

## DESIGNING CO-WORKING SPACE WITH SUSTAINABLE ARCHITECTURE APPROACH IN MEDAN

Sausan Alfiyyah<sup>1\*</sup>, Ramayana<sup>2</sup>, Cut Nuraini<sup>3</sup>  
<sup>1,2,3</sup>Universitas Pembangunan Panca Budi

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**\*Correspondence Address:**

sausanalfiyyah0802@gmail.com

**Abstract:** *Coworking space in Medan has a sustainable architectural design with an interior design that meets the needs of its users. In Indonesia, the creative industry is currently starting to grow and develop as an economic sector that plays an important role in the economy. Coworking spaces present creativity and innovation in the current era of millennial change. Of course, it was born as an alternative work space that provides facilities tailored to the needs of coworking space users. Creating possible solutions can build connections and interactions between individuals and groups. The Coworking Space concept is starting to be developed in several regions in Indonesia. However, there is still a need for careful planning in order to minimize the level of errors and be able to comply with the plan.*

*The location of the Coworking Space in Medan, which is still in the planning stage, needs assistance so that it meets the objectives of the Coworking Space. The method used is planning, implementation and evaluation. The results show that Coworking Space managers in Medan show increased competence in planning the creation of an effective Coworking Space. Improvement is shown from knowledge of mature planning concepts and systems. Supported by an overview of the plan and arrangement of the place. Increased deeper understanding in planning is demonstrated by maximum results. It is important to provide assistance until the Coworking Space can run. By creating a comfortable space and providing the best service in operating a coworking space, it can have a positive impact on its users. Providing work and study spaces that really support productivity with the most complete service facilities and an atmosphere that really inspires them, by sharing ideas and building professional networks, this goal can be accessed by workers and students who cannot be separated from the modern needs of millennials today.*

## INTRODUCTION

Coworking space is a place or workspace that is conceptually designed and designed for work spaces and communal spaces to increase interest for the millennial generation. In changes from time to time someone gathers to do a job in one place, but along with the development of the current millennial generation someone does not only work in one place but can move around the place of work. They can gather and carry out their daily activities by moving places of work. The phenomenon that occurs in the era of the development of the millennial generation today really needs a place or work space that can help their activities. Technology that can be used for millennials can affect aspects of life in the future. The development of advanced technology can realize millennial creativity by bringing changes from time to time (Kraštins, 2023).

Coworking space in Medan is a sustainable architectural design design that has room facilities according to the needs needed for users. In Indonesia, the creative economy is now starting to grow and develop into an economic sector that has an important role for the economy. Co-working space can create creativity and innovation in a job in the current era of millennial generation transformation. This is of course made as an alternative work space that provides facilities as needed for co-working space users. In creating a solution, this can build connections and interactions between individuals and groups (Kraštins, 2023).

Sustainable architectural design in coworking space in Medan to ensure users and visitors who work in coworking spaces are not bored or tired while working, they can take advantage of outdoor and indoor areas and utilize green open spaces as meditation media. Coworking space design is designed to reduce boredom and increase focus for coworking users. The increasing millennial generation in the 2000s who are increasingly interested in being able to collaborate with each other. When designing a room, sustainable architectural principles such as energy efficiency, efficient water use, minimal lighting, window openings, and economical use of natural resources are taken into account. A comfortable environmental design for human activities is recommended to align with user characteristics. This is crucial to ensure that the proposed design functions optimally (Nuraini, 2023). The purpose of designing a coworking space with a

sustainable architectural approach is to reduce waste pollution at the time of development as an environmentally friendly concept for Medan City.

### **DESIGN ISSUES**

Based on the explanation above, we can conclude that the formulation of problems related to the above issues in the design is how to design a co-working space design with a sustainable architectural approach.

### **PURPOSE**

The purpose of designing a co-working space in Medan is to provide a workspace and learning space with creative and aesthetic interior design nuances to attract millennial generation visitors who carry out activities outside the home and activities outside the office. The lack of co-working space in Medan built through a sustainable architectural approach aims to reduce boredom and boredom in users of the place.

