

## The Impact of Administrative Buildings on the Psychology of Users and Its Relationship to Increasing Productivity for Occupants

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| Article History                                                                   | Abstract                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| <p>Received: 06 June 2023<br/>Revised: 05 Sept 2023<br/>Accepted: 14 Nov 2023</p> | <p><i>This study aimed to investigate the overall impact of administrative building design on the psychology of users and its effect on the work environment and employee productivity. It also aimed to establish design criteria for creating a work environment that aligns with the physiological and psychological needs of employees. The deductive approach was adopted in this study, and a questionnaire was used to gather the necessary data. One of the key findings was the relationship between the built environment of the workplace and the psychology of users on employee productivity. As a result, several recommendations were made, including urging engineers to pay attention to implementing the necessary design standards that consider the physiological and psychological needs of employees, making them fundamental design principles for creating a high-quality work environment that not only enhances employee productivity but also has a positive impact on their physical and mental health, as well as their relationships with the surroundings, which, in turn, has a consequential effect on society as a whole.</i></p> |
| <p><b>CC License</b><br/>CC-BY-NC-SA 4.0</p>                                      | <p><b>Keywords:</b> Architectural psychology, administrative buildings, user psychology, mental and psychological responses to the surrounding space, enhancing productivity, job performance.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

### 1. Introduction

The design and shape of a building not only impact an individual's productivity and utilization of the building but also the social relationships among the individuals who use the building and those who interact with it from the outside. These relationships are crucial in human life. While psychology focuses on understanding human thinking and behavior, the main goal of architecture is to create and prepare a living environment for humans.

When the psychological and architectural aspects collaborate, they can achieve integrated design that provides psychological comfort, reduces stress, and enhances well-being. Architecture plays a fundamental role in shaping our lives and behaviors, as stated by Winston Churchill when addressing the Royal Institute of British Architects: "We shape our buildings, and afterwards, our buildings shape us and regulate the course of our lives." He believed that the design of the environment in which individuals live and work must inevitably influence them. <sup>(1)</sup>

Despite the differences in characteristics, ideas, and physiological and psychological requirements among individuals, they share significant similarities in the psychological and neural characteristics that concern the interpretation and composition of the surrounding world. The study of mental and psychological responses in individuals contributes to achieving human achievements.

Therefore, architects have a crucial and effective role in this process. However, psychologists and neuroscientists provide scientific foundations to define design that promotes powerful spaces for physical, mental, emotional, and physiological well-being. Hence, the idea of integrating two important branches of knowledge, architecture and psychology, emerged to study the relationship between physiological and neural responses, behavior, and the tangible properties of work environments.

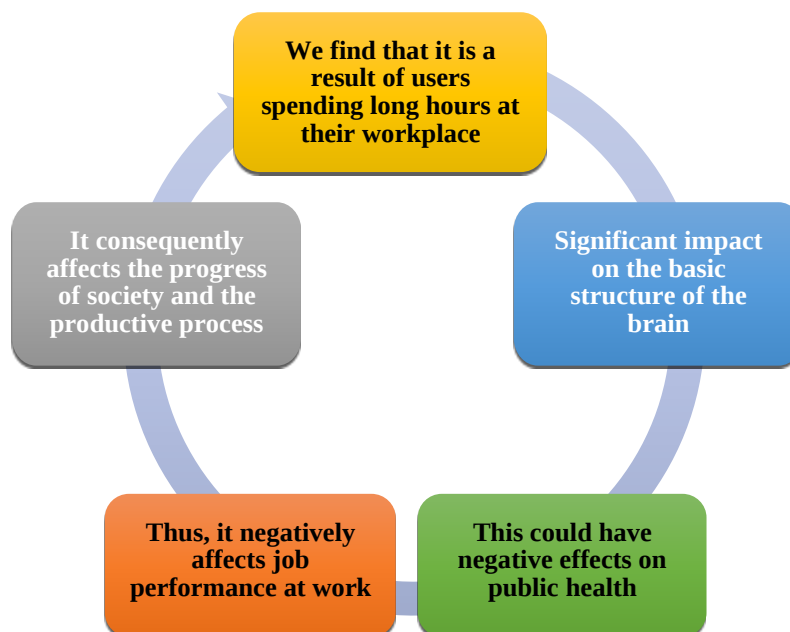
Based on various studies, it has been found that the workplace is one of the places where individuals spend most of their time outside of their homes. Therefore, it is necessary to focus on the human aspects

and psychological dimension in the design of these spaces, as physical and psychological comfort directly and significantly impact work efficiency and productivity.



**Figure 1:** A collection of images illustrating a visualization of the mental responses of the human brain and its surrounding environment

**Source:** <http://www.lis.school/observer/2022/08/23/psychometric-testing-for-career-decisions/>



**Figure 2:** Shows the relationship between the workplace, mental health, and productivity

### **Research Problem:**

There are buildings that generate negative energy, making us feel stressed and annoyed,<sup>(2)</sup> despite their cleanliness. On the other hand, there are vibrant buildings that make us feel our humanity in every moment.<sup>(3)</sup> The essential difference between them is that the latter is filled with details and rich architectural elements. Due to these differences, it is crucial to focus on the human and psychological aspects in the design of workspaces, especially since physical and psychological comfort directly and significantly impact work efficiency and productivity. However, it seems that the importance of these aspects has been neglected in architectural research, particularly in administrative buildings. There are few studies on the psychological and neural effects of these buildings on their users, how various spaces can influence human cognitive perception, and how they can control the individual's neural cells.

