



# Home Workspace Design to Improve Employee's Performance (Case Study of Work From Home Employees in Semarang)

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**Abstract.** The Global COVID-19 pandemic has become a driving force for rapid changes in many aspects of society, especially daily life, caused by the work-from-home policy. After the COVID-19 pandemic, the company and employees still implemented the work-from-home policy because it was considered to be working more effectively, and efficiently and reducing air pollution in big cities in Indonesia such as Semarang City. Working from home is also more comfortable. Being in a good mood can stimulate them to have lots of creative ideas that can support their work. Daily work routines can stress employees so a comfortable workplace environment can improve employee performance and is good for the health. Many studies have analyzed the connection between the workspace environment with work efficiency. But, few discuss design solutions to make the workspace at home comfortable so that employee productivity and performance can increase. What aspects must be considered to make the workspace more comfortable, it needed further research. The aim of this research is to create a nice workspace design at home so employees are more comfortable working in their homes. This research was conducted using a qualitative research method by taking cases using purposive sampling. The research method uses a qualitative approach as a research procedure that produces descriptive data using interviews, field observations, documentation, drawing, and theory studies with finding journal references. The results obtained from this research are several aspects that must be considered when designing a workspace at home so that it is functional, effective, and aesthetic so that employees feel comfortable working and more good idea to improve performance employee. These results illustrate the importance of considering personality when designing workspaces that improve employee focus and happiness. A comfortable working atmosphere can improve employee performance. The workspace at home must have good lighting and ventilation because this has a big impact on employee comfort and health

Keywords: Home Workspace Design, Employee's Performance, Work From Home.

## 1. Introduction

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After the COVID-19 pandemic, companies are still implementing work-from-home policies for several reasons and consider working from home to be more effective and efficient from the perspective of the company and employees.[1] The modern workforce is growing more mobile, office occupancy is getting more dynamic, and office work is becoming more collaborative. It's evident that flexible working and the workplace are changing together. The way the house is run and utilized as a workspace will change. Therefore, the workspace at home needs to be ready to accept more adaptable, productive, and efficient work. [2] An office's layout can affect how its workers move around and interact, which can affect their well-being and productivity.[3]

Stress is the physical and mental response that individuals have to events, circumstances, events in their lives, and changes in their surroundings. Despite the fact that there are numerous other elements as well, the main causes of stress are employment and job pressure. Environmental stress can arise when a person's basic needs for comfort and health are not met in interior areas. Many components of interior design, such as office layout, color, furniture, access to views, distance from windows, personal control, and elements of the office environment such as lighting, noise, indoor air quality, and thermals, have been shown to impact performance. stress levels of office workers.[4]

Working from home can increase motivation, relieve stress, and increase employee comfort. After the COVID 19 pandemic, many employees resigned after being asked to return to the office, so several studies were carried out to create an office that could be as comfortable as home. The office is simulated into a house so that the simulation is more effective in creating a suitable, comfortable and satisfying office environment. architectural qualities such as space planning as well as collaboration and communication. Overall strategies that contribute to our understanding of these ideas can help create an adequate and satisfying environment for achieving comfort.[5]

Designing a comfortable workspace for employees, based on their personalities and hobbies. The focus of designing a workspace at home is employee happiness. a feeling of happiness can give rise to creative ideas that support employee productivity and performance. Open seating is better for employees to feel happiness and focus to do their jobs. [6] Even if working from home are expected to promote work efficiency and support worker health. [7]

Models of Flexible Smart Homes help bridge the knowledge gap. Rework spatial architecture to suit smart house occupants' needs in terms of lifestyle. Working from home has become a lifestyle. Working from anywhere and anytime is a working style that is currently trending. Working flexibly can give rise to creative ideas rather than working in an office environment that makes workers feel uncomfortable and therefore stressed. [8]

Lighting factors have an important role in supporting comfort at work. Good lighting can make work easier and maintain employee health. Homes have limited lighting compared to offices. The work space at home should have good lighting to support work. Work spaces

that have opening windows and glass can get better natural lighting than using electric lighting. Apart from saving costs, it is also good for employee eye health. [9]

Placing plants in the workspace can have the benefit of increasing comfort at work. indoor plants can create a different atmosphere in the work space, especially for workers who have a hobby of gardening. They will feel more relaxed by looking at the plants. Feelings of comfort and joy can give rise to creative ideas so that they can increase employee productivity and performance. [10]

Technology is developing very rapidly. Data-driven approaches, machine learning algorithms can improve the efficiency of model-based shading control by building statically predictable daylighting models. Can simulate visual comfort which helps automatic shade control to optimize the natural lighting environment. [11]

A harmonious interior design arrangement supported by natural ventilation and good ventilation can increase work comfort. The workspace at home that is used as a place to work must be able to control the incoming light sources and provide good shade or ventilation so that a comfortable working atmosphere can be achieved. [12]

## **2. Methods**

This research was conducted using a qualitative research method by taking cases using purposive sampling. The research method uses a qualitative approach as a research procedure that produces descriptive data using interviews, field observations, measurements and drawings.