Coworking space is a place that provides work and learning facilities for the user environment. A productive and collaborative environment from various parties, both individuals and groups, creates a motivating and collaborative work environment.

By creating a comfortable space and providing the best service in the operation of coworking space can have a positive impact on its users. Providing workspaces and learning spaces that greatly support productivity with the most complete service facilities and an atmosphere that inspires them, by sharing ideas, and building professional networks this goal can be accessed by workers and students who cannot be separated from the modern needs of millennials to date.

Therefore, through the digital era, millennials today really need interesting things that can be developed according to the needs of the user, develop innovative and creative ideas that can take advantage of technology and connectivity and can establish cooperation through individual and global systems.

### **Method**

This design comprises five stages or procedures, including programming (site and building), analysis (site and building), conceptualization (site and building), and design synthesis (Nuraini & Sudrajat, 2010)

### Design Location

*Coworking space* is located on Jalan Dr. Mansyur which is located in Padang Bulan Selayang 1, precisely in Medan Baru sub-district. The strategic location on the edge of the main road of Padang Bulan gives an attraction to the surrounding environment. Being the main supporting factor that makes it easier for visitors to come to coworking space. The area and coworking space environment that will be built can be seen in figure 1 and 2.

Figure 2. Co-working space design location Source : (Google earth 2023)

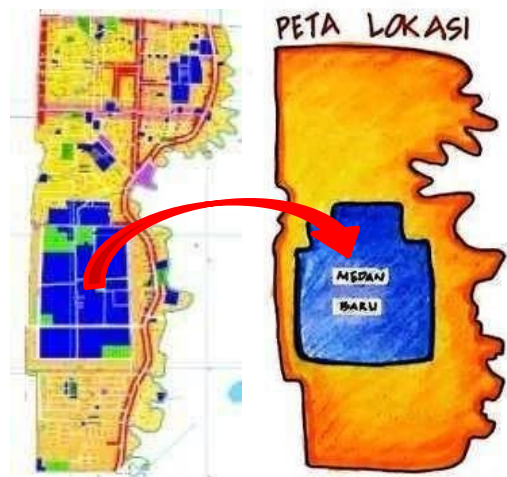


Figure 1. Map of Coworking space  
Location Source : Author, 2023





Figure 3. Building Layout

## **RESULTS AND DISCUSSION**

The research method applied is by conducting a site survey. Based on the function, several surveys have been described through the method of collecting data analysis of site locations through a design concept approach. The stages that formulate the coworking space design process can be seen in figure 2. The research method used in the design of coworking space uses the concept of sustainable architecture with an approach to sustainable architecture principles. The process of designing a sustainable architect coworking space is a response and expression of our existence and a sense of care for the world around us (Kurniasih, 2010).

At the beginning of the design process, the initial steps taken determine the design location. The second step is to survey the location that has been determined. Then make design drawings according to needs and users. Furthermore, determine the user's coworking space needs according to the user's function. The meaning of the concept of Green Architecture, or Green Building is an approach to building planning that seeks to minimize various harmful influences on human health and the environment. As a basic understanding of sustainable green architecture, the inside of the building must have a landscape, interior, which must be strived to be integrated in its architectural unity. This condition encourages human consciousness to overhaul the old way of looking at it with a more holistic ecological perspective, that humans are not the center of everything, but

one and so many elements that relate and make up the universe. This awareness movement grows in the form of Sustainable Development and develops with various names. The field of architecture was inseparable from the influence of the wave of consciousness earlier. Even architecture as a design science that produces buildings is an important target for this movement (Sardjono & Nugroho, 2017).

