

# The Impact of Regionalism in Green Hospitals

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**Abstract:** The green hospital buildings have received lots of attention today. Given that treatment centers have a complex infrastructure, the issue of sustainability in this building is more discussed for maximum efficiency and minimum energy loss. Many factors contribute to achieve such issue with regionalism as one of them. When it comes to regionalism, one of the factors whose presence is very important is the environment. The balance of the man-made artificial environment with the natural environment is one of the important goals of the green landscape in relation to the construction debate. Creating a path to align man-made structures with nature and the environment, which can lead to greater stability, both in relation to the artificial environment and the natural environment. The more this balance moves towards interaction, the greater the stability. The current paper aims at investigating the impact level of this component on green hospitals by examining regionalism and its features, and thus, points to the need to link these two issues by analyzing the expert's opinion. This is a qualitative, analytical-interpretive paper and the results indicate that the discussion of regionalism in the green hospitals and adaptation of this building to the climate has a significant role in aligning it with the region and the cultural context.

**Keywords:** Region, Regionalism, Ecology, Green Hospital, Healthy Hospital, Sustainability, Sustainable Design

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## 1. Introduction

The theory of regionalism and the need to account for the features of each region have attracted attentions from long ago, although not specifically as regionalism and regional trends, but to create a more suitable environment for habitation and life. The importance of this issue can be understood from the fact that human beings started Sedentary in regions with special features such as the presence of water, fertile soil, light, wind, the texture of the region. Accordingly, settlements gradually expanded and cities were formed. The features of each region affected in the way of life of its inhabitants so that each region has its own style and context. The buildings were gradually designed and built under the influence of regional features, so that each building was designed to meet the needs of its users in the region. Medical centers, too, have undergone many changes over the years since their inception and have gradually moved towards evolution. Both in terms of form and in terms of internal performance, these buildings have been aligned with modern technologies and theories. The result of this transformation today is the design of hospitals and medical centers to go well with the environment with "Green Hospital" an example. Simultaneously with the introduction of "sustainability and

sustainable design" about the building, the issue of green hospital and the effective factors in their creation was raised, which the current paper discusses the impact of regionalism on these buildings.

## 2. Definition of Region

Region originally means line, direction, and area. The feature of a region is to have a feature based on location and it is basically a geography term. The term may refer to the racial and ethnic distribution of groups, conventional geographical and climatic compositions, or to political boundaries [36]. A region is primarily a vast area characterized by cultural and natural criteria. The most common criteria include climate, land features, cultural boundaries such as specific ways of life, patterns of land use and organization, economy and market, use of language and manner of dialogue, prominent style of materials used in construction and architectural styles [6].

## 3. Definition of Regionalism

The term regionalism became one of the main theories of architectural critique in the late eighteenth century. According to this view, architecture should be formed on the

basis of specific regional activities based on local climate, geography, materials and cultural traditions [7]. The definition of regionalism, as a result of the multiplicity and evolution of the various approaches of this theory, encompasses a wide and sometimes contradictory spectrum. In general, attention to ecological characteristics, climatic issues, cultural and social conditions and local values are among the points of interest in regionalism. This theory proposes methods and criteria for conservation, revitalization, and, if necessary, reconstruction of life within the features of the region [6].

Knowledge of regional architecture dates back to ancient Greece as a feature of a particular group identity. In the context of control and competition policy in their cities and colonies, the Greeks used architectural elements to represent the identity of the group present in a region [37].

Still, in archeological, classical, and Hellenistic periods, there is no specific word to describe the concept of regionalism. An explicit reference to the "regional" design of antiquity can be found in "De Architectura" Vitruvius, a Roman text that defines architecture accounting for its political consequences (Lefavre, 2012, 3). According to Vitruvius, this concept is intended to investigate human habitats in the context of their geographical environment, both physical and climatic. It was within the framework of the policy of competition between cities (poleis) and the protection of their colonies that the ancient Greeks used architectural elements to represent the identity of a group occupying a particular region. The terms Doric, Ionic, and Corinthian were not only abstract decorative concepts, but also developed in a specific historical process during the "fusion" of the region and its identity, and their use is often determined by complex political meanings [23].

Similarly, Lefavre noted that "regionalism has existed for a long time, and Vitruvius was the first to mention regionalism. Since the Renaissance, we can call regionalism vital [25].

Frampton believes that the interpretation of the region merely in terms of localism and its climate is short-sighted, although these factors are certainly the main factors that form the local form in terms of expression and structure, but there are two internal factors that are ultimately the most important of all factors: culture and identity [12].

