

Research Plan

Courses: AR3A010 Research plan, AR3A1100 Interiors Buildings Cities

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Introduction

Bank buildings have a long history and used to express their stableness and security by the adoption of temple-like forms, classical composition, heavy and solid materials in order to convince their customers of their ability to take care of wealth (Pevsner, 1979). However, as the need for security reduces and the emphasis on knowledge creation and transfer increases, bank buildings need to change both in space planning and functions. The Belgium National Bank aims to embrace the changing expectation for banks, to transform the way the institution works, and to provide a new consolidated workspace for its staff. As a national institution, the bank is inherently responsible for engaging different social groups and fostering cooperation. Considering the cultural and populational diversity of Brussels, eating could be a powerful idea in the communication between different groups of people (Duru, 2017). Moreover, the bank's ambition to adopt a doughnut economic model also asks for the engagement of the public and advocacy of sustainable eating.

Duffy (1980) and Thomas (2021a; 2021b) elaborated on the development of offices and identified the interrelationship between the invisible management approaches and the visible layouts and forms of buildings. Precedence buildings were introduced, interpreted, and categorized according to their management tools and special forms. The power structures varied in different categories, but it notes that the chase of productivity is the core value of business activities (Duffy, 1980; Thomas, 2021a). In the early stages, productivity mainly came from the sum of the individual workload. After that, knowledge workers who valued individual development and interpersonal relationships forced the improvement on work environment and the management methods. During this period, productivity came from social groups (Thomas, 2021a). Since the 1980s, information technology changed working patterns in the workplace greatly, and productivity increasingly relies on creativity and cooperation (Ross, 2021). After that, more researches on office productivity and employees' satisfaction and well-being emphasized the influence of interaction and communication (Haynes, 2007), as well as eating activities in the office environment (Clohessy, Walasek, Meyer, 2019). The study tried to relate the behaviors of office occupants with building layouts and interiors by typological analysis and mapping and came up with the idea of 'social plinth', where the public and employees have the opportunities to encounter and communicate, and where the office environment facilitates interaction, communication, and productivity.

Research context:

This research draws on and builds on the readings, precedence study, and lectures gave during the research sessions. The development of office buildings and organization were highlighted by Francis Duffy (1980), who is noted for his work on the

flexible space-using and the future office. In the text *Office Buildings and Organizational Change*, Duffy focused on the shifting of office building, interior arrangement, and office organization from the mid-19th century to the mid-20th century. The study involved the interpretation and comparison of six office buildings finished in different periods. Duffy identified four major factors in the office design. Two internal factors: office technology and office organization, and two external factors: building construction and real estate. The influence of these factors waves in different periods and is different in the United State and Europe. Nevertheless, the construction of organizational hierarchy and the pursuit of productivity are the two themes throughout the design of these offices.

In Duffy's text, the layout of office buildings was mainly influenced by two factors: power structure or the organizational hierarchy, and technological advances. In terms of power structure, started from small home-like offices for high-position professional men in Oriel Chambers and the Sun Insurance Building, the focus of office building design gradually shifted to creating an owner-dominated, controlled environment in order to pursue productivity, such as the Larkin Building. The Larkin Building that was built for a mail order company in 1904, which was designed as a machine in order to ensure the high efficiency of the ordering and distribution process. The restricted furniture, high level of supervision, and the lack of private closed space all indicate the strong hierarchy in the space. The employees were low in status, and the corporate owner was more dominant (p 265). Office landscaping was introduced by Duffy as an attempt to break the hierarchy barriers and to create a friendly environment. The case he chose, Ninoflax offices in Nordhorn, Germany, has a random low-density layout to provide more freedom for the personal reorganization. The design of the layout meant to show a flexible corporate style and the management principle that is structured by the way the firm works. Hierarchy is not that visible in the office plan, but still exists.

The other two buildings mentioned in Duffy's text, Guaranty Building finished in 1895 and the Seagram Building finished in 1953, showed more influence from building technology. The Guaranty Building, one of the earliest Chicago skyscrapers, was benefited from the development of elevator and steel frame construction. In order to maximize the land use, the building occupied the whole site and more floor areas were provided with higher stories. With the U-shaped floorplan, natural ventilation and light were provided for all separated units. Around 60 years later, because of the progress in mechanical ventilation and illuminating, the Seagram Building could have a much larger area for each floor, offering workspace with a totally controlled artificial environment. However, the Seagram Building is considered exactly the same product as the Guaranty Building (p 274), as their organizational principles were basically the same.

