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**Teaching Re-use Strategies  
for Modernist Buildings.  
A Case Study Handbook for a Joint  
European Master in Architecture**



## Introduction

In 2016 two ambitious objectives came together in the European Erasmus+ project *Re-use of Modernist Buildings* (RMB). This project is an educational collaboration between universities teaching architectural science, – involving partners from the Hochschule Ostwestfalen-Lippe (DEU), Istanbul Teknik Universitesi, Istanbul (TR), the University of Antwerp (BE), Universidade de Coimbra, Coimbra (PT) and the Universidade de Lisboa, Lisbon (PT), the architectural organisation DOCOMOMO International and the Energy and Resources Institute TERI (IN). The main objectives of this initiative are on the one hand, to enhance student and staff mobility through a shared educational programme on master degree level; on the other hand, to develop architectural transformation strategies for modernist buildings, its interiors and its surroundings (neighbourhood, landscape). RMB wants to develop an educational approach to this specific architectural heritage based on common approaches, definitions, and methodologies. It takes its point of departure in existing research, educational practices and reference projects in the partner countries (Deutscher Akademischer Austauschdienst, 2016). In this way, the programme will offer an international educational environment in which the issue of architectural modernist heritage, mainly from the post-war period, can be explored and knowledge across borders can be easily exchanged. In the framework of this project, a case study handbook was developed in collaboration with architectural students of the University of Antwerp (Belgium) for future students of the International Master working on the theme of Reuse of Modernist Buildings. This paper will shed light on the concept and process of developing a so-called Case Study Handbook of Modernist Buildings, illuminating its asset as an important research and design tool. However, before focusing on the handbook, we introduce the topic of re-use of modernist buildings as a teaching subject, define re-use strategies and shortly describe the RMB programme.

## Re-use of Modernist Buildings as a teaching subject

A common concern in many European countries, and for sure in the participating countries of the RMB project, is the presence of modernist buildings in the urban context. Many of these buildings echo the modernist ideology of functionality, mass production, affordability, as well as the intention of being human, hygienic and healthy. Unfortunately, many of these buildings have lost their original function, relevance and/or qualities. Moreover, all of these buildings lack contemporary standards of techniques. Confronted with this circumstance urban planners, architects, interior architects, owners, and users are facing a number of challenges relating to both architectural, urban, sustainable, programmatic, political and societal matters. Sometimes, this complex situation leads to surprising, authentic transformations; other times, interventions are accidental

Frontispiece View of the high towers at Luchtbal  
designed by H. Van Kuyck,  
photo: Els De Vos.

and carried out without care and architectural vision. Furthermore, this development can cause the demolition of valuable buildings, which qualities maybe were misunderstood, mistreated or neglected. In any case, the present and increasing need for appropriate architectural transformations of modernist buildings is omnipresent.

Obviously, there is need of architects and interior architects who are able to identify the values of modern architecture, understand the problems related to its conservation, in addition to being able to intervene and manage change in buildings and districts, without compromising their integrity and authenticity. The RMB project takes a first step to address this topic on the level of a larger, international education framework. Its overall ambition is to improve knowledge about and understanding of the modernist architectural era in order to be able to develop design tools and transformation strategies appropriate for modernist buildings and their future purpose. The RMB project aims to enhance students' understanding of modernist architecture in order to develop an architectural vocabulary that can recalibrate and/or reinvent its assets in terms of function, materiality and visual expression.

Within the theme of transformation, the RMB curriculum focuses on the development of housing. This focus corresponds closely with the present and increasing problem characteristic of all larger cities worldwide: Influx of people into cities, demographic change (singles, extended families, population ageing), ecological imbalances (mobility, pollution, ...) and presence of an outdated, dysfunctional building stock often situated on vital zones, etc. With this occurrence in mind, the RMB curriculum aims at projects that address the need for housing in concert with transformation of modernist buildings.

The RMB curriculum focusses on issues that respectively depart from a *conceptual*, *tectonic* and *societal* level (Melenhorst, Pottgiesser, Dragutinovic, 2017). On a conceptual level, it will explore the specific qualities relating to modernist architecture's novel approaches to contextual and spatial configurations (implementation in urban fabric, circulation zones, split levels, open floor plans, etc.), natural light sources, interrelation inside-outside (large window planes, balconies), communal facilities (shared laundries, rooftops, gardens, playgrounds), mixed programs (shops and flats for instance), etc. A critical assessment of these features and their possible applicability to future transformation projects will take place.