Therefore, research on the psychological and neural aspects is needed to understand the importance of these factors in the architectural design process.

### **Research Objectives:**

- The primary objective of the research is to create basic criteria that help us design suitable workspaces that enhance the mental and psychological health of individuals to achieve higher levels of performance.
- To develop the tangible spatial characteristics of the work environment to assist workers in fulfilling their tasks within suitable architectural spaces. This includes understanding the psychology and behavior of individuals in diverse architectural spaces, especially in public administrative buildings.
- The research also aims to determine the extent to which human considerations impact the design stages of administrative buildings, to assist architects in making appropriate design decisions that provide psychological and social comfort to users and increase work efficiency.

### **Research Questions:**

- Does an individual's work performance get affected by their mental state?
- What factors influence an individual's neural cells and control their psychological state?
- Do buildings have an impact on individuals' behaviors, and what are the reflections of building design on individuals?
- What role does the architect play in controlling the psychological state of the user?

## **2. Materials And Methods**

The research follows the deductive approach in studying several points, including human considerations in management and administrative organizations, theories of work motivation, and the accompanying pressures. The research also follows the deductive approach in studying human considerations in the physical work environment with its multiple elements, such as visual, thermal, and acoustic comfort, as well as in the social work environment, including elements related to the relationship between the individual, the group, and the place. The research also follows the deductive approach in studying the evolution of administrative building design and its connection to individuals' human considerations.

To achieve the research objectives, the deductive methodology was followed, which links the mind between the introductions and the results, and between things and their reasons based on logic and mental contemplation. The deductive methodology is considered a form of logic, and it appears in stating a general statement or a specific hypothesis,<sup>(4)</sup> followed by the researcher studying the ability to reach a specific result. This methodology uses the idea of observing evidence to ensure the validity of theories, starting from accepted issues to reach new issues and results related to them.

### **Important concepts and definitions:**

#### **Psychology and Architecture and the Evolution of the Concept:**

Architecture has a significant impact on the psychology of individuals residing in a place, whether positively or negatively. The concept of environmental psychology emerged in the 1960s in Britain, representing the collaborative effort between psychologists and architectural engineers in designing buildings of various uses to meet the psychological needs of users. We spend most of our lives inside buildings, and our thoughts are shaped within their walls. However, there is a limited amount of research on the psychological effects of architectural engineering and how different spaces affect perception.<sup>(5)</sup>

There are residential buildings where the focus is on the external appearance without considering the internal division in terms of lighting and bringing joy to the residents. There are also residential buildings that may appear beautiful from the outside but feel gloomy on the inside, which may unknowingly affect the residents. Some buildings are described by their inhabitants as constricting and suffocating, which is a direct and genuine expression of what the residents feel in these dwellings. Additionally, these buildings distort the overall view of the place they are built in, and once distortion and ugliness occur in a place, it is difficult to get rid of it. All of these factors harm the community.<sup>(6)</sup>

#### **The Impact of Psychology on the Interior Design Profession:**

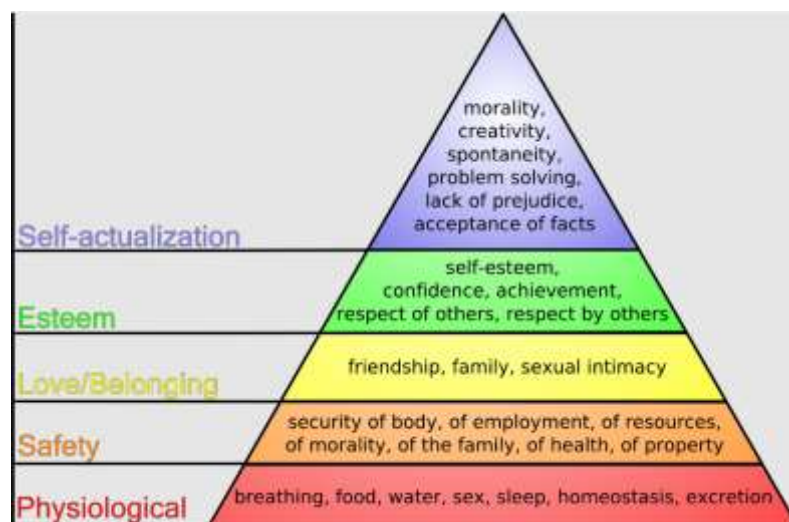
When discussing how to benefit from psychology in the professional development of interior designers, it is necessary to divide the work of interior designers into stages, where the role of psychology comes into play in each stage according to its nature.<sup>(7)</sup>

### Definition of Design Psychology:

Design psychology is defined as the practice of design where psychology is one of the design principles. It means that design provides meaningful spaces for the user instead of relying on specific methods and techniques. <sup>(8)</sup>

The designer here designs the user's personality, improving their design plan, not based on what the designer likes or what is prevalent, but by building the design based on the designer's interpretation of the user's personality in the previous stage, also known as the "client acquisition stage." The designer uses the integration of personal readings with the psychological connotations of design elements and principles to produce a design product that aligns with the user's personality and considers their general and specific needs according to their behavior. These steps aim to enhance the user's psychological and physical well-being.