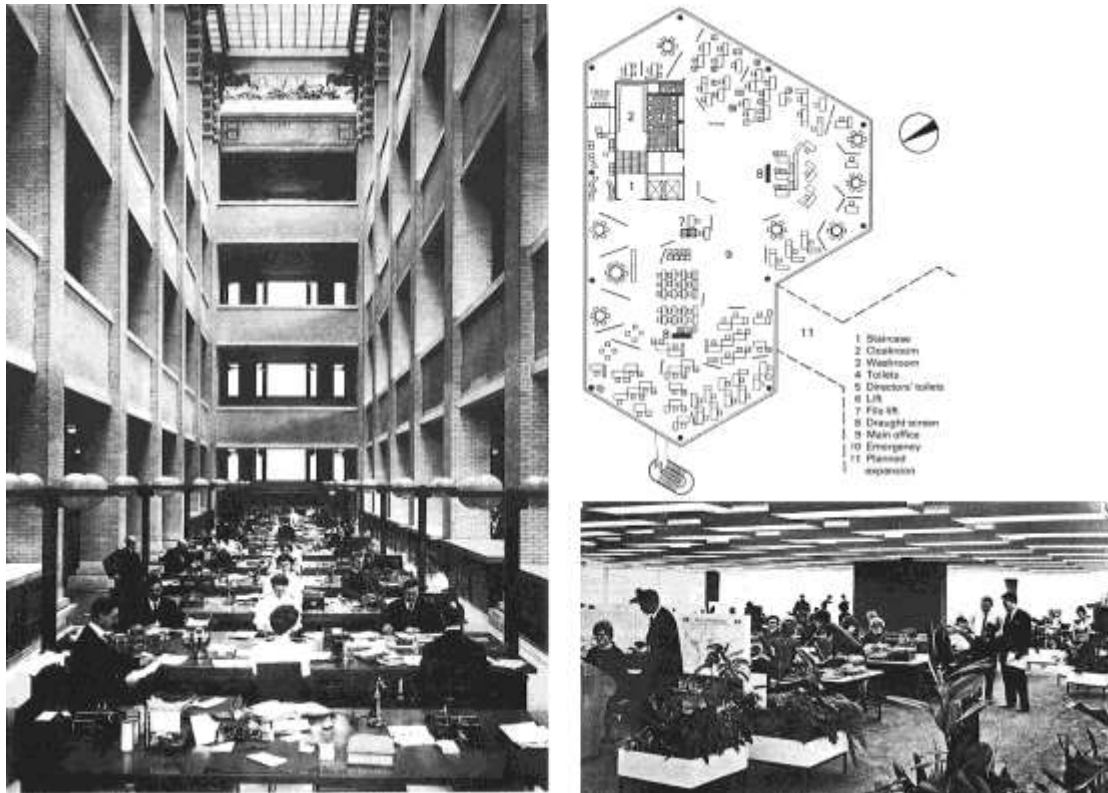


Fig.1 The Larkin Building; Fig.2 floorplan of Ninoflax offices; Fig.3 interior of Ninoflax offices

Another important factor for space planning is the management approaches which were elaborated in the lecture *The Changing Workplace, or: The Political Economy of Flexibility* (Thomas, 2021a). In the 20th century, the management tool was shifted from scientific management to human relation-based management. Initially, scientific management was popular due to the quest for productivity. In this period, organizers and designers were committed to rationalize and standardize the production process, and individuals were considered as a part of the machine or the assembly line. As a result, the work environment and furniture were designed entirely for making employees more productive. Even the clerks were just manual workers, working in a factory-like office and dealing with simply repeated paper works. Later, efficiency was achieved through interpersonal relationships which focus on social groups rather than individuals. Quickborner introduced the communication-oriented layout, transforming the space planning from stack to horizontal, which became the basis of the open floor plan.

