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Abstract: Architectural reflections on residential buildings and their renovation – destruction or preservation of the architectural language

This paper is about a study of Dutch residential buildings in the 20th century and the architectural means that were used to create an appearance towards the neighbourhood. The study shows how this appearance changed after renovation. More than 80% of the Dutch housing stock was built after World War II. These post-war buildings are, for a large part, renovated or waiting to be renovated. Often this happens without taking care of the once elaborated appearance of the building. The story the building told in its original form disappears during the renovation.

First, the paper will elaborate on the visual perception of architecture. Then it will build up a framework of analysis for the chosen cases. Different examples will show the architectural means that originally created the appearance of the building and how it was dealt with during the renovation. The paper derived from the conclusions of a PhD research about the presentation and representation of the Dutch residential buildings towards the public domain. It is meant as a starting point for further research and discussions in the field of the renovation and transformation of the residential housing stock.

Introduction

This paper stands in close connection to my PhD research which is finished at the moment of writing this and is expected to be published after summer 2016. Therefore this paper will show only some first sketches, but not yet the whole outcome. The theme of the PhD is: “The façade as an intermediary element between outside and inside. About the presentation and representation of the twenties century residential building in the Netherlands.”

The Dutch history in residential buildings is enormously diverse, especially in the twenties century when the development of different housing types, of production methods and of ideologies about the appearance of those buildings changed rapidly. One of the striking points was the position of the architect who, in former times more interested in designing public buildings, started to be involved into the design of residential buildings at the end of the nineteenth century. Stacking dwellings was not common in the history of the Dutch houses and the discussion between architects about the access and the appearance of these buildings, especially built in the cities where high density got an issue, was tremendous. The choices architects made in the design of the residential buildings were a mirror of the society throughout the twenties century, running from economical solutions or functional bounded ones just showing the most necessary elements up to more social bounded solutions to let the residents feel comfortable with their home, offering collective spaces between outside and inside. At the end of the twenties century we even find illusionary appearances, pretending other usage than the building is built for.

To understand the design choices of the architects in former times and the architectural means they used to build up the façade to the public domain, a PhD research was done which brought hundred years of development of the Dutch residential house in a timeline, showing the visual architectural means with which the architects articulated the residential house. Today, more than 80% of the Dutch housing stock we have was built after World War II. These post-war buildings are now partly waiting to be renovated.

This paper will explain a method to read facades and to understand the way the architect designed them. This will be done by first explaining how our visual perception works, and then how we can look at a façade by making reduction drawings of the façade to understand the means that make the façade readable. Then different examples will show how the façade once was built up and nowadays is renovated and what this means for the architectural language of the façade of the building.

1. The visual perception of architecture

Niels Prak, architect, writer and former teacher at the University of Technology in Delft, in 1973 showed how human beings perceive the environment visually by explaining the *Gestalt-laws*. These laws show how our eye selects visual information in a quick first scan, and then a second, long term scan follows. In the first quick scan we perceive only the simple forms like the head form of a building, for example a rectangle. This is the first impression. According to the *Gestalt-law* our eye perceives horizontal or vertical lines in a second scan much easier than complex lines and forms. Those are more difficult to remember by our brain. These very simple laws can help the architect during his design and it can help to build up an analysis frame. For example: if a very long building with a long façade gets a vertical rhythm by some protruded bay windows or some vertical change of materialisation (even a rainwater drainage can work as means for rhythm), the appearance of the building can be shorter, which perhaps is more easy to read and more pleasant in the streetscape. In the same way different forms, added to a main complex, can be visually connected by a horizontal line, for example a beam articulating the connection of all parts to one building. The main laws for our perception Niels Prak explained, can be connected to architectural means like the rectangle for the *head form*, vertical lines for *rhythm*, different forms for *redundancy*, profile changes for *depth*, horizontal lines for *continuity* and an interruption of lines for *discontinuity*. A *head form* which is too huge for the scape of the neighbourhood can be divided in sub-forms by vertical rhythm, or by dividing the form into smaller forms. Lots of individual forms on the contrary can be bound together by horizontal architectural means like articulated lintels or window sills or decoration. Rhythm can help to read where a dwelling is situated in the building and where the next starts, by grouping windows and repeat this group a clear rhythm and an understanding of the residential building appears. A disruption of continuity with a protruding part of the building can help to make an entrance visible. This first examples show how architects can use the *Gestalt-laws* during the design to make a building and its façade more readable or to provoke effects. In the following a method is developed to analyse the façade by reduction to different parameters to get an deeper understanding of the design choices the architects made. This methods takes into account the *Gestalt-laws* on the one hand and the analogy of a façade to a human face on the other.

