Adaptive reuse of built heritage: conserving and designing with values

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Adaptive Reuse of built heritage - conserving and designing with values.

Abstract

Purpose

Adaptive reuse processes aim to preserve heritage values while creating new values through the architectural interventions that have become necessary. This claim provokes a discussion about the meaning of values, how we can preserve them in practice and how we can translate them into architectural qualities that users experience. Riegl's understanding of the different perspectives of heritage values in the past and present opens up the possibility of identifying present values as a reflection of current social, material and political conditions in the architectural discourse.

Methodology

This qualitative and practical study compares two Belgian projects to trace the use of values in adaptive reuse projects from an architectural design perspective. The Predikherenklooster, a 17th century monastery in Mechelen that now houses the public library, and the C-Mine cultural center in Genk, a former 20th century coal mine, are compared. The starting point is Flemish legislation, which defines significance through values, distinguishing between 13 heritage values.

Findings

The study demonstrates the opportunities that axiological questions offer during the design process of an adaptive reuse project. They provide an overarching framework for tangible and intangible aspects that need to be discussed, particularly in terms of the link between what exists, the design strategy and their effect.

Originality

Adaptive reuse can draw on approaches from both heritage conservation and contemporary architecture, and explore values as a tool for ‘re-designing’ built heritage.

Keywords

built heritage; adaptive reuse; value assessment; architectural design

Article classification

Research paper

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Introduction

Sustainability is one of the key concerns of the twenty-first century. Characterised by rapid environmental change, economic pressures and dwindling natural resources, issues such as energy consumption, cradle-to-cradle and recycling are playing an increasingly important role. These concerns find expression in the 17 Sustainable Development Goals (SDGs) set out in the 2030 Agenda, adopted by the UN in 2015. Noting that cultural heritage and culture are under-represented, ICOMOS highlights the potential of adaptive reuse as driver of sustainable development (ICOMOS, 2021, p. 12).

While the concept of 'sustainability' in terms of viewing the built heritage as a valuable resource was advocated by early conservationists (Bond and Worthing, 2016, p. 219), the tradition of reusing buildings is only now receiving renewed attention.Adaptive reuse as a strategy aims to manage change in the use and meaning of existing buildings (Plevoets and Van Cleempoel, 2019) to achieve sustainability in economic, environmental, cultural and social terms to meet present-day requirements. The strategy considers not only the tangible but also the intangible aspects of cultural heritage, recognising that alterations can bring about profound changes in both the materiality and the significance of buildings.

On behalf of the public, state-level protection aims to ensure the conservation of the building fabric by imposing regulations and requiring close cooperation with heritage authorities. The future of this protected built heritage can neverthelessdevelop in any direction, with scenarios falling between the extremes of “musealisation” of the historic building fabric at one end of the spectrum,and, at the other, the loss of valuable architectural heritage through neglect.The identification of heritage sites has evolved from a material-based approach to a value-based approach (Poulios, 2014, p. 19), which attempts to place society at the centre of heritage management (Australia ICOMOS 2013).In this context, heritage values are central to the process of identifying and justifying the importance of monuments to history and national identity. The Getty Conservation Institute notes that value-based decisions inform heritage identification, conservation and management, as well as policy justification and long-term impact assessment (Avrami et al., 2019).

On this basis, a number of scholars from different backgrounds and with different emphases have attempted to create a value system (Fredheim and Khalaf, 2016, Bond and Worthing, 2016), broadening the scope of cultural heritage and the values assigned to it. Common to all attempts was the goal of a scientific approach and a holistic understanding of the significance of a heritage site. Although there is no generally accepted axiology, international guidelines (most notably the 1964 Venice Charter and the Burra Charter Practice Note, 2013) and national legislation (e.g., Historic England 2008, Onroerenderfgoeddecreet2013, Code Wallon du Patrimoine 2018) implement heritage values as part of the legal basis for protective measures.

In terms of practical application, the existence of a framework of values to guide decisions can contribute to the creation of greater transparency, particularly through the possibility of debate and control (Bond and Worthing, 2016, p.63).However, values need to be defined and differentiated, and constantly reviewed to remain relevant, as their openness to interpretation creates challenges. The applicability of values to both tangible and intangible aspects involves a discrepancy between measurable and non-measurable quality (Throsby, 2002, pp. 103-104). The former refers to the functional and economic properties, the latter to the aesthetic values, the spatial experience of the architectural concept and the social aspects, among others, which cannot be expressed in comparable figures. Further criticism of the value-based approach comes from the context of a discontinuity between past and future and the power of individual interest groups in the democratically conceived

decision-making processes (Poulios, 2014, p. 22). While heritage policy prescribes the use of significance, the integration of heritage values into practical conservation strategies still lacks convincing implementation (Bond and Worthing, 2016, p.1).
Adaptive reuse processes aim to preserve heritage values while creating new values through the architectural interventions that have become necessary.Recent studies dealing with design strategies in adaptive reuse projects show that the focus is on the reuse as a design task and on the relationship between the old and the new (Lanz& Pendlebury, 2022, p. 456). However, thisextends the aesthetic question to include instead 'a process of revaluation or finding a new balance between different sorts of values' (Plevoets& Van Cleempoel, 2019, p.5).
Compared to heritage conservation, the architectural discourse tends to address axiological questions less frequently(Wirth, 1994, p. 40). Values are 'to some extent codified in regulations, to some extent unconscious manifestations of cultural presuppositions' (Schrijver, 2015, p.607). During the architectural design process, values are not explicitly mentioned but rather exist as an underlying principle implicitly embedded in the intentions of the client, the user and the architect. The lack of explicitly stated values in architecture can be attributed to the perceived complexity of the design task, which is expected to be innovative, sustainable and yet economically competitive. Added to this are government building regulations in terms of safety, energy efficiency and urban planning rules, as well as the maxims of the construction market with its preferred materials and components.Architects rely on both explicit and tacit knowledge (Schön, 1988, p.181), with the latter being 'the set of ideas, beliefs and values' that every designer develops over the course of their career and that are reflected in their work (Lawson, 2004, p.112). The influence of tacit knowledge and uncertain conditions therefore implies a certain need for 'value related reasoning and argumentation' (Holm, 2006, p.279).