On a tectonic level, students will become acquainted with the characteristics of modernist materials, structures and construction methods. Modernist tectonics were originally experimental, innovative and opened up a newfangled register of construction systems which for instance allowed free floor plans, horizontal windows and non-load bearing facades (Le Corbusier's Domino principle). However, as we know, other aspects of these modernist construction methods, such as concrete degradation and thermal bridges, brought many modernist

buildings into a condition of decay. The RMB curriculum will study the strengths and weaknesses of modernist tectonics and search for alternative construction methods that can answer contemporary norms and standards in the field of thermal and acoustical insulation, ventilation, fire safety measurements, accessibility etc.

Finally, on a societal level, the RMB curriculum pays attention to the fact that the public opinion, authorities, and investors do not fully consider the potential of modernist buildings as valuable objects for transformation. This perception can be explained by the evolution in the post-war period in which a one-sided use of modernist tectonics in the building production became dominant. Principles of mass production and prefabrication were greedily used as instruments in order to respond to cost constraints and housing shortage. Through this practice, significant modernist properties weakened – such as functionality, lay-outs following the concept of ‘plan libre’, a strive for social equality as well as hygienic, healthy living and working environments etc. – and gave rise to negative connotations. Indeed, the process of rationalization was reduced to cost efficiency and has led to an overgrown pragmatism, at the expense of architectural and social qualities. Subsequently, much of modernist architecture became associated with alienation and failure. (Turkington, van Kempen, Wassenberg, 2004). Modernist architecture poses numerous challenges for architects, interior architects and urbanists, such as the functional obsolescence of these buildings, the material degradation, the lack of a maintenance culture, the understanding of the patina as a dirty stain in modern buildings and the general lack of recognition of modern buildings and sites. As these buildings are relatively young but often already in a bad physical condition, they are often not perceived as valuable heritage, but as obsolete and outdated building. Through a profound study of the original modernist principles and the many challenges posed by modern architecture, the RMB curriculum wants to counteract biases and enable students to reassess and advocate the architectural qualities of modernist architecture and its relevance as a subject for transformation.

### **Creating a framework for re-use**

As the development of transformation strategies for (post-) modernist buildings is elementary in the RMB programme, the exploration of the concept of re-use becomes central. During the programme, students will be confronted with many different sorts of modernist buildings, characterized by different scales, functions, state of maintenance and future possibilities.

In the process of formulating an appropriate transformation strategy for a particular building, the student should also become aware of the various ways of approaching and interpreting the term re-use. In recent years the term *adaptive reuse* is commonly used in the context of buildings. It encompasses several ways of dealing with buildings (Wong

2017, p. 10) and refers to various sorts of interventions, ranging from conservation, restoration, refurbishment, renovation, rehabilitation, conversion to retrofit. Common to these designations is that they go beyond mere maintenance and small repair.

While the majority of these terms shares the Latin prefix 're' that refers to 'repeat' or 'do again', each term signifies its own type of intervention. Each term can however differ in meaning, depending on its use in time and context. Some define adaptive reuse as the process that adapts buildings for new uses while retaining their historic features, others define it as the extension of a building's life cycle in relation to sustainability goals such as the imperative to sprawl minimization, preservation of virgin materials and energy conservation (Joachim, 2002). This makes the use of the terms confusing and discussions about reuse intervention approaches imprecise.

Based on an examination of the different terms and their definitions as they are introduced by Liam Wong in *Adaptive Reuse* (2017, pp. 13-28) and in the seminal work *Building Adaptation* by James Douglas (2015, pp. 583-594), we suggest a framework for categorization, comprised in the scheme below (fig. 1). The scheme illustrates the ranking of the different types of intervention according to the level of intensity and the level of alterations in relation to a building's original state.