Abraham Maslow spoke primarily about self-actualization as the ultimate factor in fulfilling psychological needs. He also proposed a hierarchy of human needs and how to build them progressively based on psychological needs.



**Figure 3: Maslow's Hierarchy of Human Needs**

**Source:** <https://www.goodreads.com/review/show/2200064371>

### Characteristics of a Comfortable Work Environment and Its Impact on Job Performance:

Smart organizations fully understand that employees are the fuel for their creativity and success, and their primary goal is to enhance their work performance by designing a comfortable work environment that directly contributes to the employee's health, well-being, and job satisfaction.

The physical environments of workplaces affect the employee's experience, performance, and interaction with their surroundings, which in turn impact the employee's psychological processes, behavioral improvements, brain cells, and psychological and physiological responses when relieving any stress. The mind and body become liberated in a way that enables them to dive into the seas of creativity, summon memory, and increase productivity. Owen Bailey said, "If you improve the place where the worker works, then he will be happier, healthier, and more productive."

Architects should provide a comfortable physical environment for users and workers in the workplace to achieve the maximum functional benefit from the building. The architectural design should consider the workers' ability to control or manage sound levels, thermal comfort, heating, and ventilation. The furniture design and its distribution should also be more comfortable and flexible for the worker. These factors collectively have a direct impact on the worker's productivity, emotions, psychological well-being, and behaviors, and they have powerful effects on job performance. There is a close essential relationship between job satisfaction and satisfaction with the physical environment of the workplace. <sup>(9)</sup>

### Elements of Physiological and Psychological Comfort within a Comfortable Environment:

Environmental psychology defines the psychology of function as the psychology that deals with the environmental-human process through principles, practices, sciences, and applications that trace the development of human buildings and seek to establish a deeper and more accurate definition of our relationship with the environment. It is also called environmental psychology and examines the effect

of the physical aspects of workplaces on the employee's experience, job performance, and interaction with their surroundings.

Every professional person needs a comfortable environment, particularly depending on the task they need to perform. The workplace can be either physically and mentally encouraging or discouraging, depending on the extent to which employees use their energies trying to adapt to unhealthy and unsatisfactory environmental conditions rather than exhausting them in performing their job tasks. <sup>(10)</sup> Different types of environmental comfort can be measured based on the level of ease or difficulty employees experience in performing their tasks within their workplace, as we will see below:

### **Dimensions of a Comfortable Workplace Design:**

Jacqueline C. Vischer divides a comfortable work environment into three types based on the following:

- **Physical Comfort:** This refers to basic human needs for accessibility, peace, and cleanliness that can be determined by applying building codes and standards.

- **Functional Comfort:** This is concerned with the extent to which environmental conditions enable employees to perform their tasks.

- **Psychological Comfort:** This type is related to the psychological aspects of employees and their feelings of territoriality. It can be individual, such as a private office, or collective, such as a workshop. This can be diagnosed according to the identity of the worker or the place designated for relaxation and relaxation.

It is worth mentioning that the term "territoriality" in a closed workplace does not refer to walls and doors, but it is a term that expresses the employee's sense of belonging, ownership, and control over the workplace. The sense of territoriality is defined as the employee's feeling of privacy, social status, and environmental control in the workplace. <sup>(11)</sup>

### **The Physical Environment of the Work Space for Individuals and Its Impact on Employee Performance:**

There is a direct and reciprocal relationship between environmental factors and cognitive activities in a comfortable work environment. It allows employees to achieve a suitable level of control over their surrounding environmental factors, including temperature control, auditory and visual characteristics, space flexibility, lighting control, noise control, and comfort in the workplace. These factors help achieve the desired level of stress reduction to enhance performance outcomes. <sup>(12), (13)</sup> these factors are of great importance in their impact on individual performance and productivity. They can either support or hinder performance. Therefore, we will study them in detail as follows:

### **Spatial Aspects and Characteristics of the Architectural Work Environment:**

Studies have shown that a comfortable personal environment for employees within the workplace activates their creativity and has a positive impact on their productivity. The work environment also influences certain motor, emotional, and cognitive responses, which, in turn, affect job performance. <sup>(15), (14), (16)</sup>

There are several spatial characteristics and factors that determine the potential impact of the work environment on the health and job performance of employees. These include:

- **Type of workspace - Daylight and natural light - Natural views - Lobbies or outdoor spaces**

- **Acoustics and noise - Types of workshops – Plants – Privacy - Collaborative shared spaces**

- **Office furniture - Artificial lighting - Thermal comfort - Ventilation quality- Colors and finishes**

### **Administrative Buildings and Design Requirements:** <sup>(17)</sup>

The workplace encompasses a broader meaning of buildings, often referred to as workspaces. It is defined as the space where people carry out their work, create social connections, use technology, and are influenced by it on a daily basis, often without consciously considering the negative consequences of unhealthy environmental conditions in the workplace that can impact their health.

The design of the workplace should be based on the type of work being performed. If the goal of the workplace is to achieve creative outcomes, it must provide a creative and innovative climate.

