

Analysing Buildings from Context to Detail in Time: the ABCD⊕ research method

Case Study: Friesland Provincial Library in Leeuwarden

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Abstract *Progress does not amount to destroying the future, but to preserving its essence, to generate the impetus to do it better today* (Y. Ortega Y Gasset 1951). Working in the areas of history and construction technology, the spirit of these statement guided my research: developing a research method for buildings not listed (yet) as monuments but needed to be analysed before the next approach. When studying buildings it is essential to consider not only the art history, social and urban planning factors, but especially the construction engineering aspects. In this way, a deeper understanding of the underlying design and building methods used in our built environment can be developed. There have been many historical and architectural studies of buildings. The period since the Second World War has received particular interest. Unfortunately, most of these studies do not address the technical aspects of the construction of these buildings. However, these issues were covered by publications at the time these buildings were constructed. Technology provided me with the inspiration to develop a more comprehensive research method to assess buildings: Analysing Buildings from Context to Detail in time: ABCD⊕ research method. Technology, at academic level, should be considered in the analysis of a building. Here we are concerned with construction engineering, the study of the requirements associated with constructing buildings. The Analysing Building Construction in time research matrix (ABC⊕ matrix) can be used in practice. It incorporates the study outcomes which relate to the building itself. Contextual aspects as well as building aspects are included. They can be analysed at the three time levels to draw conclusions which are relevant to the future existence of the building. The case study of the Friesland Provincial Library in Leeuwarden will be worked out in the conference paper.

Keywords: Analyzing, buildings, context, detail, Leeuwarden, library, technology, time, regeneration, redesign, research method

Introduction

Progress does not amount to destroying the future, but to preserving its essence, to generate the impetus to do it better today (Y. Ortega Y Gasset 1951). Working in the areas of history and construction technology, the spirit of these statements guided the PhD thesis which I defended in 2006 (Zijlstra 2006). In my view, when studying buildings it is essential to consider not only the art history, social and urban planning factors, but especially the construction engineering aspects. In this way, we can develop a deeper understanding of the underlying design and building methods used in our built environment. There have been many historical and architectural studies of buildings in the Netherlands. The period since the Second World War has received particular interest. Unfortunately, most of these studies do not address the technical aspects of the construction of these buildings. The built environment is continuously changing. Changes frequently have to be made when buildings are included in regeneration projects. Such changes add value to the buildings and facilitate new uses. Existing *historical* buildings provide continuity and form an identifiable, time-specific layer. My research covered buildings in the Netherlands, constructed in the period 1940 - 1970. The issues considered were based on the following themes: observation, with technical observation; research analysis, and regenerative conclusions. My work included a study of the relevant literature and

sources, and covered seven buildings. It has been worked out lately as a new research method: the ABCD⌚ (in time) research method (Zijlstra 2009).

ABCD⌚ Research Method

Past, present and future: these were the key elements of my PhD research. Studying buildings led to a link with the past. Investigating the history of the creation of a building became almost addictive, and I felt compelled to discover, collect and study everything. From this wealth of information obtained in the observation stage, I had to select the elements to use for the analysis and then to draw conclusions about future use. Past, present and future were relevant to all the buildings I studied. These three periods resulted in the three levels of analysis in the ABCD⌚ research method. When dealing with buildings, we are interested in their creation, current existence, and future existence (or, sometimes, decay). The objective of my method is to identify the qualities of a building which we have to consider when we want to stop its decay and shape its future.

Frame of Reference

When structuring the information, the list of items to be included in a study following the ABCD⌚ research method is used to demarcate the information (Frey 1979, Latham 2000 and Nelissen 1999).

The first part of the study concerns the context. It analyses the contextual aspects (brief, site, architect, typology, and design process), one after another, over all periods. The information provided by observation is sifted to obtain the contextual information which is or was relevant to the design, creation, existence and decay or future existence of the building. Where typology is concerned we should not only consider a functional or chronological order of buildings, based on building types. Instead, the buildings should be analysed primarily on the basis of a spatial typology, as the spatial conditions will remain, or may have to change when the function of the building is changed.

The second part of the study considers the building in greater detail and initially considers the following periods: creation, existence and decay/continued existence. The building is then analysed on the basis of the following aspects: space (interior and exterior); structure (load-bearing structure and elements which determine the structure); materials (the definition of space by materials, determined by: light, colour, texture, surface, sound, radiation, smell, dimensions and weight); building services (plant and installations to support climate control, comfort, maintenance and communications).

Analysing the four elements at the three levels (periods) leads to a matrix at the level of the whole building: the Analysing Building Construction in time matrix, or ABC⌚ matrix (Zijlstra 2007).