Existing classifications of reuse strategies are usually derived from case studies:

- Based on the different physical interventions: building within, building over, building around, building alongside, recycling materials and vestiges, adapting to a new function, and building in the style of (Robert, 1989),
- Varying scope of intervention: corrective maintenance, modernisation, adaptation and replacement (Cramer and Breitling, 2007),
- Different architectural strategies: insertions, weavings, juxtapositions, glass boxes and echoes of forms (Hunt and Boyd, 2017),
- Focusing more on the relationship between the original building and the new elements of adaptation: interventions, insertions and installations (Brooker and Stone, 2018),
- Strategies from different points of departure: typological approach, architectural approach, technical approach, programmatic approach, and interior design approach (Plevoets and Van Cleempoel, 2019),

Problem statement

The discourse on heritage conservation applies values mainly for three reasons–to provide an objective/scientific basis, as a decision-making tool and to provide a basis for discussion.Adaptive reuseaims to combine and balance existing heritage value with other values associated with current and even future needsThis is usually achieved through tangible interventions that can be experienced by the user. While heritage values are defined and associated with aspects of heritage that can provide a point of reference, the design process does not specifyvalues. Similarly, the necessary process of weighing is not explicitly mentioned, but is rather an implicit framework that underpins the decision-

making process. Furthermore, the existing context or structure provides a source of inspiration, which in turn requires examining the values and intent of the designer of the existing structure (Kuipers and de Jonge, 2016, p.23). While the building as a physical representation, 'outlasts the value systems they arose from'(Schrijver, 2015, p.590), the implicit values once used may now be perceived differently due to a changed perspective (Schrijver, 2015, p. 608).
Adaptive reuse projects, hence, offer an ideal field of study to link theoretical and practical considerations from the perspective of architectural design. The study therefore explores the following question: Which values can be identified as drivers for design strategies to preserve cultural heritage and to create new values in the context of adaptive reuse?

Methodology

This qualitative and practical study examines two case studies to trace the use of values in adaptive reuse projects from an architectural design perspective.It takes as its starting point the Flemish legislation that has firmly anchored statutory heritage conservation in the determination of significance through values with the distinction of 13 heritage values. The Flanders Heritage Agency assigns heritage values based on knowledge and interpretation of the building's history and its changes over time. All protection orders are digitally recorded and accessible online in the database of the Flanders Heritage Agency.
Secondary sources and competition documents (the brief, the proposals and the jury minutes) are used to study the future plans of the buildings.The competition with several design proposals on the same design problem is an essential source of data. Each contestant is given the same materials, but the reading of a site, the interpretation of the brief and the implementation of a possible architectural solution are influenced by the architect's own experience and set of values. The comparison of the various architectural proposals, focusing on their interpretation of (1) the heritage value assessment and (2) the 'reading of the site' (Brooker and Stone, 2018, p.10) to develop a design strategy, allowed the retrospective identification of key criteria that link architectural strategies to an identifiable outcome. Furthermore, site visits helped to investigate the executed design and the spatial experience that architecture entails.
We have selected two Flemish lighthouse projects for adaptive reuse because of their recognised architectural quality (overall positive reviews from experts and the public), their protection status, and participation in a competition process. In addition, both are public buildings in an urban context. The first case study is the Predikherenklooster in Mechelen, a seventeenth century monastery that was transformed into a public library. The second case study is a twentieth century coal mine which was transformed into the cultural hub C-Mine in Genk in 2005. By juxtaposing the reuse process of the two case studies, this methodology facilitated a comparative analysis that highlighted the thematic strategies based on the use of values for adaptive reuse.Building on Alois Riegl's distinction, which is based on the viewer's different perception of the past and the present (Riegl, 1982), these were divided into past values and present values according to their key drivers. We have contrasted the heritage values, as defined by the Flanders Heritage Agency, with present values, that reflect the spatial, experiential and functional qualities of the architectural heritage.

Assessing heritage values
Introduction to the case studies

In Flemish legislation, heritage valuesare decisive in determining the significance of the built heritage and must be justified in the protection decision (Onreorenderfgoeddecreet, 2013, Art. 6.1.4, § 2, 5° and 6.1.14, 5). The detailed assessment is usually performed as part of the procedure of listing a building, focusing on the building's importance as a testimony of the past (De Clercqet al., 2017). The Onroerenderfgoeddecreet (Immovable Heritage Decree), distinguishes 13 heritage values: archaeological, architectural, artistic, cultural, aesthetic, historical, industrial-archaeological, technical, spatially structuring, social, urban planning, folklore and scientific value (Onroerenderfgoeddecreet, 2013, Art. 2.1). In addition, legislation offers five quality indicators: rarity, recognisability, authenticity, representativeness and context. These allow for better evaluation when comparing within a respective typology and context. Although the Flemish legislation does not define each value, the legal protection of an object depends on value attribution. With the aim of standardisation, the Flanders Heritage Agency (AgentschapOnroerendErfgoed) has created a thesaurus (AgentschapOnroerendErfgoed, 2021, Waardetypes) in which it collects terms and their definitions alphabetically and systematically. This serves to structure the information within the database, thus enabling searches. The thesaurus is not legally binding.
The Flanders Heritage Agency assigns heritage value based on a thorough historical and on-site practical analysis. This is usually done by categorising the building (e.g., by typology, date and architectural style) and describing its characteristics in relation to the selected value. Recent rulings provide a more comprehensive clarification of the assigned value, while older rulings usually lack a clear definition. From a legal point of view, since the evaluation procedure records a building's current condition, all defects in the building's structural state are also protected, and any change requires approval. In addition, according to general Flemish building regulations, any 'change in use', regardless of physical alteration to the building fabric, is also subject to permission (Vlaanderen, n.d., Omgevingsloket).

Predikherenklooster in Mechelen

Figure1. Predikherenklooster, Mechelen, 2020 | 1997; Collage ©First author | ©J. Maris, regionalbeeldbank.be

In 1980, the Flanders Heritage Agency listed the Predikherenklooster in Mechelen(see figure 1) as a historic monument for its artistic value (AgentschapOnroerendErfgoed, 1980). In 2019, the monastery became part of the Flemish inventory of immovable heritage based on its architectural and historical value (AgentschapOnroerendErfgoed, n.d., Dominicanenklooster). The protection decree does not give a detailed justification for the value assignment, but its classification regarding style, typology and date can serve as a guide (see table 1).

The monastery was built by Dominican friars between 1654 and 1687. Between 1720 and 1733, a new church replaced the existing smaller chapel. Since its abandonment in 1796, the monastery has been used for a variety of purposes, including a home for the elderly poor, a military hospital and later a military arsenal. These widely differing functions led to numerous alterations and the loss of valuable interior furnishings. In particular, the long military presence brought about many alterations to the building fabric, as well as producing additional buildings in the immediate vicinity. Most of these additions were removed over the years of changing ownership. The monastery has been uninhabited since 1977, which has contributed to its deteriorating structural condition.