Architects and interior designers collaborate to establish the essential work environment for each type of building, ranging from hospitals and research centers to homes and gardens.

We have previously addressed the role of the architect in their responsibility to transform and stimulate human minds, which subsequently leads to changes in their behavior, through the study of architectural workspaces in connection with the field of neuroscience.

### **Social, Psychological, and Material Comfort Requirements:**

We will start with Adolf Loos' statement about the architect: "The task of architecture is to inject a variety of emotions into the individual and, based on that, either create a place of work that is inhibitory or supportive."<sup>(18)</sup> This statement means that architectural design not only affects the individual's physiological and psychological behavior, as we have seen before, but also has a significant impact on other cultural, social, and human aspects of the individual and the community as a whole, as we will see later.

The design of the architectural environment has been and continues to be fundamental in defining our culture and subcultures, embodying cultural ideals in the form of a building, with some exceptions in current trends.

It is also considered that architectural design is a means of interpreting societal values, goals, and concepts and embodying them in the form of a building. For example, considering the Parthenon in Rome as just a structure is not sufficient, as it may appear to some as just an old building. Instead, one must consider a building like the Parthenon in relation to the historical, cultural, and archaeological context in which it was constructed. The true works of architectural engineering cannot be fully understood without referring to the cultural and historical background surrounding these designs.



**Figure 4: Parthenon Temple - Rome – Italy**

**Source:** <https://www.alamy.com/stock-image-pantheon-is-a-building-in-rome-italy-commissioned-by-marcus-agrippa-167889243.html>

Therefore, the social stance of architectural design deals not only with society as a whole but also with individuals within the community. One of the most important requirements of architectural design is to provide individuals with their basic needs and respond to their personal and general requirements that define their position within society.

This idea of place carries meaning on two levels: a place as an individual entity and a place as a component of the social system<sup>(19)</sup>. At the individual level, people seek housing that suits their individual and personal needs, while at the local and social level, they choose work locations that align with their aspirations and reflect their social status. Individuals have a significant influence on architectural design through their interactions with the space, whether by occupying it, ignoring it, or exerting control over it.<sup>(20)</sup>

### **Psychological needs as one of the human requirements in architectural design:**

We have previously seen the close and reciprocal relationship between architectural design and the psychological state of the user, whether in their workplace or any other designed environment they inhabit or interact with. This means that architects must meet human needs in their architectural work, whether collective or individual. These needs include material, social, psychological, and even cultural needs. Here, the impact of space comes into play, as it affects the user psychologically. The distribution of partial spaces, the level of privacy and ventilation, the layout, lighting, and overall orientation of the building all have a significant impact on the psychological orientations, mental health, and behavior of the user with others<sup>(21)</sup>.



**Figure 5: The effect of architectural space on mental health**

**Source:** <https://elakademiapost.com/%D8%AA%D8%A3%D8%AB%D9%8A%D8%B1-%D8%A7%D9%84%D9%81%D8%B1%D8%A7%D8%BA-%D8%A7%D9%84%D9%85%D8%B9%D9%85%D8%A7%D8%B1%D9%8A/>

From a human perspective, the elements of security and safety in architectural design have a significant impact on the personal feelings of individuals, whether it is a sense of security and safety or a feeling of fear and danger. These emotions must be taken into consideration during the design process and its relationship with the surrounding environment, as they have a profound effect on both the individual and the environment <sup>(22), (23)</sup>.

#### **The satisfaction of individuals in the work environment is linked to increased productivity:**

A healthy work environment that reduces stress levels plays a crucial role in improving performance outcomes. When the mind and body are freed from pressure, creativity is enhanced, positive memories are evoked, and worker productivity increases.

Workers need to improve their productivity, which is influenced by the psychological stress associated with the physical environment. This can either enhance their job satisfaction or create a sense of dissatisfaction that leads to poor performance. A study conducted by Leaman and Boardman emphasized the importance of utilizing the building environment, showing that employees working in a comfortable environment experience an increase in productivity of up to 25% compared to those working in an uncomfortable environment. Leaman linked job satisfaction, health, and productivity, stating, "Productivity, health, and job satisfaction are often related to comfort. The best thing we can say to employees is that they are productive, healthy, and happy" <sup>(24)</sup>.

Experimental studies have shown that certain physical features of the workplace can positively impact workers' creativity and task performance. These features include the presence of plants, a non-congested workspace, and direct views of natural landscapes. Studies have confirmed that a healthy physical environment should be equipped with adequate lighting, suitable furniture, sufficient space, proper ventilation, plants, windows, and the use of natural materials. All of these factors stimulate and enhance creativity, whereas an impaired environment due to noise, heat, poor ventilation, and limited space hinders creativity and demotivates workers <sup>(25)</sup>.

We have discussed these features in detail in the previous section, and we will now address the mechanisms to overcome them:

#### **Mechanisms to achieve a comfortable work environment:**

Architectural design goes through three stages:

- 1. Planning and conceptual design.**
- 2. Documentation and production.**
- 3. Construction.**

#### **Case Study:**

##### **Applied study on an administrative building:**

##### **Analysis Methodology:**

Based on the theoretical study conducted in the second chapter regarding the architectural design of administrative building spaces, and based on the study's hypotheses and objectives, the analysis methodology was constructed using various scientific research tools, including case studies.

