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# ⓂMIT research centre at Delft University of Technology: A bridge between research, education, society and profession

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**Abstract:** In 2006, we launched the ⓂMIT Research Centre (Modification, Intervention Transformation) at the Faculty of Architecture at Delft University of Technology. ⓂMIT was founded to respond to the need for an integrated, multi-disciplinary approach to the transformation of the built environment. ⓂMIT aims to bring momentum to the renewal of education and research, and sees improved relations between the scientific and the professional community as a key step in this process. The ⓂMIT research programme stands at the epicentre of the current debate on continuity and change in architecture and construction. The conservation and transformation of existing objects is becoming more and more of a necessity, with social, economic and cultural implications. ⓂMIT builds the bridge successfully between the profession, the society, education and research.

**Key words:** education; research centre; architecture; restoration; modification; intervention; transformation; integration

## 1. Introduction

Historical awareness is one of the distinguishing features of ⓂMIT. A crucial role is played by the way in which people relate to history. It is essential in transformation projects—regardless of whether buildings, building ensembles or urban areas are involved—to carry out (design) research which recognises the historical development. After all, each (design) intervention in existing constructions constitutes a further step in development. The change is geared to continuity. Assessments and analyses give the parties in the transformation project (owners, designers, developers and policy-makers) insight into the history and the successive developmental phases of the object or ensemble. This set of facts forms the backdrop for each new development. An analysis of this backdrop gives shape and direction to the intervention. Research topics, generated by the society, have been and will be worked out by students.

## 2. Initiative

In 2004, Professor Hubert-Jan Henket took the initiative to revive the restoration section of the Faculty of Architecture of Delft University of Technology (Figure 1). This project gained momentum in 2006. After the sudden death of Professor Frits van Voorden in 2001, Henket held the chair on an interim basis. The committee to appoint a new professor supported the initiative to revive the work related to building restoration. Both research and education in this area needed a new impetus.

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**Figure 1** The building of the Faculty of Architecture of the Delft University of Technology in use since September 2008  
(The former building of the faculty was destroyed completely by a fire at May 13)

This was provided by Jo Coenen. At the end of 2004, he was appointed as professor of Restoration, on a part-time basis (Jo Coenen, 2006). He asked for the chair to be supported by a third professor, in addition to Rob van Hees, professor of Conservation and Preservation Techniques (Rob van Hees, 2007).

Coenen worked on the restoration of the Glaspaleis (Glass Palace) in Heerlen (Figure 2) and head office of the Oranje Nassau mines in Heerlen. In all his projects, he uses the context as a key issue in the design process. The transformation of the Vaillantlaan (Valliant road) in the Hague, the university buildings in Maastricht and the Céramique site, also in Maastricht, are excellent examples of his approach. In 2006, Paul Meurs was appointed as a further professor of Transformation (Paul Meurs, 2008).



**Figure 2** The Glass Place in Heerlen, restored by Jo Coenen & Co. (This project is the subject of current research at ©MIT under the theme: Analysis of interventions in buildings)

### 3. Levels of scale

This provided the basis for ⓂMIT. The Ⓜ symbolises restoration in development, as well as the Research Centre which has become an important element, in addition to architecture education. ⓂMIT has now developed into a separate department of the Faculty of Architecture, and addresses architecture education and research at all levels of scale. Three levels of scale are referred to in the name MIT: modification-intervention-transformation. Modification (Van Hees) covers the scale from a single brick to the whole building, intervention (Coenen) from building to city, and transformation (Meurs) from city to landscape. These levels of scale are referred to in both the education and research projects. The Research Centre can act as an impartial investigator of contemporary issues. Twice a year, new design projects are set for the bachelor and master courses, to ensure that they are fully aligned with current developments (Figure 3). This keeps researchers, lecturers/professors and students keen and interested (<http://www.rmit.nl>).



Figure 3 Students at work in the studios

### 4. Education

In 2002, Delft University of Technology introduced the bachelor/master structure. Consequently, the curriculum and graduation options were redefined (<http://bk.tudelft.nl>). As part of the two-year Master of Science on Architecture (track: Restoration—ⓂMIT) course in architecture at the Faculty of Architecture, students could choose the restoration/renovation option. As of 2006 this has become the ⓂMIT option. As a result of the appointment of dean professor Wytze Patijn, the faculty's education programme is changing again. In his view, the introduction of a minor (six month elective) in the three-year bachelor course was a good opportunity to review the architecture course. Designing, becoming aware of the importance of history, and context, now receives a greater emphasis. Jo Coenen, Dick van Gameren and Erik Luiten were the three professors who developed the new programme for the first year of the course. During the final six-month term of the bachelor course, ⓂMIT will contribute to the definition and support of the final projects. This provides a basis for becoming aware that designing within a context is actually the most interesting current challenge. In future, the work of architects will lie more and more in this area. Furthermore, even during their course, architecture students usually start

redesigning the houses of their friends and families.