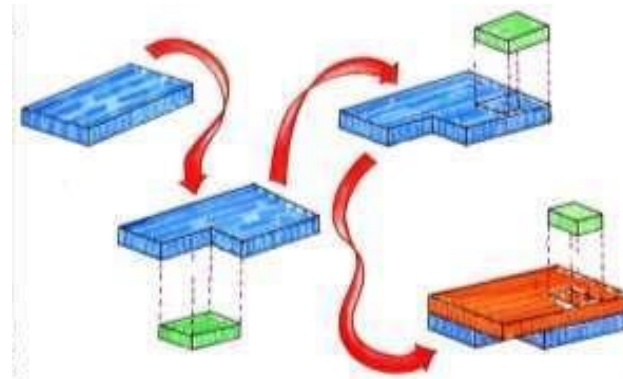


Figure 4. Time Composition

The beginning of the mass shape of buildings came from rectangular beams. The right corner of the mass is cut to form the letter L. The corner of the mass is reduced on the 2nd floor because it can inhibit the incoming air. Then the result of the design concept process of combining two masses that gives the impression of being simple and energy efficient.

## **DISCUSSION**

### **Sustainability Architecture Concept**

This coworking space building is designed with the concept of sustainable architecture. Sustainable architecture refers to architecture that deals with urban architecture. The concept of sustainable architecture itself focuses on the urban environment, energy efficiency, water and waste efficiency. Sustainable architecture alone can connect urban and natural environments. By incorporating Indonesia's climate and ecosystems into the site, sustainable architecture aims to pay attention to and consider the built environment. This approach allows the building to achieve an eco-friendly balance in the long run. This gives a positive impression of the surrounding urban environment.

Sustainable architecture is a way to minimize the negative impact of development on the environment by using efficiency and discretion in material, energy, and space processing applications (Hidayatulloh, 2022). Sustainable architecture is a choice of place in the design strategy of coworking space buildings. Based on this explanation, sustainability architecture can be interpreted as an architectural design that has insight into the urban environment of buildings. The long-term goal of sustainable architecture is to minimize the decline in resources and consumption on a global scale and heighten environmental awareness (Sulistiyan et al, 2022). The application of sustainable architecture principles in buildings can help in preserving the surrounding ecosystem and natural resources as well as the flora and fauna in it.(Pusat et al., 2020).

**Conceptual Foundation**

The conceptual foundation of sustainable architecture is the application of architecture including in energy use efficiency, utilizing sunlight for maximum natural lighting during the day, to reduce the use of electrical energy, utilizing natural air instead of artificial air conditioning (air conditioner), utilizing rainwater in innovative ways to collect and treat rainwater for domestic purposes (A, 2012 dalam Nuraini 7 Suprayetno, 2021). Figure 5 is a terrain coworking space target that can accommodate coworking spece. The image can complement the main supporting function, namely as a place to work. The coworking space function can accommodate space for workers and provide opportunities for users who work in or rent workspace in coworking space.

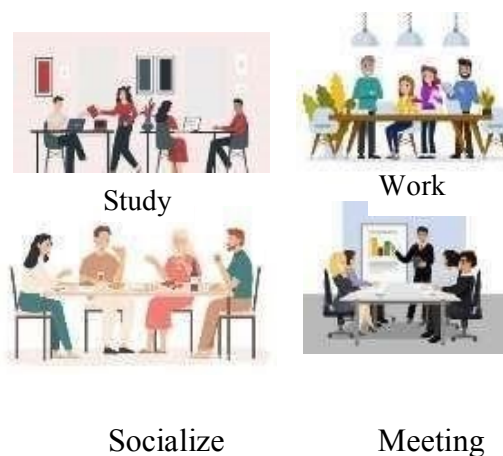


Figure 5 : The concept of coworking space activities in Medan City  
*Source :(google)*



concept can adjust nature and the environment. Given this, the concept of sustainable applies a healthy environment, applies the use of open nature as a support for the harmony and unity of buildings and the environment. Basically, in the field of sustainable architecture, there are various streams such as ecological architecture, environmentally friendly architecture, and tropical architecture. From some of these schools, the author is interested in taking part in sustainable architecture by applying the concept of tropical architecture. With all the needs of open space that is owned in the design of this coworking space, it can certainly achieve all its needs through maintaining energy saving, material quality, even maintaining natural resources, maximizing natural light and natural air.

