The easy spread of the Covid-19 virus and its fatal effects have caused several Central and Local Governments to reduce activities outside the home including work and school which are replaced with online activities. Lecturers as academics carry out tasks that still have to teach and do Tri Dharma online from home so as to maintain health so as not to infect families but still be productive as a teacher. Based on the formulation of the problem, a descriptive research will be carried out in order to obtain an accurate picture of the field conditions regarding the facts and phenomena being studied. Observations, interviews and data from home owners will form the basis of research and several approaches include non-physical identification and physical identification. The results of this study are to determine the part of the residential room that was developed to anticipate the spread of the Covid 19 virus in the form of implementing health protocols in a residential environment by dividing the rooms of the house and parts of the house that can support work from home.

1. Introduction

The house as the primary human need has a role for rest and a place for shelter to protect oneself from danger. A house that also has various requirements so that it can be categorized as a healthy home such as having good sanitation utilities, access to clean water, air circulation and good natural lighting [1]. Corona Virus Disease-19 (Covid-19) which has developed since December 2019 in Wuhan City, Hubei, China, Since March 14, 2020, the government has made an appeal to minimize outside activities and stay away from crowds so that the transmission of Covid 19 does not spread more. This is due to the easy transmission of the Covid 19 virus so physical distancing is needed such as avoiding crowds so as not to facilitate the spread of this virus. This policy also has an impact on office and teaching activities so everything must be done by working from home, so that all Universitas Budi Luhur lecturers and their families stay healthy.

WFH activities will change the pattern of home activities which were initially only for resting places, so with the presence of WFH the home owner must be able to condition one of the rooms of his house to support WFH activities so that work can be completed professionally, the impact is that the house of Universitas Budi Luhur lecturers will change space requirements the addition of space activities such as the presence of space to work at home [2].

The house is developing rapidly to meet the basic human needs that can support the space needs of its occupants, generally the house has a function of space consisting of private zone, service zone, public
zone and semi–public zone. As in general, a house has principles and elements that form space, namely the space axis where the space axis is an imaginary line that can divide the space so that the home owner can arrange the interior layout of his house. Based on the explanation of the space axis and the function of the space in it, the spatial axis and the function of space in the Universitas Budi Luhur University house who lives in a landed house for this study will be analyzed as an imaginary line that aims to divide the work space for WFH and activities household activities carried out simultaneously by Universitas Budi Luhur lecturers.

2. Research methodology
Research on the distribution of inner space patterns due to work from home was carried out by explaining all the functions of space as well as those in the residence of Budi Luhur university lecturers, which were carried out by online interviews and matching with house plans and described using descriptive qualitative analysis methods.

The object of study is the residence of a woman lecturer in architecture at Budi Luhur University who lives in a landed house. Criteria for building objects and research subjects are as follows:

- A building that is a residential house is a building in a housing built by a developer, this aims to ensure that the building built by the developer will be designed by an architect.
- The building that becomes the object of study has a room with the function of a private zone, semi-public zone and public zone, not a house with a studio type.
- While the research subjects are several female lecturers who work at the Faculty of Engineering, Budi Luhur University, the consideration is that a woman who works professionally must concurrently be a housewife who has to supervise her children from school from home (SFH).
- The reasons for choosing women as research subjects are women as managers of their homes and to find out the considerations for choosing a room that is a place to carry out WFH.

![Figure 1. House location first research object.](image-url)
3. Results and discussion
The object of study in this study uses residential houses that are located in residential areas built by real estate developers. The majority of families living in this residential area are young families who have just had children under five years of age or school and consist of the main family (father, mother and child) with a marriage age between 1 - 10 years.

3.1. Mrs. NF S.T., M. Eng House’s
Mrs. NF’s residence is in the Kiara Payung Residence housing which is part of the cluster of Puri Beta II Housing, Mrs. NF’s house is included in type 90, which has a building area of 62.24 m² and a land
area of 90 m² in Mrs. NF's house which is inhabited by 4 people, Mrs. NF herself Her husband's name Mr. K, her daughter, named SMA and a nanny to care SMA named BEJ. Ms. NF's workplace is affected by the Work from Home policy, so she only works four days a week.

