Architectural Engineering 7X500: Production & Parts

Mick Heijkens
Oscar de Boer

Content

Architectural Engineering
7X500: Production & Parts

1:1 Detail Model
Façadesection with wooden panels, roof, floor and a sliding hatch

Architectenbureau Hoogeveen BV
Muncipal Parks Department
Langs de Werd 10
1158 XT Amstelveen

April 2012

Eindhoven University of Technology
Faculty of Architecture

Mick Heijens - 0659359
Oscar de Boer - 0651799

Tutor: Ir. Jan Schevers

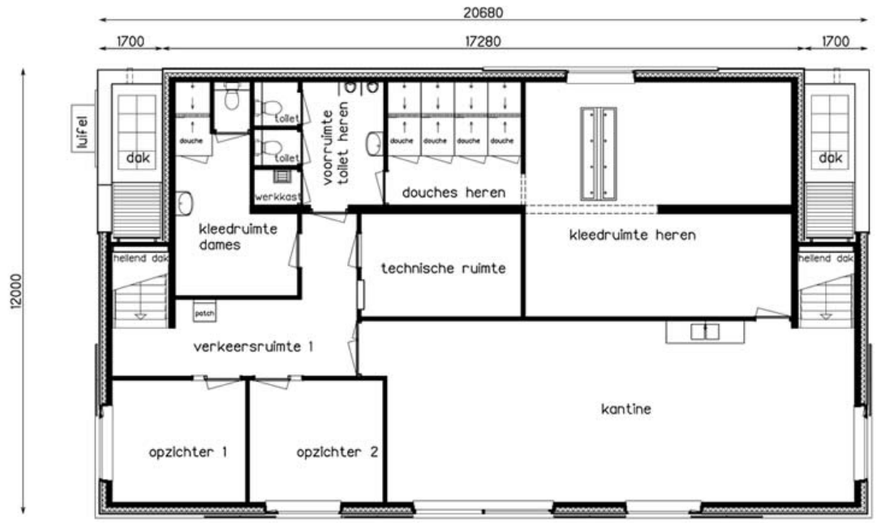
The Building

The Architectural Office Hoogeveen BV designed and developed this building for the municipality of Amstelveen. It accommodates the Parks Department of the municipality. This wharf serves the area where the famous Heemparken in Amstelveen are.

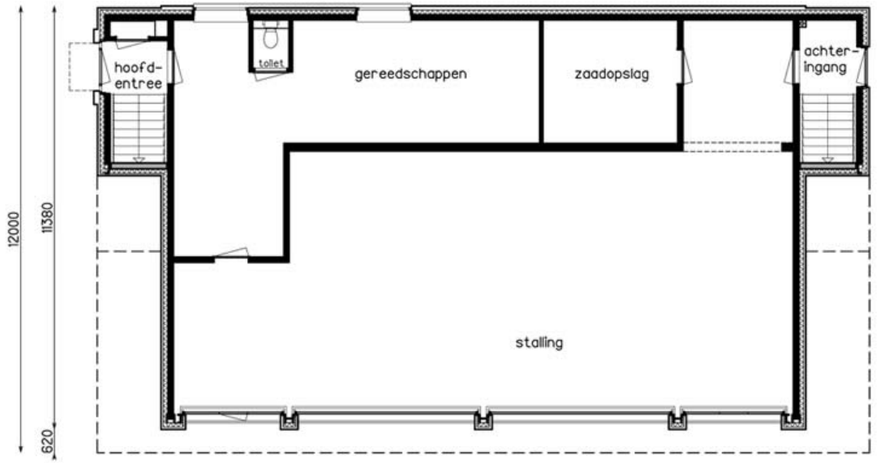
The program of demands (customers brief) is pragmatically divided into two parts: The first is part is the "cold" business side and the second is the "warm" side facility. The functional surfaces of the warm area which are a cantina, a supervisor's office and the laundry and changing rooms. The cold part consists out of a shed, tools storage and seed storage. This combination provides an ideal base for the expression of the building shape. This is because the warm and the cold side are almost identical in terms of size.

The cold part is located on the ground floor and is in practice very good accessible due to the availability of lift gates and doors. This is of course a required demand due to the function of the building; it must be accessible and practical in use to sustain the traffic flows of the working employees. The warm part also has similar accesses like the cold part for both the formal and informal functions. You could also call it the morning traffic (come in and change clothes) and the evening traffic (change clothes and take a shower).

In this way the architects created on a natural way both a formal and an informal traffic stream that is not only of practical use for the employees, but it also provides well for the third facilitating function of the building since the cantina is also meant to function as an information room for guests and visitors both national and international who come and visit the famous Heemparken and get a tour around the whole complex.



