

## Chapter 2

# Office Building: A Brief Historical Overview

In exploring office architectural design and its impact on user activity, examples of the history of the workplace from ancient Egyptian, Greek and Roman palaces and administrative centers until the office of present time will be presented. Office architecture has undergone many interconnected phases and have withstood both discontinuities and inconsistencies. Influences from the past can be found in contemporary office design. Prevailing political and social conditions as well as the development of technology may explain changes in the form and use of space. Human movement has been taken into consideration during most of the office layout design stages, mostly to the extent of minimizing physical activity to the benefit of productivity. Concepts for workplace design are still changing and the office space is becoming a layout set to induce interaction and face-to-face knowledge and information exchange.

### 2.1 Ancient Times

In ancient Egypt (3200BC–525BC) (Hascher et al. 2002), Greece and in Roman times (around the 5th century BC), economy, power and authority directed administrative buildings' infrastructure, supplies and engineering. These consisted of well-defined cores, a center and courtyards that attracted central or peripheral movement. In ancient Egypt the hierarchy of spaces was very strong and centralized, in ancient Greece and in Rome administrative centers were spread, with head offices and political as well as social centers located in different areas of the cities. Office work in ancient Egypt was carried out in specific spaces assigned for different jobs such as for accounting, registration and for bookkeeping, just like the contemporary conventional office workspaces. Many ideas about the management of workplaces, however, stems from the ancient times and thinking. An example is “hot-desking”, that is carried out today to resolve a need for mobile working and thus of non-personalized desk use. Foundations of this strategy is in the ancient

Egyptian work fashion of clerks and scribes who were mobile and for this reason were provided with the freedom to organize their work from a variety of places suitable to their tasks. They relied on two wooden boards, an inkpot and quill (cf. Hascher et al. 2002). Ancient Greek and Roman head offices were also, as today, located in central cityscapes and were composed of cellular spaces adjacent to open-plan meeting spaces. Large organizations, such as publishers or dealers employed, hundreds of slaves for repetitive tasks. The scale of these workers' offices would be smaller and usually closely clustered with public and most-frequented spaces of the organization. Workers were usually given access from their workspace to the streets and other circulatory axes for reasons of convenience and sometimes access discernment.

## 2.2 Modern Era

Successive changes, the collapse of empire and the flourishing of private and public development, marked the beginning of the modern era. During this period, the state retained most of the power and the private sector involved mostly banks (from the Italian word *banchi*) businesses and commercial enterprises. The idea of office work developed until around the beginning of the 15th century when the requirements of the branches of international business organizations led to its increased use in highly ranking spaces such as the city palaces. Giorgio Vasari, in 1560, first designed the *Uffizi*, known in English as offices (Hascher et al. 2002) that were U-shaped three-story multifunctional galleries. These were large buildings, in which a vast range of office uses co-existed. The idea of commercial enterprise involved, during the 16th century, a distinct characterization of work, rank and job classification clustering and since 1694 and for 40 years, office design continued to evolve until the foundation of the first European state-central bank and its head offices. This was followed by the creation of departmental offices and immensely large banking halls with scriptoria, long rows of office desks that tied workers down to their desks and were arranged in linear sequence. This typology set the foundation of private organizations and professional businesses and greatly influenced a more sedentary office lifestyle composition where workers were required to perform repetitive tasks seated at their desks that was a trend which continued until the beginning of the 20th century.

## 2.3 From the 18th to the 20th Century

Economic growth and the increase in office construction was illustrated in the period from the 18th to the 20th century when office developments were rectilinear, linked by a central corridor, or designed around a core space or atrium (cf. Hascher et al. 2002). The general staff was located in large rooms where individuals with

higher administrative positions worked separately. Segregated space-use distinctively marked the office building of the 18th century and further influenced the office planning of the 19th century (cf. Hascher et al. 2002). Power and status not only affected the societal structures, office relations and the layout of building interiors but also influenced the building fabric, its envelope and construction height, that developed into tower blocks.

