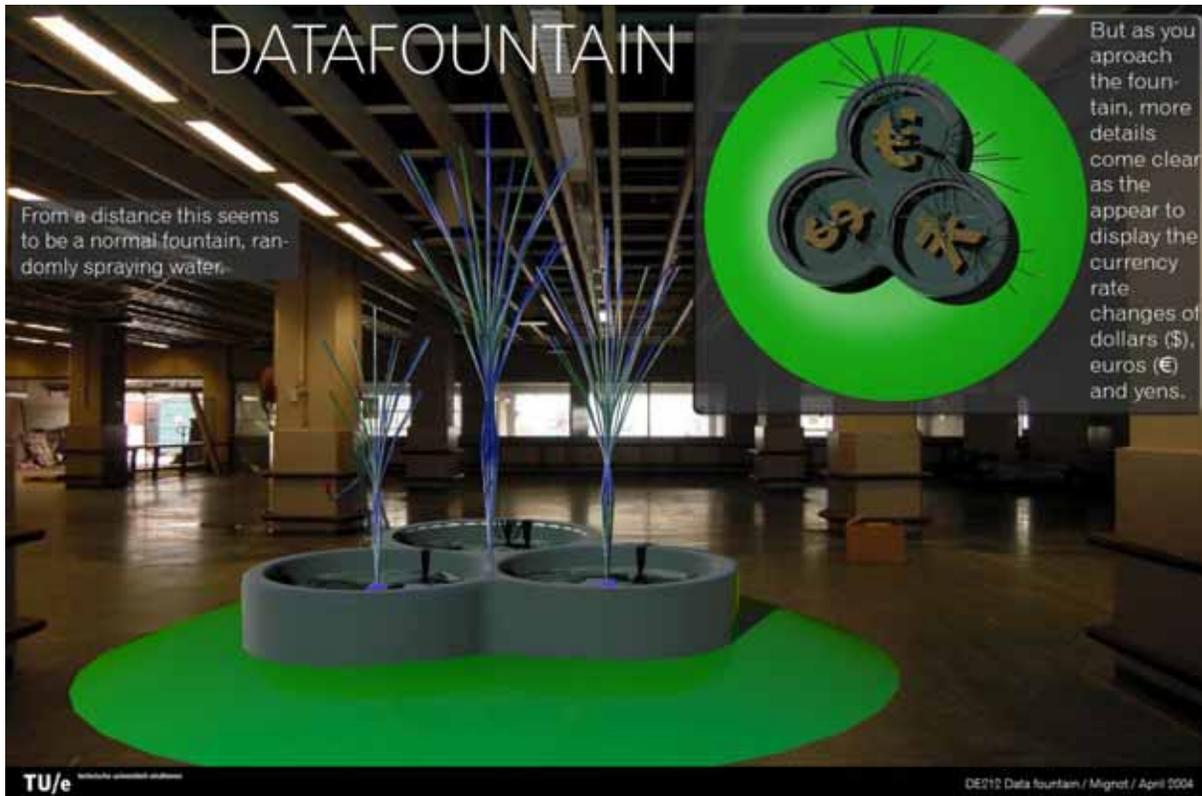


Building the DATAFOUNTAIN - Charles Mignot

I'll describe here how the Datafountain was designed and made.



This was one of the concepts as we presented it to the client. From this we minimized the design, as agreed with the client, to a simple square design, as minimal as possible, showing only the fountains. She liked the idea of using real grass and came up with an idea to put tree banners with the Yen, Euro, Dollar symbols in the back. For the exhibition we got a space of 6x7 meters in-between four pillars. People should be able to walk there, so we agreed on making the fountain size 4x3 meters. It would be good if people could sit on the grass, so the fountain becomes a natural gathering point in the exhibition.

To get a feeling of the size and looks we set out the sizes 1:1 on the floor:



(Can you see the fountains?)



