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Anciens entrepôts urbains de Bruxelles : architecture et construction
Historische stedelijke pakhuizen in Brussel: architectuur en bouw

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Introduction: Hidden industrial heritage in Brussels

- 1 Historical urban warehouses are remarkable structures. As essential buildings in national and international trade and industry, they were once "cathedrals of modernity". Their presence signifies that a city was integrated into a commercial network made possible by evolving transportation technology. Today, however, and despite their robust architecture, they have become vulnerable urban heritage. Like other European cities, the Brussels-Capital Region was characterised by the industrialisation and deindustrialisation of the city. Over the course of the twentieth century, many historical warehouses lost their original function and often underwent drastic changes and conversions. Today, historical urban commercial and industrial zones are undergoing in-depth transformation. Warehouses are threatened with demolition because of the speed and intensity with which the urban space is being redeveloped under pressure of the growing population. Despite demolitions, there is still a rich, diverse and unique collection of historical warehouses in Brussels. What is missing however is a knowledge base for this building typology to ensure the preservation and respectful adaptive reuse of the warehouses.
- 2 This paper contains the results of in-depth archival and first on-site investigations of a geographical zone which held important centres of industrial activity in the nineteenth and twentieth century: the Brussels city centre covering the first industrial zones along

the river Senne, the Brussels-Charleroi Canal and the oldest docks (Grand Bassin, Bassin du Chantier, Bassin des Barques, Bassin de l'Entrepôt, Bassin des Marchands, Bassin de Saint-Catherine).¹ The paper focuses on the development of a knowledge base about the history, operation, architecture and structure of these warehouses and their integration into the urban fabric. By defining different types of warehouses and identifying their specific characteristics, the paper sheds light on the specificities and uniqueness of the remaining warehouses.

- 3 In 2012, a first research project was set up at the ae-lab at the VUB by Sara Wermiel (MIT Boston), Ine Wouters (VUB) and Inge Bertels (VUB) to study the typology and the preservation of Brussels historic warehouses (Innoviris). [Wermiel *et al.*, 2012] In 2014, Marianne De Fossé started further research within the context of a four-year FWO research project at the VUB on "Preserving historical urban warehouses by understanding their architecture and technology" under the supervision of Ine Wouters, Inge Bertels and Linda Van Santvoort (UGent). This paper is part of this latter broader project that focuses on warehouses in the historic harbour cities Antwerp, Brussels and Ghent. Understanding this industrial building typology will, in the next phase of the research, contribute towards developing preservation and respectful adaptive reuse strategies for the remaining warehouses. The information that is gathered will help assess a building's significance and integrity from historical, technological and architectural perspectives. It will also be useful when planning design interventions to adapt a building to contemporary uses in ways that retain the special features that identify a building as a warehouse or a district as a representative entity.

1. Methodology

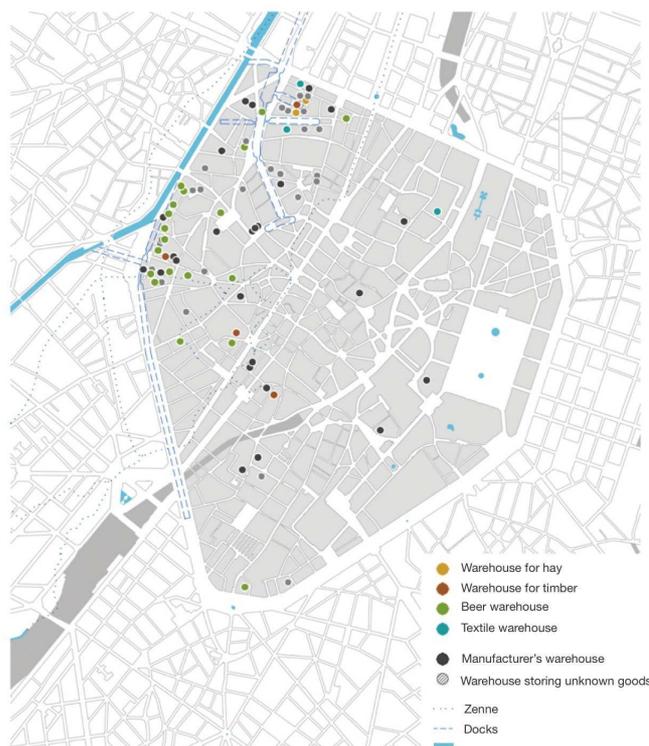
- 4 In order to analyse the Brussels situation and evolution, a database of existing and demolished warehouses located inside the historic city, also called the Pentagon, was created. The database was based upon the literature, archival sources and brief *in situ* research. It gathers basic information, such as address, construction year, construction materials, architecture, levels, lifting equipment, embedment in the urban fabric and stored goods.
- 5 The starting point par excellence for research on industrial heritage in the Brussels-Capital Region remains the *Inventaire visuel de l'architecture industrielle de l'agglomération de Bruxelles*.² The inventory was created in 1980 by *Les Archives d'Architecture Moderne* (AAM) and consists of more than 1600 file cards that concern industrial buildings or sites in the Brussels-Capital Region. In 1992, more in-depth research based on the AAM survey was conducted by *La Fonderie* into 148 large and important industrial properties. Respectively 164 and 34 inventory file cards concern buildings in the Brussels Pentagon. Of this selection, all the historical *dépôts*, *entrepôts* and *magasins* were identified, but *in situ* investigations proved necessary since a high number of buildings and complexes were altered or even demolished in the intervening 30 years. Furthermore, aerial imagery analysis was necessary to identify omitted warehouses, since the inventories focused on buildings on the street side and many Brussels warehouses are located inside the building blocks.
- 6 Secondly, additional information was provided by the inventory of architectural heritage managed by the Administration of Monuments and Sites of the Brussels-Capital Region. Since warehouses received little attention in this inventory, further in-depth archival

