Study of Type 36 Housing Layout System, Case Study: Southscape Cluster Paradise Serpong City

Herlina¹*, Eddy S. Marizar², Titin Fatimah³, Rudy Trisno³, Naniek Widayati Priyomarsono³

¹Magister Architecture Student and Interior Interior Design Department, Universitas Tarumanagara, Jakarta, Indonesia
²Interior Design Department, Universitas Tarumanagara, Jakarta, Indonesia
³Architecture Department, Universitas Tarumanagara, Jakarta, Indonesia

*karlai.herlina@gmail.com

Abstract. This research aims to determine the layout system on the type 36 house in the cluster of Southscape Paradise Serpong City whose family consists of four people so that the existing house can accommodate the needs and activities of residents optimally. This research uses descriptive qualitative research method. Research data consist of primary data and secondary data. Primary data is sourced from the informant, which is a family of four and lives in house type 36 Cyprus Cluster Southscape Paradise Serpong City. Primary data collection is done through documentation, written descriptions and in-depth interviews. Secondary data comes from books, journals and the internet. Secondary data collection is done by sorting and processing data related to interior design, especially regarding layout and furniture design system. The data that have been collected are then analyzed to produce the research findings. The findings of this study indicate that type 36 homes can meet the space requirements of a four-member family through optimization with a tight layout system with layout types unit with adjacent subsidiary unit, overlapping grid, cluster, single-loaded and double-loaded corridors.

1. Introduction

Basic human needs consist of clothing, food and housing. Houses not only function as a means of residence, but also as a means to humanize humans as a provider of peace of life and the center of human cultural activities [1]. The definition of a house according to Law No. 4 Article 1 of 1992 concerning Housing and Settlements is a building that functions as a place of residence or housing and facilities for family development. Type 36 housing or small type housing according to the Decree of the Minister of Public Housing No. 04 / KPTS / BKP4N / 1995 concerning Guidelines for the Construction of Housing and Settlement with Balanced Residential Environment is a house with a floor area of 36 m² and at least has a bathroom with WC (water closet) and multipurpose room. Some Indonesians are still in a middle class economy makes type 36 houses very popular, but type 36 housing have limitations in terms of space and land that can be utilized. This greatly affects the capacity of the number of family members who can be accommodated inside the house [2].
Type 36 houses are residences that place great importance on space effectiveness [2]. In general, the occupants of the house choose and buy the preferred furniture at the store according to their individual tastes, then put it on an estimation basis [3]. The treatment also happened to type 36 house at the Southscape Paradise Serpong City (PSC) cluster, where homeowners chose the preferred furniture in the store and positioned it at home based on estimates without thinking of limited space and land. So furniture generally only has one function so that the amount of furniture needed becomes very much, making the space feel increasingly narrow and disturbing the circulation in it [4]. This is what causes the occupants to feel that the existing area of the house is not able to accommodate the needs and activities optimally, especially for families with four members. Through the right layout in accordance with the zone and its needs, type 36 houses are actually able to accommodate all the needs and activities of the occupants [2]. Through the above explanation, researchers are encouraged to study the layout system in type 36 house in the Southscape PSC cluster so that all the needs and activities of the residents can be accommodated even with limited area.

2. Material and Method
The design of this study uses descriptive qualitative methods. Qualitative research methods are ways to describe and analyze a phenomenon, event, activity and perception both individually and in groups [5]. Descriptive qualitative research methods not only describe (analysis), but also integrate (synthesis) [6]. The scope of the qualitative method is as an empirical data collection, the results of interviews, observational texts, and visual data. This is a particular tradition in social science and is very dependent on human observations relating to certain people in their environment [7]. The type of data and information extracted in this study is a type of qualitative data. Qualitative data is data that is expressed in the form of expressions or words. Based on the method of acquisition, primary and secondary data in qualitative research can be divided into three types, namely:
a. Observation Results, in the form of a detailed description of the situation, events, interactions and behavior observed in the field;
b. Results of the Discussion, in the form of direct quotes from source statements regarding their experiences, attitudes, beliefs and thoughts through in-depth interviews;
c. Written Material, in the form of passages or whole documents, correspondence, recordings and historical cases [8].