### **The Case Study:**

The case study is a means of studying and illustrating the mechanism for evaluating the level of comfort in administrative buildings. It evaluates several points related to the alignment of the building design with the organizational structure, as well as the elements of the physical environment, such as thermal and acoustic conditions, lighting conditions, and elements related to the social environment, work groups, individuals' movement, and personal safety within the building. The results of the previous applied study were categorized into several key points, as follows: - **Personal safety.**- **Building components and organizational structure.**- **Lighting conditions.** - **Finishes and colors.**- **Thermal conditions.**- **Acoustic conditions.**- **Natural and artistic elements.**- **Work groups.**- **Spatial layout and personal position.**- **Individuals' movement and guidance methods.**

#### **Arab Organization for Administrative Development Building - 2004:**

The Arab Organization for Administrative Development building, designed by architect Abdelhalim Ibrahim, is located in the district of Masr El Gedida in Cairo, Egypt. The building consists of ten floors, in addition to two basement levels, with a total area of 10,800 square meters. The lower floors (ground floor, first floor, and basement) include entrance spaces, lounges, a library, meeting rooms, and conference halls. The upper floors are utilized as administrative spaces for various departments in a flexible manner, thanks to the open horizontal layout of office spaces adopted in all floors.

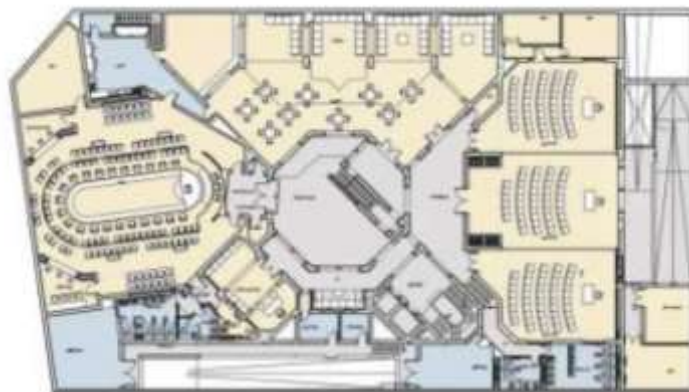
The floors are visually connected through a covered internal courtyard that divides the horizontal layout of the building into sections within each floor, serving as a means of dividing departments within each floor. The building is located on a corner of two streets, giving it two main facades in addition to two rear facades.<sup>(26)</sup>



**Figure 6:** The external views of the organization's building

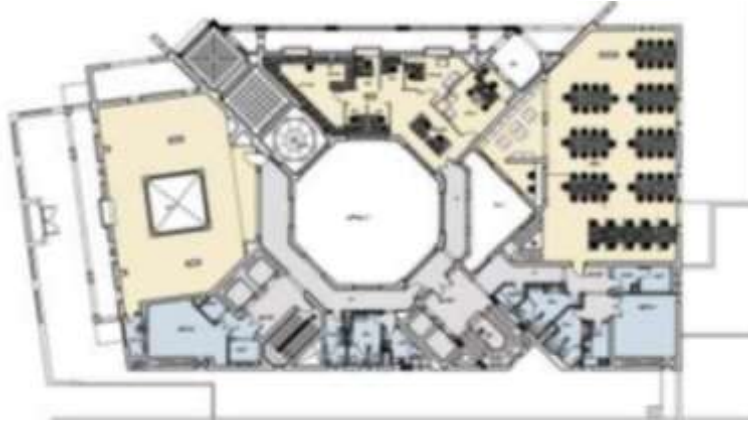
Source: <https://www.arado.org/>

#### **• Plans for building**



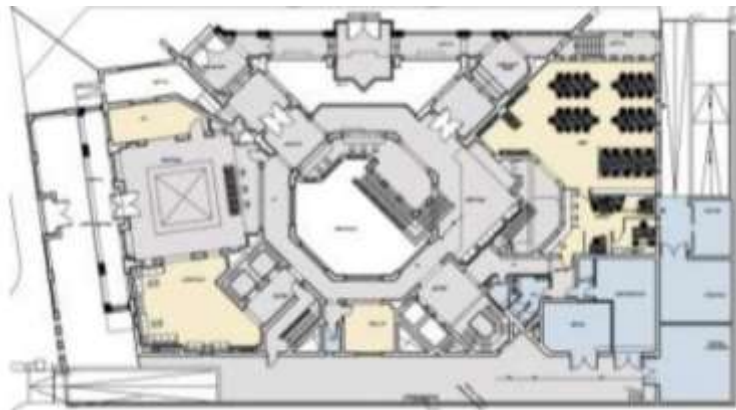
**Figure 7:** plan of the basement floor

Source: <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>



**Figure 8:** plan of the first floor

Source: <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>



**Figure 9:** plan of the Ground floor

Source: <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>



**Figure 10:** plan of the typical floor

Source: <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>

Components of the Building and Administrative Organization: The building includes several departments, such as financial affairs, administrative affairs, training affairs, and engineering management, in addition to the investment department. Many employees consider the building to house all departments in a good manner, despite the rapid changes in the organizational structure and the number of employees in each department. The building, in general, has open workspaces that can accommodate an increase in the number of employees. Therefore, there is not a high density of employees in the departments.