The work from home which is the issue of this research is centered on the front bedroom which was changed by Mrs. NF's and Mr. K into an alternative place to work from home, this is due to the spread of the Covid 19 pandemic which is getting worse, meanwhile professional demands in work continue. Mrs. NF's, who works as a lecturer and Mr. K who works in the informatics engineering sector, is ultimately affected by doing work from home, even though there are differences in allocations in doing work from home. Mrs. NF's has a work from home allocation five times a week, while her husband Mr. K gets a work from home allocation only on the 2nd and 4th weeks of each month.

The impact of this work from home activity is that the function of space in Mrs. NF's house is increased in the form of a room specifically dedicated to work from home, as a result this addition has replaced the front bedroom. The consideration of changing the front bedroom into a room for work from home is the size of this room, the front room has dimensions of 2.4m x 2.9m, this makes this bedroom the smallest bedroom among all the rooms in this house.

3.1.1. Space axis. During the Covid 19 pandemic, the position of the laundry room became very important, because when residents of the house who had just been doing activities outside the house would go straight to the bathroom to clean themselves, and bring their clothes directly to be washed to avoid various viruses or bacteria. Based on Figure 5. It can be seen if the home owner who is just doing outdoor activities has to pass through the living room and family room to get to the bathroom with a checkered area and cannot be more than that area because at this time it is the most critical period, the protocol that applies is after leaving the house must immediately go to the bathroom, must not sit, or touch anything, the floor that is stepped on must be immediately mopped to keep it sterile.
3.1.2. Zoning. The house that is inhabited by Mrs. NF is a house that was built by a housing developer. During the Covid 19 pandemic, which forced you to work from home, home was the last line of defense to take shelter with your family after carrying out several health protocols when going into the house after leaving the house. To find out the Zoning of Mrs. NF's house, it can be seen in Figure 6 below.

Based on Figure 6, it can be seen that Mrs. NF's house has a laundry room which is part of the service zone which was originally a garden, but because there are often wild animals that like to enter through the roof of the house such as cats, rats, this park is covered with an additional roof and used as a roof a special room for washing. The position of this laundry room is the central space for the service zone because it is located opposite the bathroom / WC, and next to the kitchen. Based on figure 6, we can see the service area in Mrs NF house located in backside of her house. This situation give the advantage when someone doing the health protocol can centralized only in back area.

Figure 5. Space axis in Mrs NF House’s.
3.2. ADS. ST., MT. House’s

Mrs. ADS’s house is located in the Winong Permai housing complex, East Sudimara, Tangerang City. Mrs. ADS’s house has a covered building area of 67.9 m² and a land area of 105 m². There are five residents of Mrs. ADS's house, consisting of Mrs. ADS, her husband Mr. JR, her son AAR who is currently 10 years old and is currently in grade V elementary school, the older sister of Mrs. ADS is named Mr. BR and Grandma from AAR who is the mother of Mrs. ADS named SD. In ADS’s house has a maid who has been working since 2006 but the working hours are only from 05.30 am to 06.30 pm after which the household assistant will come home. The house inhabited by Mrs. ADS is a house built by a developer in 1997, some of the space functions in this house really support the flexibility of the room. As an example for the living room, because Mrs. ADS and Mr. JR rarely receive guests, the living room is converted into a family room equipped with a television.

Then for the living room, which can actually function as a family room, it is transformed into a dining room complete with a dining table. This dining room is also often a family gathering place during holidays such as Eid. During the Covid 19 pandemic, this room became the center of work from home activities by Mrs. ADS, this is because this dining room has a strategic distance so that you can see the conditions around the house. During the Covid 19 pandemic, Mrs. ADS's workplace implemented a work from home policy three times a week. When working from home, Mrs. ADS does not have a special room, this is because Mrs. ADS prefers a very flexible place such as at the dining table or in her bedroom. Based on the selection of the two rooms, they have weaknesses and strengths in each place. For example, when choosing a bedroom as a place to work from home, the advantages are a place that is more private, there is an electric socket for the laptop, and there is air conditioning which makes working more comfortable.