Currently, the master options of the architecture are being reconsidered. This gives @MIT an opportunity to raise its profile, and students will be free to choose their graduation option. Consequently, it will be the students who decide the teaching activities in each field. Between 2004 and 2008, @MIT saw the number of Master's students in the studios double, from 50 to over 100 each term.

## **5. Projects**

The education programme of @MIT, Design with History, includes a number of conservation technology subjects, where theory and research are applied in practice and in design projects. Every year there is also a real restoration project, incorporated in the Masters 1 and 2 design assignments of the first year of the course. In September 2007, the project was based on Ons' Lieve Heer op Solder in Amsterdam. This was a joint project with the Getty Conservation Institute in Los Angeles. There is also an intervention project concerning the confrontation and integration of old and new, for example the Lichtenberg in Weert, the Energiehuis in Dordrecht and Sanatorium Lemaire in Tombeek (Lidy Meijers, 2008). So it is possible that we cooperate with universities in neighbouring countries.

The Master 3 course, the first term of the second year, the research project of the @MIT graduation studio considers transformation in a European city. Dresden was the first city to be studied in this way, and has been followed by Paris and most recently Budapest. The results of the research term are published and where possible an exhibition is organised. Finally, during the graduation laboratory in Master 4, all levels of scale are considered. In the transformation assignment relating to a city or landscape (studied during the preceding term), an existing building or group of buildings has to be adapted to a new programme through appropriate interventions. Both the architectural and structural aspects of the design are detailed, and the @MIT lecturers support the students at all levels of scale. We aim for short lines of communication, where the lecturers coordinate their work effectively. In this way the buildings and modifications to the materials can be designed and detailed within the historical context.



**Figure 4 Graduation plan, finding a new use for Kraftwerk Dresden, by Emmy van Eijck**

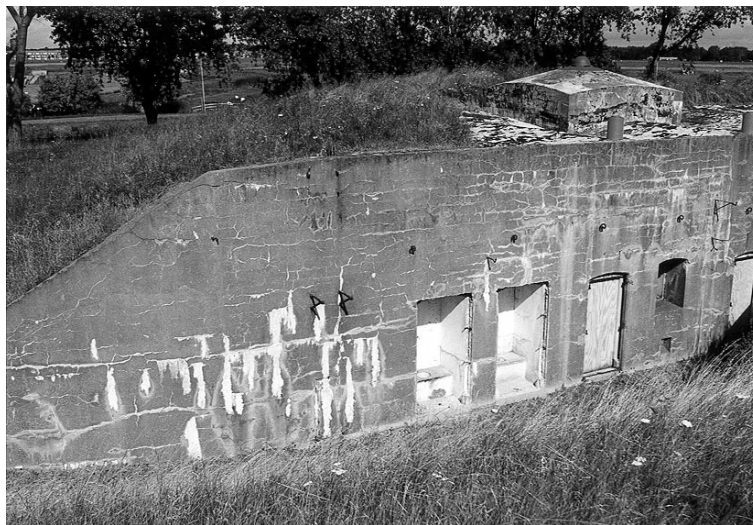
Apart from the projects relating to cities in the Netherlands and elsewhere in Europe, projects are also



developed together with Unesco. This research and design work concerns the world heritage. The Paramaribo project, during which a Heritage Conservation Plan and design assignment were developed, is now being rounded off. This will include a symposium where the designs will be presented by the students, and a publication on the project. All the education projects of ©MIT are as much as possible linked to the research program of ©MIT: Design and History (Figure 4).

## **6. Research**

The research programmes of the Faculty of Architecture are defined in a portfolio covering six years. The new portfolio period starts in 2009, and the dean has designated sustainability as one of the four key programmes. The ©MIT Research Centre is currently redefining its research under the following heading: Design and History. The research will focus on three projects: understanding existing buildings and sites, physical intervention and institutions and instruments. Research related to assignments given to the ©MIT Research Centre is always brought under one of these three areas and so included in ©MIT's research programme. The key theme of sustainability, relevant to the faculty as a whole, is incorporated by ©MIT by focussing on existing buildings, etc. Changes in the form of modification, intervention or transformation enable development which facilitates continuity. Subjects such as defining values, diagnosis, analysis, building history, design and research, intervention techniques and methods, restoration and monuments, mutual heritage and architects' training are all incorporated in the theme. The research will be financed by money of the university (1st flow) for 60% and with 2nd and 3rd flow money for 40% (Figure 5).