2. An applicable research tool for the facade

Architects often have used the human body as a reference, while searching for methods to order and compose a building. The link from the human face to the façade of a building is obvious. Architects have discussed this analogy between the human face and the façade frequently. In this paper this discussion will not be elaborated. Important is to say that the façade of course is only metaphorically speaking like a face, the face lives and moves dynamically every second, the façade is static, but it is a very important part of the building to present to the environment like the face is for the human beings.

In the research about the facade of the residential building, the analogy of the human face is a starting point to trace the noteworthy means that build up the façade. Parts of the face are referred to, knowing that the face is a metaphor. A face has a *head form*. We already have seen that this form is important for the first impression as our visual perception will only scan the simple forms in a second. The striking elements of the face, next to the head form are the most obvious ones: the eyes, the nose, the mouth, the forehead, the chin, and the cheeks. The main composition of the face is symmetrical, with the nose and the mouth in the centre. Eyes and ears are then symmetrical with respect to this centre. Horizontally, the face can be divided in three parts, the mouth, the eyes and the forehead. For the analysis of facades these striking elements of the human face are translated to striking elements of the façade: The mouth is translated to the *door*, the eyes are translated to the *openings*, the nose is translated to *protruding vertical elements* in the façade and articulations like the face has as well, are searched for by looking at *constructive parts* that are visible and *decorative* means in the façade. On this way the parameters for the analysis of a façade are built up.

The door was and still is the most important element of the facade. The door is a sign of entrance that everybody understands through his own experience with it. It appears that from the very beginning of settlement the door, the roof (like a crown of the head) and the openings were the important parts of the appearance of the house. The façade of the residential building in the twenties century got more complex during time as more social units lived in one building which makes representation more complex anyway. Whom or what should be represented with different groups in one house?

The main frame of the analysis drawings that are made is noted in the scheme. During the analysis the symmetry and their means will get clear almost automatically.

<i>The face and its elements:</i>		<i>The face of the building:</i>
Main form and profile	=	head form of the building and profile
Eyes, mouth	=	the openings , windows, doors and other openings
Eyebrows, eyelashes	=	visible constructive details and/or decoration
Nose	=	protruding-/extruding means
Skin	=	Material, colour, decoration, texture (photograph)

3. An example of a reduction of the facade

The method will be explained on one case to show the possibility to extract themes by making reduction drawings and eventually *read* and understand more about the design decisions of the architect in this way. At the end of the nineteenth century housing shortage often caused unsafe residential environments that did not meet the needs of hygienically basic equipment, fire escape routes and basic space to breath. Due to these problems the city government of The Hague introduced new laws to get rid of the densification of the inner courtyards. From that time on entrances to dwellings needed to be situated at the street (Algemeene Politieverordening van 1892). As a result the Hague entrance stairs were invented offering every dwelling his own entrance door in direct contact with the street (only an outside stair would be between door and street). The photograph illustrates the first three 'Hague entrances' in The Netherlands, built in 1901 by Stephanus Steens. Three buildings of this type were standing next to each other. Each portal can be perceived very easily. To understand how this façade is built up some drawings are made which extracted the above mentioned themes of the face. The more complex a façade, the more these drawings help to generate a deeper understanding of the design of the façade. This example is an easy one.

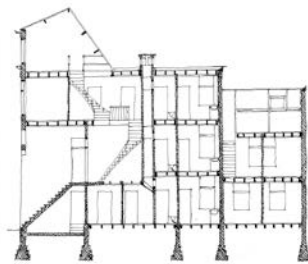
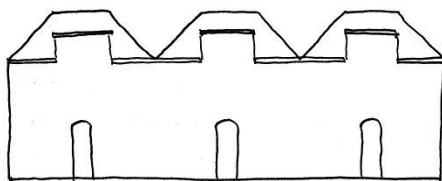


Figure 1: The Hague entrance, S. Steens, 1901, photograph and section.



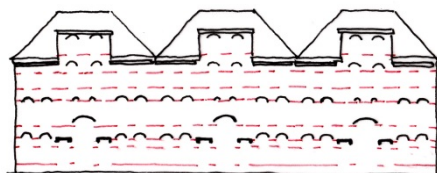
A sketch of the three buildings



A sketch drawing of the head form.



A sketch drawing of the openings.



The visible constructive details and in red decoration



The protruding-/extruding means of this façade.