Frampton cites the French philosopher Paul Ricoeur and his article "Global Civilizations and National Cultures" (Ricoeur, 1965: 277) as the basis of his arguments. The philosopher also points out that "It seems that as human beings approach a basic consumer culture, they also stop collectively at the subculture level", which often leads to the weakening, albeit complete severance, of past cultural relations [34, 13]. For both Ricoeur and Frampton, the main purpose of architecture is to preserve its social values and to ensure the preservation of the built environment of past concepts, but in accordance with future requirements. Therefore, even regional culture should not be considered as something given (relatively given) and relatively unchangeable, but should be considered as something that

should be cultivated with deliberation [19].

Hartoonian stated that Frampton was always aware of the necessity of the word "identity" to denote the flourishing of a particular society. In his view, regional architecture could give that identity to society [14].

Mumford regionalism is associated with a relative concept and is a continuous process in which discussions and debates take place among very different regional and global issues. He used the ideas of the German philosopher Martin Buber to define multicultural societies [24].

Although Mumford's ideas were in line with those of Martin Buber, but Martin Heidegger's ideas were very different. Heidegger ideas about "land", "homeland" and "home", is according to which a group of close people are related through identity, inheritance, soil and common language. For Heidegger, the loss of these things leads to decay and destruction, which is different from the concept of destruction in Mumford's view. In "The Architecture of the South (1941)" book, Mumford distinguished regionalism from Nazist like Heidegger [24].

The adaptation of a house in the context is something that has been addressed in many regional works, to the extent that "sometimes regionalism is interpreted at least as a response to local climatic conditions or specific topography" [6].

Tzonis says that the architecture of regionalism must go hand in hand with the Gulf without bridges of people and land. The regional view must resist the international way. According to him, the machine fraternity is not a substitute for the people fraternity. Therefore, the problem is not in science and technology but in social issues and moral problems [37].

According to Ozkan, "regionalism is an approach in design that prioritizes the specific identity of the region over the general global features" [37].

Ken Yang, a Malaysian architect, defines regionalism as a style that bridges the gap between technology and culture. Regionalism in architecture, which emphasizes the preservation of specific features and characteristics of place, has had different approaches over a long period of its presence in the field of architecture, from previous localism and revivalist approaches and emphasis on physical perceptions of the region to new approaches and globalization. According to Alexander Tzonis, regionalism is concerned with both complex human connections and the balance of ecosystems and environmental issues. The goal of regionalism is to create diversity while enjoying global benefits [3].

Chris Abel stated: "In Third World countries, wherever "Where the effects of the disintegration of modernism have been accompanied by a very rapid pace of development in the past, regionalism has a special meaning" [1].

Lefavre and Tzonis concluded that regionalism has the potential to create imaginary worlds, nationalities, and collective spatial perspectives in the region, as well as to promote economic development and then to create a combined tourism paradise. In addition, regionalism has been heavily involved in environmental issues. Ndubisi

emphasizes that the theory of planning and design resulting from the ideas of sustainable regionalism, theories of natural regionalism and vital regionalism is a logical solution to the ever-growing urban world and universalization [29].

#### 4. Features of Regionalism

It is possible to study regionalism by introducing two concepts: one is "social features" and the other is "mix". Community characteristics represent the geographical, climatic, and morphological features of the region and the social practices that give a particular place a "sense of place" and an environment a "special feature." The mix refers to the process by which the manifestation of the culture of each society interacts with the existing cultures in a particular region. Thus, this culture is enriched and new combinations emerge [3]. Hence, the features of regionalism are closely related to the local culture, climate and technology of that time [31].

According to Dafrina, the features of regionalism are as follows: 1- Using local building materials with modern technology; 2- Responding to specific local climatic conditions; 3- Referring to tradition, historical heritage and the meaning of space and place; 4. The search for a meaningful cultural concept, not style / style as the end product. These features ultimately enhance the sense of place in the face of space [38, 10].

The most desirable feature of the original regionalist architecture, which is rooted in the values, heritage and culture of the region, allows one to interpret oneself while communicating beliefs, aesthetics that define the way of life. "These designs should also use traditional and historical features not as superficial attachments, but as an integral part of building concepts and forms." "Here's fake regionalism - with a few decorative, historical, theatrical and unfounded appendices on top of a poorly designed modern structural box - was a constant danger. There was a healthier approach to the kind of modern regionalism mentioned above, in which an attempt was made to discover the basic lessons of the local tradition, and to mix them with a modern language that had already evolved [8]. Thus, regionalism represents the end result of the modernization process and can no longer be considered a reactionary attitude [4].