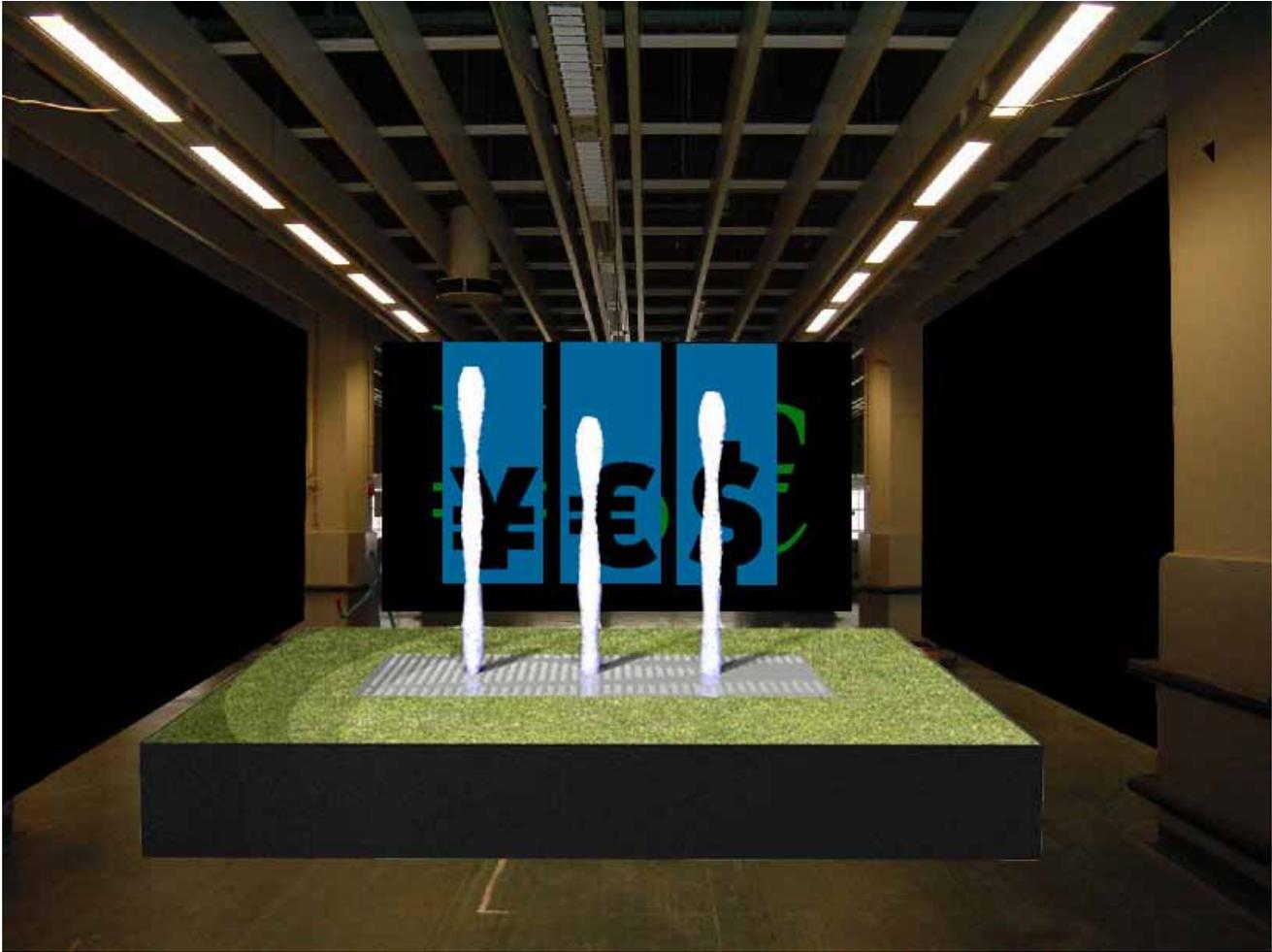
As we experimented with the sizes we set the fountain to be 4 by 5 meters and 50 centimeters high, with the three jets in a straight line.

Based on this I made the following visualization:



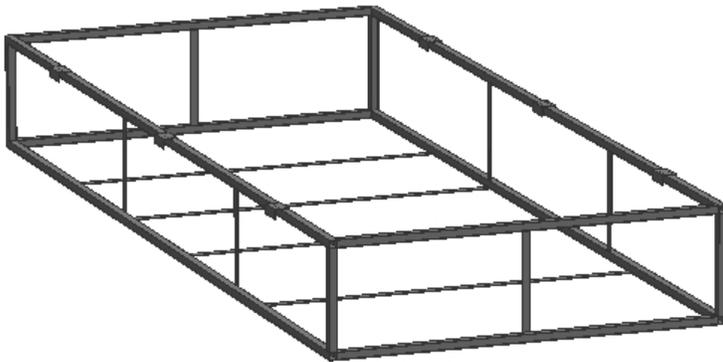
As we tested real grass in combination with water the conclusion was made that especially in the middle the grass would be flushed away. Then the idea came to use metal grids in the middle to handle the water.

Roy then made the following visualization, which was edited by the coach (Koert van Mensvoort) for a different color set for the banners:

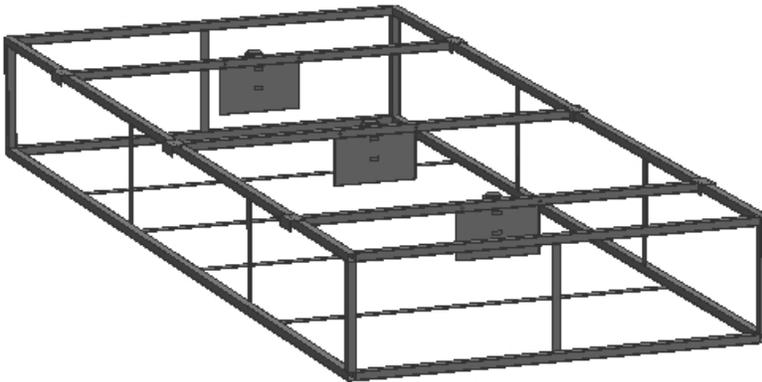


From this I started modeling the fountain in CAD and designing a construction. This construction would have to be rigid and firm, but it should be able to take apart easily and reasonable in size so it would still be transportable. Another point was that it would have to be waterproof and reasonable cheap to fit in the budget. As different materials were discussed with coach and experts, we choose for my idea to use a metal construction I had seen on large tent frames. In the following pages you'll find the construction of the fountain designed in Unigraphics in the order that the fountain can be build up.