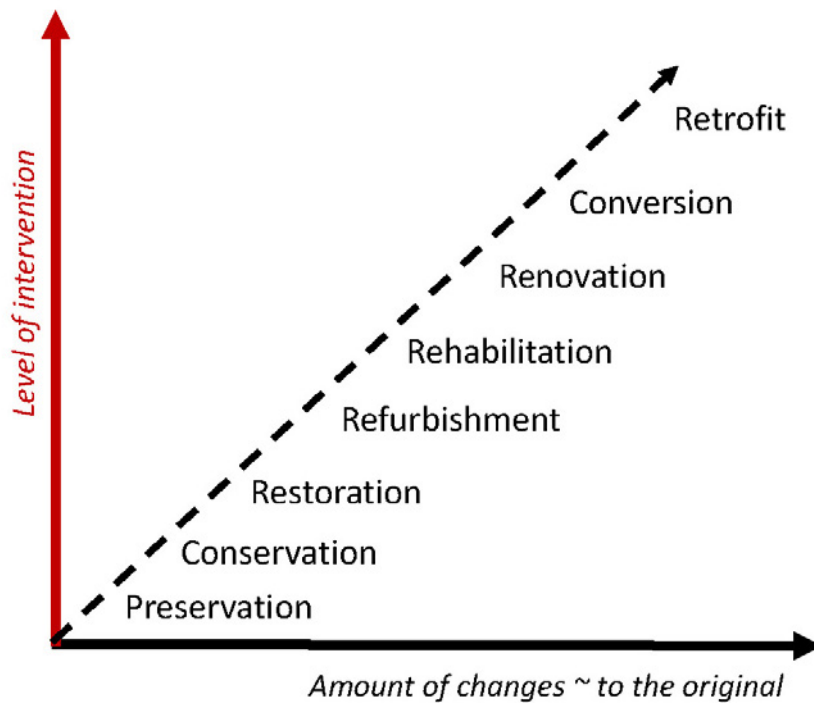
The spectrum of intervention types starts with preservation and ends with the so-called retrofit, respectively representing the most subtle and the most profound level of intervention. Keeping the intentions of the RMB programme in mind, – which is to develop transformation strategies for modernist buildings into housing, the choice of architectural design cases for the RMB programme should tolerate some degree of intervention and, at the same time, preserve significant modernist features and properties. The choice of cases should therefore rely on an analysis based on an appropriate level of intervention. Cases in which preservation, conservation and restoration are imperative, necessary alterations suitable for the RMB programme will most probably not be possible, while all other types of intervention, in most cases, would.

### **Definitions of architectural reuse terms**

According to the scheme, the terms preservation and conservation often are used as synonyms; nevertheless, they either encourage measures that will protect and maintain buildings in their current state – or will prevent further damage and deterioration of them.

*Preservation* implies the maintenance of a building in the physical condition as when it was received. Nothing is added to or subtracted. It is the sustain of existing form, integrity and materials and it focuses on the maintenance and repair of existing historic materials and retention of a building's form as it has evolved over time. It does though include protection and stabilization measures. (James Marston Fitch, 1990; James Douglas, 2015, p. 588; U. S. Dept. of the Interior, 2006).

Fig. 1 Overview of building interventions in the spectrum of adaptive reuse.



The purpose of *conservation* shares the intention of *preservation* which is to safeguard architectural value and minimize decay. Conservation however, takes the level of intervention a step higher and includes in its treatment measurements that can prevent future deterioration.

*Restoration* is the continuation of *conservation*, when *conservation* treatment is insufficient. It brings back a building to its original appearance or state by reproducing original forms, elements and characteristics as they appeared at a particular period of time on the basis of a documentary of physical evidence. Restoration contains the removal of traits from other historical periods and the reconstruction of missing features, making a building conform again to its appearance at a previous date. Restoration is characterized by small alterations, but can at the same time comprise limited and sensitive upgrading of technical systems in order to make buildings functional (Series Editors, Elsevier/ Batterworth-Heinemann, 1999; Douglas, 2015, p. 590; British Standards Institution, BS 7913, 1999).

*Refurbishment* is a type of intervention that adapts to current standards in terms of change in user demands and technical regulations. It modernizes a building without involving changes in the interior layout and/or loadbearing structure and is mainly employed in public and commercial buildings. It may involve extensions. (Giebel, 2009, p. 13; Douglas, 2015, p. 589)

According to James Douglas, *rehabilitation* "is normally confined to housing" as the term derives etymologically from the term *habitation*

(house) and may include important structural alterations to an existing dwelling. The act of rehabilitation makes it possible to transform a building through repair, alteration and additions, while preserving features that convey its historical, cultural and architectural values. (Douglas, 2015, p. 589; Weeks and Grimmer, 1995, pp. 60-61). However, the term is not allways restricted to housing. In the Icomos Appleton Charter (1989) for example, it is defined as "modification of a resource to contemporary functional standards which may involve adaptation for new use" (Wong, 2017, p. 21).

