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The role of Healthy Architecture in the context of the post-pandemic world

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Abstract

Understanding the influence of environments on the health of human beings has taken on greater significance with regard to the discussion in recent times as a result of the COVID-19 pandemic, which has reinforced the role of architecture in the health-disease relationship, where Healthy Architecture has taken prominence in the face of this new context. In this article, we sought to discuss how Healthy Architecture can contribute positively to the construction of healthier spaces from now on, where one can verify the evolution of the understanding of the man-space-health relationship, in order to alert architecture professionals, the importance of a more accurate look at the aspects of construction that influence the health and well-being of human beings.

Keywords: healthy architecture; healthy construction; healthy space.

1. Introduction

This article seeks to discuss how Healthy Architecture can serve as a positive agent in the construction of the spaces we inhabit in this new post-pandemic era.

The COVID 19 Pandemic brought up the debate of several aspects in the sense of understanding the influence of environments on human health. Recent times have been marked by great uncertainties, mainly by the fear of the unknown regarding the future of the current generation in the face of the serious health crisis experienced. ^[1]

This crisis brought different questions related to health-disease and the environment in which we live, reinforcing the important role of architecture, since this profession is linked to the production and maintenance of the built environment. ^[2]

It is estimated that we spend around 90% of our lives indoors and that percentage has increased during the COVID-19 pandemic. ^[3] During this period, people began to question whether they are living in healthy environments, where the building plays an important role in security measures and containment of the proliferation of the virus and other infectious agents. ^[4]

These questions were expanded as housing, for a large part of the population, assumed a multifaceted role, transforming itself beyond the function of shelter and rest, into a place of work and leisure. ^[5] The adoption of the “home-office” practice broke the boundaries between private life time and work time, bringing more intense reflections on the way we relate to space. ^[1] It thus became necessary to understand the importance of the place where one lives, sleeps and works, for individual health, observing the positive and negative sides of these. ^[5]

It was verified in the context of the pandemic that the isolation measures adopted in the most critical periods, where people spent more time closed in built spaces, contributed positively to the improvement of air quality in cities and, in contrast, as negative effects, it can be mentioned the increase in mental disorders ^[1] and other illnesses derived from confinement.

Given the above, the objective of this article is to analyze, through an integrative literature review, the role of Healthy Architecture, based on the understanding of the man-space-health relationship, in order to alert architecture professionals to the importance a more accurate look at the aspects of construction that influence the health and well-being of human beings,

especially after the post-pandemic period in which people verified this influence more intensely.

2. Research justification and relevance:

This study is justified by its contribution in disseminating the importance of observing environmental criteria that impact people's health and well-being, addressed by Healthy Architecture. An effort was made to make a small contribution so that professionals involved in the construction of spaces pay attention to these impacts and can thus start to have a different perspective on the possibility of creating healthier places to live. The relevance of this study is closely linked to the expectation of being able to collaborate with the debate on the subject that has become more discussed after the recent times experienced with the COVID-19 pandemic. This discussion took place mainly in the sphere of health professionals, who began to suggest as procedures to contain the spread of the virus, strategies involving built spaces, such as, for example, the adoption of greater natural ventilation in the renewal of air inside buildings. In other words, a health-related problem heated up discussions involving architecture.

3. Issue of departure and state of the art:

The concern with occupying healthy spaces, with a view to the pursuit of health and well-being, occupies an increasingly prominent place in society, especially after the spread of the COVID-19 virus and the declaration of a state of pandemic caused by it. Faced with this growing trend, it is necessary to know how the discussions around this topic, which is so relevant today, are going. Before the pandemic, there were already many publications that studied Sick Building Syndrome and that are closely related to and partially support Healthy Architecture, the object of study of this article. And after the pandemic, several publications appeared expanding this context and incorporating environmental criteria of impact on human beings that were previously little discussed.

It is also important to point out that the theme is also discussed by researchers and relevant organizations around the world, such as the "Healthy Buildings Program - Harvard T.H. Chan School of Public Health", the "Green Building Council", the "International WELL Building Institute" and the "Healthy Building Certificate", gaining greater prominence in recent years.

