

The Importance of Building Design and Its Contribution to Human Health

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Abstract. The purpose of this research is to find out how important it is for a building that has a healthy building approach or concept that will have a positive impact on the users of the building itself. To support the research, we use the method of collecting data from several journals found related to the research title. The results of this study indicate that every design of a building must pay attention to the element of thermal comfort from each room, the concept of healing environment, pay attention to the use of materials, and must also apply the concept of sustainable architecture. In this study, things that must be considered are what the concept of thermal comfort is good for the health of the building users themselves, the concept of healing environment, the use of materials, and also the concept of sustainable architecture. It can be concluded that the building is said to be healthy if all the discussion criteria can be implemented properly. Users of the building itself, of course, not only feel the comfort of the building that is used, but can indirectly have a positive impact on the health of the users themselves, and can also survive in a fairly long period of time.

Keywords: Building Design, Healthy Building, Green Building

1. Introduction

Design is an attempt to find the right physical components of a physical structure [1]. Based on research conducted by The National Human Activity Pattern Survey (NHAPS), almost 90 percent of a person's time in a day is spent indoors. This fact then gives the urgency of the need to maintain the quality of the conditions inside the building such as the air and humidity of the air inside. Quality maintenance is included in the Healthy Building concept which promotes building construction that considers the health aspects in it [2].

The healthy building concept is a concept developed as a continuation of the green building concept [3]. This concept not only considers the impact of the building on the environment, but also the impact of the building on the health of its occupants. This then becomes a new consideration for architects and designers in the building design process [4]. In addition to

human physical health, in a healthy building, human mental health is also considered. This becomes important because the space we inhabit and occupy basically has a strong influence on our psychic condition. A space often makes us feel comfortable, cool, peaceful, or even we feel lonely, stressed, or angry. For example, that when a person is under stress, the work of hormones will increase and then suppress the immune system, so that they will be susceptible to disease [5].

The concept of a healthy building that has developed in Indonesia is the concept of a hospital. The concept is explained as a building for shelter and rest as well as a means of fostering a family that fosters a healthy life physically, mentally and socially, so that all family members can work productively [5]. The healthy building approach is not only about the use of space and the use of materials, it can also use natural media such as plants, which we rarely know about these plants have benefits that other people are not even aware of the benefits of plants that they may display on the sides of the building. they do not know what are the benefits of the plants they display, which in fact can also affect the health of the users themselves and is also good for air conditioning around the building.

Plants are also one of the things that are very familiar to the building designer himself, namely the architect [6]. Architects often add/place certain plants in a building design, not even infrequently from other well-known architects having special plants that must exist in the design design, for example, the Ketapang Kenyan tree plant, in a building design plan, not a few from Indonesian architects who use these plants, so that the building looks more beautiful and attractive. The plant itself is not only a decorative medium in buildings, but without us realizing it also plays a positive role for the human body itself, for example, it can be used as a medium to increase CO₂ levels in the room [7]. automatic sun-reducing media, etc., this cannot be considered a trivial matter, but it is something that is really needed by the building users themselves, therefore the plant can be said to have 2 functions, namely as a decorative medium in a room, both interior and exterior, as well as a medium for conditioning the air content in a room. For example, plants that are often found in a building are vines, vines also have various types, as is often found in buildings designed by Indonesian architects, namely lee kwan yew vines [8].

The purpose of this research is to find out how important it is for a building that has a healthy approach or concept that will have a positive impact on the users of the building itself. The results of this study can be used as a reference and example for young architects who want to build or design an elemental building or a healthy building approach by considering the level of thermal comfort, the concept of healing environment, the use of materials, and the concept of sustainable architecture in their design.

2. Method

The research method was carried out with a descriptive qualitative model. Data were collected through literature study. Literature studies are obtained through library sources derived from scientific study books, journals, and also found from various internet sources. The research was carried out by providing a brief explanation of the points to be discussed, as well as providing examples of a building object by displaying examples of objects that were

considered unfavorable and would also provide examples that were correct or appropriate to the discussion points.

3. Results and Discussion

3.1. Thermal Comfort

In every building, it is familiar with the name of ventilation, each room must have its own level of ventilation [9]. The problem faced in each room is due to the heat generated from the parts of the room area both from the interior and exterior areas of the building [10]. In terms of ventilation, the architect's role is very important in terms of designing the design of a building [11], and also how the architect designs openings in the building by paying attention to the use of materials, as well as paying attention to aspects that support the comfort of ventilation in each designed room. Thermal comfort cannot be considered trivial because it is directly related to the health and comfort of room users where if the heat temperature in the room exceeds the limits set for each room comfort standard in each country, then this will have fatal consequences for the health conditions of people in the room.

The things that can have an impact on poor thermal comfort in each room are excessive heat entering the room, errors in the use of materials, the lack of openings in each room and also the lack of use of vegetation such as shade trees in the outdoor area of the building that can reduce heat directly and also provide cool temperatures in areas protected from these vegetation.

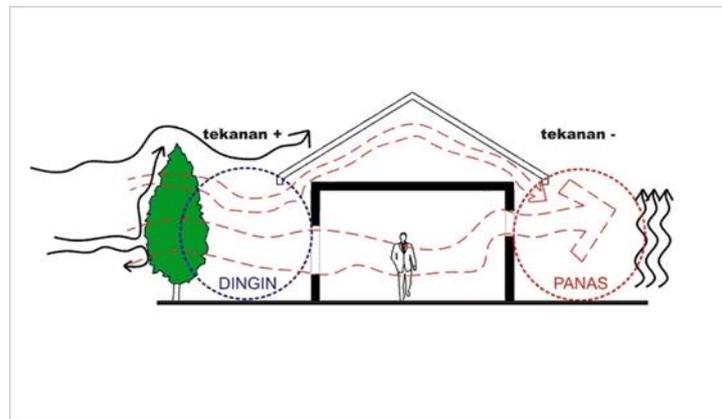


Figure 1. Example of applying good thermal comfort in buildings

In Figure 1 it can be seen that the room is very good at implementing aspects in increasing good thermal comfort, which can be seen that there are openings or windows on the sides of the building to provide maximum airflow in the room. In the cover or also deliberately given an opening so that the air in the roof area can flow well too, and also don't forget the role of vegetation on the outside of the building as a shade function on that side and also provide cool air that can be produced by trees. The cold air will enter through the ventilation holes or windows on that side.