The baroque and neo-Gothic style establishes the monastery's artistic value, reflecting the material and financial resources of the friars and the zeitgeist of the late seventeenth century. Accordingly, the Flanders Heritage Agency assigned a high heritage value to rooms displaying elements from the time of construction (e.g., a baroque vault on the first floor where the library used to be). In contrast, the adjacent church was deemed almost value-free due to the loss of interior furnishings during its later use as a war arsenal (StadMechelen and Vlaams Bouwmeester, 2011a, p. 10). The value is thus measured according to the 'original' content, which tacitly disregards the inheritance accumulated through the subsequent conditions and uses of the building. The architectural value refers to the typology of the building as a monastery, with the peculiarity of being oriented not towards the church

as a place of enlightenment but rather towards the central courtyard, ‘where the divine light revealed itself to the friars’ (Ibid., p. 8). The layout consists of rooms surrounding the central courtyard as the place of important spiritual value. The historical value can be recognised from age alone, as the building reflects an integral part of the history and development of the city of Mechelen’s own long and varied history.

In 2011, Mechelen proposed the Predikherenklooster project as an ‘open call’ competition led by the Vlaams Bouwmeester, in which five preselected architectural teams participated. Between 2013 and 2019, the winning team, KorteknieStuhlmacher Architects, Callebaut Architects and Bureau Bouwtechniek, transformed the monastery into a library.

Table 1: Assessment Heritage Value PredikherenkloosterMechelen
Agentschap Onroerend Erfgoed 2021: Dominicanenklooster [online] https://id.erfgoed.net/erfgoedobjecten/3618 (Accessed: 19-05-2021)

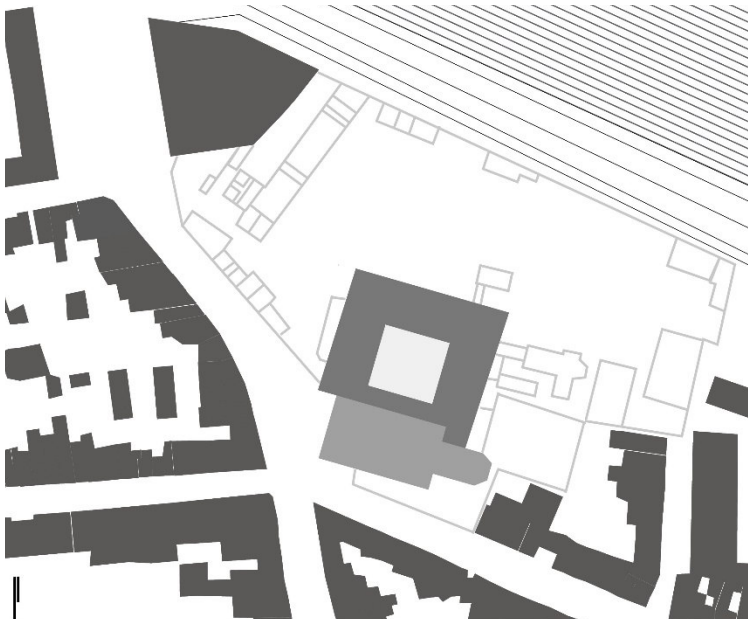
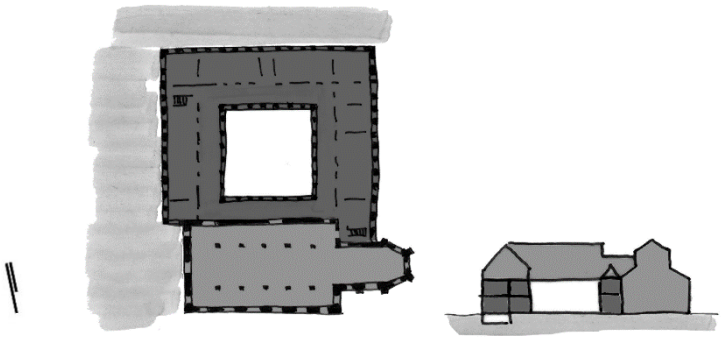
Artistic value Style:	'A property has artistic value if it testifies to man's artistic endeavours in the past.' (Agentschap Onroerend Erfgoed, 2021, Waardetypes, ourtranslation) baroque, neo-Gothic reflects 'Zeitgeist' depended on money and (regional) material
Historical value Date: 1657–1687 1720–1733 1800–1970 = Demolished additions military period	'A property has historical value if it testifies to a (social) development, event, figure, institution or land use from man's past.' (Ibid.) 
Architectural value Typology: chapels (buildings and structures), monastery churches, monasteries, fence walls, city walls Original typology: monastery and adjacent church, intermediate uses not regarded valuable space 'value free' space valuable space outdoors	'A property has architectural value if it testifies to a phase or aspect of (landscape) architecture or construction in the past. It can be about typology, style, œuvre or use of materials.'(Ibid.) 

Table 1. Source material: city of Mechelen and Vlaams Bouwmeester, proposal by KorteknieStuhlmacher Architects, drawings by first author.

C-Mine in Genk

Figure2. C-Mine Genk, 2020 | unknown; Collage ©First author | ©merged view of id: 339368 + id: 340437, beeldbank.onroerenderfgoed.be

In 1993, the Flanders Heritage Agency listed the former coal mining site in Winterslag, Genk (see figure 2) as a historic monument for its industrial-archaeological value (Agentschap Onroerend Erfgoed, 1993a), resulting in its addition to the Flemish inventory of immovable heritage, based on its historical, industrial-archaeological and architectural value, in 2018 (Agentschap Onroerend Erfgoed, n.d., Steenkoolmijn van Winterslag) (see table 2). The protection decree explains in detail the individual aspects that justify its protection, emphasising the mining machinery as a bearer of heritage value.

The coal mine in Winterslag was constructed between 1916 and 1920, following the discovery of a coal vein in the Campine Basin. The classically inspired but functionally simplified brick buildings are of a Neo-Flemish Renaissance style. The listing decision explains that the buildings are representative of the execution of utility buildings with an aesthetic exterior before and during World War I. In addition to the growing number of infrastructure and service buildings on the site itself, the increasing demand for new workers at the time also led to the development of flats and public facilities in the immediate vicinity along the lines of a ‘garden city’. Accordingly, the whole mining site and its surroundings formed a functional and social whole. With the cessation of coal production in 1988 (Stad Genk, n.d., History), the region su□ered mass unemployment. During deliberations on the possible listing of the mine site, the Flanders Heritage Agency identified 11 buildings as particularly valuable: the main complex and power station, the shafts and engine room, the technical o□ces, the bathrooms, the central warehouse and the stables. Unfortunately, this focus on individual buildings led the owner at the time to dismantle the remaining buildings, connecting bridges and infrastructure.