Open floor plan emerged after World War II, under the development of steel frames and curtain walls, and the need for maximum floor areas. Universal space was created within the open floor that allows free organization according to personnel and working groups. In the mid of the century, landscaped office emerged, which rethinks the whole office as a system and try to reach the potential of good personnel relationship. Office design gradually turned to create a cultural experience rather than just focus on management. Moreover, the type of workers also changed. There were more knowledge workers who required personal development, interpersonal relationship, freedom, privacy, etc. In order to retain the knowledge workers, corporations increased

the investment in interiors and service, also leading to an improvement in architectural standards. Later the 1980s, the Big Bang and the spread of networked technology changed the way of working, and more floors were needed to accommodate the ever-increasing spread of personal computers and servers. The apply of computers influenced the office design and generated new patterns of behavior in the workplace (Ross, 2021).

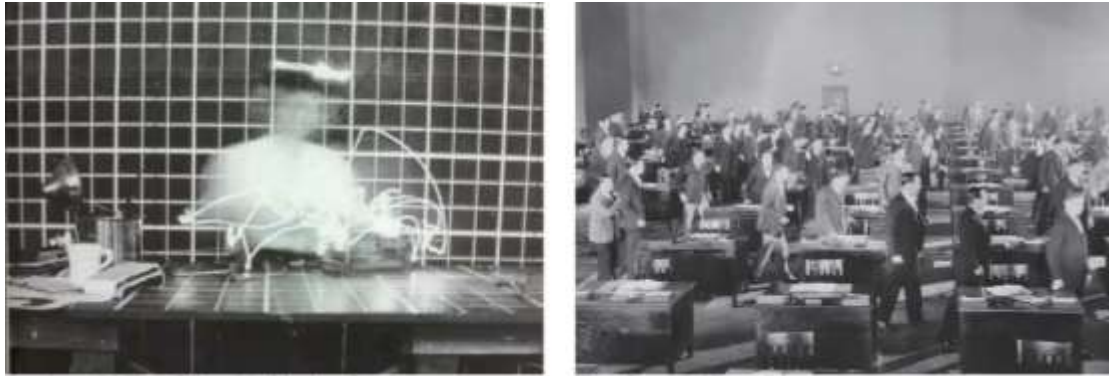


Fig.5 Frank and Lilian Gilbreth's Motion Study, 1914; Fig.6 The Crowd, King Vidor, 1928