research was carried out in the Brussels City Archives (A.V.B.), where some 250 building permits³, including written documents and drawings, were consulted. These building permits concern not only the warehouses mentioned in the existing inventories, but also warehouses found during site visits and through aerial imagery analysis. The building permits provide information on the construction date, location and ownership, and sometimes on the exact function, the architecture and construction. As a result, the databases for the Brussels Pentagon includes eighty historical warehouses of which fifty still exist today, dating from the eighteenth century until 1940.

2. The Brussels warehouses

- 7 In 1561, the Willebroek Canal was opened, creating a connection with the river Scheldt and thus with the port of Antwerp and the North Sea. Docks in the centre of Brussels connected the canal to the city. Although the river was covered and the docks filled during the nineteenth century, the street names still refer to the former trades that were plied on the quays: Quai au Foin, Quai au Bois de Construction, Quai à La Houille, Quai au Bois à Brûler, Quai aux Briques, Quai à la Chaux (hay, timber, coal, firewood, brick, lime). These trade related activities and industry explain the building of many warehouses in this neighbourhood.

Figure 1. The warehouses in the Brussels Pentagon stored a wide range of goods. Most warehouses are concentrated along the canal and docks. The plan includes all existing and demolished warehouses that were included in the database.



- 8 During the nineteenth century, the agglomeration of Brussels, like other European cities, experienced a strong population growth from 65 000 to more than 625 000 citizens and the city was better known for its trade and craft production than for its heavy industry.⁴ In 1832, the Brussels-Charleroi canal was built, connecting Brussels with the industrial

mine city Charleroi. Shortly after, railways were introduced. Brussels became a transportation hub with canals, major roads and railways. Transportation facilities were concentrated in a corridor along the Willebroek and Charleroi canals, and in the nineteenth century, this became the main industrial area that included most of the large firms and warehouses. Nevertheless, Brussels never had an exclusive warehouse district. Even the old port district consisted of a mix of warehouses and townhouses around the docks. [Huberty *et al.*, 1994: 10, 15]

- 9 As a consequence of the covering of the river Senne (1867-71) and the filling of the docks (until 1910), many port-oriented warehouses were expropriated, reused or pulled down. Hence, the city centre lost its historical character as a port. [Huberty *et al.*, 1994: 36-37] However, these interventions made room for new developments, including new industry and warehouses focusing on transport via roads and railways. During the second half of the twentieth century, the Brussels industry changed. The tertiary sector developed and forced the manufacturing sector into the background. The remaining large companies moved to the outskirts of Brussels and constructed or rented more contemporary warehouses and hangars. [De Beule *et al.*, 2012: 49] The remaining warehouses in the city centre lost their original storage function.

3. Brussels warehouses: functionality and characteristics

- 10 In the past, Brussels warehouses have been analysed from a general point of view [Wermiel *et al.*, 2012; Wouters, 2002], from a technical perspective [Wouters, 2002] [Vandenabeele, 2014] [Dewaide, 2017] and by focusing on a Brussels industry [De Fossé, 2014]. In this paper, the stored goods are taken as a starting point of the analysis and subsequently, the warehouses are described according to their architecture, construction, lifting technique, ownership and integration in the urban fabric. This proved a useful approach to understand why the Brussels warehouses are so different from each other and a good way of defining different types of warehouses and to identify their specific characteristics.
- 11 Thanks to the existing inventories, consulted building permits and historical address books *Les Almanachs du commerce et de l'Industrie*⁵, the original function of fifty out of eighty warehouses in the database could be determined. These functions include the storage of hay, timber, beer, wine, canned food, paper, glassworks, ceramics, porcelain, furniture, textile, jewellery, hardware, pharmaceutical products and exotic fruits. This paper deals with four stored goods: hay, timber, beer and textile. These represent about 60 % of the recorded warehouses.