However, the furniture in the building has not been equipped adequately to satisfy many employees. Approximately half of the employees believe that the building's services, such as the cafeteria and restrooms, are not in good condition and are not suitable. Undoubtedly, the open horizontal layout has provided a better opportunity for supervisors and managers to monitor employees, especially those working in the open workspace, compared to supervisors working in separate spaces.

The following evaluation reflects employees' perspectives on the points related to the building's components and the administrative organization.



**Figure 11:** Providing open work spaces in the organization's building

**Source:** <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>



**Figure 12:** Availability of salons and seating areas in public spaces

**Source:** <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>

- **Lighting Conditions:**

The lighting design primarily relies on integrating natural and artificial lighting, especially with the presence of large open workspaces that require artificial means to provide the required lighting

Level. Natural lighting is provided through external windows and the covered internal courtyard. Many employees find the lighting level and color suitable for providing appropriate working

Conditions. However, many employees expressed their discomfort with lighting issues such as glare and reflections, both in terms of natural and artificial lighting sources.



**Figure 13:** The expansion of the work space necessitates the use of artificial lighting

**Source:** <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>



**Figure 14:** Availability of natural lighting in the public spaces of the building

**Source:** <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>

- **Finishes and Colors:**

The building is characterized by luxurious finishes in the entrances and public spaces. As for the workspaces, carpets are used for the floors, hard tiles for the ceilings, and paint for the walls. The majority of employees expressed their satisfaction with the finishes and colors used in the building, as well as the colors of the furniture and office equipment.



**Figure 15:** Using luxury finishes in public spaces

**Source:** <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>

- **Thermal Conditions:**

The building primarily relies on mechanical air conditioning systems in both public and workspaces. Many employees expressed their satisfaction with the thermal conditions, including temperature, humidity, and ventilation rates. Employees can easily control and adjust the temperature according to their preferences, especially in separate workspaces.

- **Acoustic Conditions:**

The open layout poses a challenge for employees in terms of acoustic conditions. There is frustration with the lack of clarity in conversations between employees, as well as the inability to avoid the noise generated by others in the same space. Some employees also expressed annoyance with the noise produced by devices within the workplace. Many employees expressed their desire for the provision of quiet audio elements in public spaces and work areas.

- **Natural and Artistic Elements:**

The building overlooks two main streets; however, employees cannot fully enjoy the open external view due to the wide internal space and furniture layout, which limits the view to only those close to the outer façade. Despite the presence of some plant elements in public spaces, employees still expressed their desire for greenery in work areas. Additionally, the building lacks any artistic sculptural elements in public spaces and work areas, which was not satisfactory for the employees.



**Figure 16:** Using plants in interior courtyards and roof gardens

**Source:** <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>

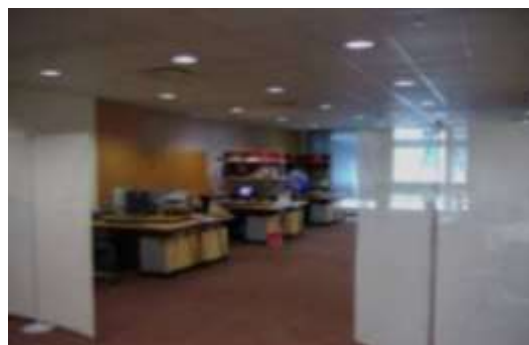
- **Workgroups:**

The building includes multiple workspaces, including open work areas and separate offices for managers and supervisors. Most employees in various departments find the number of workers in each department suitable for the size of their workload. However, employees do not see clear boundaries indicating specific workgroups in the open spaces. Additionally, many workgroups do not have dedicated spaces for holding small work meetings, despite the availability of spaces within the work area that could accommodate such meetings.



**Figure 17:** Suitable design for a joint work group

**Source:** <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>



**Figure 18:** Using partitions to divide the open space into sectors

**Source:** <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>

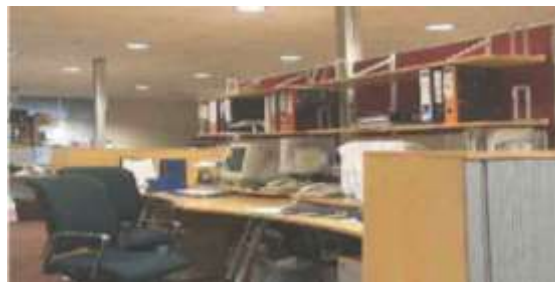


**Figure 19:** Availability of spaces for business meetings

Source: <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>

- **Spatial space and personal status:**

The building provides large workspaces for the workers due to the low density of workers in the open plan, which allows for spacious and sufficient work areas for most employees. The workers find their personal spatial allocation clear and suitable, despite it not being available for the entire workgroup as a whole. Some workers mentioned that the finishes and furnishings are appropriate for their personal positions and job levels. Some workers mentioned that there is fairness in distributing spaces and furnishings among workers of the same job level, while others expressed dissatisfaction with the progression of spaces and furnishings based on their job levels



**Figure 20:** Shows personal work space equipment

Source: <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>



**Figure 21:** Providing justice for workers in the same job grade

Source: <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>

- **Movement of individuals and guidance:**

The building has multiple entrances on the ground floor, all leading to the main covered courtyard of the building. From this space, individuals move to different parts of the building using stairs and elevators. Most workers find these entrances suitable for the movement of individuals. The interior courtyard serves as a visual connection between the floors, which is important for navigating between them. According to the majority of workers, the elevators and stairs are suitable for the movement of individuals. The building has signs that indicate sections and spaces, but there is no general board at the entrance of the building that clarifies the sections on each floor. However, there are signs in the building that clearly indicate fire networks and escape routes.