The term *renovation* refers to the process of returning something to a good state of repair. It does not add anything new, nor does it replace old with new. It maintains the value and the function of an older building through the act of upgrading and repairing to an acceptable condition, which may include works of conversion. (Giebelier, 2009, p. 12; Douglas, 2015, p. 589)

*Conversion* can be defined as something that is changed from one use, function or purpose to another. It is the act of making a building more suitable for similar or different type of function or use. Conversion always affects the structure of a building and can involve the loadbearing structure and the interior layout. (Giebelier, 2009, p. 14; Douglas, 2015, p. 584)

The last type of interventions which we have ranked as the most intensive of all types is the so-called *retrofit*. It indicates "the redesign and reconstruction of an existing facility or subsystem to incorporate new technology, to meet new requirements or to otherwise provide performance not foreseen in the original design" (Iselin and Lemer, 1993, in Douglas 2015, p. 590). This can for instance be the installation of new building systems and technologies such as heating systems, solar systems, insulation, double glazing etc. In recent years retrofit has been applied in order to make buildings more thermal-efficient and sustainable. The latter is an answer to a major, present concern "to make buildings resilient to the climatic changes that are already apparent and inevitably will become more severe in the future" (Burton, 2015, p. 1).

Intervention norms and conventions in architecture has changed strongly since 1964 when *The Venice Charter for the Conservation and Restoration of Monuments and Sites* set out the guidelines for the conservation and restoration of historic buildings. The charter stated that "the intention in conserving and restoring monuments is to safeguard them no less as works of art than as historical evidence (ICOMOS, 1964, art. 3) and that "the conservation of monuments is always facilitated by making use of them for some socially useful purpose. Such use is therefore desirable but it must not change the layout or decoration of the building. It is within these limits only that modifications demanded by a change of function should be envisaged and may be permitted" (art. 4). Moreover, the charter pleas for an investigation of the value of the elements of the building by experts, before taking decisions: "Evaluation of the importance of the elements

involved and the decision as to what may be destroyed cannot rest solely on the individual in charge of the work" (art. 11). Since then, the view on how to deal with historical monuments has broadened its scope. The Nara Document on Authenticity of 1994 has enabled a more dynamic understanding of authenticity and stressed the importance to maintain the "spirit of the building" and to illuminate the building as collective memory of humanity (ICOMOS, 1994). Eventually, the Burra Charter introduced a broad concept of place (urban, rural, industrial and modern areas) by establishing broad parameters (vernacular and everyday aspects, immaterial culture) and by admitting that cultural significance evolves over time (Australia ICOMOS, 2013). As a result, in current approaches, not solely buildings with a monumental and special architectural/cultural value can become classified, but also other sorts of buildings, such as mass housing, and even environments/landscapes, are considered worthwhile to protect as they act as the collective memory of a society.

The RMB programme operates within this broad framework of possible intervention levels and approaches with the special focus of the development of re-use strategies. For this reason, the implementation of heritage studies is an indispensable element in the RMB-curriculum. It gives students tools to classify and to determine a specific level of intervention.

### **The RMB curriculum**

In its present structure, the curriculum consists of four semesters, in which three semesters encompass teaching and design modules and a fourth semester is devoted to the accomplishment of master theses. (see fig. 2) The first three semesters include courses of "History of Modernism", "Re-use of Modernist Heritage", "Energy and Climate", "Urbanism & Landscape", "User Related and Social Aspects", "Research and Methodology" and finally "Building and Construction Systems". Parallel to the courses, students will be working on design assignments dealing with modernist buildings and their environment. These form the backbone of each semester, and are supported by the other courses.

The different courses of the programme are divided between the partner universities, divided over three regions: Central Europe (Belgium-Germany), South-Europe (Portugal with IST and Coimbra) and East-Europe (Turkey). Each region is responsible for one semester. In this way each semester will be different from another, not only content wise but also region wise, each characterized by its own emphasis and expertise (more info about the program in: Melenhorst, Pottgiesser, Dragutinovic, 2017).