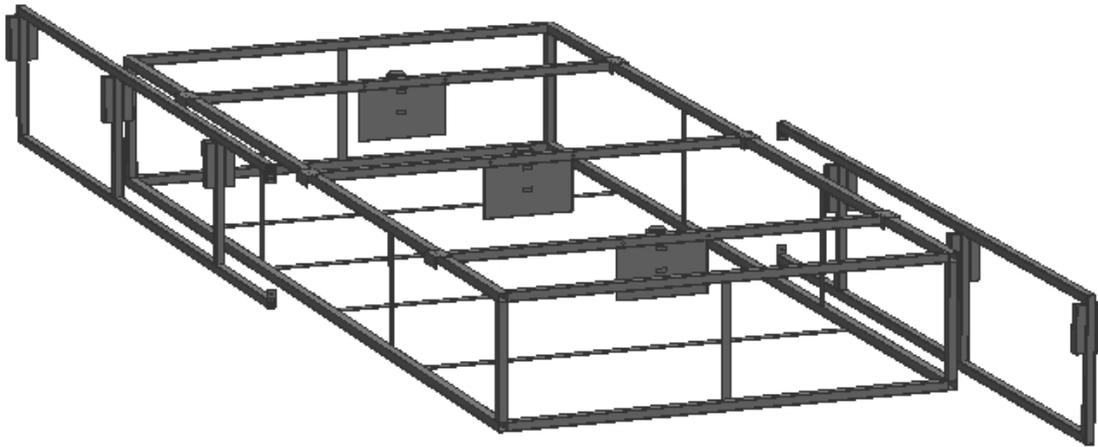
Constructing the frame

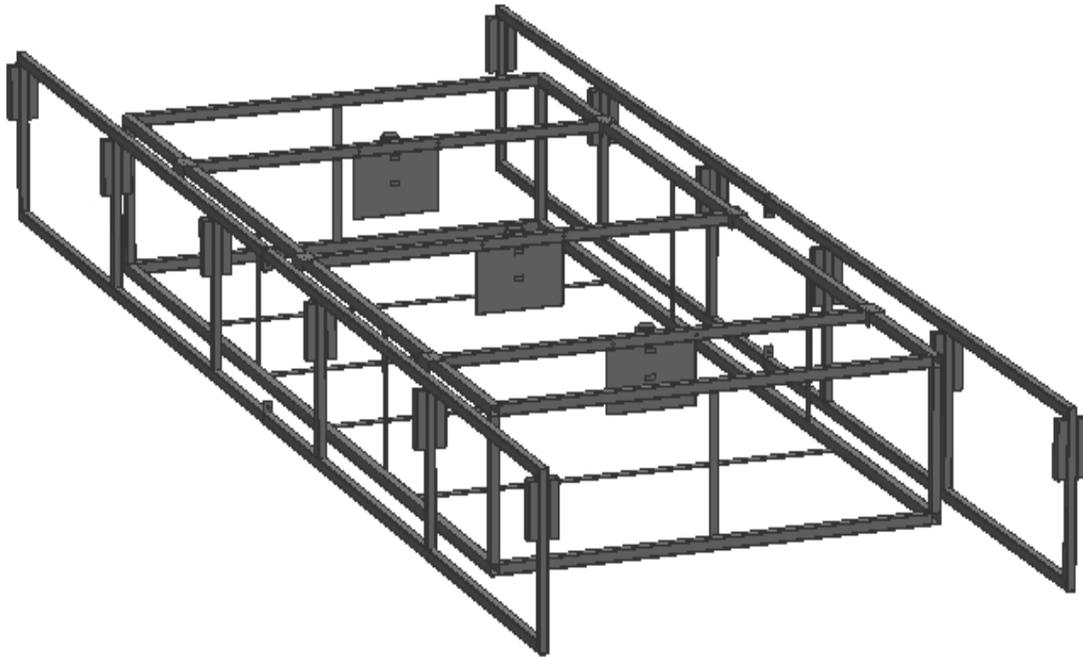


This is the water basin, 3.5 by 2.5 meters. I deliberately chose to make this from one part so it could be covered with plates and made waterproof so it wouldn't have to be taken apart anymore and this way it would be very rigid to hold the 2500 liters of water.

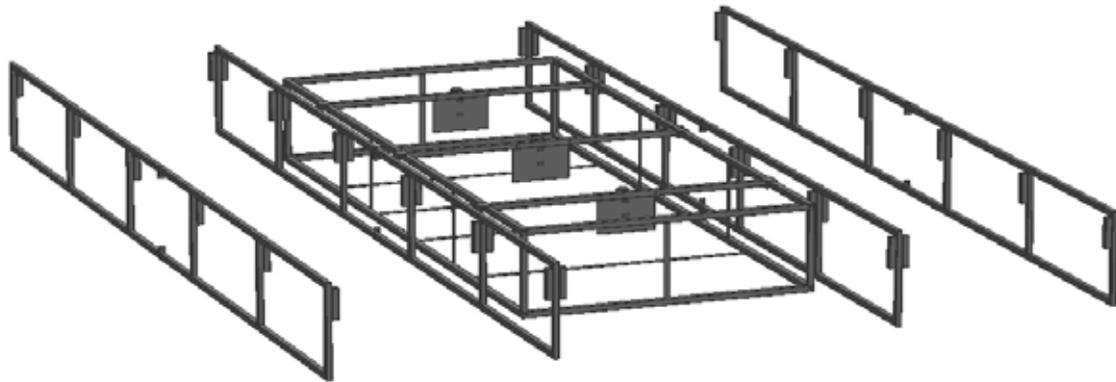


To keep this frame from bending outwards and for attaching the fountain heads, I made three bars that would hold the frame together. As you can see above the bars each hold a plate on where the heads are attached.