**Figure 22:** The inner courtyard serves as a visual communication element inside the building

Source: <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>



**Figure 23:** Inner courtyard

Source: <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>



**Figure 24:** Using semi-transparent partitions to provide visual communication

Source: <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>

- **Safety of Individuals:**

The design takes into consideration providing safety elements for the workers in the building and ensuring the availability of fire detection and extinguishing systems. It also takes precautions to avoid the risks of slipping on stairs and in corridors. However, a percentage of the workers expressed concerns



about the collision risks with doors, especially doors without vision openings. Some workers also mentioned that the electrical and mechanical technical installations do not pose hazards workers.

**Figure 25:** Shows the corridors, stairs, and inner courtyard

**Source:** <https://www.cdcabdelhalim.com/arab-administrative-development-organization.html>.

### 3. Results and Discussion

#### Discussion of the Case Study Results:

The characteristics of the space are directly related to the comfort and satisfaction requirements of individuals within the workplace. Humans are connected to the environment that surrounds them and are influenced by it and also affect it.

There is no doubt that the administrative building, with its various elements, is essentially a framework that contains a physical and social environment that includes many interconnected characteristics, individuals, activities, and relationships.

Therefore, the designer has the responsibility to study and analyze the psychological aspects of the user of the architectural space before designing the building to meet the needs of individuals, whether they are psychological, material, or social. The designer's task becomes greater when the purpose of the design is to assist users in successfully performing tasks and maintaining good health.

In this chapter, we have learned about the elements that connect the design process of space to human behavior, and we have distinguished two types of elements: physical (material) elements and social elements.

Physical elements are related to the shape, size, and dimensions of the place. They are also related to visual comfort, which, in turn, relates to lighting and colors, which are the primary means of gathering information about the surrounding environment. They also include thermal comfort factors, which are the most influential factors in individuals' ability to work, affecting their productivity, activity, and cognitive abilities. Thermal comfort includes several components such as temperature, humidity, and air movement.

The characteristics of the workplace are also related to acoustic comfort, as good sound design protects against physiological and psychological harm. The connection between humans and nature is one of the most important psychological needs, as natural landscapes evoke tranquility, serenity, and reduce stress and anxiety resulting from work pressure.

Regarding the social environment, we have presented the factors that link the design process, such as individuals' affiliation to groups in the workplace, the formation of friendships among employees, and the personal and spatial boundaries of individuals. We have also discussed the concept of personal and occupational safety for individuals and employees.

We have also discussed the concept of attachment and belonging to the workplace and its impact on task success, workflow, and satisfaction with the place.

Thus, we conclude that there is a mutual relationship between space design and individual productivity, activity, and energy. The designed space is influenced by these factors and is based on carefully studied elements to reduce repetitive work pressures in administrative buildings.

In fact, these elements are essential as they are intertwined with all stages of the design process. They form a complex interplay, with each element containing a part connected to the other elements. They cannot be separated without considering their impact on the other elements. Individuals must be familiar with these elements because neglecting them not only affects the progress and improvement of tasks but also hinders work and leads to unexpected negative results and behaviors.

#### Results:

We can infer the relationship between the building and the user based on fundamental aspects: the surrounding environmental conditions (including lighting, views, noise levels, thermal comfort, and air quality), the style of furniture and office layout (including comfortable furniture, adequate spaces, workstations type, and workshop design), clarity and social interaction within the workplace (including break and recreational areas, shared work surfaces, access to outdoor spaces and lobbies, and acoustics), psychological aspects (including control, privacy, green plants, colors, finishes, and materials), and levels of job satisfaction (comprising productivity vs. job requirements, creativity, privacy, productivity vs. environmental challenges).

Controlling the office environment is a key feature for achieving job satisfaction, greatly influencing the extent to which workers can create their own personal domain within their workspace, including control over temperature, windows, acoustics, lighting, and the worker's personality in their workspace. The level of satisfaction with the workplace directly affects employees' mental well-being, health, and overall productivity levels.

**Desirable scientific results to consider when designing work environments can be summarized as follows:**

- Reducing stress.
- Mitigating stress-related health risks.
- Enhancing mental sharpness.
- Increasing awareness.
- Boosting employees' productivity.
- Fostering emotional and spiritual responses.
- Decreasing depressive episodes.

#### **Scientific Addition:**

Realistically, we cannot fully control human behavior within architectural spaces, but we can strive to make experiences as enjoyable and beneficial as possible by creating positive interactive processes between the building and the user. The scientific addition pursued by this research is to identify the equation that achieves the reciprocal relationship between the building and the user to enhance job performance and achieve the highest levels of production efficiency.

#### **4. Conclusion**

General recommendations: Emphasize increasing cultural awareness among the general public about the importance of architecture. Create diverse stimulating environments to enhance the sense of happiness and psychological well-being.