VERDIEPING

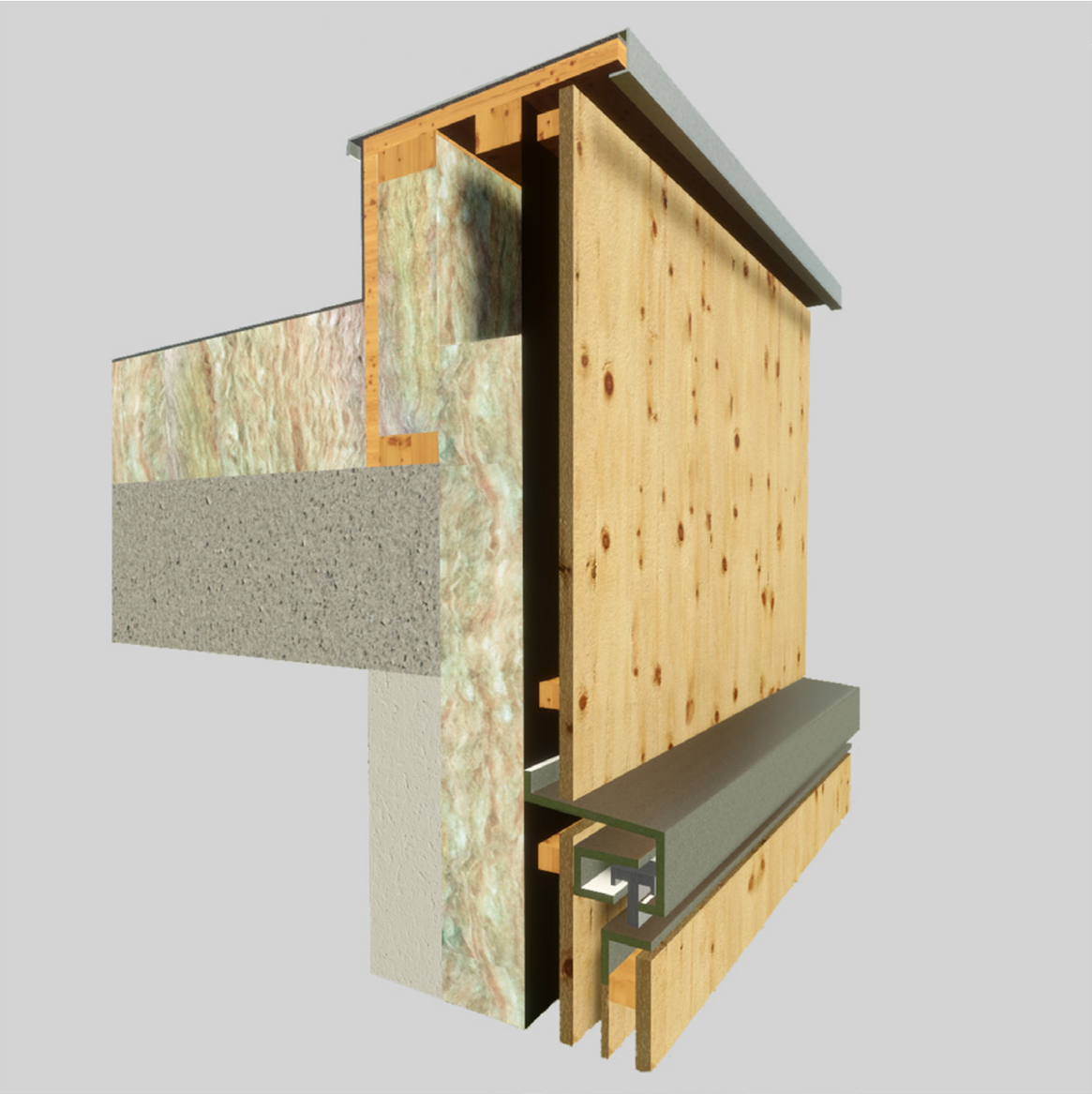


BEGANE GROND

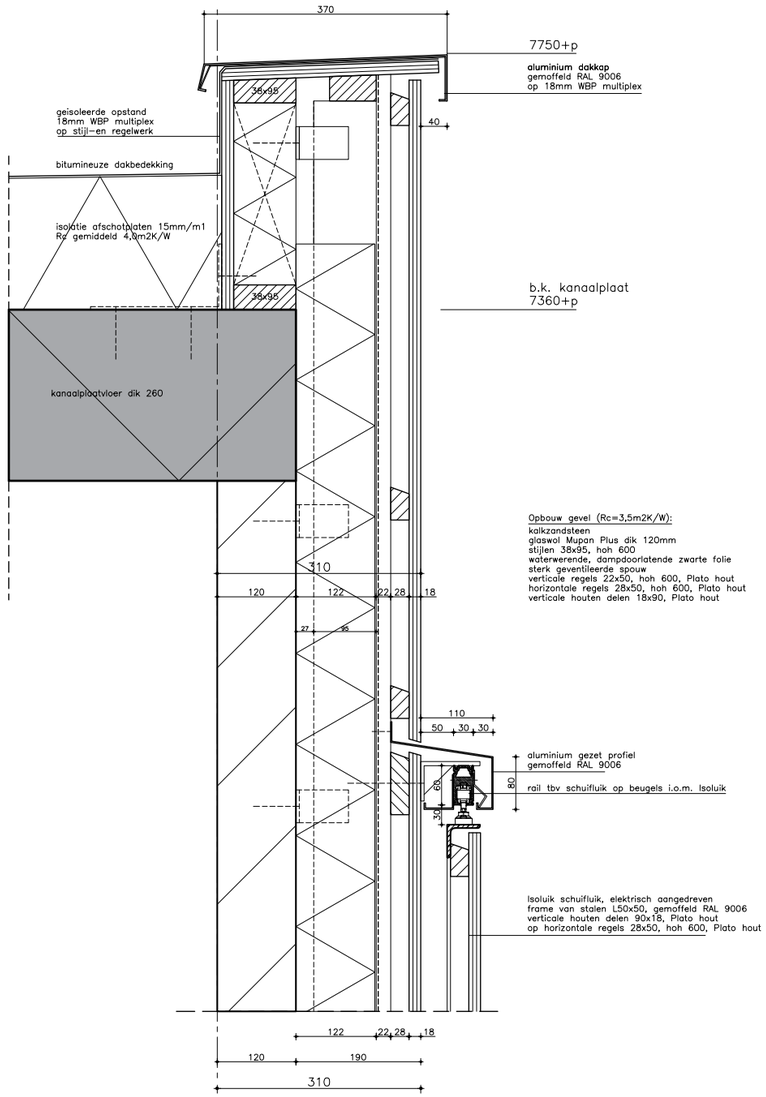
The architecture mainly follows the way the program of demands is accessible and stacked in height. The organization of the various functions of the building and its accessibility is the carrier of the architecture. The combination of the choice to use wood as main exterior material and the choice of the modest forms of design make a reference to a birds nest that blends well in the surrounding of a forest. In this way the building reflects it's love for nature and thus the commitment of the employees towards greenery.

This expression gets strengthened where necessary with subtle rebates in the larger, wooden façade surfaces and in the spaces next to the rectangular frames. By using sliding wooden hatches with shutters on the windows the building seems to live; the building awakes with dawn, it has a certain degree of mobility in its function as shaders. Moreover, the function of shades is integrated in a sustainable way.