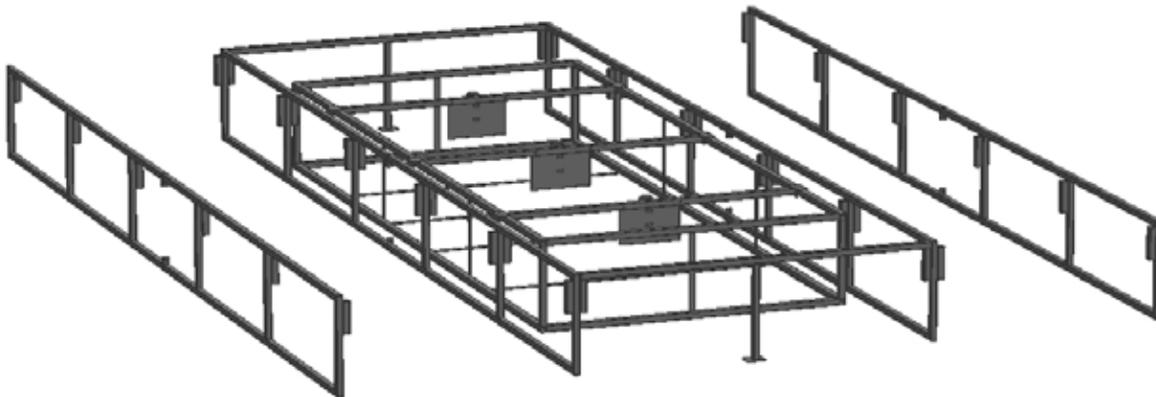




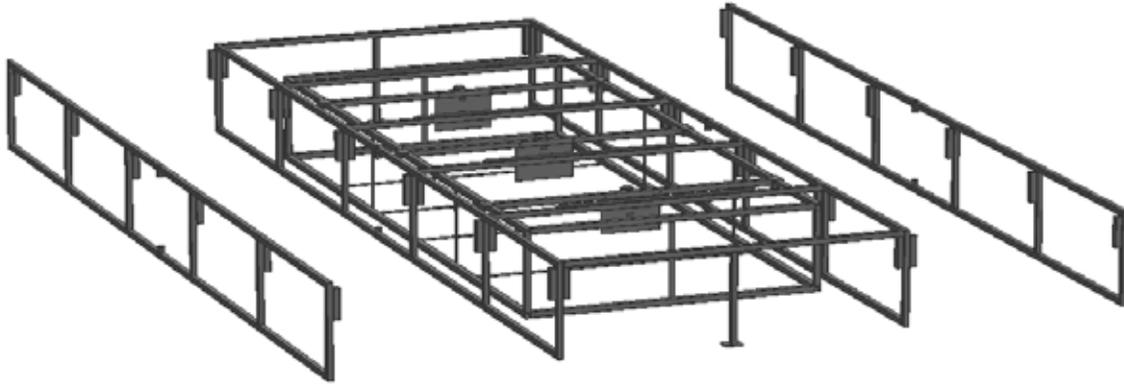
In these pictures the four middle frame are shown which are all equal, keeping it simple for production and easy for putting it together. Because the length of the total had to be 5 meters, I divided this in two to keep it easy to handle. Each frame is bolted to its opposite on two places.



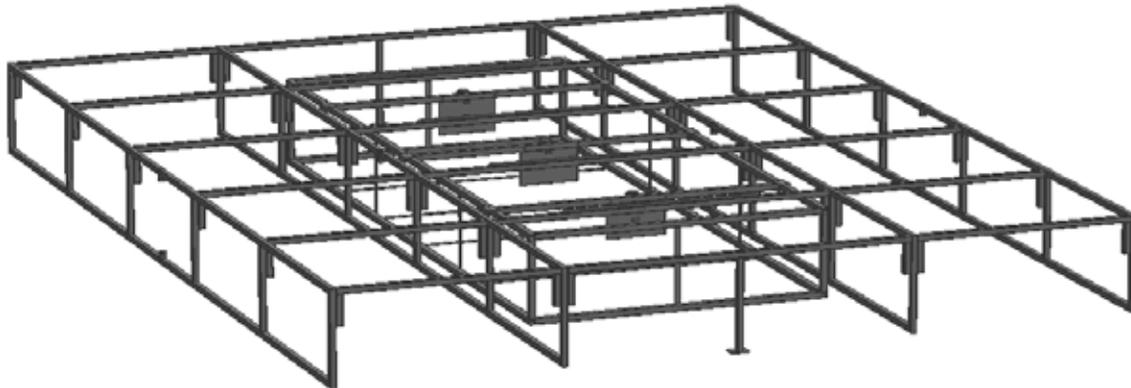
The outer four frames are then connected in the same way, expanding the frame outwards. The only difference is that these only have connection sockets on the inside.