4. Methodology

This research work is characterized: in terms of qualitative approach, in terms of applied nature, in terms of descriptive and exploratory objectives and in terms of bibliographic procedures. For this, the following keywords were used in the research: healthy architecture; healthy housing; healthy construction; healthy building; architecture and health; housing and health; construction and health; edification and health; sick building syndrome; architecture and pandemic; among others.

The search was carried out using materials available on websites, Google Scholar and academic research databases, such as SciELO, where master's dissertations, scientific articles and reports were identified, all in Portuguese, with a temporal cut from the year 2000, 18 publications were selected based on their greater relevance to the subject addressed.

5. Discussion

It is possible to observe, even from the perspective of Architecture, that the more time and frequency one spends in a given environment, the greater its potential to generate lasting effects on users. For example, as a short-term effect, spending a day at home can be useful to reduce stress and relax, however, spending months without leaving home, as in the pandemic, the effect tends to be potentially harmful to health.^[6]

The relationship between environments and human health dates back to the time of Hippocrates:

Hippocrates already said in the fifth century BC. that the health of a population is directly related both to the physical environment it inhabits and to its daily habits. In recent centuries, we have shaped and transformed the landscape based on what was required in our social organization, so that today, in the middle of the 21st century A.D., life in big cities has shown itself to be less healthy every day with all its chemical, visual and environmental pollution. sound, added to the distance from natural environments and structural social violence.^[7]

From the Industrial Revolution, in the 19th century, there was a concern about the quality of housing for health, since there was a great growth of the European population and the consequent degradation of the living conditions of the neediest people, making them more vulnerable. to diseases.^[8]

It was even from there that the sanitary movements began, exerting great influence on public policies in European countries, which resulted in specific urban legislation and major works in cities. At the beginning of the 20th century, however, with the discovery of germs, the emphasis in public health shifted to personal prevention, focusing on the treatment of disease in large hospitals.^[8,9]

With the passage of time, around the 1970s, it was noticed that the large expenditures on technologies focused on the treatment of diseases were not having equivalent effects on the quality of life of the population, which led to the resumption of the sanitary idea.^[8,10]

At the same time, in the same decade, due to the oil crisis, civil construction began to adopt measures to save energy in buildings through projects and building works using few openings that opened to the outside, thus seeking more efficient cooling and heating systems.^[8,11] This constructive strategy, which nowadays is characterized as paradoxical to sanitary ideas, resulted in an insufficient renewal of the indoor air, through natural ventilation, which together with the increasing use of toxic materials inside the building (furniture and construction materials) resulted in the emergence of "Sick Buildings", characterized by being places where a considerable part of the users of these buildings has health problems.^[8,12]

On this occasion, the term "Sick Building Syndrome (SBD)" emerged:

In 1982, the WHO Technical Committee defined the set of main symptoms for SBD recognition: headache, fatigue, lethargy, itching and burning eyes, nose and throat irritation, skin problems and difficulty concentrating.

The WHO has identified two distinct types of sick buildings:

- Temporarily ill buildings, including new buildings or buildings that have recently been renovated, where the symptoms disappear over time (approximately half a year). Originating in temporal SBD, the symptom diminishes or

disappears over time.

- Permanently ill buildings, when the symptoms persist despite measures being taken to solve the problems. SBD is permanent when symptoms continue despite measures taken. [13]

Several studies have identified conditions that, at inappropriate levels, would be a risk for EDS, the main ones being: temperature, humidity; air renewal; airborne particles; infiltrations; biological contaminants; chemical contaminants; lighting; building age; exposure to video terminals; psychosocial motivations; among others. [13]

To this end, these conditions can be classified into a group of environmental agents that influence health, such as the following: physical agents; chemical agents; biological agents; different agents. And these agents demand specific environmental criteria to be considered by architecture in the construction of spaces, especially with the events of recent years, where the search for healthier spaces has increased [14], and in this context, Healthy Architecture can contribute to becoming achieve these.