Furthermore there is a strong presence of subtle detailing in this building. Overall you see mainly wood and aluminium which is subtle overlapping the wood at the top edges. This is visible in both the roof and in the detailing of the wooden sliding hatches.



The Detail

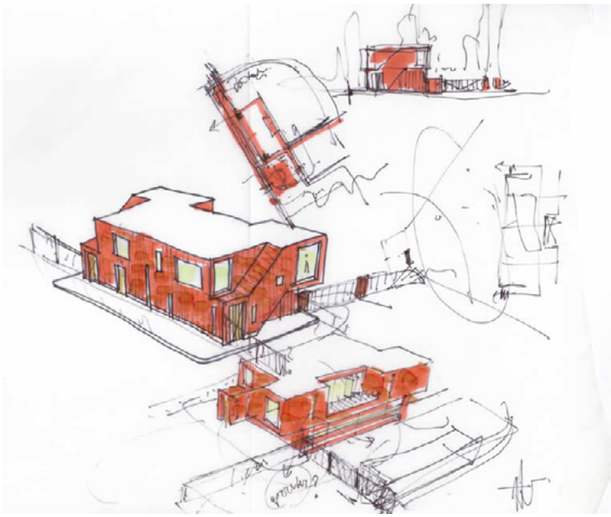


The detail we chose for this project consist out of multiple parts: The exterior wooden facade including the design of the wall, the wooden sliding hatch, the roof of the building and the finish of the rooftop (the aluminium roof trim).

The reason we chose this detail is because we are both enthusiastic about the use of wood in façades and the way the designer details the finishing of wooden façades. This project especially interested us by the subtle materialisation in combination with the concept of the birds nest in its surrounding as explained in the chapter The Building.