In the early 1990s, the city decided to redevelop the mining site into a cultural hub, with four main areas of focus: creative industries, culture, education, leisure, and tourism. Based on the master plan

by De Gregorio & Partners (Stad Genk, 2013, p.15), the city started to reconvert several buildings into cinemas, restaurants and a workshop/ gallery. The new buildings offer additional functions, e.g., a fire station, a new school building for the MAD (Media, Arts & Design) faculty and a new residential area. The former reception building in front of the smaller headframe remains in a ruinous state after failed attempts to reconstruct it.

In 2005, the city of Genk announced a competition to adapt the former energy building into a cultural centre that would serve as a contact and linking point for the various planned uses, and would also house two new theatre halls. The new function included a reception desk, visitor's centre, café and two new performance theatres with an underground car park (Stad Genk, 2004). The three main criteria of the competition were: the treatment of the site regarding its heritage value and the proposed master plan, the design of the two new theatre halls, and the use of the central square as the main link between the individual functions. Between 2006 and 2010, the winning team, 51N4E Architects, Bureau Monumentenzorg (heritage) and TTAS (theatre techniques), worked together to transform the former energy building into the C-Mine.

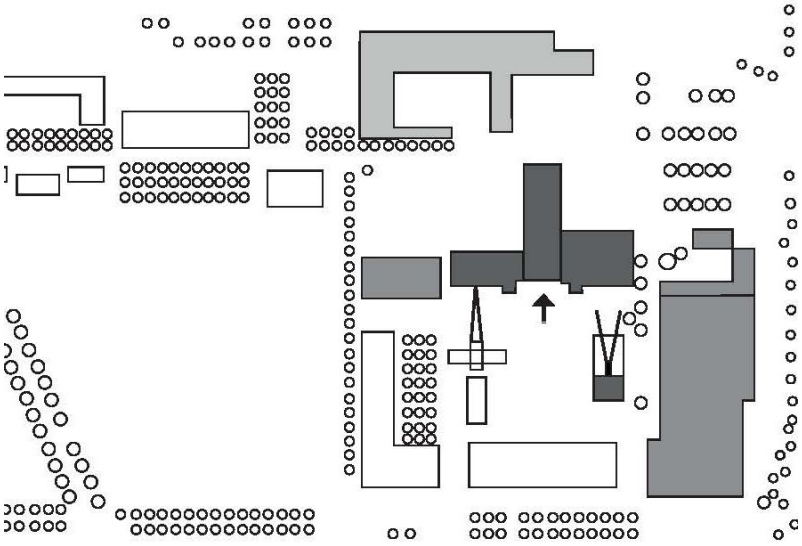
Table2: Assessment Heritage Value Mijnsite Winterslag in Genk Agentschap Onroerend Erfgoed 2021: Steenkoolmijn Winterslag [online] https://inventaris.onroerenderfgoed.be/aanduidingsobjecten/2391 (Accessed: 19-05-2021)	
<u>Industrial-archaeological value</u> Typology: machine halls, mine buildings, shaft towers	'A property has industrial-archaeological value if it testifies to a craft or industrial past.' (Agentschap Onroerend Erfgoed, 2021, Waardetypes, ourtranslation) Excerpt: - the shaft tower II from 1915 + shaft tower I dating from 1963 - both collection buildings including collection machines - the machine rooms including the compressors - the fans - the switchboards and control panels of the former power station, including the control fluids - the technical equipment of compressor and machine hall - the extraction machines (haulers) in shaft I are the oldest in all the mines in the Campine region - shaft towers - technological evolution - switch + control panels are unique examples
<u>Historical value</u> Date: interwar period, after WWII, before WWI, WWI energy building existing buildings added buildings possible additions	'A property has historical value if it testifies to a (social) development, event, figure, institution or land use from man's past.' (Agentschap Onroerend Erfgoed, 2021, Waardetypes) - firstKempencoal mine - shaft towers as image-defining historical witnesses 
<u>Architectural Value</u>	'A property has architectural value if it testifies to a phase or aspect of (landscape) architecture or construction in the past. It can be about typology, style, œuvre or use of materials.' (Agentschap Onroerend Erfgoed, 2021, Waardetypes) - traditional style of industrial architecture at that time - utilitarian destination with an aesthetically pleasing, even prestigious appearance in administrative and industrial buildings and facilities before and during the First World War

Table 2.Source material: City of Genk, Masterplan and proposal by 51N4E architects, drawing by first author.

Discussion – Key drivers of design strategies

1. *Heritage values*

In both cases, redevelopment started with the cities' intention to actively take care of the existing built heritage. Based on the acknowledged 'historical value' testifying to a '(social) development, […] institution or land use from man's past', they aimed to use this potential to redefine their identity. The city of Mechelen, situated between Brussels and Antwerp, struggled with crime, deprivation and polarisation, and therefore began to strategically redesign the entire city based on its historic layout and heritage (StadMechelen and Vlaams Bouwmeester, 2011b, p. 11).Genk was once known for its abandoned heath landscape as depicted in nineteenth century paintings. The town in eastern Flanders drastically changed by the discovery of coal deposits (DienstCultuur - Erfgoedcel, n.d.) and had to come to terms with its industrial heritage as coal mining came to an end in the late 1980s.In particular, the closure of the coal mine posed a challenge to the city of Genk in terms of its social and economic future, but also in terms of urban development in relation to the surrounding garden cities. The temporary use of the site as a cultural centre provided a new social infrastructure that had a lasting impact through the continuation of cultural activities.The social acceptance of newly created public spaces is as important for new buildings as it is for reuse projects: they need to find support at all levels to be accepted and appropriated by users, thus rendering them sustainable. Therefore, local participation has become increasingly important in recent years (Heritage and Copithorne, 2018), especially for public buildings financed by public funds.

The Flanders Heritage Agency was not only involved in the planning and execution of the work, but also in the implementation of the competition.They provided the participating architects with detailed documentation on the heritage value of the buildings.
In the case of the dilapidatedPredikherenklooster, this helped to revealthat the ground floor and first floor contained the most valuable interior features. The competition brief recommended the monastery phase (1655–1796) as a starting point for the reuse strategy, arguing that given the new function as a public library, the connection to the valuable building material and its intangible value would be deeper (StadMechelen and Vlaams Bouwmeester, 2011a, p. 10). In this respect, the assessment of heritage value prioritised particular time layers, leaving little trace of the building's interim military uses, which involved drastic changes to the building complex.
The competition task was to develop a concept integrating the three di erent atmospheric zones of the future library into the monastery complex – the 'near zone', with an information counter, cafeteria and spaces for meeting and conversation; the 'middle zone' for the actual library and media collection; and the 'deep zone', with learning and working spaces (see figure 3).Different uses, requiring different accessibility at different times, necessitated decisions on functional distribution, circulation (entrances, horizontal and vertical distribution, etc.) and the potential need for additions and alterations.
Considering the emphasis on the historical values of the monastery phase, as stated in the brief, one competition proposal recommended leaving the existing building as much as possible in its current configuration and adding only small elements to connect the existing architecture with its new function.Although this approach places the greatest emphasis on preserving the heritage values, the jury doubted that the interventions would be sufficient to create a new unity and relationship with the surroundings.