For the World Health Organization, healthy housing is a place where physical, mental and social well-being is promoted. [15] Furthermore, it can be understood as a space in which there is a feeling of belonging, privacy and security. The ability of a dwelling to remain “healthy” is associated with its physical structure, maintaining a

comfortable temperature, offering quality sanitation, being spacious and, above all, providing conditions for residents to remain healthy. [5]

Since Healthy Architecture is a means to reach healthier places, it can be understood in general terms as defined below:

Healthy Architecture is, then, the one that is formed from the choice of the place of implantation of the architectural project in a space free of harmful influences to physical, mental and environmental health; whose creation process and adopted strategies are harmonious with each other and with the nature that surrounds it, guaranteeing comfort and eliminating risks to the health of users, workers-builders and the environment. In addition, the concept includes the use of construction materials and construction techniques that respect the principles of sustainability and preservation of the environment, guaranteeing construction safety, people's health and, finally, resulting in environments that reinforce the identity of its users, stimulate a sense of belonging and provide users with well-being and balance. [1]

In view of what was researched, it was possible to elaborate the following classification scheme regarding the environmental criteria to be observed in Healthy Architecture:

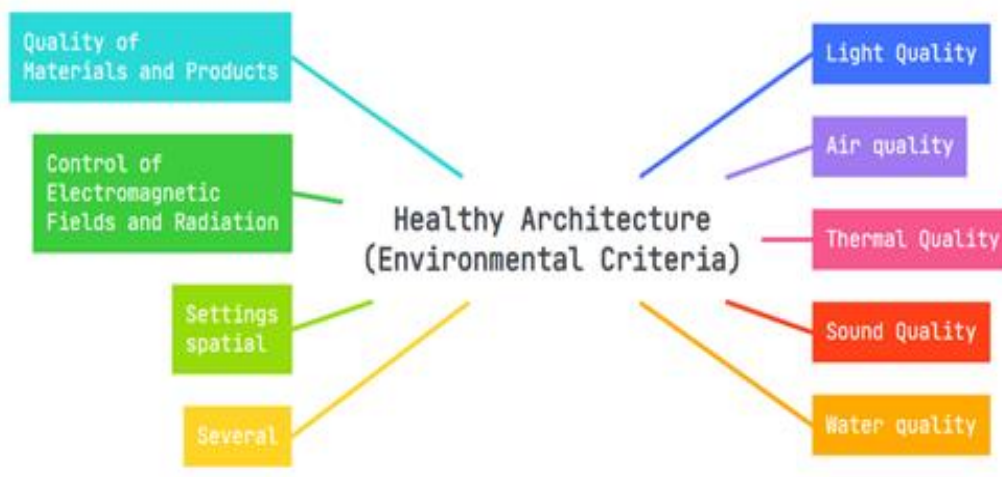


Fig. I: Environmental criteria to be observed by Healthy Architecture
Source: The Author herself, 2022.

The environmental criteria highlighted above must be carefully studied and observed when creating spaces, ensuring whenever possible the design of places that contribute to people's quality of life.

The issue of health and well-being through buildings is a growing trend in the civil construction sector, as can be seen by the emergence in recent years of environmental certifications that incorporate specific parameters regarding the matter, such as the WELL Building Standard and Fitwel. [3] as well as the Healthy Building Certificate (HBC).

It should also be noted that the training of architects focused on healthy constructions normally occurs only after their academic training, and these are still a small minority, when in fact it is understood that the search for health through the spaces that one lives in should be a general premise work of all professionals in the area. [12]

6. Conclusion

This article sought to discuss the influence of built spaces on people's health and well-being, especially after the recent times lived with the pandemic, where the length of stay inside buildings increased. Through this understanding, it was verified that the adoption of Healthy Architecture criteria can serve as a positive agent in the construction of healthier spaces in this new era.

In this context, it is time for professionals responsible for thinking about spaces to be aware and seek knowledge to identify and design healthy buildings. It is the responsibility of architects to carry out the necessary transformations to carry out changes in this area: to promote the use of healthy techniques in architectural projects with an awareness of the influence of environments on the daily life and on the health of the user.

[16]

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