The aim of this schedule is to provide students with a set of skills that enable them to make design solutions that are based on viable concepts, – in concert with a distinguished understanding and recognition of the principles and particularities of modernist buildings. It should also prepare students to act in a situation in which the expert,



an experienced professional with academic high standards, is no longer the exclusive authority to interpret and to dictate actions to the heritage conservation. During the program, and especially in the design studio, the development of communication skills in order to facilitate the process among the many stakeholders involved in the conservation and re-use process will be developed. In the master thesis, taking place in the fourth semester, all the aims should come together.

Blended learning is an aspect of the RMB programme. It will make use of innovative ways of e-learning and teaching from a distance. The partners are experimenting with Adobe-connect and also started recording lectures that can be consulted by the students at any time from any place. At the same time, intensive workshop weeks will be part of the curriculum because meeting each other and exchanging information in real-time, remain important.

### **Case Study Handbook of Modernist Buildings**

Next to the development of course contents and various teaching methods, the RMB has moreover developed a template for a so-called *Case Study Handbook of Modernist Buildings*. Its purpose is to assemble and accumulate knowledge and information about relevant modernist buildings systematically, analytically and efficiently. This handbook should serve as a tool for students throughout the courses of the RMB-master. It aspires moreover to introduce, support and inspire students in the research of particular international modernist buildings and their suitability for adaptation into housing. Additionally, knowledge and information will accumulate through the course of the RMB-programme and in the end result in a work of reference, – not only relevant for RMB-students, but also for actors dealing with modernist heritage in other fields. In future perspective, the handbook will become a palpable and accessible means when communicating about and negotiating modernist heritage with authorities, promoters and others involved in transformations of modernist buildings.

At the first Transnational Project Meeting in Lisbon in Portugal (TPM 29-30/10/2016), the case study handbook was discussed. It was – and is – regarded as a significant asset for a successful development and accomplishment of the RMB curriculum. The purpose of the case study handbook is threefold: the included cases can be used as point of departure for further examination during theory and history lessons; cases listed in the handbook can be employed in the design studios, serving as subject for design assignments; additionally, it allows registration of new case study projects, being a work in continuously progress.

At the meeting, all partners agreed on a number of common guidelines that should be kept in mind when making the case study handbook and when selecting case studies (Heitor, a.o., 2016). First, case studies should focus on housing for the aforementioned reasons. The housing need of urban agglomerations is increasing and cannot,

and should not, according to the RMB-group, be solved by new constructions only. Having a focus on modernist architecture, the RMB-project aims to address the housing need in urban contexts by focusing on the refurbishment of the existing housing stock, as well as the conversion of other building typologies such as warehouses, schools, offices and public building into housing. Projects may include different scales and range from a focus on interiors to neighbourhoods. Second, case studies should exemplify successful as well as unsuccessful conversions and adaptation interventions. Best practices, as well as failures, may generate important insights and make it possible to develop strategies for dealing with modernist architectural patrimony. Third, the case study handbook should contain specific examples of projects, illustrating innovative conversion concepts and approaches as well as adaptive re-use possibilities that transcend mere physical phenomena. In other words, the selection and analysis of the cases should not be limited to pure physical transformations, but may also include social transformations of a building project or housing estate. An example could be a high-rise housing block in which certain units are transformed into dwellings for co-housing. As such, the project will attract another kind of dwellers. Fourth, selected case studies should, next to characterization of design and construction, emphasize various aspects and difficulties of conversion, conservation or adaptation in relation to current function, use, and status. Finally, the case study handbook may also include so-called 'theoretical cases', – projects which can shed light on good, exemplary and/or innovative technical and construction solutions. In addition, projects which for instance demonstrate original transformation concepts may also be considered.

The making of a general template for the case study handbook was initiated by the team from the University of Antwerp. Its Faculty of Design Science holds a long tradition of investigating Belgian modernist design and architecture, both through design studios as through research. Antwerp master students interior architecture and architecture have actively participated in the further development of the case study handbook. In this process, methodology issues were addressed, such as: How to select projects? What sort of information should be included? How to find information? How should the handbook be structured and laid out? Once the format of the handbook definitively is defined, each partner university should contribute with relevant case study projects.