Fig.7 Centraal Beheer, Apeldoorn, 1968-72; Fig.8 Osram Building, Quickborner

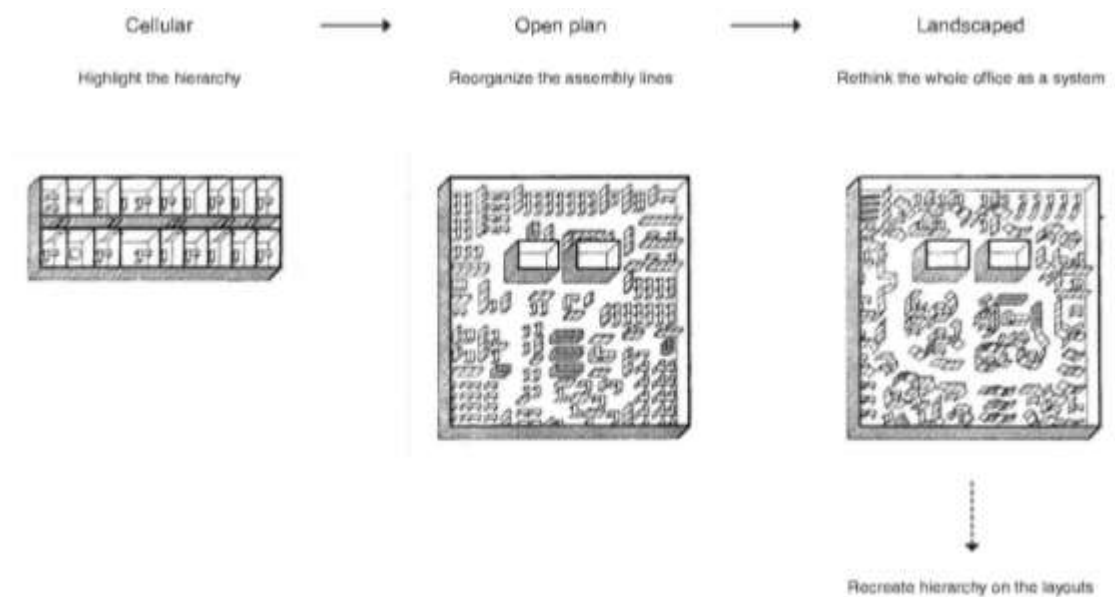


Fig.9 reflectional diagrams on Thomas' lecture

In the research from Haynes (2007), a theoretical framework of office productivity was proposed. The study proved that those elements referring to employees' behavior, interaction, and distraction were observed to have the greatest positive and negative effect on personal productivity. Haynes also identified that the offices should allow both teamwork and individual work in order to encourage knowledge creation and transfer.

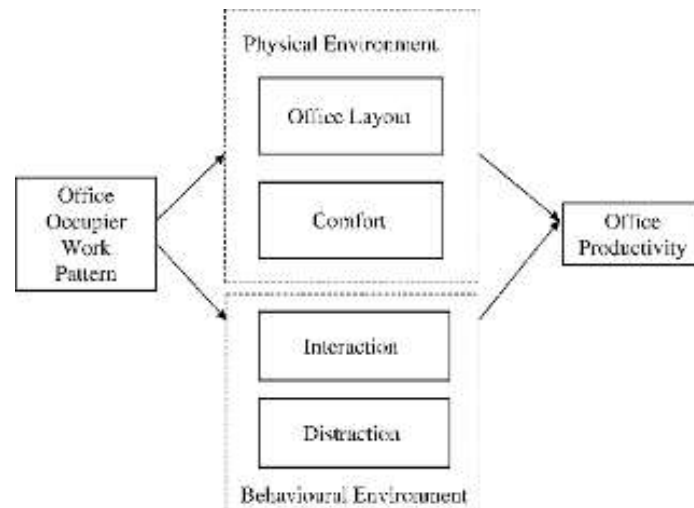


Fig. 11 diagrams from Haynes (2007)'s text

The history of bank building was elaborated by Nikolaus Pevsner (1979) in his text *Exchanges and banks*. Pevsner started with the origins of banking activities and the early development of capitalism, and then related these to the change of banking building type. Banking activities first happened in houses, then in Palazzos and public buildings. One key moment is the emergence of cloister, which can be seen in some Exchanges in London and Amsterdam. The cloister later developed into courtyard. It was noticed that banking buildings bear many similarities with other building types such as temple and palace. Classic forms were applied in exchanges and banks such as domes, rotunda, and Palladio's Basilica layout. Decoration of banks also changed over time, first moved from Grecian to Italianate, then to Baroque and Gothic, and finally, the so-called International Modern style appeared.

Another interesting discussion in Pevsner's text is how architectural forms build people's trust in banks. Pevsner mentioned that the preference of Grecian for many years probably indented to express security (p204). Later, even many banks gave up the giant iconic columns, powerful colonnade and pediment, most of their facades remain solid and closed. When it comes to 20th century, transparent curtain wall was applied in bank buildings, such as the Manufactures' Hanover Trust Company in New York. The change in facades indicates the change in the meaning of trust: security and stableness used to be the source of trust, while transparency and openness are more concerned today.