Research that uses qualitative methods is sometimes easier to carry out than research that uses a quantitative approach. When conducting qualitative research, the emphasis is more on how individuals interpret their own experiences rather than using pre-existing frameworks. The emphasis is on in-depth interviews that outline proper preparation and protocol design. The interview itself is discussed in detail, including several important topics to be aware of.[13]

In-depth interviews were conducted with informants as work from home practitioners. their expectations about the ideal work space and can be an inspiration for design.

Research Methods Steps consist of :

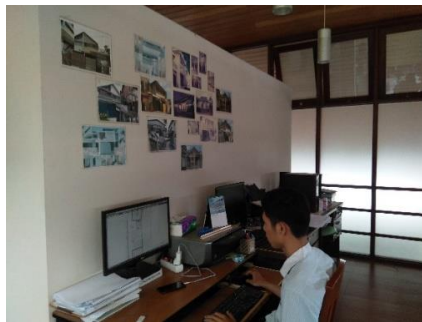
- a. Literature study or looking for related journal references
- b. Permission requests allow surveys and research data collection
- c. Conduct field observations
- d. Existing documentation
- e. Office space plan depiction

- f. Interview with informant
- g. Analyze findings in the field with literature reviews and journal references
- h. Finding research results (state of the art)
- i. Design Recommendations

In this research, 6 research samples were taken. The samples taken have criteria where the homeowner works from home and uses the work space to do his work. The work space used as the research sample is in a residential house. The work space must be separate from the bedroom, employees who work from home will use the work space to carry out work activities.

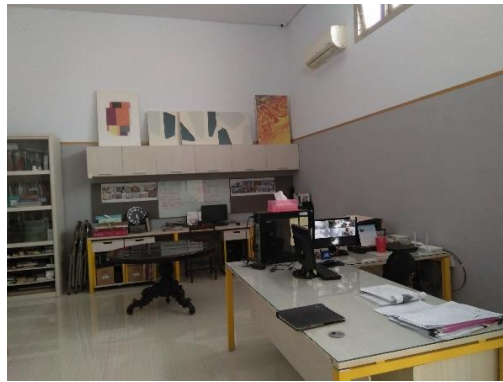
### 3. Result and Discussion

Workspaces located in residential areas generally have limited space, so the office layout is not as complete as offices. Even with limited facilities, working from home is an employee's dream. Working in an office with a daily routine can make you bored and stressed. But working from home has advantages but also has disadvantages. Working from home with limited facilities and limited space requires a better workspace design at home. A good work space must be separate from the bedroom so you can focus on work. You must pay attention to the ventilation of window openings so that they can work with good lighting to maintain eye health. Maximize natural lighting in the work space, but if this is not possible, you can add electric lighting. Natural ventilation can be obtained if the work space has lots of ventilation openings or window grilles so that air circulation flows well. But if this is not possible, you can add air conditioning (AC) to the work space. The arrangement of the work space is closely related to the arrangement of the office interior design, good circulation of lighting and ventilation so that it can influence the level of employee comfort in the atmosphere of the workplace environment. [14]



**Fig 1.** Home Workspace Design A (Source : Author Documentation survey).

Figure 1 is an example of a good work space at home because it has lots of window opening ventilation. so that air circulation in the work space can be comfortable even if you don't use air conditioning (AC). The interior design and work desks and chairs are arranged well, making it easier and more comfortable to work. The interior design of this work space uses many wooden elements such as wooden floors, wooden furniture, wooden window ventilation grilles. Wood material is good for tropical areas because it provides shade and is suitable for use in work spaces at home.



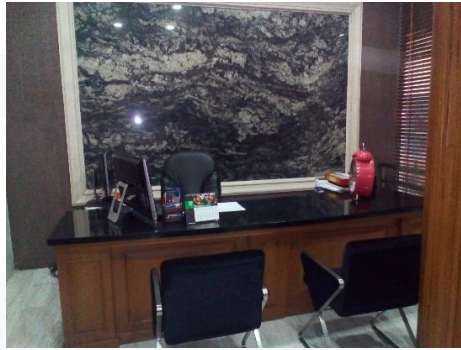
**Fig 2.** Home Workspace Design B (Source: Author Documentation survey)

Figure 2 is a workspace at home that has a good interior design and ergonomic furniture . The work space has ventilation openings above but still lacks natural lighting and ventilation. So use Air Conditioning (AC) is used to for ventilation workspace. Lighting using lamps or electric lighting. In the work space, paintings are displayed so that they can add an aesthetic impression to the work space. The cupboard for storing work documents is also neatly arranged, making it easier to find documents.