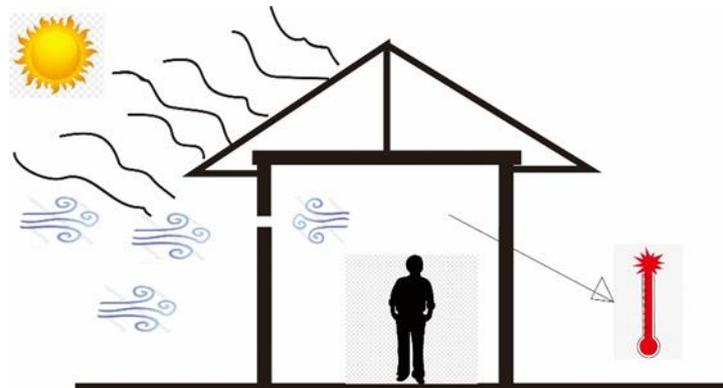


Figure 2. Examples of Application of Poor Thermal Comfort

Figure 2 is an example of a building that is not good at designing the thermal comfort function in the building which can be seen from the lack of openings/ventilation in the room which results in a lack of air entering and leaving the room which will result in the temperature of the room being very hot. do not have shade ponon vegetation that previously might have been able to reduce sunlight hitting the side of the building, the example of picture 2 above can have a bad impact on the health of room users.

3.2. Healing Environment

The concept of a healing environment is one of the things that we should not forget in designing a building, whether it is a residential building or a public building/building, where the building as an object, both interior and exterior, is able to have a positive impact on a person's psyche [10]. very needed by some people who are experiencing depression / stress [11]. The approach taken in the healing environment concept is seen from how an architect treats the interior elements that are able to provide a positive psychic effect for someone who enjoys the space, not only the interior [12], the outside or the landscape of the building can also be designed where Landscape supporting elements can also have a positive impact on a person's psyche or healing environment, where the elements that play an important role are the concept of vegetation arrangement or others.

The use of materials and technology also plays a role in the application of the concept of healing environment such as the use of natural materials used in interior elements and also how to determine a good lighting effect in a room that is able to have a positive effect on a person's psyche which can reduce the stress level experienced by the person. someone while in the room [13].



Figure 3. The Healing Environment Concept in the Interior of the Building

Figure 3 The application of the healing environment concept is very clearly visible from the accent of the wood material that dominates the building and also don't forget the addition of various kinds of vegetation or plant elements in the area which at first glance do not look like the interior of the building, the lighting in that area also does not use lighting. artificial, but natural lighting produced from the roof side of the building which uses glass material.



Figure 4. The Concept of Healing Environment in the Outdoor Area of the Building

In Figure 4 the application of the concept of healing environment is not much different from Figure 3, which is more dominating the elements of nature or vegetation, it's just that the vegetation plants used in Figure 4 are more varied and there are also elements of garden water. very suitable for the application of the concept of healing environment, where the very

important thing from the water element of the garden itself is the sound of the splash or flow of the water which is able to provide a positive psychological effect for one's psyche.

3.3. Sustainable Architecture

The main point in sustainable architectural design (Sustainable Architecture) is how we or an architect are able to design or design a building without destroying the surrounding natural resources [13] and as much as possible reduce the use of materials or materials that are not environmentally friendly, for example, can reduce the use of artificial energy that might damage the surrounding natural resources, minimize excessive land use that should be used for tree planting, which previously might not have a function as health for humans because the land is only dominated by buildings, if the building has remaining land, it would be better to function as an open green space (Green Open Space) area in that area which definitely has a positive value for human health.

Sustainable architecture has many approaches including energy saving, energy saving here means that every building that implements the sustainable concept must have energy-saving values such as being able to minimize excessive electricity use, for example in a room that applies the sustainable concept it must have a wide opening. maximum where the light produced can / is able to support the lighting in the room, especially during the day and also minimize the use of air conditioner (AC) in the room by providing openings in the morning until the afternoon in order to reduce the use of excessive electrical energy.



Figure 5. Sustainable Architecture Building

In Figure 5 it is clear that the atmosphere of buildings that apply the concept of sustainable architecture (Sustainable Architecture) where at first glance, most of these buildings dominate from the use of natural elements or vegetation applied to the building area, both on the exterior side of the building and on the interior of the building. with its distinctive vertical garden concept [14]. These buildings do not only rely on the vegetation side, but there are other elements that are applied to the building, such as the use of building materials that are dominated by glass openings, the lighting system that dominates the glass facade, the use of rainwater, the use of solar panels in the landscape or garden. , not using synthetic materials, wood and stone materials obtained locally, efficient use of space, using natural materials/elements as heat recovery technology, land use designated by tree plants, organic paint [15-18].

4. Conclusion

Basically the concept of green building is enough to describe what are the points that need to be considered in designing a healthy building, only this time the author only describes some points that if the author considers it is sufficient to describe the criteria for a good building for the health of the occupants/users, such as the discussion about the concept of building thermal comfort, the concept of healing environment, and also the concept of sustainable architecture (Sustainable Architecture).

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