3.1. Hay warehouses near the docks

- 12 The area around the Quai au Foin (Hay Quay) next to the Bassin de l'Entrepôt (Warehouse Dock), originally the Bassin au Foin (Hay Dock) in 1639, was a neighbourhood of prosperous traders who built their warehouses and their own wealthy houses side by side. [Braeken *et al.*, 1989: 84] The name of the quay refers to the hay that was used for the horses that pulled the boats along the docks. [Huberty *et al.*, 1994: 10] The existence of two hay storing warehouses was confirmed. One stored hay for the horses that belonged

to the army (1820),⁶ the other stored hay to feed the horses that pulled the boats (1841).⁷ The latter still exists today. This type of warehouses represents the oldest warehouses of which the function is known, dating back to the first half of the nineteenth century.

- 13 The two hay warehouses were located on the street side and very close to the docks, probably both to facilitate easy transportation of hay from the docks, as well as to facilitate access in case of fire. The warehouses had pulleys on their façades to lift hay to the higher levels. Somewhat surprisingly maybe, these warehouses featured many and rather large windows, possibly to create an air flow in the building to prevent humidity and avoid fire risk. The façade of the army warehouse was more elaborate than the other two, probably to reflect the importance of this governmental building.
- 14 Their construction is typical for that time period: brick load-bearing walls and timber columns, girders, joists and floors. Timber floors are ideal to store the light hay, since they absorb humidity. Onsite analysis of the former *Dépôt de fourrage de l'Ancienne Compagnie Hollandaise* revealed a special type of construction of the basement: the basement did not consist of brick vaults, but included slender columns in solid bluestone in its construction.

Figure 2. Nineteenth century view of the Brussels docks. On the left, the hay warehouse (1841) of the *Ancienne Compagnie Hollandaise* with two pulleys with protective hood, and tiers of doors to lift the hay inside the building. Quai au Foin 59-60



Source: postcard collection Belfius – Académie royale de Belgique © ARB

3.2. Timber warehouses: the use and promotion of the traded good

- 15 Seven warehouses for the storage of timber or firewood were found on four different sites.⁸ Two of them, located on the same site, were built near the Quai au Bois de Construction (Timber Quay) along the Bassin de l'Entrepôt. The other five warehouses for the storage of timber were located farther away, near the canal and the railway station. All the warehouses were built between 1879 and 1898, though this was not the only period in which warehouses of this kind were used. The general historical trend of the industry and warehouses to move to the Canal Zone in the nineteenth century could not be observed based on this small selection of timber warehouses. Only one of the seven timber warehouses still exists today.

- 16 The seven warehouses include a typical elongated open floor plan, two to five floors, a saddle roof and large gates, sometimes giving access to an inner court. The buildings have many, rather large windows compared with warehouses in general, probably to ensure air circulation and allow daylight to pass through. Their façades show a functional architecture, since they are mostly located behind offices in building blocks and because construction workers and timber buyers were probably the only people to use them. The warehouses located near the Timber Quay were part of an Antwerp company that imported native timber as well as timber from the North. Parts of the roof could be opened for air circulation and its gates were three stories high, though the building plans show no lifting equipment. Drawings suggest that timber planks could easily be pushed up from the inner courts to the first floor, without lifting equipment (figure 3).

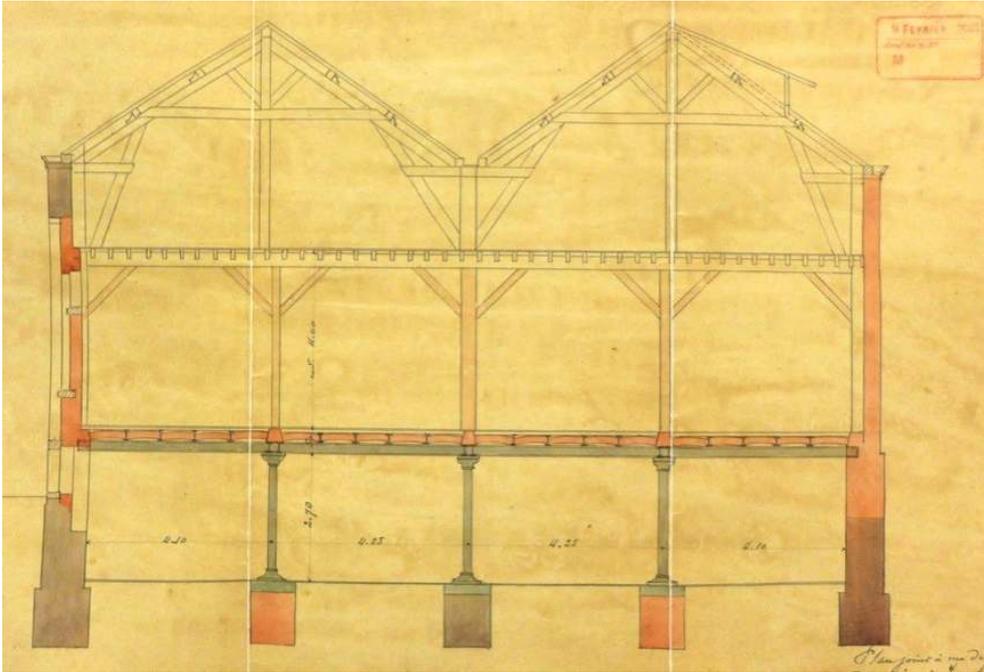
Figure 3. Letterhead of an Antwerp company that imported native timber and timber from the North, found in a building permit. The drawing suggests that timber planks can easily be pushed upwards from the inner court to the first floor, without making use of lifting equipment. Quai du Chantier 3