### **Designing a Template**

The team of the University of Antwerp created a template that allows all partners to add case studies in an adequate and uniform manner.

As a starting point, the template was based on the DOCOMOMO documentary record, *The Modern Movement in Architecture. Selections from the DOCOMOMO Registers* (Sharp, Cooke, 2000). This record from 2000 aimed to provide a global overview of

characteristic architecture of the Modern Movement – and to call attention to its significance worldwide in order to preserve it from obsolescence and demolition.

Much has happened since then. Now, almost 20 years later, the awareness and appreciation of modernist architecture have generally increased and many modernist architectural projects have been preserved, conversed or refurbished. The focus of the RMB Case Study Handbook is therefore also a different one than the record from 2000. Instead of focusing on canonical modernist architecture, depicting various periods within modernism, the RMB-group wants to concentrate on modernist projects that already have been conversed or refurbished successfully as well as projects that potentially could be subject for alternation and re-use. The scope of the RMB handbook embraces projects exemplifying ‘best practices’ as well as less known modernist buildings that have not yet been transformed. This approach allows us to consider the large amount of housing projects that were constructed in the aftermath of WW II and which takes in a substantial part of our urban housing stock.

While cases in the DOCOMOMO-edition only are introduced shortly, illustrated by one photograph, the RMB Case Study Handbook includes a more extensive description of selected cases. This asset provides students a rapid and thorough introduction to the cases, which will speed up further elaboration.

Besides evident parameters such as identification (name of the architect(s), date of design and building), status of protections, geographic coordinates of the sites, etcetera, other elements such as energy efficiency and environmental comfort, building-construction issues, maintenance, material and technology, as well as social aspects, are taken into account.

In consultation with DOCOMOMO International, which has experience in developing fiches for good conservation and restoration practices (Tostões, Ferreira, 2014, pp. 15–17; Tostões, Kecheng, 2014; Costa, Landrove, 1996), the case study handbook will include four phases for each case, describing the original project, the project before re-use, the project after renovation (upgrading and repairing an old building to an acceptable condition, which may include works of conversion (Douglas, 2015, p. 589)) and the present state of the project. In this way, each stage of the project can be documented in accordance with its changing character.

### **Selection and Recording of Cases**

For pragmatic reasons, we decided mainly to focus on projects realized in Antwerp as we wanted to reassure that students easily could visit the projects, more than once if needed. In order to assure an instructive and interesting assembly of architecture, the case study handbook contains cases having various scales and deriving from different architects. In the first instance, we selected well-known buildings, such

as the progressive social housing projects Kiel (1951-56) (fig. 3), designed by architect Renaat Braem and Luchtbal (1951) (fig. 4) designed by architect Hugo Van Kuyck, that were recently renovated (De Vos, Geerinckx, 2016). For the selection of theoretical cases exceptions were made and the book includes cases from abroad. So for instance the apartment block Tour Bois-le-Prêtre (1959-61) in Paris, originally designed by the French architect Raymond Lopez, is added because its refurbishment by architects Frédéric Druot, Anne Lacaton and Jean Philippe Vassal can serve as an instructive example of how to renovate and refurbish large-scale housing.

At the time when the handbook was composed, a number of design studios within the Antwerp Faculty of Design Science were working on alterations of Antwerp modernist buildings. The material which was gathered by these studios was shared and subsequently prepared for the handbook. These cases we categorized as 'working cases'. Parallel to projects, which are obviously modernistic, the handbook contains furthermore high-rise mass housing projects that were built by private investors. These types of projects were part of the commercial housing in the city. These cases proved to be interesting as they share considerable similarities in stylistic features, organization, etcetera, while they at the same time also have their particularities.

After having prepared the selection, the cases were documented. In this process various material was recorded: plans (floor plans and sections), drawings, renders, publications on the building, photographs, etc. Besides this material documentation of the cases, the case study handbook furthermore aims to register social aspects of the buildings and their neighbourhoods. For this purpose site-visits are indispensable, as they connect students with the physical appearance of the buildings as well as their users.

Eventually, it turned out that the final assembly of material was too extensive to be entirely implemented in the templates. In order to solve this problem and to keep all material available, a system of files in the data sharing platform Novell-Fillr was set up. Through this device archival material and publications on the buildings and their renovation can be stored systematically.