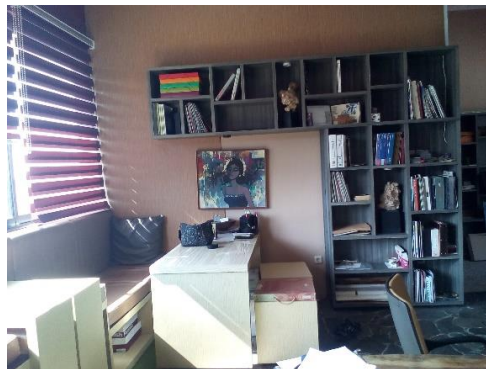
**Fig 3.** Home Workspace Design C (Source : Author Documentation survey)

Figure 3 is an example of the best work space because it can function as a work space but also a place to relax. having a small garden in the work space can create a comfortable and shady atmosphere in the work space so that it makes feel comfortable working for a long time in the work space at home. The work space has lots of windows so you can maximize natural lighting and ventilation. The location of the work space is close to the park so it can increase enthusiasm for work. A pleasant work environment can reduce feelings of bored and easy stress.



**Fig 4.** work space has a function not only for working but for receiving guests related to work.

The work space is well arranged like an office space. the presence of paintings can add to the aesthetic and exclusive impression of an office space. This work space has many windows facing the street so that it can maximize natural lighting and ventilation during the day.



**Figure 5.** Home Workspace Design E (Source : Author Documentation survey)

Figure 5 work space also functions as a library at home. Personal book collections are neatly arranged on bookshelves. The bookshelf design is not monotonous because the top side is

longer so it can maximize the space at the top. The sofa used is also a sofa bed with storage at the bottom. Sofa beds are chosen so that you can lie down, relax while reading a book or completing work. This work space has lots of windows and ventilation so that it can maximize natural lighting and ventilation during the day. Place the work table and chairs close to the window so that if you are bored you can see the view from the window.

Figure 6 work space is open and located in the middle room. The work space not only functions as a place to work but also as a place to receive guests related to work. In the work room there is a glass cupboard which functions as a place to store documents or books. Apart from functioning as a storage area, glass cupboards are also used as room dividers. The lighting and ventilation in the work space is quite good because it is supported by windows and doors.



**Figure 6.** Home Workspace Design F (Source : Author Documentation survey)

From the field review of 6 work spaces at home and literature study, it can be analyzed as follows:

1. A good workspace at home should be separate from the bedroom.
2. Arranging the interior design of the workspace is based on needed and hobbies. The focus is on employee enjoyment. Each person's work space will be different depending on their field of work, activities and pleasure [6]
3. In the workspace can add activities that can improve your mood and work enthusiasm so you don't feel bored for example, the existence of a private library.
4. Add paintings to the workspace that complement the room design to infuse energy into your work.
5. Add plants to your workspace to add a beautiful impression and improve comfort and reduce bored at work. [10]

6. The office space must have good lighting and ventilation with lots of window openings, doors, bouvenlights, grilles so that sunlight can enter and air circulation can flow to add coolness to the space. [9]
7. The workspace at home must be made as comfortable as possible so that employee performance can increase. [3]
8. A good work space is not only comfortable but must also be healthy for workers. [7]

#### **4. Conclusions**

The result research, it can be concluded that the workspace at home greatly determines the success of working from home. If employees have adequate and comfortable work space. This will affect productivity and performance. Employees who work from home must adapt to changes in the working from home system. The work space at home is made as comfortable as possible according to the workers' needs and enjoyment. Determining the design of the work space is tailored to the worker's field of work, activities and hobbies. By designing a work space that is comfortable, functional and aesthetic, it is hoped that workers can be more productive, creative and innovative. Worker comfort is important to increase work productivity.

Performance has been demonstrated to be impacted by a wide range of interior design aspects, including office layout, color, furniture, access to views, distance from windows, and personal control, as well as workplace environment elements including lighting, noise level, indoor air quality, and thermals. [4]

Aspects that must be considered so that the work space at home is comfortable include: arranging an attractive interior design that suits the user's personality, selecting furniture that is ergonomic and in accordance with space requirements and good lighting and air circulation. Feeling comfortable working from home can give rise to creative ideas that can support work and improve employee performance.

#### **Authors' Contributions**

Author is conducting research on how to create a comfortable atmosphere in the work space at home so that it can increase employee productivity and performance. The research choose 6 research samples home workspace with qualitative methods. The research results obtained can contribute to providing a reference guideline for designing a comfortable work space at home for workers who carry out work activities at home.

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