Source: City Archives of Brussel, A.V.B./T.P. 8996, 1884

- 17 Although cast iron, wrought iron and steel were the most popular construction materials for the interior load-bearing frame in Brussels during the second half of the nineteenth century, there were still some warehouses made of timber. [Vandenabeele, 2014: 10] The warehouses for timber storage were themselves timber-built, sometimes combined with iron bearing frames on the lowest level as can be seen in figure 4, suggesting higher load requirements.

Figure 4. The timber warehouse at the Quai du Chantier has a timber structure at elevated ground floor and attic levels. The structure of the ground floor features brick jack arch floors supported by iron girders and cast iron columns. Quai du Chantier 3



Source: City Archives of Brussel, A.V.B./T.P. 8996, 1884

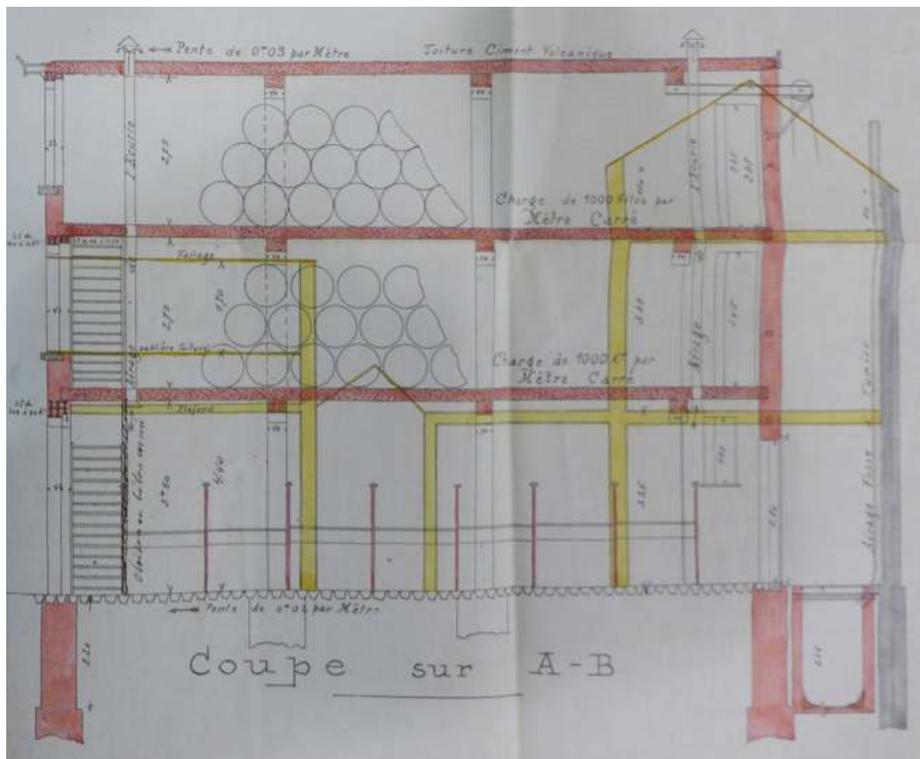
3.3. Beer warehouses: a stable inner climate and water-resistant floors

- 18 Sixteen beer warehouses were found in Brussels, of which ten still exist today.⁹ Beer warehouses are the most represented type of warehouses in both Brussels and the Brussels-Capital Region.¹⁰ Only some of them were located next to the brewery; not only could they store barrels, but also brewing equipment and later beer bottles. Some of the warehouses also had adjoining stables since horses were often used to deliver beer.
- 19 Figure 1 illustrates the concentration of beer warehouses (75 % of Brussels warehouses) along the west border of the Pentagon, next to the canal. Industrial buildings and labour housing dominated this neighbourhood.¹¹ [Braeken, 1993: 298, 517] At the peak of the beer industry in Brussels at the end of the nineteenth century, [De Fossé, 2014: 43-44] many existing warehouses in this neighbourhood were used as beer warehouses. The oldest retrieved beer warehouse was erected in 1845, the most recent in 1914.
- 20 The high number of beer warehouses in Brussels comes as no surprise. Beer was the most popular drink and *gueuze*, the typical Brussels beer, must ferment for a few years before it can be consumed. [Archief en Museum van het Vlaamse leven te Brussel, 1996] As a result, large buildings for storing the barrels for a long period were needed. Overall, the beer warehouses are robust buildings, three to five levels high. As most beer warehouses have a small width at (the costly) street level, it is the large depth of the building that provides the wide floor surface. The elongated rectangular floor plans made it possible to store a large number of barrels, stacked three levels high on top of each other in long rows as featured in figure 5. The wide hallways made it easy to roll the barrels in and out the

building. The compact building volumes, enclosed by neighbouring buildings in the building blocks, as well as the very thick walls of the facades and the limited number of windows, which could be closed with timber shutters, contribute to a stable inner climate, ideal for the storage of beer.