### **Reflection on the Results**

The making of the RMB Case Study Handbook was implemented in the curriculum at the Faculty of Design Science at the University of Antwerp as a semester course on architectural documentation methods for master students in architecture and interior architecture. The course has been conducted over two semesters and has resulted in the recording of 13 modernist case studies. Due to the relatively large number of applied cases, it has been possible to assure a variety in the type of cases which makes it easier for future contributors to get a clear picture of how and to what extent the templates can be completed. The structure of the case study handbook allows its content to expand

indefinitely. It becomes a work in continuous progress for and by students, and its content will in the course of the RMB programme accumulate and eventually become a reference book. – Not only for students but (hopefully) also for authorities that deal with housing. In other words, the handbook provides a shared platform where profound knowledge about modernist buildings, well – known as well as less known, can evolve, increase and be exchanged. It will, for sure, enhance the assumption of the RMB – group, that there are yet numerous modernist architectural works, which could and/or should be considered in terms of refurbishment and conversion.

Future contributions of cases from the other RMB-member countries will possibly show and add new insights regarding the process of recording modernist housing projects. Climatological, constructional, social and ideological conditions can be different and therefore require additions and/or adjustments to the template. The selection criteria and the definition of modernist architecture might also differ. In a later stage of the programme, the format of the current template should be evaluated and modified if necessary.

On a pedagogical level, the exercise of making the case study handbook has been rewarding in a number of ways. Through the encounter with very diverse material, originating from private and public archives, from publications (newspapers, reviews, architectural magazines, ...), interviews, personal observations, etcetera, students have, on the one hand, become aware of the many-sidedness of the architectural project as a product of complex, coinciding elements, shaped by its historical context, time, original and current architectural visions, adaptations, material condition, users, etcetera; on the other hand, because of the large amount of material, students have been



Fig. 2 View on the Kiel building designed by R. Braem in 1951. Photo: Els De Vos

trained in tracing the global picture of a particular project as well as developing a method of fast selecting and ordering.

On the level of content, the present selection of housing projects allows moreover to analyse the difference between social housing and private housing. It appears that housing experiments on a technological as well as on an artistic level took place in the sector of social housing. Once proven and approved, the private housing projects would implement identical properties. Another characterizing difference between social and private housing derives from the different profile of tenants. Contrary to the social housing projects, the private housing projects were provided with large parking garages.

For the making of the Case Study Handbook, two different main methods have been applied. One is based on the production of visual material and summaries of other materials, as mentioned above. Another is less tangible and takes its point of the departure in interviews with users/inhabitants and other related actors, for instance, the architect and developer, because the RMB-group considers a diverse, global and critical understanding of the projects as a necessity. Successful re-use of modernist housing projects depends,

**Fig. 3** View on Long Blocks at Luchtbal designed by H. Van Kuyck in 1957. Photo: Els De Vos





Fig. 4 The Antwerp students preparing the case study handbook, photo: Paul Wauters, 2018.



not only on knowledge about functionality, construction methods and applied materials, but also on notions of the spatial and environmental experience of users, personal perceptions of architectural qualities and/or failures, etcetera.

Whereas the first mentioned method is a familiar one, the second method, interviewing, is new to most students. As an additional asset of doing interviews, students became aware of a discrepancy between ordinary people and architects when it comes down to the view on modernist architecture. Through interviews students realized that inhabitants of the visited modernist buildings not necessarily shared the same appreciation for modernist buildings as architects and architectural historians.

This opposition became specifically clear in the recording of the social housing estate Kiel from 1951, designed by architect Renaat Braem. It has recently been profoundly renovated with respect for its architectural qualities. In the Case Study Handbook it is categorised as a 'best practice' case. Despite its recognition and approval by architects and architectural historians, the project is in general not received positively by its inhabitants. While architects are recognizing Kiel for being an example of modernist ideology striving for social equality and social justice – and for implementing innovative modernists features like the outdoor galleries, the so-called 'streets in the air', inhabitants lament the current, heterogeneous group of tenants for creating insecurity as well as the problems with dirt and garbage in the shared areas. Students have, however, due to the obtained knowledge about the project, recording it in its totality, been able to point out the discrepancy in perception as a matter of different viewpoints, considering different criteria.

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