Primary data is data sourced directly from informants, a family of four and living in a type 36 house in Cyprus and Callista Cluster South Scape Paradise Serpong City. Secondary data is data that is processed by researchers sourced from various books, journals and the internet. The majority of the books and journals that are used are those that talk about planning the layout and design of furniture systems. The collection of primary data and information is done through documentation in the form of photographs, sketches, written descriptions and in-depth interviews. Photos were taken using a camera, measurements were made using a meter and sketches were made to clarify the data in the field.

Analytical instruments are formed from theories that have been obtained and summarized. Analytical instruments use theories about home, space, design process, layout, furniture, shape and human factors. Layout analysis instruments use theories about the design process, especially at the design analysis stage as advanced analysis methods to produce more complete and comprehensive recommendations. In the design analysis phase, a rough sketch of the layout can be started by developing it from the diagram (conceptual) to the final result in the form of layout [9].
Figure 1. Layout Design Process

3. Results and Discussion
Paradise Serpong City is located in South Tangerang City. More precisely this housing is located at Jalan Raya Puspitek, Serpong, Babakan Setu. Paradise Serpong City has several clusters in it, one of which is the Southscape Cluster. In this cluster there is type Cyprus, with land area of 50 m² and building area of 36 m². Through field assessments, it was discovered that the two houses that were the object of research initially had a back garden area. This area was later renovated as an attempt by homeowners to expand the house. On the Cyprus type house, the renovated area was used as a kitchen and warehouse. In the Callista type house plan, the renovated garden area is used as a kitchen and laundry area.

Figure 2. Backyard Renovation in Cyprus House Type as a Way to Add More Space

Although the area of the house samples has experienced an expansion, the occupants still feel that the area is not sufficient for their needs. Based on the theory, this problem occurs as a result of:

a. Space architectural elements that are not well understood so that the potential modifications to improve the quality of space are not seen;
b. The generalized division of space by the developer thus raises problems for both families, where the family has different needs from other people in general, namely four family members and often receive guests;
c. Residents do not plan the layout so that the existing space utilization becomes not optimal and cannot meet the needs of the occupants physically and psychologically;
d. Layout is based on estimates only without regard to the key in layout planning, namely spatial relationships, spatial strategies and circulation strategies.
Based on the description above, it is necessary to have a layout analysis in both home samples to find a layout system solution for both. This is done so that the existing home area can meet the needs of residents and activities optimally. The analysis is carried out directly into the 3rd stage in the layout planning process, namely planning a layout that already has a space division (preliminary plan). This is caused by several things, such as architectural elements that cannot be changed to avoid expenses for renovation and limitations of research time. One factor that requires special attention in planning furniture layout is the circulation strategy. In the research object, the circulation strategy used is line with branches. This circulation strategy is a circulation that provides access to several goals. The circulation diagram shows that the circulation in the house is direct, can be achieved easily and with the shortest distance. These factors are in accordance with the requirements of a good circulation strategy, so researchers continue to use this type of circulation strategy and do not make changes.

Figure 3. House Circulation Diagram in Cyprus Type
Cyprus type homeowners position furniture purchased from stores only based on estimates and without considering the following spatial factors:
1. Spatial relationship between humans and furniture;
2. Spatial composition between furniture and interior space;
3. Spatial relationship between various types of interior components;
4. Spatial extension based on the form of furniture.

Houses with limited space are houses that place great importance on space effectiveness, therefore ignoring these spatial factors results in various problems after the house is occupied. Furniture layout planning is needed in Cyprus type sample houses to produce regularity, occupant comfort, optimal space utilization and functional space so that it can meet the needs of its residents both physically and psychologically. A strict layout is applied to homes with limited space to optimize space in order to produce greater space efficiency and space volume. Strict layout has characteristics, namely the compression between the nature of the activity and the layout of the equipment and equipment. The compression can be produced through a combination of various methods, one of them by combining several functions of furniture.