- 21 There is a clear difference between the facade of a beer warehouse located on the street side and that of a warehouse located in a building block behind an inner court. On the street side, the ornamented facades represent the image of the brewery or beer trader, as shown in figure 7. The beer warehouses located inside a building block behind an inner court have functional facades since they are not visible from the street.
- 22 Most of the beer warehouses (fourteen out of sixteen) have brick vaulted floors, which have a good resistance to humidity and a high load-bearing capacity. Iron beams and cast iron columns carry these heavy floors. The upper floors, for the storing of lighter goods and the roof are made of timber. In the twentieth century, reinforced concrete was introduced and applied in beer warehouses since it combines a good resistance to humidity and a higher load-bearing capacity.

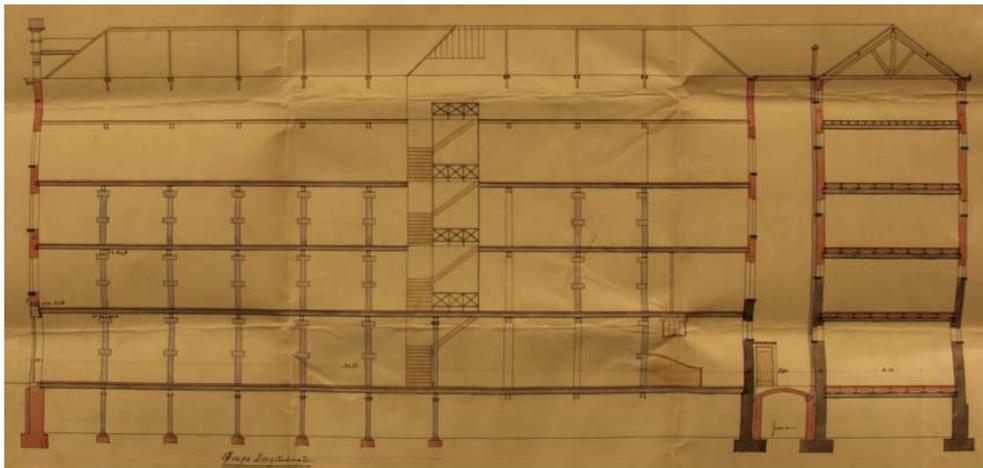
Figure 5 a&b. The beer barrels were stacked in long rows. Lifting equipment is visible in the façade. The ground floor was entirely used to accommodate stables for the horses used to transport the beer. Place du Nouveau Marché aux Grains 16





Source: City Archives of Brussel, A.V.B./T.P. 17934, 1914

Figure 6. The elongated open floor plan is clearly visible for the two Verelst beer warehouses of 1901. They are built at right angles to each other; they share stables and an inner court. Boulevard Barthélémy 11 and Rue du Pêne 1



Source: City Archives of Brussel, A.V.B./T.P. 25621, 1901

Figure 7. The Verelst beer warehouse (1901) belonged to an independent beer trader. It has an ornamented façade on the Boulevard Barthélémy.



Source: City Archives of Brussel, A.V.B./T.P. 25621, 1901

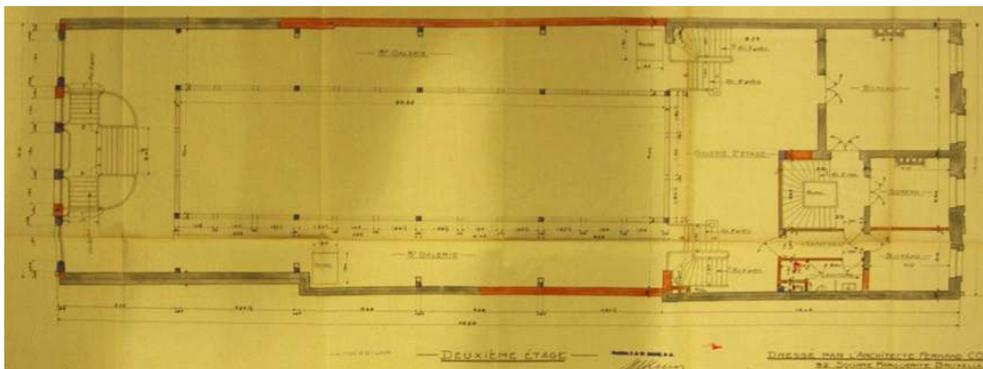
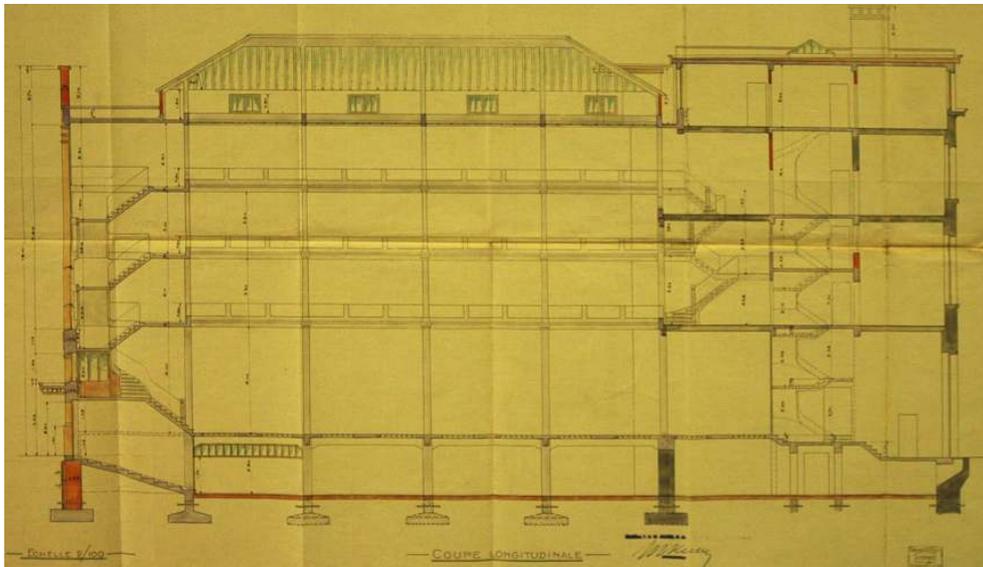
3.4. Textile warehouses