Sense of place is a vital regionalist idea that goes beyond a broader picture of a city in which buildings and infrastructure should not be seen as statistical complexes, but as interactive, dynamic systems that are constantly evolving in response to evolving urban parameters. "Originality is the main concept of regionalism in modern architecture as a guide for those who want to successfully create works of regionalism. This is not an inherent feature of objects or places, but a measure of the relationship between us and them. It is suggested that an object or environment is of undisputed origin, that its form be connected to the process of its creation, that it be original, that objects (elements) are what they seem to be or what one expects them to be." For a time, however, the architecture and authenticity, these inseparable factors, paved separate paths. It is, in fact, a postmodern fashion and a return to

traditionalism that included a modern look. This superficial connection to symbolism, instead of the liberating possibilities of technology, replaces the historical revivalist architecture that has previously been replaced by an empty anti-humanist aesthetic based on these symbols [6].

#### 5. Bioclimatic Design

Bioclimatic design is a term coined by Victor Olgay to describe the adaptation of a building to its local environment. As Vitruvius states in "Architecture": The style of buildings should be different in Egypt and Spain, in Pontus and Rome, and in different countries and regions with different personalities. "Because in one part, the earth is under the pressure (influence) of the sun in its path, and in the other part, the earth is far away from it, and in another part, it is affected by it with a medium distance" (Olgay, 4). "Adapting" the building to its bioclimatic location not only leads to the specific architecture of the place, but also ensures a longer lifespan for the building. In natural history, it is the universal law that species are suitable for survival which are compatible with their environment, balanced with their own tissue materials, and in proportion to all the internal and external forces they are exposed to" [30].

#### 6. Context

The context is not just the topography of the site, but rather the environment. "Man-made artificial ecosystems can never adequately replicate the complexity of natural ecosystems." Given the dynamic nature of ever-growing cities, and the urban texture that must be constantly adapted, the underlying answer is always challenging. Even if the concept of regionalism fits with context, what was appropriate a few decades ago is not practical now, its environmental context has changed over the years. For example, in the past, indigenous architecture in the mountainous Middle East was not cold; today, wind and rain are used as a useful source. They are also used to contribute to a positive regional architecture. In addition, "open plans and courtyard concepts, which were successful strategies for maximizing ventilation and thermal comfort in early tropical architecture, do not work similarly in crowded cities with no space" [43, 2].

#### 7. Definition of Sustainability

The term sustainability alone does not merely mean compatibility with the environment, but is also used for structural quality and energy efficiency. When talking about sustainability, many people think mainly about renewable energy sources and good thermal insulation. However, the optimal use of energy, water and other resources is only one aspect of a comprehensive and integrated concept. When assessing the sustainability of buildings, it is also important to consider the factors protecting the health of building users, improving employee productivity and reducing waste, environmental pollution and the use of resources. Today,

economical yet sustainable buildings can be designed at a reasonable cost [47].

## 8. Sustainable Design

If sustainable design is viewed as an "attitude" or "approach", it is necessary to start from the individual. Government, national or global policies and regulations can prescribe rules and regulations indefinitely, but they are all useless unless the individual is the catalyst. "Sustainability is the main domain of the environmental and social groups of indigenous peoples who adhere to traditional practices, as well as those who are committed to changing their communities. In addition, one of David Orr's four features of ecological sustainability is as follows: self-reliant, self-organized local communities are the building blocks of change [44].

The culture of a region and its elements, as well as its sustainability in design and architecture, depend on the skills and abilities needed to create a form based on regional culture [18]. However, in today's globalized world, most urban areas follow the state of globalization to become global centers in terms of comparative advantages rather than national centers, and architecture has made it possible for the city to dress in such a complex and guide its inhabitants to live in real spaces based on world culture [35].

## 9. Hospital

The term "hospital" (from Latin Hospes - stranger, foreigner, guest) means a medical and prevention institution that provides inpatient care to patients in combination with an outpatient clinic [33]. Derived from English, hospitality can be translated as "hospitable". In German, a spital and Krankenhaus, is a home for the sick. Today, various definitions of the term "hospital" have been proposed. According to one, the hospital is "an institution that provides beds, meals and ongoing medical care to patients while they are being treated by specialist physicians" [27].