Three Time Levels

The time aspect was referred to above. For these studies, it is essential that the elements of the buildings studied are placed in time. Hence, the elements space, structure, materials and services are studied at the three time levels of analysis.

What Was Meant to Be Once the design is complete, the building is constructed. However, design activities usually continue until the building has been completed. Often the changes made further to late decisions, possibly influenced by the construction process, have a major impact on the end result. Making things, the construction method, techniques which have to prove themselves, are often only tested in practice. Changes in the schedule of requirements, regulations, legislation, budget cuts or deferred decisions can have a major impact on the design as it is built, and the possibilities and impossibilities for future use.

What Has Been We are studying existing buildings in a context which is subject to change. As mentioned earlier, everything changes, eventually. There are many things which can happen to a building during its lifecycle, which influence its current condition. Time itself, in terms of aging, is one aspect. Over time, the building owners make changes and interventions in the original design. The

extent to which the original design principles are respected, the choices made, and the requirements to be fulfilled are all aspects to be included in a study. When considering change, the funding available for making changes is also important. When constructing a building it is advisable to make investments which have a long life, even though they may have a higher first cost. My PhD research showed that during the lifecycle of a building a limited budget often benefits the qualities of that building more than a generous budget.

What is to Be or Not to Be The results from the analysis levels discussed above provide the input for an assessment of the options available with respect to the building in the longer term. The original concepts and changes over time are analysed to draw conclusions about the qualities and potential of the building.

So investigating the elements space, structure, materials and services at the three time levels of analysis produces the Analysing Building Construction in Time matrix: the ABCD⌚Matrix. When the matrix is combined with the considerations based on the contextual factors it forms the regenerative conclusions of the ABCD⌚ study of the building.

ABCD⌚ Research Matrix

The Analysing Building Construction in time matrix (ABCD⌚ matrix) which I used earlier, only incorporates study outcomes which relate to the building itself (Zijlstra 2007). At that time, the contextual aspects were not included. However, these contextual aspects can also be analysed at the three time levels to draw conclusions which are relevant to the future existence of the building. The ABCD⌚ matrix can be extended with the contextual factors to result in the ABCD⌚ matrix. This provides a summary of the key findings of the studies. In the study of the Friesland Provincial Library in Leeuwarden this was developed using the ABCD⌚ research matrix.

Provincial Library Leeuwarden	brief	site	architect	type	process	space	structure	materials	services
meant to be									
has been									
to be or not to be									

Figure 1: the ABCD⌚ research matrix used for the Friesland Library in Leeuwarden

Application of the ABCD⌚ Research Method

From the range of buildings studied for my PhD research I selected the Friesland Provincial Library in Leeuwarden (Tresoar) as an example to illustrate the ABCD⌚ research method. The building was the result of a design competition and has an apparently timeless neutrality in plan and section as well as the choice of materials for the interior and exterior. Furthermore the original architect, Piet Tauber (1927), was asked to regenerate the building extensively at the end of the twentieth century. There were only modest changes to the exterior of the building. The original design, plans and sections facilitated change. Piet Tauber, working with his son Frans, was given the opportunity to completely refurbish the building which had been in use for thirty years, and to fit it with the latest technology, without affecting the original design. In fact, this provided an opportunity to develop the original

concept better and more clearly than was possible in 1966. An essential element of this regeneration project was the role given to the original architect in the regenerative design process. After the opening in 1966, the local press commented 'You can immediately see that a building has been created which will withstand the centuries. Now it is a new building, but there will come a time when it will have a history.' (Franeke Nieuwsblad 1966). Thirty-three years, later, at the time of the second handover after the regeneration in 1999, librarian Gerard van den Broek wrote 'A building has a rigid structure which can only be changed with great effort and corresponding cost. Often one would rather leave the old, inadequate building than modify it. However, some built structures appear to be so flexible that they can apparently effortlessly accommodate the new functional requirements made of them. The building of the Friesland Provincial Library proved to be one of those.' (Tauber 2000).



Figure 2: the location of the Friesland Provincial Library in Leeuwarden

Case Study: Friesland Provincial Library Leeuwarden

Context: architect Pieter Tauber (1927) joined in 1957 the competition that was held to design the Provinciale Bibliotheek (Provincial Library) for the Province of Friesland in the Netherlands. The selected site was on the Oldehoofsterkerkhof (former graveyard) in the greenery zone of the Noorder Plantage, where the old city ramparts had been torn down in 1824. After three plans had been developed in greater detail the competition was won by Tauber. In 1959 the Provincial Council approved his design and the plan was finalised. In 1968 the library opened. The design changed during the period the plans have been worked out.