- 23 The textile warehouses from the beginning of the twentieth century show a complete new type of warehouse in comparison with the hay, timber and beer warehouses. Since these textile warehouses combined the storing and selling of textile in a single building, their typology resembles sales halls rather than typical warehouses. Three textile warehouses have been found¹².
- 24 *Les Magasins Waucquez*, 1906, is located in a residential and commercial area. This is not uncommon for warehouses combined with shops selling luxury goods, which are disseminated across the city. The other two textile warehouses *L'Entrepôt Stiel & Rothschild* and *Les Etablissements I. & M. Blum* were built respectively in 1926 and 1934 and are both located in the *Quartier Maritime*¹³ in the north-west corner of the Pentagon. [Braeken, 1993: 10] The new port north of the Pentagon ensured that this former port area did not lose its commercial activities after the filling of the last dock in 1910. The first buildings in this area were built during the 1920s and 1930s as a result of the economic revival after the First World War. New wholesale firms, market halls and buildings for fruit and vegetable auctions guaranteed the continuation of the former port activity [Direction des Monuments et des Sites, 1998: 4]. Among these buildings, two of the textile warehouses were found.
- 25 The three textile warehouses feature monumental staircases, light wells, galleries and many large windows for the showrooms - also used for storage - designed to provide

these buildings with a great deal of (often indirect) light, as can be seen in figure 8. The first textile warehouse still has cast iron columns and metal beams, while the other two were built in reinforced concrete.

- 26 Much attention was given to the design of these buildings, inside and out, since they were meant to represent the company. The facades were designed in the latest styles of the late nineteenth and early twentieth centuries. *Les Magasins Waucquez* was designed by Victor Horta in *Art-Nouveau*. The façade of *L'Entrepôt Stiel & Rothschild* is inspired by Art Deco. *Les Etablissements I. & M. Blum* traded in silks and jewels and is an example of the functionalist style of the inter-war period, characterised by a sober, geometric design with a vertical rhythm and a concrete structure and façade, as shown in figure 9.
- 27 All three textile warehouses were listed for their historical and aesthetic value: Waucquez in 1975, Rothschild in 1998 and Blum in 1998. The latter two are listed in their totality. Of *Les Magasins Waucquez*, only the façade, roof and monumental staircase are protected.

Figure 8 a&b. The textile warehouse *Etablissements I. & M. Blum* (1934) in the Rue des Commerçants 67 contains a monumental staircase (right) and a light well (middle) to ensure enough light enters the showrooms



Source: City Archives of Brussel, A.V.B./T.P. 50722, 1934

Figure 9. The façade of the textile warehouse *Etablissements I. & M. Blum* (1934) makes use of cimorné¹⁴ interwar decorative cement render



SOURCE: © BEPICTURES / BRUNETTA V. – EBERLIN M.

