

**Towards a project specific innovative design approach**  
**The current architectural designs shows us that a new approach of façade engineering is needed to reach the visual quality the architect has in mind.**

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Reflection

## Reflection

When looking back on my design I think I succeeded in achieving the goals I set to myself.

In the beginning it was a struggle to get the right theme for my research, during the P2 I was heading in a more theoretical real estate and housing topic, but what I wanted was a research by design.

After my P2 I changed my main question in a more design direction but a comparison between two different approaches still was a very important part of my graduation. The literature research I presented during the P2 was still valuable because it was more about facades and façade engineering processes in general.

During my p3 I presented the design I made on basis of a preliminary design by MVRDV for the Tianjin library, I succeeded in making a technical feasible design principle but some parts were not solved yet, there are also some choices the architect should make, these choices are not very big concessions but more ways to make sure the building will perform better.

After my p3 I made the comparison between my elaboration and the elaboration Schüco and MVRDV did.

The input on this stage from MVRDV was very little therefore I had to make some assumptions to make a good comparison. For this comparison I choose the options which are the minimum according to legislation or the most standard solution. This made the comparison less accurate because I had to guess some variables, but I think the comparison is still valuable, because the information I had shown there ambition level.

The research confirmed my hypothesis but was also interesting that the difference on certain topics was smaller than expected.

### How and why of the research reflected

The goal of my research was to find out if there is a need to come up with a new façade engineering approach. One forehand I separated two ways to make a façade engineering, the first one is a more product specific approach and the second a project specific approach.

In my research and daily business as building engineer at ABT, I found out that often the architect has to do a lot of concessions to their first thoughts to get the façade to work. So in my graduation I look to find out how the current way of engineering a façade take place and seek for a new approach where the architectural principles are the starting point and eventually the architect don't have to do any concessions or just little concessions.

I went to MVRDV with the question if they have a complex project where they do an engineering and where I was allowed to do the same engineering but then on a different way.

I was lucky that they were working on a library in China where they engineer the façade in cooperation with Schüco, so on a more product specific system. On the moment I was there they just finishing the definitive design.

So this was a perfect moment to start with a more project specific design because all the design requirements where there.

After I finishing the project specific design I theoretically was able to make an objective comparison between both approaches, but I didn't get all the required information I needed to do this comparison.

First I have to translate the facade detail principle MVRDV come up with to a three dimensional model to make sure I can compare this properly to the same fragment out of my own three dimensional model.

When I finished these models the comparison was a success. I confirmed my hypotheses but I also found out that some of the negative hypotheses weren't so negative.

### **Aspect 1: the relationship between research and design.**

My research is design focused because I want to make a comparison between a product specific approach of a certain project and for the same project a project specific approach. Therefore I have to made a project specific design for a case where another company do a product specific design.

To learn more about the basic principles of the façade I read several books. (As you can see in the literature study above) In these books I came across several requirements a façade has to cope with. For example climate, user comfort and building legislation

With these theoretical knowledge I was able to make a suitable design for this situation, coping with all the requirements from the legislation.

So in this case I first did the theoretical research which forms part of the engineering guide line.

After the design I did some research in weight, material cost and climate to make a proper evaluation of the design proposals.

What you can see in my graduation is that research and design follow up on each other, first I did some theoretical research to find out where the design has to cope with. Then I use this design to do a deeper research in façade design approaches.

#### Aspect 4: The relationship between the project and the wider social context.

What you see is when complexity grows in the façade design, the more concessions the architect has to do.

I talked to several architects and they do not like this way of dealing with projects, because they want to make a beautiful complex design which actually can be built on time and in the budget they get from the client.

To achieve this I think there should be a different way of engineering these complex façade designs, where we not take standardized products but make products or an assembly of several products specific for this design.

This has a social impact on the architectural business because the engineer should be involved earlier in the process, to help the architect make an feasible design for the façade in an early stage. The classic roles will shift.

Then the influence is bigger and also they can help to tempt the client to spend more money on the façade to get a better design and performance.

What you also can see is if you think out of the box the performance is much better. Therefore there is less impact on the environment.

The other social aspect is on rules, legislation and certificating. These aspects has to change in order to make innovative façade designs and engineering possible.