## 10. Hospital Design

When considering the global experience in the design, construction and operation of hospitals, it is definitely necessary to take into account the trans-regional differences of each country - it reflects the health system, culture, traditions, history, political and economic orientation [28]. The tasks faced by large and diverse hospitals and hospital complexes often conflict with each other and are significantly different from those anticipated before designing separate units (intensive care units, diagnostic laboratories, etc.). The hospital defines many functional groups, each of which can be quite reliable for some indicators, it must be acknowledged that the empirical basis for studying the architecture of hospital systems is complex and unequal: it can be quite reliable for some indicators, while it is known to be unstable for other criteria, but in most cases it all depends on the context [45, 16].

## 11. Green Hospitals and Health-Promoting Hospital

There is no world standard for defining "green and hospital promoting hospital". In principle, it can be defined as follows: green hospital is a hospital that promotes people's health by continuously reducing environmental consequences and eliminating its share in the burden of diseases. A green and hospital promoting hospital recognizes the relationship between human health and the environment and demonstrates this knowledge through the type of management, strategy and operations, links its needs with environmental measures and actively participates in the development and strengthening of the community environment, equality in health and green economy. There is no one-size-fits-all model for green and hospital promoting hospital, and many hospitals and health systems around the world have taken steps to reduce the environmental footprint of public health participation and cost savings simultaneously. [20] Green hospitals are energy saving, resource saving, environmentally friendly, supportive of health, efficient and have strategic management [47].

The main theme of Hippocrates' oath is: "Do not harm first." In recent years, in some developed countries, the concept of health has fulfilled its moral duty not to harm - or at least do less harm to - the environment. Hospitals and other medical centers provide patients with effective, high-quality, standard care at a high cost. But this mission of hospitals has consequences for the environment. For the past several years, legal centers and local communities have come under increasing pressure to control environmental issues such as optimizing energy consumption, disposing of medical waste, and controlling potentially hazardous drugs. To meet this challenge around the world, hospitals are increasingly implementing programs to identify and reduce the negative impacts of their operations and activities on the environment. As advocates for preventive health care, hospitals must take the lead in preserving and raising environmental awareness [11].

Hospital Promoting Hospital (HPH) is an association that plays a role in improving hospital structures. hospital promoting hospital are also green hospitals. They are not only newly designed hospitals, but also improve renewable energy, staff productivity, waste reduction, pollution and pollution as well as resource management issues in the health system. Health and equal opportunities knowledge and skills are being developed, evaluated and discussed by HPH members [21].

"A health promoting hospital not only provides comprehensive, high-quality medical and nursing services, but also develops an organizational identity that embraces health-promoting goals, and includes a health-promoting organizational structure and culture, including active and participatory roles for patients and staff". This definition can be found in the WHO Health Promotion Glossary, which is based on the WHO Budapest Declaration on Health Promoting Hospitals. Therefore, health promoting hospitals actively strive to become a healthy organization [26].

## 12. Systematic Approach to Hospitals

Concepts and principles of system theory actively used in various scientific fields, are now reflected in the study of complex organizations such as hospitals [9]. The arsenal theory of systems offers a number of universal concepts that help to explain the scientific theory of the nature of hospital patterns, identify and organize existing problems. The main feature of any open system is that it must interact with the environment and replenish lost resources necessary for existence, adaptation and gradual growth [39].

In modern civilization, almost half of the energy consumed in developed countries is devoted to architectural buildings and a quarter to transportation. From this perspective, the role of the architect in the design of buildings for various purposes, including medicine, in the issue of a sustainable future, individual government or human habitation, is quite significant. Undoubtedly, architects alone are not able to solve all the diversity of the world's environmental problems [40-42].

## 13. Sustainable Health Care Buildings

Sustainable health care buildings are characterized by forward-looking planning tailored to the specific needs and needs of several generations. Flexible structures enable efficient, demand-driven regional management to optimize work and workflow. Staff members enjoy a better work environment and patients enjoy a comfortable environment for recovery. Smart lighting and the concepts of ventilation, reduction of environmental stressors, unimpeded movement and connection to nature are just some of the factors involved [47]. While the design strategy for an unknown function supports the building's flexibility to accept a variety of medical applications, the design strategy for a specific function limits the building's potential for modifying its medical applications [32].

Zeidler stated that the concept of "form follows function" is not in line with the requirements of a hospital today, the main truth of a hospital is to accept the unpredictability of future needs (Zeidler, 1974).

Kendall also argued that the functionalist approach to facility design is obsolete. While this is commonplace, it is inconceivable that if we design a program for the functions and design the hospital accordingly, its future function is guaranteed. The opposite is often true; buildings designed according to a functionalist model perform poorly, while those designed to adapt to different functions gain value over time (Kendall, 2011).