4. Brussels warehouses today

- 28 Of the fifty still existing warehouses that were found in the Brussels city centre, no less than nine are listed. An additional two warehouses are listed in the other eighteen Brussels communes, bringing the total number of listed warehouses to eleven out of more than 200 warehouses in the entire Brussels-Capital Region. Analysis of the protection documents of the listed Brussels warehouses however revealed that these industrial buildings are listed mainly on the basis of their historic and aesthetic value. [Wermiel *et al.*, 2013: 11] The former *Etablissement Blum* for instance was listed partly thanks to the reputation of architect Fernand Conard. The listed warehouses do not reflect the economic relevance of Brussels urban historical warehouses. Although the Flemish Decree of 1976 broadened the definition of the term "monument", warehouses in Brussels have so far been listed mainly for their historical and esthetical value, and seldom for their scientific, social, technological, industrial or archaeological value. Furthermore, it is important we revise the way in which we have been addressing the listing of buildings so as to facilitate the reuse of these industrial buildings. Moreover, qualitative research and guidelines for today's builders (architects, engineers, owners of buildings, heritage consultants), which concern the adaptive reuse of this specific building typology are still very much lacking. Identifying different warehouse types and their specific characteristics will contribute in the next phase of this research to the development of preservation and respectful adaptive reuse strategies.

Conclusion

- 29 This paper analyses the characteristics of urban warehouses in the historic centre of Brussels by focusing on the storage of hay, timber, beer and textile and analysing their impact on the materialisation and functionality of the warehouses. A better understanding of these warehouses revealed new insights into their local context, but also shed light on the generic aspects of warehouses, fuelling the international view. The four defined warehouse types differ in their architecture, construction and integration in the urban fabric. The research proves that not all warehouses were plain buildings, but that some of them, like beer and textile warehouses, were specifically designed to represent the company. The research also demonstrates that the use of construction materials was not only determined by economic considerations and new technological trends, but that a strong relationship exists between the nature of the traded item and the choice of the construction material. Hay storage, for example, requires a timber floor that absorbs the moisture, while beer storage requires brick floors that are resistant to moisture and iron columns to bear heavier loads.
- 30 With relation to the integration in the urban fabric, all warehouses are found in specific areas in the city. Warehouses for hay are found near the docks. Timber warehouses are not only situated near the Timber Quay where timber was traded, but also near transportation facilities, i.e. canals and railway stations. Beer warehouses can be found grouped together in a former industrial neighbourhood along the canal with access to the water that was used for a number of different purposes, and textile warehouses are located in the Quartier Maritime and in residential neighbourhoods, since these warehouses store and sell a luxury good. Of the four warehouse types, the majority of the beer warehouses and the three textile warehouses still exist today. However, only one timber and one hay warehouse remain.
- 31 Although this research has certainly added to the existing historiography by demonstrating the strong link between the function of the warehouses and their embedment in the urban fabric, architecture, specific materialisation and construction, additional research is needed. For instance, some of the raw materials (e.g. bluestone, lime, etc.) that have given their names to the quays could not directly be linked to the appearance of warehouses. Additional research on the storage of these materials is therefore required. Also, more research is needed to reveal how goods were transported on site and how the circulation and storage within the warehouse itself was organised. Moreover, comparative research that confronts the Brussels situation with other national and international cities will strengthen the current research findings.

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NOTES

1. Brussels is one of the nineteen communes of the Brussels-Capital Region. The subject of this paper is the historical city centre within the so-called Pentagon, the second city wall dating back to the fourteenth century, which corresponds more or less to the commune of Brussels. From here on, this zone will be referred to as "Brussels".

2. Les Archives d'Architecture Moderne (AAM), 1980. *L'Inventaire visuel de l'architecture industrielle de l'agglomération de Bruxelles*, Brussels.

3. City Archives of Brussel. Travaux Publics : Permis de bâtir, Brussels.

4. Source: STAD BRUSSEL. Geschiedenis van Brussel. In: old.brussels.be [online]. [Consulted on 6 may 2017]. Available on: <https://old.brussel.be/artdet.cfm/4094/Geschiedenis-van-Brussel>

5. Almanachs du commerce et de l'industrie, Brussels. [Consulted in 2015]. Available on <https://www.bruxelles.be/almanachs>

6. Dépôt de fourrage pour l'Armée, Rue du Chantier 7-11, 1820, demolished.

7. Dépôt de fourrage de l'Ancienne Compagnie Hollandaise, Quai au Foin 59-65, 1841.

8. Magasins de bois, Quai du Chantier 3, 1879-85, demolished. Magasin de bois, Impasse de la Barbe, 1882, demolished. Dépôt de bois, Rue Terre-Neuve 14, <1890. Dépôt de bois, magasins et atelier, Rue des Fabriques 55, 1898, demolished.

9. Brasserie Saint-Michel, Rue de la Senne 19, 1845. Beer warehouse, Rue Vandenbranden 21, 1849. Magasin à bières de la Brasserie l'Etoile, Rue Notre Dame du Sommeil 50-54, 1859. Brasserie Vanderborgt, Rue d'Anderlecht 1441, 1860, demolished. Trois entrepôts de bières identiques, Rue Breughel 1-7, 1864, demolished. Magasin à bières de la Brasserie l'Etoile, Rue Notre Dame du Sommeil 85, 1875. Ancien dépôt de brasserie, Rue des Echelles 5, 1879. Dépôt de bière, Rue de la Poudrière 64, 1884. Dépôt de bière, Rue de l'Abattoir 26, < 1887. Magasin à bière, Quai aux Barques 11, 1887, demolished. Biermagazijn, Rue Vandenbranden 41, 1887. Biermagazijn Verelst, Boulevard Barthélémy 11, 1901. Biermagazijn Verelst, Rue du Pène 1, 1901. Dépôt de bouteilles avec brasserie, Rue des Fabriques 32-34, 1909, demolished. Magasin à bière et écurie, Place du Nouveau Marché aux Grains 16, 1914, demolished. Magasins à bières, Rue d'Anderlecht 19, unknown, demolished.