Figure3. ‘Deep zone’ on the first floor,Predikherenklooster, Mechelen, 2020; ©First author

While the monastery's heritage values are reflected in its architectural typology, the industrial heritage is an example where the built architecture is not necessarily the most valuable.The C-Mine, like many industrial heritage buildings, is a shell structure that can be adapted relatively easily to accommodate new functions. The façades thus become the representatives of this typology, and the more ornate or structured their aesthetics, the greater their perceived value. However, the uniqueness of the industrial value often lie in their technological equipment, the cornerstone of their industrial production function. The competition brief for the C-mine emphasised the importance of dealing with the remains of the mining machinery alongside the existing building fabric. Accordingly, the jury criticised the ‘rather drastic emptying of the turbine hall’ (Stad Genk, 2005, our translation) by one participant to accommodate the two theatre halls.

Instead, the winning design proposal focused the redesign on the importance of the turbine hall, which housed all the technical equipment needed to supply power and ventilation to the mine. The ground floor (‘plinth’) with the valuable relics of the energy building became the new entrance level (the original entrance was on the first level) and thus accessible to the public. The architects made the individual decisions regarding the machinery and the necessary accessibility in close cooperation with a specialist o□ce and the Flanders Heritage Agency. All installations (pipes, machines, large wheels, etc.) had to be examined individually to determine to what extent they needed to be changed or removed to allow safe use of the space (see figure 4). The original entrance, which was accessed via a prominent stone staircase leading from two sides to the first-floor entrance level, was demolished and replaced by a black steel funnel that now ‘filters’ visitors inside at ground level. A publicly accessible balcony above the entrance funnel is a reminder of the original entrance.

Despite the buildings themselves possessing a lower heritage value, their building logic was then also used as an inspiration for the architectural design concept of the extension, the two theatre halls.The basic functional principle of the existing building - a core protected by a shell - was taken up in the

two theatre halls by equating the mining machinery with the stage as a core element worth protecting.

Figure4. Entrance level on the ground floor C-Mine Genk, 2020; ©First author

Heritage valuesare assigned by the competent authorities on the basis of a cultural-historical survey that is carried out independently of any future planning process.The example of the Predikherenklooster shows that the original floor plan of the building, which represents the earliest construction phase and therefore the most heritage values, was robust enough to take on the new function as a library. The emphasis on the monastic phase, however, overlooks the subsequent changes that the monastery underwent and which contributed to its history.By opening up the ground floor as an entrance level in the case of the C-Mine, the architects made the heritage value visible, tangible, and indeed the central element of the reused building.

2. Present-day values

2.1 Spatial values

Figure5. Lending library in the attic of the Predikherenklooster, Mechelen, 2020; Collage ©Luuk Kramer fotografie | ©First author

The conscious manipulation and design of space is a prerequisite for a three-dimensional experience in architecture (Breitschmid, 2019, p. 58). Although each experience is individual, based on the background, beliefs and values of the observer, there is a universally shared architectural experience e (Thiis-Evenson, 1989), which evokes specific arrangements and qualities. This is in addition to the private experience, based on personal tastes and preferences, and the social experience, according to shared interpersonal and cultural meanings. Only the universal experience enables the architect to anticipate the reaction to a spatial situation and to actively design spatial experiences.

The selection of the building, the Predikherenklooster, and consequently the competition brief, implied the use of the church as a library space.Through popular reuse projects such as the Dominican Bookshop in Maastricht, this idea about the reuse of church interiors have become well established in the public mind. Inclusion of the church into the monastic wings would require opening up the existing fabric to provide better ground and first floor connections. This, in turn, would affect the historic configuration and focus of the monastery. The understanding of the monastery and the church as a one unit or rather as two separate entities was a crucial decision. Three participants opted for improving the connection between the monastery and the church, while the other two retained the existing (historically developed) state, involving only a functional link. Although also the jury acknowledged the church's impressive interior space, the discussion was dominated by technical practicalities, particularly regarding acoustics and heating.

The winning design focused on another, so far, underused spatial value – the attic, a space thatis characterised by its wooden roof structure (see figure 5). It proposed to place the main lending library

into the attic, since it would be able to withstand the most extensive changes, including the creation of an additional gallery (Stuhlmacherand de Bruyn, 2019).The jury questioned this decision to use the attic, the room furthest from the entrance, for the library's most important and most requested space. In the end, however, they rewarded that the design was based on the spatial qualities of the existing building and that using the attic as an open area with bookshelves would allow the space to be experienced in its original dimensions and atmosphere. The clear and simple structure of the programme, corresponding to the building's original floor layout, was ultimately convincing–the open outdoor courtyard, the cloister as the main circulation space, and the surrounding spaces converted for various functions (meeting rooms, back o□ces, restaurant, etc.).Above all, the well thought-out distribution of the functions, separated from the traffic flows and common areas, was convincing. Although the placement of the lending library in the attic was a controversial issue, the use of the nearest staircase to connect to the upper level, without crossing the functions of the café area on the ground floor and the reading spaces on the first floor is part of the distribution of functions. The possibility of continuing to use the cloister as a circulation route around the courtyard has been retained. However, the space has also been designed to invite individual visitors to engage in different activities, for different lengths of time and in different atmospheres.

The upper floor of the energy building in the C-Mine offered potential for future use simply by virtue of its spaciousness and natural light from large windows. Accordingly, several proposals used this floor either for one of the theatre spaces or as a large foyer. The final design connected the two floors at several points with openings, which serve as a spacious foyer and distribution area. The new theatre spaces - two rather plain concrete halls - are each located on one side of the T-shaped energy building. The new additions 'complete' the existing space into a rectangular whole (Brooker and Stone, 2018, p. 81), enclosed by a red concrete wall. In addition, the arrangement of the halls defines an additional outdoor space that links the existing with the new. The clear and logical organisation of the winning design, which considers the different flows of visitors, ultimately convinced the jury, as it also leaves room for imagination and development.