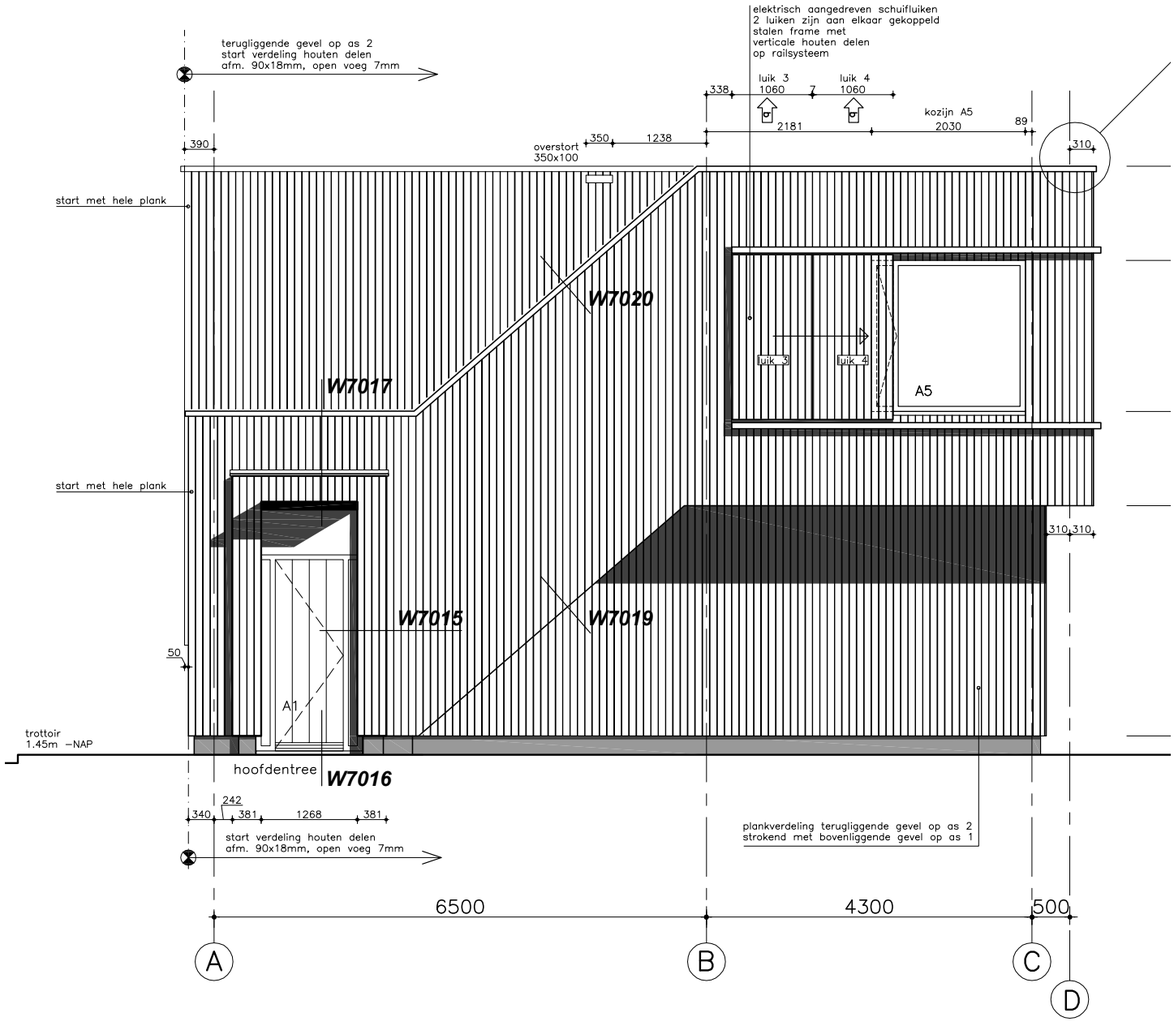
The façade of the building at first look quite normal or standard so to say. But when further investigated and researching for example the way the sliding hatches work you can see that its carefully designed and handled in precision to achieve the subtle look it has in the pictures. There is more than the eye can see and by actually researching and constructing this detail you gain a better feel about the design and the way materials relate to each other.

This is also visible in the top section of the detail, the way the roof trim connects and relates to the extensively visible part of wood. Its designed and dimensioned in such a way that it's still visible and subtle but not invisible or dominating the overall image of the façade.