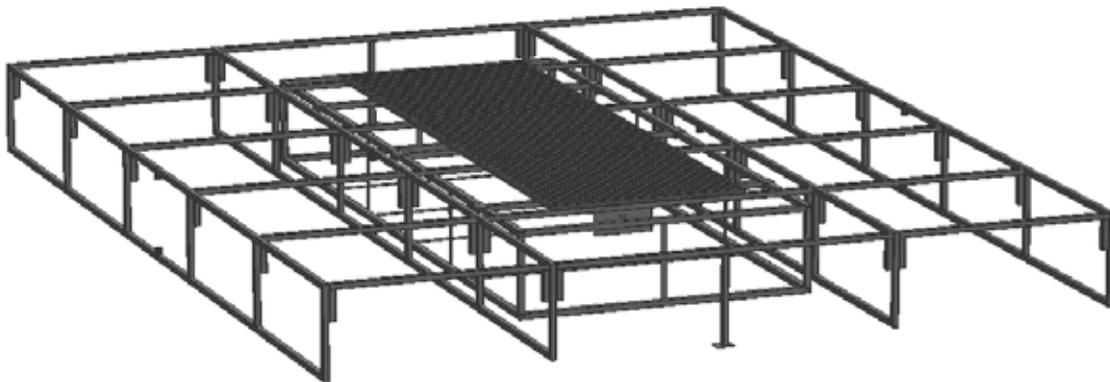
Then two connection rods are placed between the frame in the middle, each with an extra stand for carrying support. All the connection rods are connected to the frame by sliding them in the sockets.



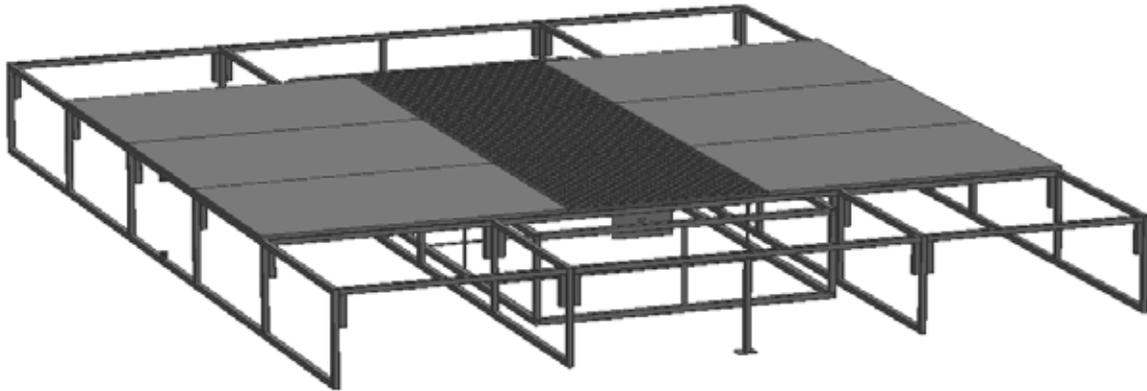
Then four more long connection rods, without supports are placed between the two middle frames. Each of them has a rib on top for holding the metal grids.



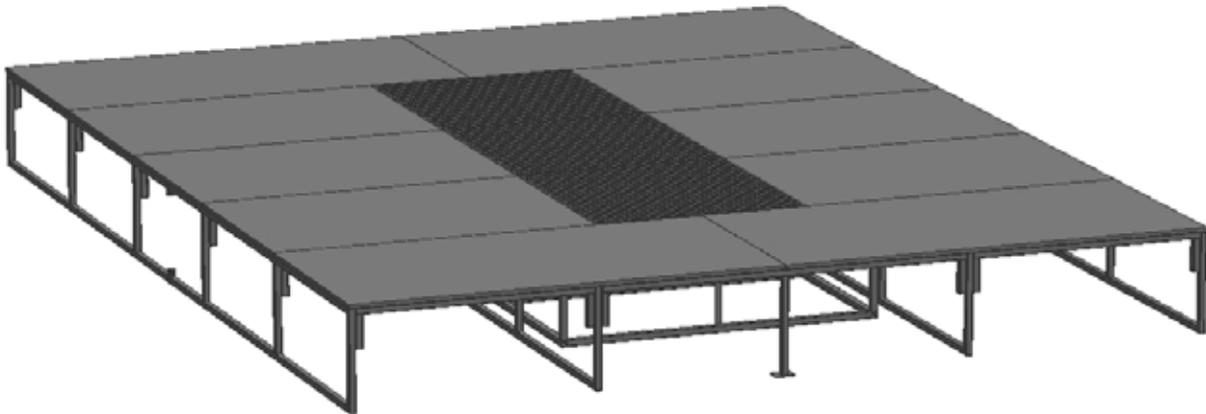
Then 12 shorter connection bars are placed between the middle frames and the ones on the side.