2.2– Experiential values

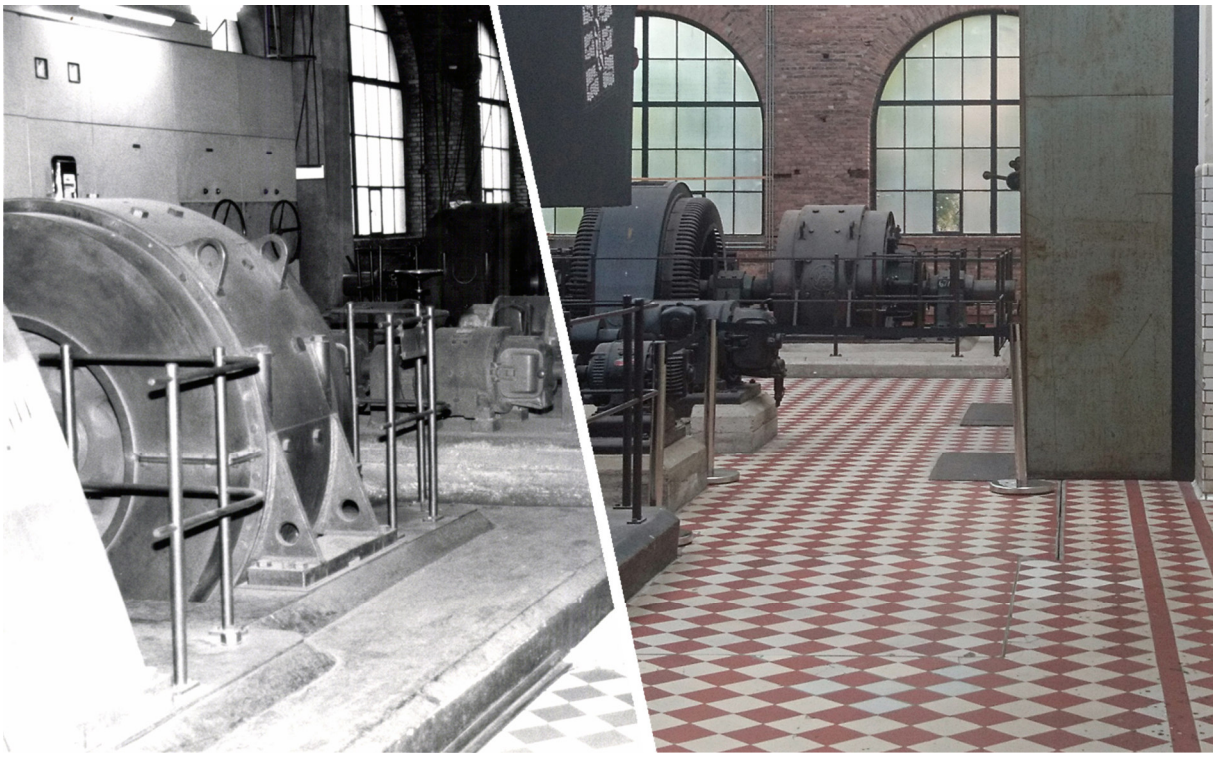


Figure 6. Exhibition space C-Mine Genk, 2020 | 1987; Collage ©id: 340373, beeldbank.onroerenderfgoed.be | ©First author

Space is defined by formal qualities that appeal to our senses (Breitschmid, 2019, p. 63), such as the dimensions and relationships of structural elements (walls, columns, floors, ceilings), openings (orientation, connection), but also the use of materials and their specific properties that influence light, acoustics and texture. The experience of a space is therefore both multisensory and emotional before it is grasped intellectually (Pallasmaa, 2012). This is reflected in the use of phenomenological terms such as 'imposing', 'narrow', 'spacious', 'cosy', 'inviting' etc. to describe spaces.
Once construction began, the restoration concept by KorteknieStuhlmacher Architects developed to consider decay as an essential part of the building and aimed to preserve evidence of the building's various uses over the years. In contrast to the competition proposal, which envisaged white interior walls with contrasting wood panelling, it was decided during the execution phase to retain the decorative mix of the various layer of wall paint in order to keep the different historical layers legible and to emphasise the continuity of time.MechthildStuhlmacher calls the resulting interiors 'fantastic, anonymous works of art, without intention, only a product of time' (Stuhlmacher and de Bruyn, 2019). The wood panelling primarily serves technical purposes such as climate control, acoustics and hiding electrical wiring. It continues throughout the building as a contemporary layer, contributing to the 'patinated patchwork' (Somers, 2019) of partially restored stucco ceilings, undifferentiated layers of plaster from previous centuries and furniture.
Although there was a certain curation in terms of the colour residues on the walls, they are nevertheless decisive for the atmosphere that was created. The choice of materials used also contributes to this. On the one hand, materials found on site were reused, such as floor tiles for the window sills, and on the other hand, new materials were used that match the feel and appearance of the existing building. For the selection of new materials in the lower floors, the choice was made according to the traditional restoration approach, considering the materials that were probably used at

the time of construction (Kramer, 2019). An example of this is the flooring on the ground floor, which had to be replaced due to the installation of technical installations underneath.
In the case of the C-Mine in Genk, the existing energy building was left almost in its original state regarding the used materials and the subsequently created atmosphere (see figure 6). Since the original materials were still relatively young, it was possible to supplement missing parts with replacement pieces or revisit the materials as a unifying element. For example, the red-and-white tiling that visually defines the first floor now extends outside on the space in between the existing and the two new theatre halls. Thereby creating a visual and spatial connection between the old and the new. The interventions 'echo the language of the original' (Brooker and Stone, 2018, p.80) and create anassimilation between old and new.

2.3 – Use value

Despite Riegl associating the use value with present concerns, he recognised its versatile applicability (Riegl, 1982, p.39). Today, we can differentiate between its reference to the historic use of the building (as an integral part of its original design), its metaphorical meaning (e.g. as a landmark) or its new use.From an economic point of view, the main objective of a new function is to generate an income with which the maintenance and the necessary conversion measures can be paid. Since it requires adaptation to the needs of the function, it is often at odds with considerations of heritage conservation and heritage values in general. Form a design point of view, function as the starting point for the design of a building, is part of the unity of function, form and material.
One proposal for the Predikherenkloostertranslated the importance of the courtyard for the monastery as a place of enlightenment by transforming it into the library's central meeting point. By covering the courtyard with a semi-transparent roof, the space would become a distribution, orientation and lounge space. Although this approach can be interpreted conceptually as not only respecting but also developing the heritage value, it primarily promotes more functional requirements. This strategy is a well-known architectural intervention often employed in museums, but with technical obstacles regarding heating in winter and overheating in summer. In this case, too, the jury questioned the major impact of transforming an outdoor space into an indoor one. This was also justified by the competition specifications, which emphasised the importance of sustainability aspects and the need for a flexible, reversible design.
The original design of the monastery included seclusion and privacy, both of which have been superseded by the externally oriented concept of public function. The requirement for improved 'communication with the neighbourhood' thus led to proposals with building extensions, e.g. highlighting the entrance with a canopy and more openings in the exterior walls of the buildings. One proposal added an extension building with long vertical windows to break up the monolithicity of the monastery while addressing the poor building structure and the need to support the additional weight of the books. Here, the jury questioned the enlargement of floor space from an economic standpoint, preferring an e□cient use of the existing space.The winning design also suggested enlarged openings at specific points, e.g. opposite the Kazerne Dossin and in the attic. There, the new upright dormers, replicating the format recorded in old drawings from the monastery's early days,improve the lighting but also provide a better visual connection between the library and its surroundings.
In the C-Mine, machinery and equipment that illustrate the heritage value now undeniably have a different purpose from their original use. Although the switchboards and control panels may be used for exhibitions (such as the annual end-of-year presentation by the nearby universities and colleges) to display the work of students, they are now largely exhibits to remind us of the building's former use. In

this sense, it can be argued that they merely form the background for the new function.