#### **Recommendations directed to architectural education centers:**

The necessity of emphasizing the study of architectural psychology and seeking the assistance of experts in the field. Develop cognitive patterns in various aspects of arts, sciences, and their interrelationships. Work on developing creative aspects among architecture students.

#### **Recommendations directed to legislative and regulatory bodies:**

The importance of enacting laws and regulations that govern the design process by incorporating considerations for users' psychological, neurological, and physical needs.

#### **References:**

1. Kersaudy, F. (2007). Winston Churchill: Un luchador incansable / A Tireless Fighter (Vol. B011DCNXI4). Editorial El Ateneo.
2. Ortiz, M. A., Kurvers, S. R., & Bluysen, P. M. (2017). A review of comfort, health, and energy use: Understanding daily energy use and wellbeing for the development of a new approach to study comfort. *Energy and Buildings*, 152, 323-335.
3. Day, C. (2017). *Places of the soul: Architecture and environmental design as a healing art*. Routledge.
4. Muhammad Qasim Al-Shoumi, "Research Methodology, Library Science, and Manuscript Verification," Dar Al-Kutub Al-Ilmiyyah, Beirut, Lebanon, 2017 AD.
5. Augustin, S., Frankel, N., & Coleman, C. (2009). *Place advantage: Applied psychology for interior architecture*. John Wiley & Sons.
6. Farghaly, Yasser Ali, *The Impact of Studying Psychology on the Interior Designer Profession*, Egypt, Damietta: College of Applied Arts, pp. 8-14, pp. 34, p. 16, p. 9, 2016.
7. Ibrahim, & Maha Mahmoud. (2019). Integration of interior design and neuroscience: Towards a methodology for applying neuroscience in interior spaces36. *Journal of Architecture, Arts and Humanities*, 4(14), 36-57.
8. Samuels, R. (2000). Massively modular minds: Evolutionary psychology and cognitive architecture. *Evolution and the human mind: Modularity, language and meta-cognition*, 2, 13-46.
9. Abdel Salam, Mohamed Haitham, *Humanitarian Considerations as an Introduction to the Design of Administrative Buildings*, Ain Shams University: Faculty of Architecture, Supervised by: Mohamed Ibrahim Gabr, Ruby Elias Morcos. pp. 186-p. 222, pp. 194, p. 237, 2009.
10. 30. *Neuropsychology*, United Arab Emirates University, first edition, pp. 11-13, pp. 25-29, pp. 31, p. 39, pp. 49-53, pp. 45-46, 2001.
11. Stavrakos, S. K., & Ahmed-Kristensen, S. (2012). Definition of comfort in design and key aspects-A literature review. In *DS 71: Proceedings of NordDesign 2012, the 9th NordDesign conference, Aalborg University, Denmark*. 22-24.08. 2012.

12. Chan, J. K., Beckman, S. L., & Lawrence, P. G. (2007). Workplace design: A new managerial imperative. *California Management Review*, 49(2), 6-22.
13. Vischer, J. C. (2007). The effects of the physical environment on job performance: towards a theoretical model of workspace stress. *Stress and health: Journal of the International Society for the Investigation of Stress*, 23(3), 175-184.
14. Lawrence, D. L., & Low, S. M. (1990). The built environment and spatial form. *Annual review of anthropology*, 19(1), 453-505.
15. Meerwein, G., Rodeck, B., & Mahnke, F. H. (2007). *Color-communication in architectural space*. DE GRUYTER
16. Sundstrom, E., & Sundstrom, M. G. (1986). *Work places: The psychology of the physical environment in offices and factories*. CUP Archive.
17. Jancey, J. M., McGann, S., Creagh, R., Blackford, K. D., Howat, P., & Tye, M. (2016). Workplace building design and office-based workers' activity: a study of a natural experiment. *Australian and New Zealand Journal of Public Health*, 40(1), 78-82.
18. Masheck, J. (2013). *Adolf Loos: The art of architecture*. Bloomsbury Publishing.
19. <https://www.kdietrich.com/thesis/d9a-research/section%204%20social/section%204-social.pdf> 10 -9-2023.
20. Castello, L. (Ed.). (2010). Rethinking the meaning of place: conceiving place in architecture-urbanism.
21. Hamdy Mahmoud, H. T. (2017). Interior architectural elements that affect human psychology and behavior.
22. Namazian, A., & Mehdipour, A. (2013). Psychological demands of the built environment, privacy, personal space and territory in architecture. *International Journal of Psychology and Behavioral Sciences*, 3(4), 109-113.
23. Oseland, N. (2009). The impact of psychological needs on office design. *Journal of Corporate Real Estate*, 11(4), 244-254.
24. Shobe, K. (2018). Productivity driven by job satisfaction, physical work environment, management support and job autonomy. *Business and Economics Journal*, 9(2), 1-9.
25. Raziq, A., & Maulabakhsh, R. (2015). Impact of working environment on job satisfaction. *Procedia Economics and Finance*, 23, 717-725.
26. Abdel Salam, Mohamed Haitham, Humanitarian Considerations as an Introduction to the Design of Administrative Buildings, Ain Shams University: Faculty of Architecture, Supervised by: Mohamed Ibrahim Jabr, Ruby Elias Morcos. pp. 186-p. 222, pp. 194, p. 237, 2009