The detail is durably designed and thus made to last. This can be seen in a couple of things; The way the water drainage is designed and that it is taken in account that the wood can shrink and expand by environmental conditions. This can be seen by the ventilated cleft that works together with the waterproof vapour permeable film. This ensures that the moist cannot enter the construction and thus will not be affected by moulds and/or rot. The exterior wooden panels have enough space between each other to expand. This can also be seen at the edge of the roof where the wooden panels have space tolerance in all axis'. As already mentioned the dimension of the roof trim is chosen so that it will cover the underlying welt which will aesthetically enhance the overall picture of the building.

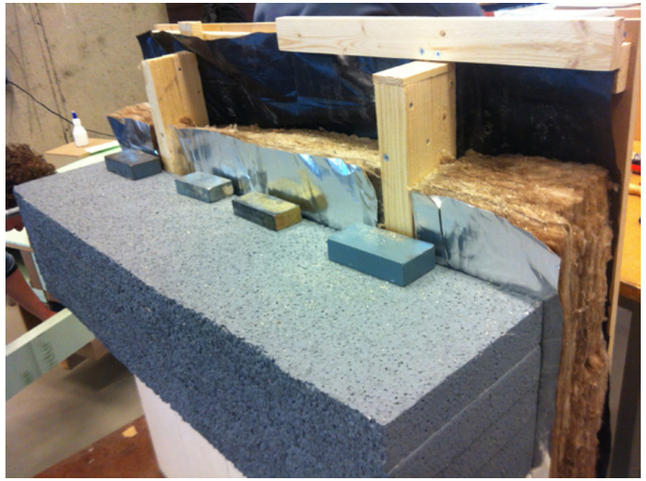
The wooden facade also seems to look like one whole element underneath the wooden sliding hatches. Therefore the wooden sliding hatch with the two aluminium profiles doesn't interrupt or change the overall picture. The wooden facade elements run exactly even across the whole facade despite that they are interrupted by an aluminium profile. The sliding panels with the aluminium profiles, look as if they were pasted on the wall and seem to have no influence on the wooden facade panels. This is also well visible in the detailing of the profile. The aluminium profile only needs a small opening of a couple of millimetres in the wooden panels. This opening will be invisible together with the rail construction for the sliding hatch which is behind this same aluminium profile. The wooden panels of the sliding hatch are also made out of the same wood with the same dimensions as the wooden panels behind the sliding hatch. This makes it often from a little distance hard to distinguish if you are looking at a hatch or at the wooden panels behind it, a merit of fine detailing!



ZUIDGEVEL

The aluminium roof trim matches the vertical articulation together with the aluminium profiles. The sliding hatches, windows and roof edges all accentuate the vertical orientation and continuity of the facade. The sliding hatches seem to be wrapped around the building like a ribbon. The hatches represent the mobility of the building like stated before in The Building chapter of this report. From the outside it is not visible how far the rails continue behind the aluminium profile, this doesn't only show the function it has to hide the rails, but it also shows that it works aesthetically for the building as a whole.

The wooden panels exist primarily out of wood and need a minimal amount of aluminium framing at the sides. This ensures that the emphasis lies at the wood and not at the mounting of the panels. Between the facade- and roof insulation you can see extra insulation to prevent thermal bridges.



The Process

The first part of the process was to find a building with a matching detail. After finding this detail we did a lot of research on the project, contacted the architects, searched in books and the internet. After the research we got quite some documentation about the project and the detail so we started to make our own 3D model and drawings to clarify the detail. The 3D model combined with the drawings worked out as a blueprint for the actual model we were going to make. After all the drawings were done we decided how to start, where and very important, what to show. We wanted to show two parts of the building; both the interesting connection of the façade with the roof but also a working sliding hatch like in the real world. We didn't want the sliding hatch all along the façade because that would limit the sight in the model. So we decided to cut it half way; on the left side you have the detail as explained in this report with the sliding hatch, on the right side you have the same detail but without the sliding hatch and a partially deconstructed roof construction so you can actually look inside the model to see the way the model is build.

For the model we wanted to stay as much true to the detail as designed, this also applied for the material use. Except for the concrete, foil and the asphalt finish on top of the roof we used the exact materials as designed, from wood to insulation to aluminium etc. We thought this would be important to actually get a feel for the material and the way they connect and relate to each other.

Sources

The sketch of the building including the render of the whole building are supplied by Architectenbureau Hoogeveen BV.

All 2D Black and White drawings are supplied by the architect and edited by ourself to show the important information and delete the obsolete information.

The 3D model and renders of it including the elevation are made out of scratch by us.

The process pictures of the model are also made by ourself, the pictures of the building itself are from www.architectenweb.nl and partially supplied by the architect.