As present-day values, we identified the current perception and assessment of the existing architecture, including its spatial, functional and experiential values, that informed the redesign on a practical, aesthetic and emotional level.Interestingly, the possibility of further development is present in both case studies. The church adjacent to the Predikherenklooster was part of the original competition, but is only now in the final stages of completion due to its designation as a public space for further public functions. The C mine is also still 'under construction'. The city has drawn up a master plan for the long term to allow for densification and adaptation to the needs of users.

Conclusion

In both competitions, the winning design was an abstract concept developed from the existing built heritage in relation to the problem statement. The more detailed and precise the interpretation and explanation of the heritage values, the better they could serve as a starting point for the redesign strategy, despite the dependence on the vision and personal approach of the architects.This applies particularly in terms of setting priorities, which recent conservation legislation seeks to avoid by not distinguishing between valuable and less valuable aspects of a building.
While the reuse for the C-Mine took the assessment of heritage values as a starting point, the reuse of the Predikherenklooster drew upon a contemporary reading of the spatial qualitiesand logic of the building. Looking at the atmosphere created, which influences the experience of space, both case studies seem to achieve an assimilation between old and new, staying close to the found atmosphere and using it to create additional spaces. The approaches studied here, thus, push the boundaries of established strategies of heritage conservation, characterised by concepts such as distinctness, reversibility and authenticity. In the quest to recreate an architectural unity of material, function and meaning, values can provide a framework that highlights axiological conflicts. As a result, certain constraints are established, which in turn trigger creative architectural design solutions to resolve the conflicts.
We recognise a hitherto unexplored potential to examine and define present valuesalso as an evaluation criterion. The competition process can be used as a stage for discussing heritage values in relation to other values. On the one hand, it can explore how much change a monument can tolerate as a constant in a changing city and society without becoming a mere backdrop, and on the other hand, it can support the discussion of present values as a representation of current social, cultural, and material issues, since the discussion of architecture is otherwise conducted on a purely functional or economic level. A better understanding of the relationship and mutual influence between heritage and present values can promote heritage conservation and the treatment of the built environment as a whole.

Reference List

Agentschap Onroerend Erfgoed (1980), "KB 19/08/1980", available at: https://besluiten.onroerenderfgoed.be/ besluiten/1487/bestanden/5458 (accessed 19.05.2021).

Agentschap Onroerend Erfgoed (1993a), "KB 23/04/1993", available at: https://besluiten.onroerenderfgoed.be/ besluiten/2511/bestanden/7317 (accessed 19.05.2021).

Agentschap Onroerend Erfgoed (1993b), "KB 22/12/1993", available at: https://besluiten.onroerenderfgoed.be/ besluiten/2589/bestanden/7462 (accessed 19.05.2021).

Agentschap Onroerend Erfgoed (1994), "KB 14/11/1994", available at: https://besluiten.onroerenderfgoed.be/ besluiten/2775/bestanden/7793 (accessed 19.05.2021).

Agentschap Onroerend Erfgoed (n.d.),"Dominicanenklooster", available at: https://id.erfgoed. net/erfgoedobjecten/3618 (accessed 19.05.2021).

Agentschap Onroerend Erfgoed (n.d.),"Steenkoolmijn van Winterslag" available at: https:// inventaris.onroerenderfgoed.be/aanduidingsobjecten/15111 (accessed 19.05.2021).

Agentschap Onroerend Erfgoed (n.d.), "Waardetypes", available at: https://thesaurus.onroerenderfgoed.be/conceptschemes/WAARDETYPES/c (accessed 19.05.2021).

Australia ICOMOS (2013),*The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*. Burwood: Australia ICOMOS. http://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf.

Avrami, E., Macdonald, S., Mason, R., and Myers, D. (Ed.s) (2019), *Values in Heritage Management: Emerging Approaches and Research Directions*, The Getty Conservation Institute, Los Angeles.

Bond, S. and Worthing, D. (2016), *Managing Built Heritage: The Role of Cultural Values and Significance*, John Wiley & Sons Ltd, Chichester.

Brooker, G. and Stone, S. (2018), *Rereadings 2: interior architecture and the design principles of remodelling existing buildings*, RIBA Publishing: London.

Breitschmid, M. (2019), *Non-referential Architecture*, Park Books, Zurich.

Code Wallon du Patrimoine [Walloon Heritage Code] (2018), available at: http://wallex.wallonie.be(accessed 14.06.2020).

Cramer, J., andBreitling, S. (2007), *Architecture in existing fabric : planning, design, building*, Birkhäuser: Basel.

De Clercq, L., Cousserier, K., Defresne, S., de Houwer, V., Depuydt, K., de Schepper, G., Oeyen, Q., Tricot, S., Verboven, H., and Verhelst, A. (Ed.s) (2017), "Doelmatigheidsanalyse van het beschermingsinstrumentarium, fase 1: de geschiedenis van het beschermen 1931–2016." OnderzoeksrapportenagentschapOnroerendErfgoed nr. 65, available at: https://publicaties.vlaanderen.be/view-file/30353 (accessed 24.01.2021).

Decree of the Flemish Government (2002), "Besluit van de Vlaamseregeringhoudendevaststellingvan het premiestelselvoorrestauratiewerkzaamhedenaanbeschermdemonumenten, 14.12.200", available at: https://www.ejustice.just.fgov.be/cgi/article_body.pl?language=nl&caller=summary&pub_date=02-01-19&numac=2001036510 (accessed 19.05.2021).

DienstCultuur - Erfgoedcel (n.d.), *Genk – Gisterenenvandaag – Geschiedenis in eennotendop*, available at: http://www.dialectingenk.be/files/geschiedenis_van_genk.pdf (accessed 24.04.2023).

Fredheim H. L. and Khalaf, M. (2016), "The Significance of Values: Heritage Value Typologies Re-Examined", *International Journal of Heritage Studies* 22, no. 6 (2 July 2016), pp. 466–481, https://doi.org/10.1080/13527258.2016.1171247.