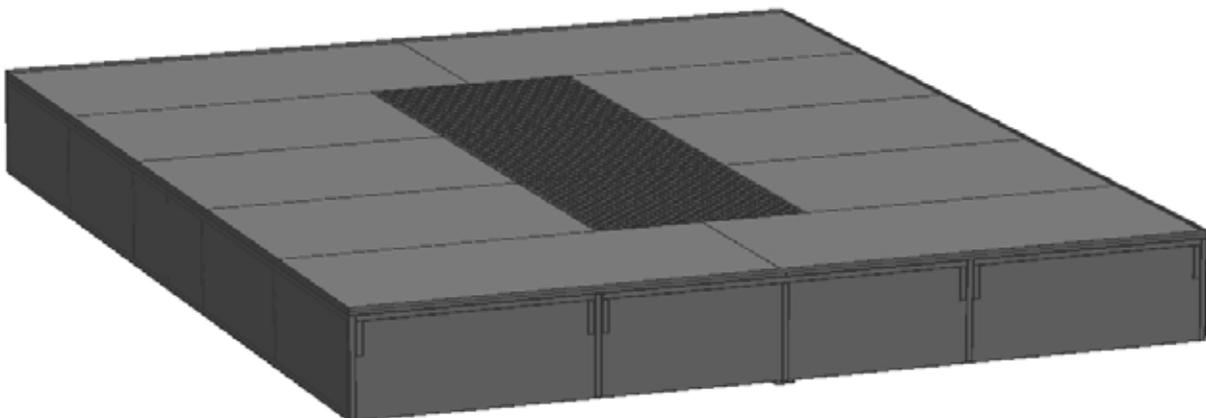
Now the metal grids can be placed in position and they're locked up between the ribs.



To cover up the frame and be able to put grass on it we chose for the simplest solution: to put wood on it. In here six of the same plates are placed next to each other, locking up the metal grids in side-way direction.



After that the last four plates can be placed the frame is completely covered up.



As we chose for a basic and industrial look, real grass, zinc metal grids, we would let the frame be zinc and for the sides we also used zinc plates.

Building the frame

In cooperation with a welding company I ordered the materials. Most of it is on the list below:

Descriptive Part Name	koker 30x30x2	koker 35x35x1.5	hoek 15x15x2	strip 30x5	strip 15x2
_samenstelling frame01					
hoek 15x15x2x3034 x 2			6068		
rooster met gaten x 3					
rooster zonder gaten2 x 3					
samenstelling bout moer revet x 8					
bout_m8x25					
moer_m8					
revet-m8 x 2					
samenstelling fonteinkop + pomp					
samenstelling hekframe binnen x 4					
koker 30x30x2x2493 x 2	19944				
koker 30x30x2x405 x 3	4860				
koker 34x34x2x150 x 6		3600			
strip 30x60x5 bev plaat x 2				480	
samenstelling hekframe buiten1 x 2					
koker 30x30x2x2493 x 2	9972				
koker 30x30x2x405 x 3	2430				
koker 34x34x2x150 x 3		900			
strip 30x60x5 bev plaat x 2				240	
samenstelling hekframe buiten2 x 2					
koker 30x30x2x2493 x 2	9972				
koker 30x30x2x405 x 3	2430				
koker 34x34x2x150 x 3		900			
strip 30x60x5 bev plaat x 2				240	
samenstelling plaatwerk					
samenstelling tussenstuk x 12					
koker 30x30x2x1084	13008				
koker 30x30x2x150 x 2	3600				
samenstelling tussenstuk2 x 2					
koker 30x30x2x150 x 2	600				
koker 30x30x2x1694	6776				
koker 30x30x2x430	860				
strip 60x90x5 voetje				180	
samenstelling tussenstuk3 x 4					
koker 30x30x2x150 x 2	1200				
koker 30x30x2x1694	6776				
strip 15x2x1000					4000
samenstelling waterbak	22000			16200	
Aantal meters van bovenstaand profiel	104428	5400	6068	17340	4000
Aantal lengtes van 6 meter	17,40466667	0,9	1,0113333333	2,89	0,666667
Bestel aantal	19	1	2	3	1

koker 30x30x2	koker 35x35x1.5	hoek 15x15x2	strip 30x5	strip 15x2
20 x 6meter	2 x 6meter	2 x 6meter	3 x 6 meter	1 x 6meter

+ 3 metal zincked grids 1000x1000
 + 10 wooden plates 2440x1220x18

Then I began preparing the metal, as in sawing, grinding drilling and sanding. For every part in the frame I made technical drawings which are really necessary when working with exact measurements. Every part was welded together by a professional welder as we had to be sure of solid connections.

When the first part was finished I brought it to the TU/e where we could test it.



This is the complete pile of the finished frame in parts, nicely compact.



Then I put it together to try out the size and fitting of the sockets.