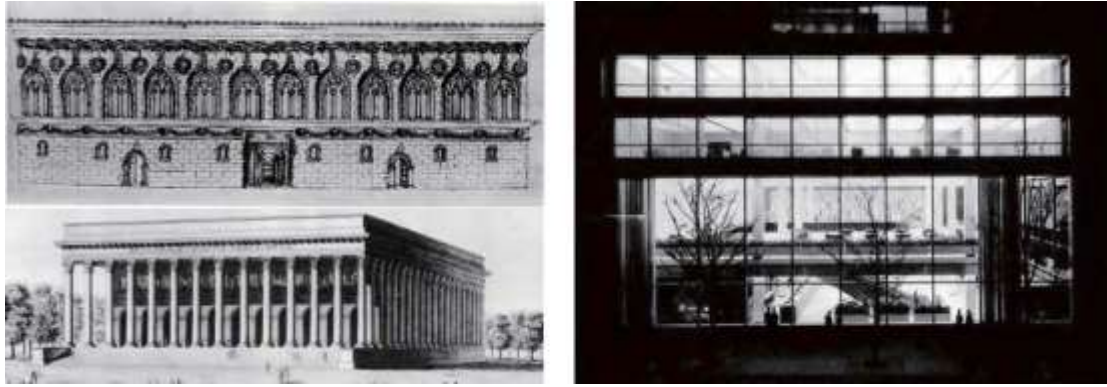


Fig.10 pictures from Pevsner's text

The literature has formed a framework of the development of workplace and bank buildings. It also identified productivity as the core value of financial activities, even though the chase of productivity was sometimes covered under the satisfaction of users' needs and personal freedom. The way to achieve productivity varies over time and the differences are reflected in the space planning of workplace.

Problematization

The literature has identified the importance of productivity in the management process and space planning of office buildings. It also notes that management and operation theories interact with the building layouts. To elaborate the relation, precedence buildings from the studio sessions and former literature were put into six categories which are basically in chronological sequence (Fig. 12). During the home-like office period, companies were comparably small so the offices were designed to provide a private, homie working environment for high-position businessmen. When the companies became bigger and more low-status manual workers were hired, scientific management getting popular due to the requirement for efficiency. The workspace was designed higher and larger to allow supervision from the managers. In these two stages, productivity mostly came from the workload of individuals. Later, the communication-oriented management that focused on social groups turned into the mainstream. Employees began to seek individual improvement and good personnel relationships in work (Thomas, 2021a). It was the time that the open floor and the landscaped offices emerged. In the category of 'Workspace + ?', the office buildings involved programs that didn't belong to office building type, such as square, park, streets, and entertainment. This stage is also closely related to the development of information technology (Ross, 2021). In the last two stages, more aspects were taken into consideration, such as the users' satisfaction with privacy and communication (Haapakangas et al., 2018), allowing employees to decorate the workspace (Knight & Haslam, 2010), and the interaction and distraction in offices (Haynes, 2007).

When it comes to the future roles of national banks, interaction and social relations

are also crucial. On the one hand, banks became more self-conscious about the importance of knowledge, both as commendation institutions and knowledge producers (Kapur, 2006). To stimulate knowledge creation and exchange, experts and employees need space to encounter, communicate and share their ideas. On the other hand, when the diversity of Brussels took into account, the Belgium National Bank has the potential for more social responsibilities such as engaging the communities, boosting cultural life, supporting artists or new entrepreneurs, cooperating with other institutions, and sealing the social gaps at the end if possible. In this case, employees have the opportunity for exposure to different groups of people and staff from other departments that have no direct contact with them.

The former researches on office productivity were mainly conducted across two discipline areas, facilities management and environmental psychology. The behaviors and interactions of office occupants are not closely related to building layout and interiors. This study focused on the architectural aspect to find how the physical space interacts with management approaches and influences employees' behaviors and then gave suggestions on the design principles of the future workspace that allow public engagement and that promote interaction, cooperation, knowledge creation, and productivity.

As the second most diverse city in the world, more than six in ten Brussels residents have immigrant background, which comes with a diverse eating culture. Food is not only an important part of who we are, but also used in the creation of cultural boundaries and group identities (Duru, 2017). So, the idea of eating has the potential for engaging with one's own community and serving as a means of communication with others. Moreover, what one consumes and how one eats in office environments can influence physical health, well-being, and work performance (Clohessy et al., 2019). Thus, the idea of the 'Social Plinth' emerged: where people – both the public and employees—can meet, eat, and share food with friends or strangers.

Productivity from individuals

Productivity from



Fig.12 research diagram

from social groups

Productivity from creativity and public engagement

Office landscape	Workspace + ?	Future workspace
<p>Bürolandschaft diverse non-hierarchical open-plan environment plants and partitions</p>	 <p>Economist Building, London, 1964</p>	<p>Institutions relate with cities social responsibility public engagement transparency</p>
 <p>Niroflax offices, Nordhorn, 1963</p>	 <p>Ford Foundation, New York, 1968</p>	 <p>City Hall, The Hague, 1966</p>
 <p>OSRAM Office, München, 1965</p>	 <p>SAS building, Stockholm, 1988</p>	 <p>German parliament building, Berlin, 1999</p>
<p>Blurring boundaries free architecture</p>	<p>Technology computer, network 'intelligent' building "hot-desking"</p> <p>portable devices, wireless, cloud-based storage teleworking</p>	<p>Work & Life work as an action rather than a place communication creativity and cooperation</p>
 <p>KAIT Workshop, Kanagawa, 2013</p>	 <p>Googleplex, California, 2005</p>	<p>Future roles of banks engage the communities respond to the diversity of the city identity of the employees value of works</p> <p>public engagement and support to improve productivity</p>

