wooden boards)
Bollards (planking supports)



C4. Detail (vertical section)
Scala 1:15





C5. Detail (horizontal section)
Scale 1:15