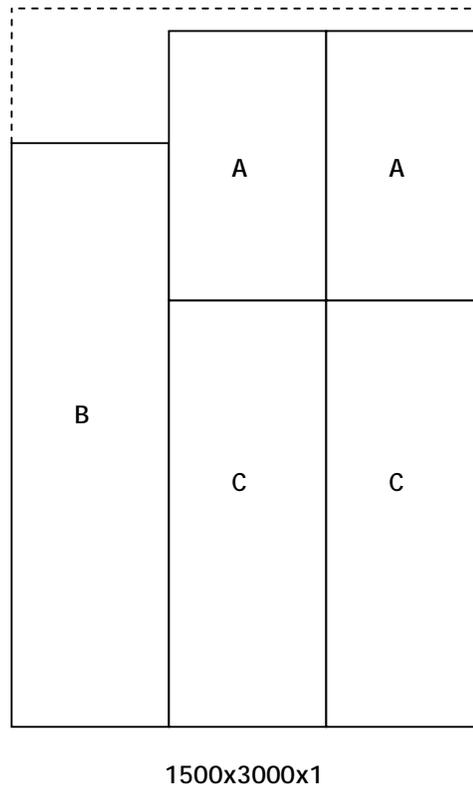
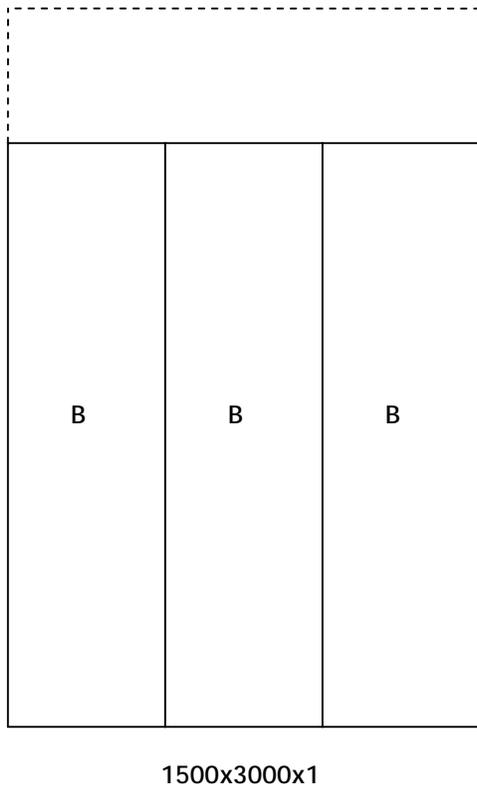
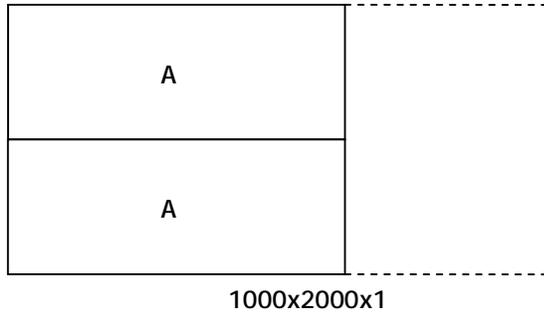
This is how it looked when put together, still in raw metal.





Then I brought it to a factory where it would be zined.

Now the zinc plates could also be ordered so I made a drawing how the metal company would have to cut it:



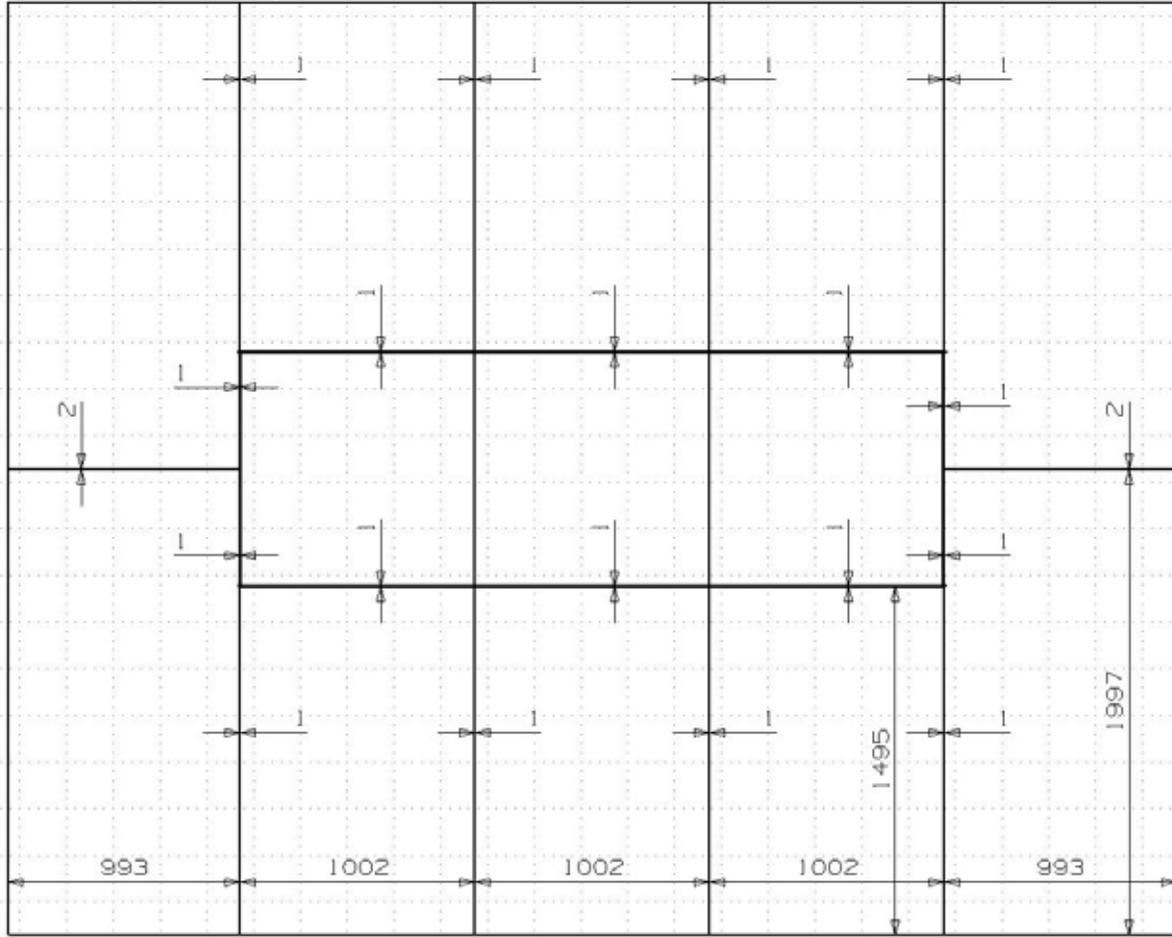
Zinc plates 1mm

4x A=500x1132x1

4x B=500x2498x1

2x C=500x1734x1

And a drawing for ordering the wood:



After the zincing of the frame it had to be finished so I re-drilled the holes, tapped the screw holes and sanded it to smoothen it from burs.

After that the fountain was build up in the W-hal where we covered the frame for the water basin with betonplex, then carpet and finished it with foil. Then the rest of the frame was put together and the zinc side plates were attached. Now it was almost complete and took it back apart to build it up at the ID faculty.



Now the wooden plates were placed and these were covered in foli to protect it from the water.



And the testing could begin!



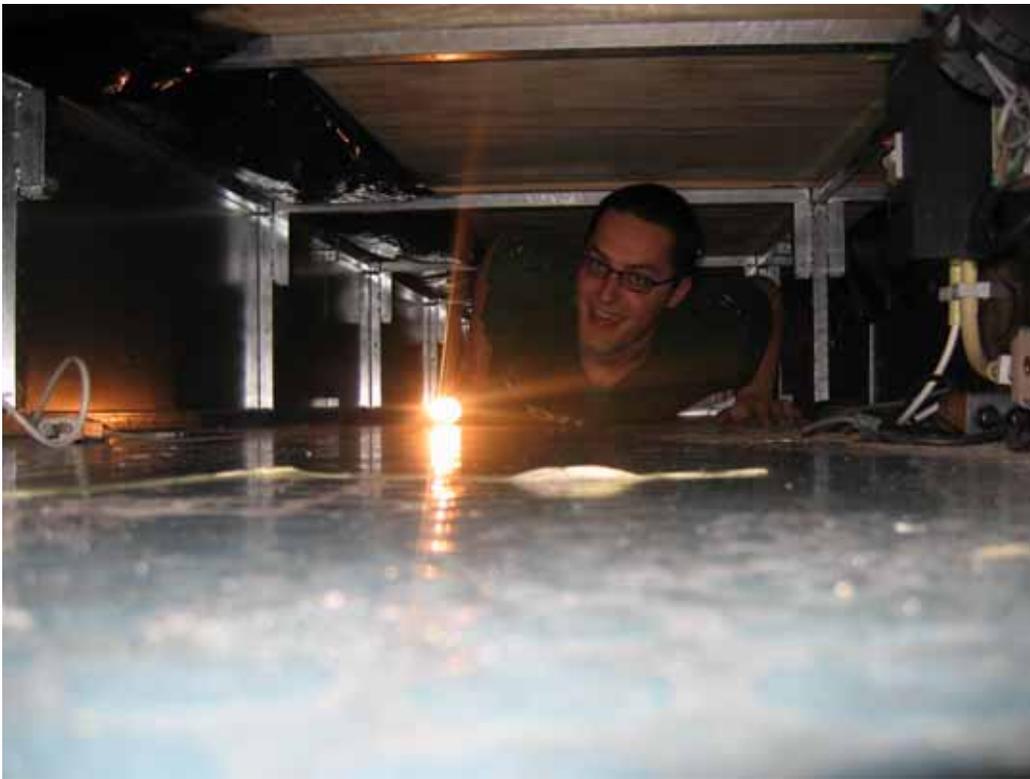
This is how it looked for our final presentation at ID, as you can see the jet for the euro is relatively low, which was caused by a pump defect. This was later solved as we find out that two of the three current phases of the pump appeared to be switched. After the presentation the fountain was taken apart again to transport it to the exhibition in Amsterdam.



There we positioned the water basin exactly in the middle between the pillars and build it up again.



Here you can see it's almost complete and the nice banners are already hanging.



I had to crawl under the frame to finish up the last connections and pull the foil under the frame.



As finishing touch the grass is placed on the fountain and the jets are already running!



The team is washing their hands after placing the grass.



The fountain in full action! Yes, we managed to get the ceiling wet!



This is a picture from the fountain at the opening of the exhibition, nicely lit with spotlights.



The whole team (except for Ronald) with our coach and one of the experts. We did it!