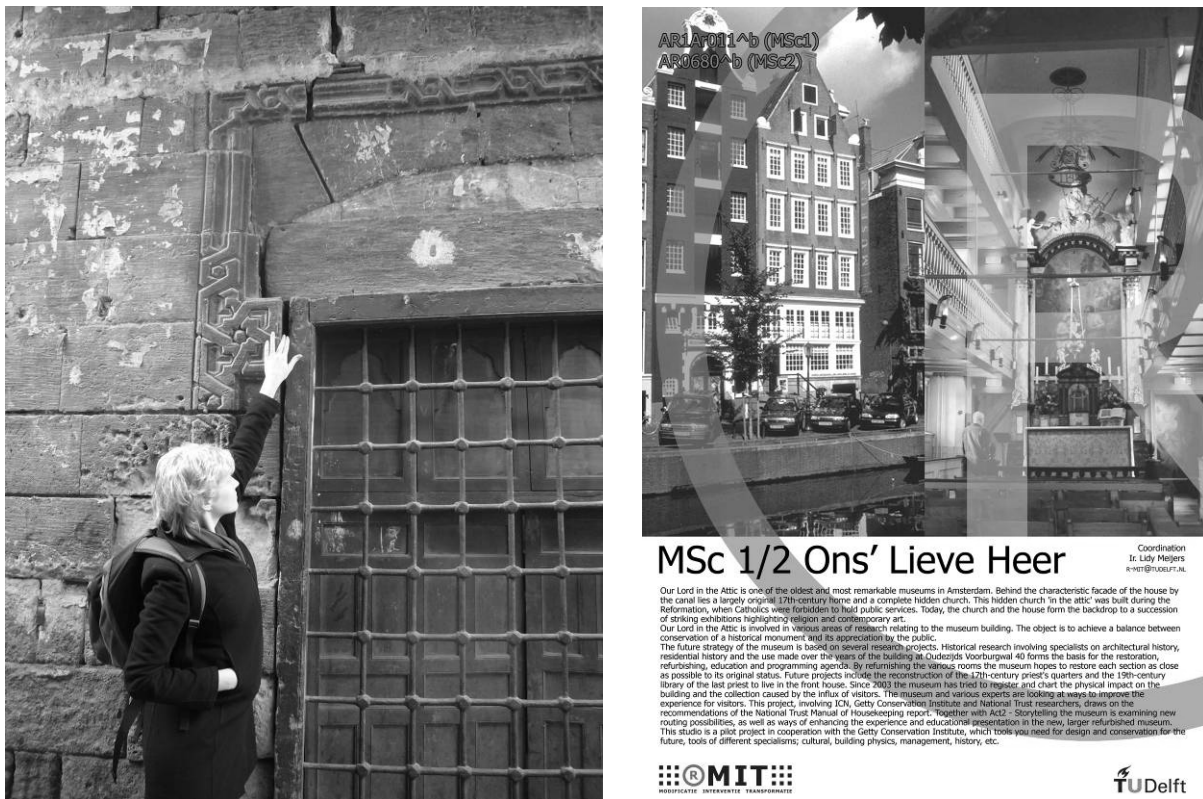


**Figure 5 Fort Spaarndam, subject of a Ph.D. research project**

## **7. Integration**

Together, research and education provide added value. Design and research are integrated within the education program Design with History (Figure 6). Analysis projects and projects to identify values support each other. Assignments can benefit when a group of students are “let loose on them”. The identification of values can be “kick started” by setting students to work using the instruments and methods provided by ©MIT. This also

provides an opportunity to test damage assessment systems, update them and possibly market them. The centre looks beyond its own areas of expertise and aims for wider cooperation throughout the faculty. Within the faculty, ©MIT aims to work with colleagues in areas such as history, media, building finishes, climate control, load-bearing structures, landscapes, regional development, management and sustainability, to work in integrated projects, on research and education. The International Workshop for 48 international students, hosted by 10th International Conferences of Docomomo International: The Challenge of Change, 17-20 September at the Van Nelle Factory was a great success. The students delivered after a week of enthusiastic work six plans for the Coolsingel and Lijnbaan area in Rotterdam. The conference was also organised by ©MIT of TU Delft (<http://docmomo2008.nl>).



(a) (b)  
**Figure 6 ©MIT education projects: Students applying surveying techniques in Cairo and design studio Ons' Lieve Heer op Solder (Our dear Lord at the attic)**

## 8. Specialisation

The new direction taken by Henket, the former chair of restoration, meant that some of the expertise has been lost and needs to be regained. Restoration expertise is brought in by inviting architectural historians, conservation architects, guest lecturers, historians, etc. Institutes such as RACM and TNO and many practitioners provide the right connections, and opportunities to benefit from each other's expertise. We want to help the students to incorporate the subjects they feel passionate about into their education. We do that with a team of enthusiastic people within ©MIT, and others outside the research centre who want to work with us. Research provides an

excellent basis for making the education more effective and to add a dimension to interests, with solid social and theoretical foundations (Figure 7 & Figure 8).



**Figure 7** Student workshops at the 10th docomomo\_international conference the challenge of change, organised by @MIT in September 2008



**Figure 8** @MIT personnel on a trip to Tilburg

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