The definition of sustainable architecture that applies the concept of tropical architecture, minimizing negative impacts on the environment so that there is a balance between the environment and humans. The shape of the roof of this co-working space building carries a sloping roof. Its function is to maximize sunlight entering the room that maximizes electrical energy. The shape of the roof can be seen from figure 6.

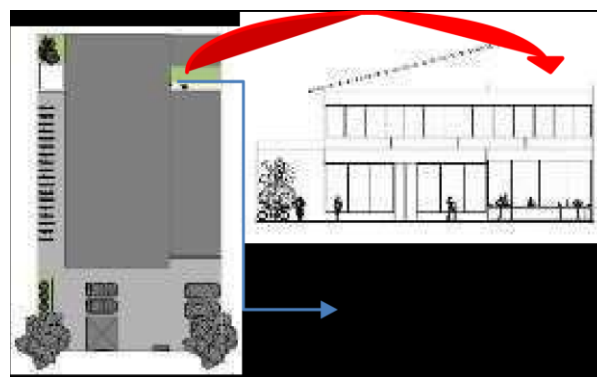


Figure 6 : Form The Roof Plan Into View

### Medan City Coworking Space Design

Coworking space serves as a place to work and study built with a land area of 1000 square meters. Coworking space is planned to be built with a building area of 20 meters wide and a building length of 25 meters with the provisions of the Basic Building Coefficient (KDB) of 60 percent and the Building Commensurate Line (GSB) of 12 meters. The design is strived to maintain the main function of the building as work, study, discussion and as a meeting place with the aim of being a forum for users of the city of Medan who can improve this function. The floor plan of the coworking space site can be

seen in figure 7.



Figure 7 : *Co Working Space Site Planning*

Circulation on the existing site, the location of the coworking space that leads to the main road at the entrance area. The sewerage channel in front of the road is right on the road paying attention to natural resources through infiltration and existing sites as a sustainable coworking space that already looks good and feasible in the arrangement, as shown in figures 8 and 9.

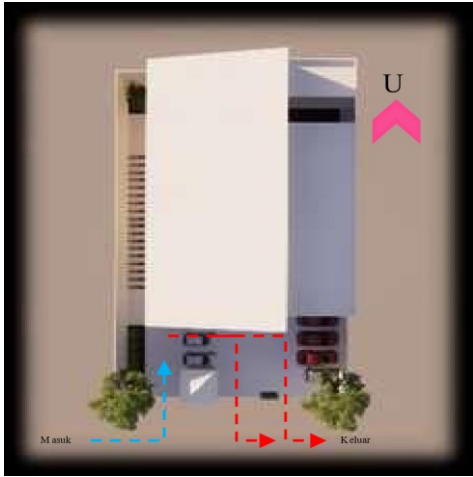


Figure 8. Vehicle Circulation

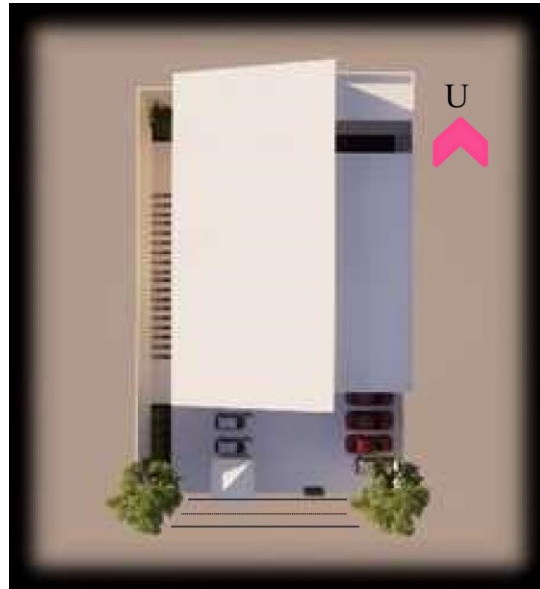


Figure 9. Pedestrian Forestry

Coworking space is designed as a study, work, meeting, and socializing activity so that the activity is designed openly so that users in the room feel comfortable. This design provides several meeting rooms that can accommodate users to continue their activities like an office in general. So that the room is kept private. As shown in the following figure 10.