In Chicago, where technology like the railway, the steel-frame and the elevator were largely developed, many high-rise designs were developed enabling maximum organizational profit by stacking working groups on top of each other (cf. Hascher et al. 2002). In exploring the design of the skyscraper the office layout changed from largely cellular to open-plan. High-rise buildings defined not only the interior design but also the urban context of the city prototype with the development of the known skylines of New York and Chicago. Louis Sullivan was a pioneer architect from America who influenced concepts of industrialization and studied the high-rise commercial building. Apart from Sullivan's views about tower blocks, it was shown that these suffered from poor environmental design conditions, ventilation and daylight (cf. Hascher et al. 2002).

In the late 19th century, the invention of the telephone and telegraph enabled northern U.S.A. city dwellers to work closer to home. The wider use of electric lighting, the typewriter and calculators made work more efficient. Office design evolution, however did not appear to develop in the same way worldwide. European workplaces were less often accommodated in high-rise buildings than in their U.S.A. counterparts. They were mostly open-plan and only sometimes designed to be segregated with large subdivisions. Design interest shifted, during this period, to aesthetics and to more advanced construction methods and planning technologies. In 1906 Frank Lloyd Wright designed the Larkin Building, which presented special focus in aesthetics, construction methods and technology for large buildings and skyscrapers. Concerns for the occupant's well-being and welfare also characterized this period legal obligations. The German sociologist Max Weber through his work *Wirtschaft und Gesellschaft* (1922) and the French engineer and director of mines Henri Fayol in his work *Administration industrielle et générales* (1916) introduced this concept to office practice.

From 1900 to 1930, productivity and working efficiency were emphasized in the establishment of a new workplace, which became predominantly open-plan with glass partitions. Directors and managers were thus able to oversee the productivity of their staff (e.g. Frank Lloyd Wright, Johnson Wax Company, Buffalo, U.S.A.). Associated productivity with seated workers discouraged movement and interaction.

Frederick Taylor's theories, epitomized in his *Principles of Scientific Management* (1911), have been dominant in shaping workplace design since the 1920s, in breaking down complex tasks into discrete, repetitive activities. The implementation of Taylorian visions in the workplace have fostered the image of open-plan rows of subservient workers, who—it was presumed—could only waste their corporate employer's time by socialising and for this reason were closely supervised by an office manager who was usually located in a separate room.

According to this spatial organization, work became principally “task-focused” (cf. Hascher et al. 2002) leading employees to come together only insofar as they needed to use specialized equipment, initially typewriters and telephones and then computers, copiers, printers and fax machines.

World War II, as well as precipitating the worldwide economic crisis, caused a twenty-year building downturn, and as a result architects of the post-war period followed the pre-war design methods that were guided by the rules of functionality, which reached their peak in the 1950s. In 1920, artists and architects who represented the European modern movement, in admiration of the modern designs of the U.S.A., set out with the least resources to reproduce these examples. A few architects managed to propose designs such as the “crystalline glass tower” and the “concrete office building” of Mies van der Rohe that later, after the war, influenced U.S.A. corporate architecture. Le Corbusier’s work in Brazil in 1936 was also highly influential in glass architecture around the world as it expressed wider ideals where the organization would be more transparent and democratic.

After the war, the economy was reconstructed. While the European designs featured dense cellular spaces, with rows of offices located around a central corridor, American and Asian architecture became predominantly open-plan in the belief that open-plan designs saved useful space. These spaces were often poorly lit. Furthermore, by the end of the 1950s and beginning of the 1960s the office users’ needs within the space were re-evaluated to comply with the terms of the so-called “Human Resources” (cf. Hascher et al. 2002).

Steel and glass architecture became indicative of the international modern movement, with the image of the American corporate building. The first example of a modernist standardized view of an efficient corporate building was the Level House of Skidmore Owings and Merrill (1952). As glass architecture became widespread, in New York, new “sealed” predominantly deep open-plan, air-conditioned and artificially lit glass structures with elegant modernist interiors became the design focus. Natural light and ventilation became increasingly important. Luxury and autonomy began to be perceived in well-lit and well-ventilated spaces, achieved by suspended ceilings in open-plan office buildings.