The *head form* clearly shows three buildings with a clear centre, articulated by the roof chapel. Every group of dwellings that use the same stair can be easily found. By drawing the *head form*, it gets clear that it was important to show three different houses, to make the appearance in the streetscape not longer than necessary and to give each group of six social units a perception of their own house. By drawing all the *openings* it can be seen that the windows are grouped around the portal, the portal itself is articulated by

special small windows. By drawing the visible constructive details and/or decoration and the protruding-/extruding means of this façade, here the extruding portico where the stair is positioned, the articulation of the whole façade gets very clear.

The photograph shows the former buildings in the streetscape and the situation today, after renovation in 1988. The three houses are not visible any more, all articulations of the portal and even the portal itself are gone, the roof is changes for another floor with a flat roof. Nothing remembers us of these special houses which were the starting point of a new dwelling type in The Hague.

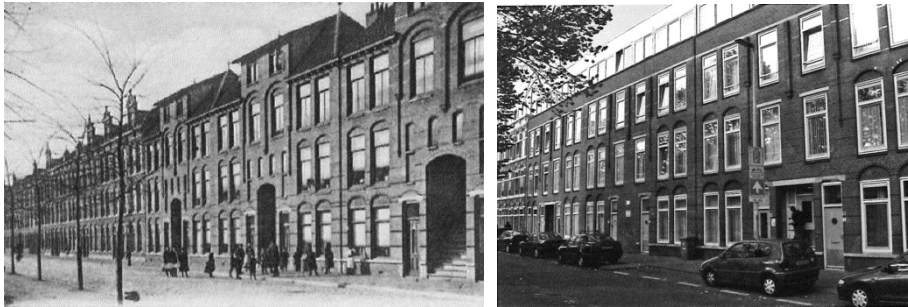


Figure 2: Left side: the three houses in a row. Right side: After renovation.

These first sketches of the façade towards the public domain illustrate how the façade is built up by the architect. Further themes to draw depend on the building; a section to show the depth of the building, especially the entrance often is very relevant. Material changes can be shown in an extra drawing as well.

4. Case studies (after WWII)

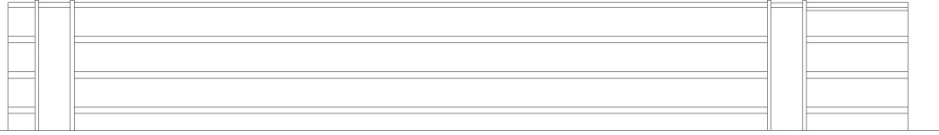
Analysing built cases is an often-used research method within architecture. Selected cases represent a broad spectrum of one type of building, here the residential building of the twenties century in the Netherlands. During the last century different types of collective residential buildings can be categorized. Interestingly new types of access led to new types of collective residential houses like the ‘Hague entrance’; the shared access gallery; the shared staircase, and new ideologies created new categories of types as well. In this paper two further cases will be shown to illustrate their design and their renovation. The dissertation elaborates on ten cases. The examples shown here are built after WWII. For all the cases within the broader PhD research analytical drawings were made with the method described above. To study all cases I would like to refer to the PhD that will be published soon.

a. The access gallery flat in Pendrecht in Rotterdam (1955-58), architects Jos & Leo de Jonge



Figure 3: Stellendamhof – a gallery flat in Rotterdam Pendrecht.

The photograph shows typical gallery flats built in the first years after the war. The concrete floors and beams that support the access gallery are at work poured and not, as later done, prefabrication. They are painted white and form an articulation all around the building. This gives the building a clear and strong shape. The red brick of the walls form a strong contrast to the white horizontal lines of the concrete stripes. The first scan of the eye will scan these horizontal lines immediately. Therefore the head form is the most important drawing in this case. Next to that the materialisation shift from concrete to brick is important.



The head form, built up by horizontal and vertical lines.

The reduction drawing of the *head form* of the building shows only the rectangular form and the horizontal lines, framed by the two towers of the staircases on the public side (one is visible on the photograph). It makes clear that only some horizontal and vertical lines built up the form.



Figure 4: Stellingdamhof –the façade towards the collective garden.

The renovation shows that the head form, except the rectangular itself, was neglected. No horizontal articulation runs around the building anymore. The brick walls are plastered and at the place of the small loggia's the former white painted concrete is red. But, as it does not follow a horizontal line anymore, the loggia's are articulated as a group in the façade vertically. This changes the appearance drastically.