Building in Time during the construction period, head librarian Sjoerd Douma (1912-1980) managed to have many changes made to the building. These detracted from the clear design featuring a rectangular building with an atrium and small book tower within the outlines of the building. The facade was clad with stone. The fenestration appears to be random, but the window pattern is actually based on a repetition of a number of fixed window widths and combinations thereof. The neutral, rectangular outline of the building is rather timeless. The concrete load-bearing structure was based on multiples of 5.18 and 3.78 metres. All building dimensions are divisible by seven.

In 1998 the client decided on a major overhaul of the building. It was decided to change the existing building rather than build a new one. Although this meant relocating twice this approach saved costs, the unique location in Leeuwarden was preserved, and an apparently modest building was given a second life. It was decided to hire the original architect again. Together with his son Frans, Piet Tauber redesigned the Provincial Library to meet the new requirements within the original building shell. They used this opportunity to open up the 1966 design, which had become more closed-up than originally intended, on the basis of the original concept. The existing parapet of the double-height space was used to accommodate building services plant pipes and ducts, and the glass roof was raised over its full area. At the end of the building a storage area was added which was partly excavated into

the rampart. The former book tower became a plant room and new facilities were housed in the enlarged entrance area and the entrance itself was completely changed.

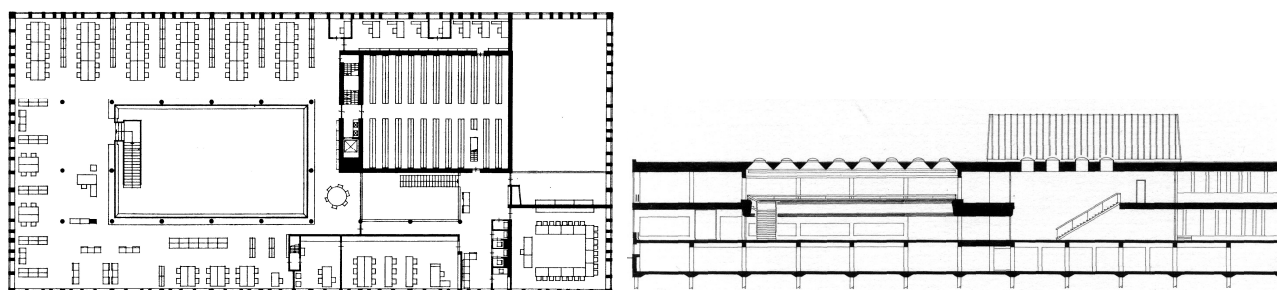
In 2004, the Provincial Library and the adjacent Rijksarchief (Government Archives), also designed by Tauber, merged to become the Tresoar. A covered bridge was added and the climate control of the archives was upgraded to comply with statutory requirements. In 2004 a large extension in the basement was realized. So in 2008 the two archives were combined. For expansions in the near future new solutions have to be found like digitalising and a relocation of some archives.

Conclusion the library was a single, freestanding block in the Northern greenery zone of Leeuwarden. The location made extensions possible. It was Tauber's first and it is his best project overall. It was based on a competition plan that completely changed. The main question is: how neutral or specific should a building be if we "build to a commission"? The regeneration was uniquely executed by the original architect who got the change to improve his own creation after thirty years.

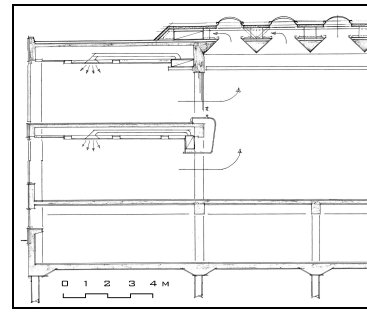
The neutral concept of a rectangular box with an atrium provided adequate opportunities for regeneration. The site facilitated a partly underground extension. The new entrance adds a neutral element, on the exterior and in the interior, which does not overshadow the original building. The original design could have been more neutral in terms of details like the column cross-sections. The building offered opportunities for modification, and the client saw the opportunities to meet the new requirements in the existing context. Tauber realised that 'building by commission', when he emphatically tried to accomplish the wishes of the director, would end in too specific solutions. This could become a problem when a formal owner leaves a building and regeneration is necessary. The Friesland Provincial Library proved that when enough space is created originally new options and improvements can be realized respecting the original design basics of a building.



Figures 3 and 4: Interior and exterior view of the Friesland Provincial Library in Leeuwarden, 1968



Figures 5 and 6: plan and section, 1966



Figures 7 and 8: the stripped building in 1999 and the new section accommodating building services pipes and ducts and the raised glass roof, 1999



Figures 9 and 10: the new entrance and the lending room which was opened up, 2002



Figure 11: The Oldehoofster tower, the library and the Government Archive along the square that covers a parking garage since 2004

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