Table 1. Furniture Layout System Analysis for Cyprus House Type

| No | Room                | Existing Furniture Layout | Difficulties due to existing layouts | Proposed Layout Type               | Reasons for Choosing a Layout Type                     | Proposed Application Layout Type in Cyprus House Type |
|----|---------------------|---------------------------|--------------------------------------|-----------------------------------|-------------------------------------------------------|--------------------------------------------------------|
| 1. | Living and dining area | ![Living and dining area diagram](image1.png) | • Have to sit on the floor to do work assignments; • Using a long bench (seating) as a table; • If there are a large number of guests arriving, the owner or guest must sit on the floor due to lack of seats; • It is difficult to sit and dine together with the family at the dining table due to the large number of items placed on the table due to limited storage space. | Unit with adjacent subsidiary unit Make the living and dining area closer with workspace and guest bed | The position of the living room and dining room is brought closer to the existing condition because it has the function of a unit with adjacent subsidiary unit; The sofa and dining room seating are positioned on the left side as an application of the type of single-loaded corridor plan; Red marked area is used as a storage area (overlapping space). |
| 2. | Kitchen             | ![Kitchen diagram](image2.png) | Food preparation area don’t have enough space | Overlapping space Optimization | The ceiling height in a space that reaches 3 m, can be used to increase the height for storage. | Optimization is done by utilizing an area that is only fitted with shelves (marked in red) as an area for preparing food and adding a cabinet height to add storage space. |
| No | Room           | Existing Furniture Layout | Difficulties due to existing layouts | Proposed Layout Type | Reasons for Choosing a Layout Type | Proposed Application Layout Type in Cyprus House Type |
|----|----------------|---------------------------|--------------------------------------|----------------------|------------------------------------|------------------------------------------------------|
| 3. | Master Bedroom | ![Diagram](image1)         | It's hard to do makeup because there is no vanity due to lack of space; Insufficient storage. | Cluster              | The arrangement of the location in the master bedroom uses the type of cluster plan because it does not form a particular pattern but its position is close together in order to meet the needs of its users. | In the main bedroom there is the addition of a dressing table to meet the needs of space users. There is a storage area to get more storage space at the top of the dressing table there is a storage area to get more storage space (overlapping space). |
|    |                |                           | Overlapping space                    |                      | Used to get more storage.          |                                                      |
| 4. | Child Bedroom  | ![Diagram](image2)        | This space is temporarily used only as a guest bedroom. This space will later be used as a child's bedroom when children grow bigger, so that there will be no living room. | Cluster Optimalization | The arrangement of the location in the child's bedroom uses the type of cluster plan because it does not form a particular pattern but its position is close together in order to meet the needs of its users. | The child's bedroom used the type of cluster plan, this considered appropriate because furniture is placed close together to meet the needs of its users, so there’s no changes needed, only optimize empty areas (strict layout applications). |
Figure 4. Proposed Furniture Layout for Cyprus House Type

4. Conclusion
Based on the analysis of furniture layout in the type 36 house sample in the Southscape Paradise Serpong City cluster, it was found that to optimize the house with a limited area, the furniture layout planning must use a layout system:

a. Adjacent with subsidiary unit, so that inter space does not need too far a distance and save space;
b. Single-loaded corridor, to optimize one side of the room;
c. Double-loaded corridors, to optimize both sides of the room with enough width for circulation;
d. Overlapping space, used to utilize ceiling height in order to optimize the use of limited space;
e. Cluster, is used to bring the position of furniture closer to meet the needs of its users.

Layout planning must also be supported by a circulation strategy that meets the requirements of good circulation, namely the circulation with the shortest distance, is direct and can be used easily.

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