Christopher Alexander, in his book "A Pattern Language", raises the question of whether it is possible to create a space that is tailored to the needs of the people and at the same time is capable of infinitely many different settings and combinations (Alexander, 1977).

Llewelyn Davies and Weeks stated that functions change so rapidly that designers no longer have to look for the desired fit between building and functions. The real need is to design a building that allows for functional change (James et al., 1986).

Flexibility, variability, and scalability allow hospitals to plan operational strategies against specific spatial changes throughout the life cycle of a building (CADRE, 2019).

## 14. Hospital Improvement and Repair

Developments in complex hospital systems are often accompanied by serious problems and obstacles. Structural inflexibility of hospital buildings and intensive use of them are in conflict with innovative processes active in medical technology, engineering and equipment, tools and therapeutic methods. Hospitals are usually characterized by considerable stability, which is formed not only on the basis of structural organization but also on the basis of cultural and regional context. An integral part of the latest hospital projects built in economically developed countries includes the introduction of environmental methods, the principles of sustainable architecture. This approach clearly shows that the hospital building is capable of autonomy, independence of resources and energy, coordination in relation to the surrounding nature. This process is one of the keys, because it allows the construction of large medical buildings and complexes that can save on operating costs, which is related to the energy crisis in most countries of the world [5].

## 15. Hospital and Environment

Hospitals and healthcare staff can become sustainable environmental and healthy economic practices as the main promoters of environmental protection in a wider range such as the global community [20]. Sometimes, designers ignore cultural, environmental, and economic potentials and simply change the form of the building solely to shape it, while the health sector, in addition to its traditional role in providing quality health care, can share common health, economic, and social benefits by reducing environmental consequences and improve people's health [46].

Hospitals and health systems can promote sustainability, greater equity and environmental protection by investing in healthy buildings, green purchasing and sustainable operations, in addition to counteracting climate change, they can promote sustainability, greater equity and environmental protection. They can improve their economic position and moral status in society by helping to achieve the Millennium Development Goals in the field of health and sustainability and at the same time a green economy [20].

Hospitals can take a step forward in responding to climate change by reducing environmental footprints and using a carbon-free approach. They play a leading role in supporting a healthy and sustainable future. The health sector plays a key role in helping communities adapt to the effects of climate change [46].

At the same time, it can be assumed that there is a correlation between the level of treatment effectiveness, illness and death with the architecture and urban planning of the medical building, where medical services are produced. Therefore, it can be stated that the issue of the impact of

hospital architecture on the health status, therapeutic properties of the interior and exterior of a medical building, and the surrounding area has not been sufficiently studied to date. It is worth noting that this is a really complex and ambitious task. The modern hospital is a multifaceted and complex multi-purpose interactive system [17].

## 16. No-Harm Health Care

Many global environmental activities are now taking place in hospitals and health care providers. An example of this environmental activity is the "No-harm Health Care Project," a global virtual network of green and healthy hospitals. The goal of this global union, which consists of 443 organizations in 52 countries, is to share successful experiences and solutions to challenges and problems for public use, and its mission is to maintain health by reducing pollution in the healthcare industry. The union focuses specifically on reducing dioxin and mercury emissions, eliminating PVC and promoting environmentally friendly purchasing policies ([www.noharm.org](http://www.noharm.org)).

The association has supported more than 100 new green hospital start-up and hospital-based projects to remove medical equipment containing polyvinyl chloride (PVC). This virtual community has developed a comprehensive framework for hospitals and health systems around the world. It is defined that each of the objectives includes a set of measures that hospitals and health systems can implement. These objectives include leadership, chemicals, waste, energy, water, transportation, food, medicine, construction and procurement [22, 15].

## 17. Conclusion

Adaptation to the environment is one of the most important issues in today human life. The greater the correspondence between the environment and the man-made environment, the more continuous and desirable the result of this interaction will be. Attention to the climate in each region and estimating its influence on the man-made settings, as well as its effect, is one of the factors that lead to greater alignment with the environment. The role of environmental factors is much more visible in medical centers given the services provided by them, although the issue of environment is very important in other buildings. The influence of this factor in each region indicates the reasons for the differences in buildings in different parts of the globe. On the other hand, if we talk about the same pattern for each building, we will see an anonymous city, just as the use of double architectural complexities eradicates the original. Therefore, applying the impacts of climate on the design of the building increases the sustainability and compatibility of the building with its surroundings and its interaction with the environment.

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