## **2.4 From the 20th Century Office Site to the New Workplace**

This is the era of technological advance and of the co-existence of different building typologies and space-uses ranging from high-rise buildings to horizontal development and from cellular interiors to open-plan. Modes of working also changed during this period. The managerial interest shifted from “task working” to so-called “knowledge working”, where office users are encouraged to interact informally in order to exchange ideas face-to-face and increase their levels of creative work that

is believed to ultimately benefit the organizational economy (cf. Hascher et al. 2002).

During the 1950s, the development of the open landscape of the office's "American century" was initiated by the Bürolandschaft that was developed in Germany (Hamburg). Its rationale was based on a new model of interior design that, in contrast to Taylorian views, promoted human relations and fostered egalitarian and non-hierarchical job interaction by freely arranging the furniture and the office uses within the largely open-plan layout. As a design strategy this aims to increase flexibility in office space use and facilitate occupant decision for communication and activity.

In the 1960s, the Bürolandschaft became very popular in many European countries, although since the 1950s, this planning model received wide criticism for the design forms that it produced. These focused mostly on traditional ideas of familiarizing the office-user with the occupied space. Herzberger's Dutch Centraal Beheer insurance company (1974) followed the concept of designing for a "family-like" workplace. In these worksites, occupants were located in the space in such a way as to have a better sense of space and a feel of being members of a wider working population rather than a crowd scattered in a space (as in previous design strategies). As a result of the sense of a collective working scale, the office layout soon became highly personalized (cf. Hascher et al. 2002). For example, occupants would bring pictures of their children or furniture from their homes to the office. Herzberger's building has been highlighted as a notable example of a densely designed European building that, although not as profitable and efficient as the large open-plan layouts, gave a sense of self in the organization. While "building block" modules became standardized, with the scope for customisation in the early 1980s, the notion of "universal planning" involving the minimisation of large variations in space standards and the increased use of "one size fits all" has been followed. The final fall of the Bürolandschaft in Continental Europe came in 1973 when the economic crisis made the high rents unsustainable. Following the fall of the Bürolandschaft, the office building culture returned to the design of conventional cellular room arrangements around a central corridor. The space became again more inflexible and monotonous. However, this time occupants would be provided with a sense of ownership of their office space. Attempts to increase flexibility led to a multifunctional space providing a recreational and almost urban experience within the workplace (with its cafes and relaxation points co-existing with the office environment, for instance the Stockholm SAS building (1988) designed by Niels Torp). The combination of cellular and open-plan spaces introduced common rooms that had a core service creating the Swedish 'combi-office'.

While the workplace design kept changing, U.K. and U.S.A. practices started to promote schemes where people would be more mobile and could work from outside the worksite. This aimed to increase spatial openness and decrease maintenance costs. The widespread use of mobile technology, the mobile phone and the laptop impacted on modes of working and the overall office environmental layout and space-use. Work is undertaken at the worksite and the café and to the worker's home. Tele-working and remote technologies aimed at a wider cost-cutting strategic

plan for the office. At the same time job competitiveness in the 1990s more globalized market has considerably increased. Spaces were deep-planned, predominantly artificially lit and air-conditioned. For the first time, it became apparent that occupant health, satisfaction and well-being were affected by the design of the space. As a result, office design has been linked with job absenteeism and the incidence of the so-called “Sick Building Syndrome” (cf. Leaman 1990; Marmot et al. 2006).

Open-plan designs for flexible working such as that of the British Telecom business park have been finally linked with a specific “workstyle 2000” design initiative. “Hot-desking” is re-introduced (after its first appearance in ancient Egyptian times) as vital to the design of the contemporary office layout where occupants are provided with no explicit anchor points. The space becomes impersonal and group working is a constant within an open-plan department. Leading concepts are increased efficiency, productivity and information tracking with the aim of higher profitability, whether personal or organizational. Office interaction becomes more relaxed and informal. Communication and face-to-face interaction is encouraged by office management as it is supposed to boost workers’ ability to perform *creatively* (cf. Hascher et al. 2002).