Methodology

The study involved typological analysis and comparison of the precedent buildings, which were carefully selected and categorized according to their management approaches, space planning, and operational ideas. Besides office buildings, two governmental institutions were chosen to construct a connection between commercial offices and the national bank and to give suggestions for social engagement. The method diagram is inspired by the framework proposed by Haynes (2007) which divided the influence factors behind productivity into physical environment and behavioral environment. Differ from sociological survey and data analysis as Haynes did, this study focused on the architectural aspects and tried to embed employees' interaction in physical space. The main study cases were the Osram Headquarter as landscaped offices, Googleplex as contemporary offices, City Hall of the Hague as a national institution, and the Belgium National Bank itself. The analysis of these buildings was based on the floorplans. Method of mapping was adopted to identify the privacy, interaction, activity types, noise sources, natural illuminating area, and area that opens to the public.

Considering that Brussels is one of the most culturally diverse cities in the world, research on the city which includes history, population, culture, traditions, politics, etc. determined the social responsibility of the Belgium National Bank. The study also explored how food helps the communication between different social groups and how eating activities influence employees' satisfaction and work performance by literature research and analysis of contemporary offices. In addition, research on management theories and environmental psychology provided an interdisciplinary perspective for the study.

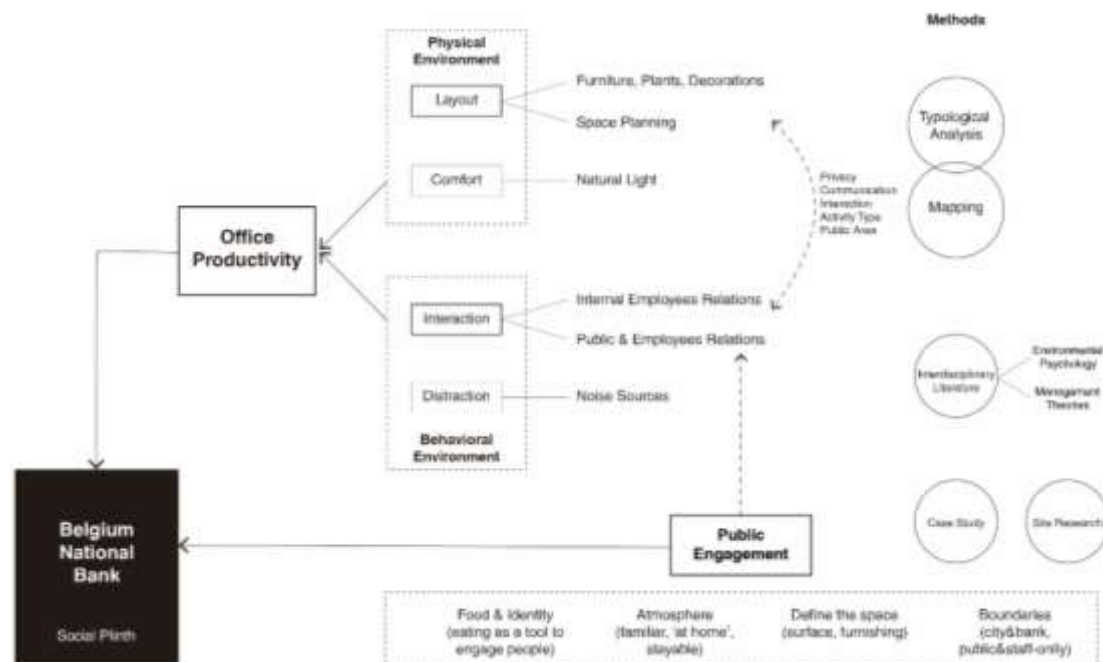


Fig.12 method diagram

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