Heritage, A. and Copithorne, J. (Ed.s) (2018), *Sharing Conservation Decisions: Current Issues and Future Strategies*, ICCROM, available at: https://www.iccrom.org/sites/default/files/2018-05/sharing_conservation_decisions_2018_web.pdf (accessed 05.05.2022).

Historic England (formerly English Heritage) (2021), "Conservation Principles, Policies and Guidance. For the sustainable management of the historic environment. 2008", available at: https://historicengland.org.uk/images-books/publications/conservation-principles-sustainable-management-historic-environment/conservationprinciplespoliciesandguidanceapril08web/

(accessed 24.01.2021).
Holm, I. (2006), “Ideas and Beliefs in Architecture and Industrial design.” PhD thesis, The Oslo School of Architecture on Design.
Hunt, R. and Boyd, I. (2017), *New design for old buildings*, RIBA Publishing: Newcastle upon Tyne.
ICOMOS (2021),*Heritage and the Sustainable Development Goals: Policy Guidance for Heritage and Development Actors*, Sophia Labadi, Francesca Giliberto, Ilaria Rosetti, Linda Shetabi, Ege Yildirim (Eds.). Accessed 20 January 2023. https://openarchive.icomos.org/id/eprint/2453/ .
Kramer, L. (2019), “2013–2019”, Stuhlmacher, M. and de Bruyn, J. (Ed.s), *Het PredikherenMechelen: Transformatie van eenkloosterruïne tot stadsbibliotheek, Transformation of a Monastery in Ruin into a City Library*, Public Space, Mechelen, pp. 90-151.
Kuipers, M. and de Jonge, W. (2017), *Designing from Heritage,* Delft University of Technology, Delft.
Lanz, F. and Pendlebury, J. (2022), “Adaptive reuse: a critical review”, *The Journal of Architecture*, (27:2-3), pp. 441–462, https://doi.org/10.1080/13602365.2022.2105381 .
Lawson, B. (2004), *What Designers know*, Routledge: London.
Loi sur la conservation des monuments et des sites07.08.1931 (1931), available at: http://www.ejustice. just.fgov.be/eli/loi/1931/08/07/1931080750/justel (accessed 14.06.2020).
Onroerenderfgoeddecreet [Immovable Cultural Heritage Decree] (2013), available at: http://www.codex.vlaanderen.be (accessed 14.06.2020).
Pallasmaa, J. (2012), *The Eyes of the Skin: Architecture and the Senses,* Wiley, Chichester.
Plevoets, B. and Van Cleempoel, K. (2019), *Adaptive Reuse of the Built Heritage: Concepts and Cases of an Emerging Discipline*, Routledge, London.
Poulios, I. (2010), “Moving Beyond a Values-Based Approach to Heritage Conservation.” *Conservationand Management of Archaeological Sites*, 12(2): 170-185. doi:10.1179/175355210x12792909186539
Riegl, A. (1982), “The Modern Cult of Monuments: ItsCharacterandItsOrigin.” TranslatedbyForster, K. W. andGhirardo, D., *Oppositions*. 25 (Fall 1982), pp. 21-51.
Robert, P. (1989), *Reconversions: new uses for old buildings = Adaptations,*Editions du Moniteur: Paris.
Schön, D. A. (1988). “Designing: Rules, types and worlds.” *Design Studies*, 9(3): 181–190. https://doi.org/10.1016/0142-694x(88)90047-6.
Schrijver, L. (2015), “Design for Values in Architecture.” In *Handbook of Ethics, Values, and Technological Design: Sources, Theory, Values and Application Domains*, edited by J. Van den Hoven et al., 589-611. Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-94-007-6970-0_22.
Somers, D. (2019), “The Predikheren, a Monumentary”, Stuhlmacher, M. and de Bruyn, J. (Ed.s), *Het PredikherenMechelen: Transformatie van eenkloosterruïne tot stadsbibliotheek, Transformation of a Monastery in Ruin into a City Library*, Public Space, Mechelen, pp. 272-283.
Stad Genk (2004), “Bestek: Opstellen bouwkundig ontwerp (oncl. speciale technieken) voor de infrastructuur voor cultuur en bedrijvigheid op de mijnsite Winterslag (restauratie conform de voorschriften van Monumenten en Landschappen/verbouwing/nieuwbouw)”, 18.11.2004, Genk.
Stad Genk (2005), “Register der beraadslagingen van het college van burgemeester en schepenen”, Vergadering van 22 juni 2005, IM/CBS/00021852, Genk.
Stad Genk (2013), *C-Mine*, Cahier 9, Stad Genk, Genk.
Stad Genk (n.d.), “History”, available at:https://www.c-mine.be/en/history (accessed 19.05.2021).
Stad Mechelenand Vlaams Bouwmeester (2011a), “Predikherenklooster Projectdefinitie, 25.10.2011”, Mechelen.
StadMechelen and Vlaams Bouwmeester (2011b), “Cultural policy plan 2008-2013 of the city of Mechelen”, *PredikherenkloosterProjectdefinitie*, 25.10.2011, Mechelen.
Stad Mechelenand Vlaams Bouwmeester (2012), Gunningsbeslissing OO2213, 25.05.2012, Mechelen.
Stad Mechelen (2015), “Beleids- en ontsluitingsplan Predikherencomplex”, Opgemaakt in het kader van de “Meerjarige Subsidiëringsovereenkomst voor de restauratie en herbestemming van het

Predikherenklooster te Mechelen", April 2015, available at:https://www.mechelen.be/ontsluitingsplan-predikherenklooster (accessed 23.09.2021).
Stuhlmacher, M. and de Bruyn, J. (2019), *Het PredikherenMechelen: Transformatie van eenkloosterruïne tot stadsbibliotheek, Transformation of a Monastery in Ruin into a City Library*, Public Space, Mechelen.
Thiis-Evensen, T. (1989), *Archetypes in Architecture*, Norwegian Univ. Pr., Oslo.
Throsby, D. (2002), "Cultural Capital and Sustainability Concepts in the Economics of Cultural Heritage", de la Torre, M. (Ed.), *Assessing the Values of Cultural Heritage,* The Getty Conservation Institute, Los Angeles, pp. 101-115.
Vlaams Bouwmeester, 'Open Call 2000-2013, A public principal's companion' (2013), p.7, https://www. vlaamsbouwmeester.be/nl/publicaties/open-oproep
Vlaanderen, "Omgevingsloket, Functiewijziging", available at: https://www.omgevingsloketvlaanderen.be/functiewijzigen(accessed 23.09.2021).
Walter, N. (2020), *Narrative theory in conservation, change and living buildings*, Routledge, New York.
Wirth, H. (1994), *Werte und Bewertungen baulich- räumlicher Strukturen*, *Axiologie der baulich-räumlichen Umwelt*, VDG, Alfter.

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