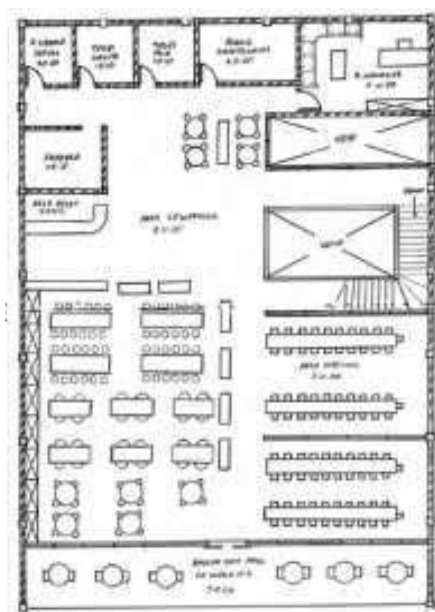


Figure 10. Room Plan

The roof structure of the coworking space uses a light steel easel frame structure and concrete deck. The right angle roof frame construction is combined with a polycarbonate structure to cover the roof void which minimizes flooding during rain and maximizes sunlight as an electrical energy saver. The polycarbonate structure material itself can be opened and closed which is adjusted to the needs of space. This polycarbonate structure itself was chosen made of transparent material because it is easy to install as needed, transmits light so that it is suitable for application in buildings, flexible and strong against shocks and able to withstand rainwater without reducing the design of the structure, as shown in figure 11 below.

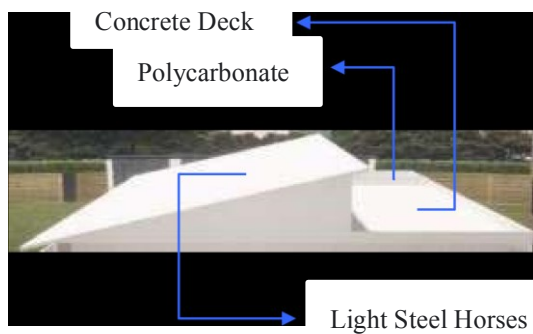


Figure 11. Roof Frame



Figure 12. Interior Coworking Space with plant borders as a form of sustainable architectural concept.



Figure 13. Interior Atmosphere of *Coworking Space*

Coworking Space building using glass material. This aims to minimize the excessive use of electrical energy that can be transmitted through sunlight. The glass material in this building gives a bright impression even though it does not use electricity. In general, it shows the exterior appearance of sustainable architectural buildings that are very identical to the principles of sustainability, energy efficiency, natural resource utilization, and paying attention to the quality of the indoor environment.



Figure 14. Outdoor Ambiance

## CONCLUSION

Coworking space design applies the concept of sustainable architecture which is realized in the form of design Basically, in the field of sustainable architecture has various streams such as ecological architecture, environmentally friendly architecture, and tropical architecture . The building takes part of sustainable architecture by applying the concept of tropical architecture . With all the needs of open space that is owned in the design of this coworking space, it can certainly achieve all its needs through maintaining energy saving, material quality, even maintaining natural resources, maximizing natural light and natural air.

Sustainable architecture refers to architecture that deals with urban

architecture. The concept of sustainable architecture itself focuses on the urban environment, energy efficiency, water and waste efficiency. Sustainable architecture alone can connect urban and natural environments. The design of coworking space can be a new facility for users, due to the lack of containers which is one of the commercial needs so that it cannot be met. The change in new function as a working activity space becomes a new face. With the existence of coworking space, it has a positive impact that can support the activities of the local community.

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