## 2.5 Current Thinking and Future Design Implications

Past organizational strategies for space-use regarded workers as “units for production”, aiming to maximize their efficiency (cf. Hascher et al. 2002). These office users were required to remain at a given station and perform repetitive tasks. Today the worker is asked to carry out “knowledge” tasks (in Peter Druckler’s formulation) that will increase productivity and creativity, interaction and face-to-face communication, which often involves walking around the office space. The term “knowledge worker” was introduced thirty years ago and has been criticized in 1993 by Knights, Murray and Willmott who argued that all human activity entails some form of knowledge. Blackler (1995) amplified this, saying that “all individuals and all organisations, not just so-called ‘knowledge workers’ (Hascher et al. 2002) or ‘knowledge organisations’ are ‘knowledgeable’”. Recent theories of workplace interaction, meanwhile, have emphasised that knowledge exchange formally connects information and increases worker productivity (Worthington 1997).

In 1985, it was suggested that “your work is where you are” (Stone and Luchetti 1985). This soon became the motto for a deployment of space in which workers followed variable patterns and provoked alternative ways of working that engaged in the so-called “alternative workplace strategies” or “alternative officing” concepts (Harvard Business Review 1985). This encouraged mobile working, even outside of the worksite where employees could work from an internet café, from home, from a hotel, from an office space other than the desk and more. Office workers, in this working mode, can be mobile, come together for teamwork in formal meeting

spaces or informal spaces or even desks “islands” for informal communication as well as in spaces ascribed for focused individual work. The last twenty years have seen the emergence of new styles of workstation, mobile furniture, so-called “intelligent furniture” and distinct freestanding elements that lead to space-use diversity, flexibility and mobile working. To some extent, conflicts and crossovers between the two design schools—the regimented, optimally productive office and the alternative, virtually networked space—have also issued in the emergence of a wide body of thinkers, writers and researchers studying emerging workplace questions and trends.

The new office space is composed of multifunctional open-plan or cellular spaces resembling “cybercafés” or “monasteries”. This analogy was suggested in 1998 by Holtham and Tiwari who believe that the medieval establishments may offer contemporary office design with long-standing planning concepts. For instance, the monastic “cells” are enclosed narrow spaces set to facilitate knowledge exchange, team briefings, individual quiet work (in smaller cellular spaces akin to “cloisters” and “carrels”), serendipitous meetings (in the cloister walkways) and private reflection (in the “cell” spaces available for focused personal work). In focusing on the dimensions of each office space and its assigned value for office working, the William Bordass Associates, Francis Duffy (D.E.G.W.) and Andrian Leaman (Usable Buildings Trust) have stated the importance of the relationship between the “actual plus ancillary” office space (i.e. the density of the space and the provision for circulation routes and actual office spaces). Duffy along with Worthington (in the book “Reinventing the Workplace”, 1997) have suggested that the office space functions under four systems of relation, the “den”, the “hive”, the “cell” and the “club”. The “den” is set to foster group work and interaction. The “hive” is always open-plan and as such facilitates and assists managers in supervising their employees, who are meant to be tied down to their desk producing useful work. The “cells” are enclosed spaces designed to increase individuals’ productivity by clustering them according to their job description. The “clubs” are designed for individual interaction and process working. In 1997, Duffy indicated that currently most office layouts are hive-like resembling call centres. He also predicted a significant increase in the design of “dens”, “clubs” and “cells” in future due to their diversity and potential for using space more actively and flexibly. The metaphors of “den”, “cell”, “hive”, “carrel” and “monastery” work to reflect some emerging difficulties and managerial concerns. These spaces were designed to provide both places of reflection and unscripted interaction. The main idea is to plan for efficient and effective schemes that induce productivity, which usually entails the clustering of IT facilities or the provision of wireless networking, so that users remain perpetually “on call”. Trends in the dematerialization of workspaces have led at least 10% of office workers (Kelly 2001) to work virtually, either from home or using only transient “hot-desks”, which provide no anchor points to an individual territory.

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