Meanwhile, the lack of work from home from the bedroom is that when there is a webinar or online meeting the room will be visible via a webcam, then the artificial lighting in the bedroom is a little dim considering that the bedroom does not require strong artificial lighting, so it has a bad impact on eye
health in long-term. However, if work from home is done in the dining table room, this room has advantages in accessibility and a view that can oversee the entire house because it is located in the middle of the house but has the disadvantage of not having an electric socket in the dining room, so when her work from home, time of Mrs ADS is very limited in doing work from home depending on the remaining battery power reserve on her laptop.

Figure 7. Work from Home location in ADS’s House.

3.2.1. Space axis. The space axis is closely related to the circulation of the inner space, Mrs. ADS’s house has a space axis that precisely divides the imaginary house that connects the front porch to the back porch, which is formed between the family room door and the dining room door which looks quite clear. During the Covid 19 pandemic, this space axis played an important role in mapping and limiting the space for movement even though only imaginatively for family members who had just arrived and had to carry out health protocols in the backside toilet and not to other rooms.
3.2.2. Zoning. The majority of space zoning in Mrs. ADS house is dominated by public zones on the terrace, carport and yard. Then the second largest inner space zone after the public zone is a service. With the existence of a service zone that is quite wide, it is related to flexibility where this flexibility can be used as a place for sanitation to run health protocols. The service area in Mrs ADS house located in backside of her house. This situation gives the advantage when someone doing the health protocol can centralized only in back area. To see the space zoning in Mrs ADS's house, see Figure 9.
3.3. Mrs. IM. S.S.Y.M., S.T., M.T. House’s

Mrs. IM. S.S.Y.M.’s residence is located in the Sawangan Village Cluster Jasmine Blok F Housing. Mrs IM. S.S.Y.M.’s house has a building area of 60m$^2$ and a land area of 90m$^2$. The residents of Mrs. IM. S.S.Y.M.’s house consist of three people consisting of Mrs. IM. S.S.Y.M., her husband Mr. BP and her daughter named BL, currently 8 years old and currently in grade II elementary school. Mr. BP is an entrepreneur in construction sector which has been initiated by CV. Virgo Aditama who uses his house for activities and runs his startup company. Mr. BP’s activities are uncertain because going out of the house or doing work from really depends on the conditions of the project he is running. For health protocol measures in the family, Mrs. IM. S.S.Y.M. uses the second bathroom. With the implementation of work from home, Mrs. IM. S.S.Y.M. has a special room to support work from home, as well as BL who has to do school from home. Work from home and school from home are implemented in a special room that is used jointly by all family members in turn.

Mrs. IM. S.S.Y.M house’s does not have significant room flexibility; this is due to the spatial arrangement in Mrs. Mrs. IM. S.S.Y.M house is quite appropriate between the designation of space and the activities it facilitates. The guest room in this house is intended for guests when a colleague of Mr. BP comes. Then for the dining room and kitchen it is in accordance with the designation of the room. Then the workspace obtained from removing the bedroom wall, until now has become an area for work.
and very facilitates when there is work from home and school from home. The choice of the front bedroom to be the place to work is because this room is the smallest area, which is 9m² when compared to the main bedroom which has an area of 10.5 m². In addition, this workspace on the right can see the condition of the front of the house because there are windows. As for the view or view of the workspace, it does not have a view because the work table is facing the wall of the house.

![Diagram](image)

**Figure 10.** Flexibility Space in *Mrs. IM. S.S.Y.M* ‘s House’ s.

### 3.3.1. Space axis

The axis of Mrs. IM. S.S.Y.M ‘s house is located in the middle of the house imaginatively; this axis line is formed because of the two bedroom walls. Because the front bedroom has been removed, the space axis in this house is unclear and only focuses on the dining room and kitchen. Based on figure 11 So that the asymmetrical shape of this building is not clearly visible.

The configuration of Mrs. IM. S.S.Y.M’s house is very good for the health protocol stage, this is because there is a faucet in the carport while the position of the toilet / WC is on the side of the house, the impact is that the distance from the entrance to the toilet is relatively close so it can reduce the risk of spreading the Covid 19 virus.
3.3.2. Zoning. The space zoning at Mrs. IM. S.S.Y.M ‘s house, which is located in the Sawangan Village Housing, initially had two bedrooms so that there were two private zones, but due to the need to support Mr. BP’s work, the wall in the front bedroom was torn down to make it a work space. As a result, the private zone in this house is reduced and the semi-private zone becomes wider. The function of this semi-private zone aims to receive guests, carry out various work related to projects handled by the company owned by Mr. BP.