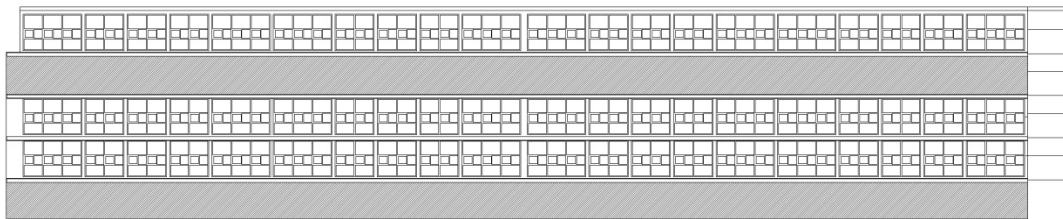
b. The residential complex het Breed in Amsterdam (1962-68), architect Frans van Gool



Figure 5: The façade of the entrance side of one building of Het Breed.

The residential building complex 'Het Breed' was built in a newly developed neighbourhood in Amsterdam in the 1960s, a time of politicians increasing the volume of mass housing produced per year. It is based on the Modernist' ideas of living within a recreation park and inspired by the idea of the street in the air which was once attempted in 1919 by the Justus van Effen complex in Rotterdam, in the 'Unité d'habitation' (1952) by Le Corbusier and later as well found in the ideas of the Smithson's for example in Robin Hood Gardens, completed in 1972. The complex consists of eleven slabs. The first impression of this complex is, next to long equal rectangular forms, an addition of pillars. These pillars are so dominant that they have the status of being the most important elements for the representation of the whole neighbourhood. The massive concrete staircases at the edge of the buildings cannot compete with them. To make this impression even stronger, the columns are placed at every floor, even in front of the windows and even when not constructively necessary. The façade is extraordinary. The strength of the pillars makes the buildings totally homogenous. They seem to act as a veil covering the dwellings. The representation of the façade is anonymity. The architect himself explained that his aim was to show the anonymity of living in the city, therefore he decided to use a screen in front of the flats.

The façade is layered in different layers. The first is the most visible, the one with the pillars and the windows behind this screen on the first, second and fourth floor. In a setback on the ground floor and the third floor (the gallery level) the façade had a second layer with the entrances to the dwellings, doors for storage and windows offering light to internal staircases that provide access to the dwellings on the first floor, or, on the gallery level, to the dwelling on the second and fourth floor. Inside, the entrance doors to the dwellings form a last layer, not visible from the outside. To understand all the layers lots of reduction drawings are made. Especially the subdivision of the window frames is an interesting one which will be shown here.



The subdivision of the windows shows horizontal window frames rather than vertical ones.

All the buildings use consequently this subdivision of the windows, even at the ground floor there are no doors to the collective garden, but windows which was part of the ideology to have a collective garden which is equally belonging to all the dwellers, no terraces for the ground floor flats. But the consequence of using horizontal partitions makes the vertical pillars even stronger. They are the only vertical element the eye will scan immediately. After renovation of the whole complex the windows had to be exchanged. The result is shown below.



Figure 6: The façade before and after renovation. Left: the new windows, right: the old ones.

5. Conclusion

In this paper a way to look at the façade is introduced. The more complex the façade, the more it helps to focus on some aspects and draw them separately. As the façade is the part of the building which gives the first impression of the building, here we can read about the ideas of the architect, about the production method of the time, about the ideologies coming up in a society. The examples, the *Hague entrance* type, the *gallery flat* in Pendrecht and the residential complex *Het Breed* have shown how the façade was built up and how it was dealt with during the renovation. In all the three examples the spectator could read important information. The Hague entrance type clearly offered houses for only six units, easily perceivable, with a new entrance type which was, by the means of the architect, easy to see. It even offered some image of value and status. During the renovation this language was eliminated.

The gallery flats in Pendrecht showed the way of production and at the same time a clear entrance type. The floors were a very strong element of the appearance, giving the building strength. The contrast between concrete and brick emphasized this strength. During the renovation the brick and the concrete was covered by plasterwork, the language was changed drastically.

The residential complex op Het Breed was a statement of living in anonymity, but at the same time the pillar almost functioned as an arcade. It was a symbol of a new decade of housing and the architect had chosen this veil of pillars carefully. The change of the windows, now vertically divided, introduced a new vertical layer which is competitive to the pillar and makes the pillar screen less strong.

It is discussable of course whether the former ideas and ideologies of architects must be kept during renovation, but is worth bringing the former façade under attention by searching for the important means that were build up. Then a profound renovation can be done.

Figures:

Figure 1: photograph and section: Niels Prak 1991, 146 and 147.

Figure 2: Maarten Jan Hoekstra 2009,168 and 169.

Figure 3: *Bouwkundig Weekblad* 1960, nr.2, 49. Ir. J. van Tol. *De Rotterdamse woonwijk Pendrecht*.

Figure 4: Photograph made by the author.

Figure 5: Photograph made by the author.

Figure 6: Photograph made by the author.

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