10. Sixty of the 160 (38 %) warehouses in the Brussels-Capital Region and sixteen of the fifty (32 %) warehouses (of which the function is known) in Brussels are beer warehouses.

11. Rue des Fabriques, Rue de la Poudrière, Rue Notre Dame du Sommeil, Rue Vandenbranden, Boulevard Barthélémy.

MONUMENTEN EN LANDSCHAPPEN, *Bouwen door de eeuwen heen*, 1B, 298, 517.

12. Les Magasins Waucquez by Horta, Rue des Sables 20-22, 1906; l'Entrepôt Stiel & Rothschild: textile, Quai aux Pierres de Taille 28-29, 1926; l'Entrepôt des Etablissements I. & M. Blum, traders in silks and jewels, Rue des Commerçants 67, 1934.

13. The Quartier Maritime includes the Quai du Commerce, Boulevard de Dixmude, Boulevard d'Ypres, Place de l'Yser and Square Saintelette.

14. Cimorné is a typical Belgian facade finishing technique that was invented and patented during the interbellum. The decorative plaster consists of cement mortar incorporating glass waste to create a colourful textured facade.

ABSTRACTS

Historical urban warehouses are remarkable structures. Today, however, and despite their robust architecture, they have become vulnerable urban heritage threatened with demolition. Current research being carried out at the *Vrije Universiteit Brussel* focuses on the development of knowledge about the architecture, operation and construction of warehouses in Antwerp, Brussels and Ghent and their integration in the urban fabric, to support their preservation and respectful adaptive reuse. This paper contains the results of in-depth archival and first on-site investigations of nineteenth and twentieth-century warehouses in the historic city centre of Brussels, covering the first industrial zone around the river Senne and the docks. Eighty demolished and still existing urban warehouses are analysed by focusing first on the storage of some well-represented goods: hay, timber, beer and textile. The analysis shows that the four goods correspond to four types of warehouses that differ in their architecture, organisation, construction and integration in the urban fabric.

Les anciens entrepôts urbains sont de remarquables édifices. Or, malgré leur robustesse architecturale, ils constituent aujourd'hui un fragile patrimoine menacé de démolition. Les recherches actuellement menées à la *Vrije Universiteit Brussel* (VUB) s'attachent à accroître les connaissances relatives à l'architecture, au fonctionnement et à la construction des entrepôts d'Anvers, de Bruxelles et de Gand, ainsi qu'à leur intégration dans le tissu urbain, afin de favoriser leur sauvegarde et leur réutilisation respectueuse après adaptation. Le présent article expose les résultats d'un examen approfondi de documents d'archives et d'études inédites sur le terrain, portant sur des entrepôts du XIX^e et du XX^e siècles situés dans le centre historique de Bruxelles, là où furent implantées les premières zones industrielles aux alentours de la Senne et des quais. L'enquête réalisée sur 80 bâtiments démolis et existants s'intéresse d'abord à l'entreposage de différentes marchandises très représentées, à savoir, le foin, le bois d'œuvre, la bière et le textile. Il apparaît qu'à chacune de ces quatre marchandises correspond un type d'entrepôt distinct en termes d'architecture, d'organisation, de construction et d'intégration urbanistique.

Historische stedelijke pakhuizen zijn opmerkelijke structuren. Ondanks hun robuuste architectuur zijn ze nu echter kwetsbaar stedelijk erfgoed geworden en worden ze met sloop bedreigd. Lopend onderzoek aan de *Vrije Universiteit Brussel* richt zich op de ontwikkeling van kennis over de architectuur, de werking en de bouw van pakhuizen in Antwerpen, Brussel en Gent en hun integratie in het stedelijke weefsel, om zo hun behoud en een respectvolle herbestemming te steunen. Deze paper bevat de resultaten van een grondig archiefonderzoek en van de eerste plaatsbezoeken van de negentiende en twintigste-eeuwse pakhuizen in het historische centrum van Brussel, en meer bepaald in de eerste industriële zone rond de Zenne en de dokken. Tachtig afgebroken en nog bestaande stedelijke pakhuizen worden geanalyseerd door in de eerste plaats te focussen op de meest voorkomende opslaggoederen: hooi, hout, bier en

textiel. Uit de analyse blijkt dat de vier goederen overeenstemmen met vier types pakhuizen die verschillen in hun architectuur, organisatie, bouw en integratie in het stedelijk weefsel.

INDEX

Keywords: heritage, history, port

Trefwoorden erfgoed, geschiedenis, haven

Mots-clés: patrimoine, histoire, port

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