During the Covid 19 pandemic, house zoning at Mrs. IM. S.S.Y.M ‘s house did not change much, it's just that there is a policy related to a mutually agreed upon health protocol, namely that new family members from outside the home must implement health protocols such as washing their feet and hands on the faucet in the carport, then clean the body in bathroom 2 which is the service zone.
Based on the results of home research subjects owned by female lecturers, they have the following results:

- **Space function.** The function of space in residential houses that are occupied by female lecturers is in the form of residences and some have additional functions such as offices that are not very visible physically. The function of the room is generally a terrace, living room, dining room, kitchen, bedroom and service room.

  The pattern of the interior space is always started by the living room which is one with the family room, this function of this space aims to gather all family members and the family room also functions as a dining room. Meanwhile, the bedroom is in the middle of the house and generally has two rooms which are always next to each other, and one of the rooms is always in the front room facing the street. The bathroom tends to be in the back of the house or on the side of the house, if the bathroom is at the back it will function as a place to wash clothes. While service areas such as kitchens and warehouses are mostly in the back, but there are also those on the side so they have direct access to the terrace so that they have natural ventilation.

- **Space orientation.** The space orientation in housing built by real estate developers tends to be homogeneous, this can be seen from the grouping of spaces with the same zoning, such as adjacent bedrooms and adjacent service rooms. This space orientation also has an influence when choosing a room to do work from home, this is because when choosing a room to work from home it will sacrifice one room and in general is a bedroom. In addition, the space
orientation when choosing a room for work from home is a room that can monitor the entire home environment or monitor children's activities while playing or studying.

- **Space zoning.** Zoning of the room in a female lecturer residence always starts with a public area such as a terrace or living room, while for a family room which is a semi-public zone, it is limited by an imaginary line in the form of a circulation zone that can access private zones such as bedrooms and service zones such as kitchens, rooms, shower / WC, warehouse.

- **Circulation.** The circulation in the house which is the object of study has only one circulation flow, namely through the living room door, and is linear during the pandemic, this circulation flow aims to limit the movement of family members who have just traveled to immediately clean themselves in the bathroom and wash their clothes.

Based on the results of the study and the elaboration on flexibility space, zoning and the space axis at the house which is the object of research, it can be seen that the house's anticipation for a pandemic is still lacking, this can be seen as follows:

- Every family member who has recently traveled must enter the bathroom to carry out health protocols but must go through the space axis of the house which must pass 2 - 3 room functions, so it is quite risky for residents who do not travel.

- The room chosen to do work from home or school from home is a room that must be able to oversee all home activities both inside the house or outside the house. However, during the implementation of work from home, a special room / area is needed so that the focus on work is maintained and should not be disturbed by household activities so that work targets can be met.

- Each house does not yet have a special place to carry out sterilization and does not yet have room for independent isolation along with the plan when a family member is positive for Covid 19.

4. **Conclusion**

Housing developed by the developer has zoning and spatial functions that support not only primary functions, but also secondary and tertiary functions. However, with work from home and school from home activities to prevent the spread of the Covid 19 virus, home functions will increase due to professional demands. The choice of a place to work from home for a housewife who is also a lecturer in addition to considering work comfort, but also considering the achievement of other rooms so that they can pay attention to all activities carried out by family members, especially children who are under - age. Another consideration for choosing a place to work from home is the closeness to their children who are also doing school from home so they can keep watch over their children who are in school.

The process of creating a work from area uses smaller rooms, while the room used is a bedroom that tends to face the front of the house. This is what makes choosing a work from home space besides being able to supervise family members but being able to observe their surroundings. Other activities at home that prevent the entry of the Covid 19 virus, the existence of a health protocol that must be adhered to, it is necessary to develop an area that is very dependent on the presence of a bathroom or water faucet. The area that is used is a room that has a faucet to wash a car or motorbike such as a carport, after clearing up briefly, just enter the bathroom and put the clothes used in the washing room.

**References**

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[2] Hitch C 2020 *Working from home 'the new normal'*