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Nursing Home Design Based on User's Needs and Behavioral Patterns

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Abstract*: Life expectancy in Indonesia has significantly increased. The 2010 census shows that the Indonesian population has a life expectancy of up to 70.7 years. As for Medan, life expectancy increased to 73.14 in 2020, with 129,063 older people. The number of residents is considered unbalanced with the number of available nursing homes, and there are still few nursing homes with adequate facilities. Nursing homes are also often seen as an act of alienation for the elderly; they are considered harmful. Therefore, nursing homes will implement a behavioural architecture, which is an architecture that, in its application, always includes considerations of user behaviour in its design. This research aims to make a nursing home a facility that can make the elderly comfortable and safe by considering their needs and behaviour patterns. The method used is a qualitative approach in which data is collected through observation, field surveys, literature studies, and comparative studies. The results show that the design of the nursing home must support and meet the needs of the elderly, who tend to require their territory, need an area with a good view, a bright and quiet environment, and can socialize easily. The results of this study can be used as a basis for designing nursing homes in the future.*
Keywords: nursing homes, elderly, behavioural architecture, elderly behaviour, design

Abstract : Angka harapan hidup di Indonesia telah meningkat secara nyata. Hasil sensus 2010 menunjukkan bahwa penduduk Indonesia memiliki harapan hidup hingga mencapai usia 70,7 tahun. Adapun pada Kota Medan harapan hidup meningkat yaitu di angka 73.14 pada tahun 2020 dengan jumlah penduduk lanjut usia (lansia) yaitu sebesar 129.063 jiwa. Banyaknya penduduk tersebut dianggap tidak seimbang dengan panti sosial yang tersedia serta masih sedikit panti sosial yang memiliki fasilitas memadai. Panti sosial nursing juga kerap dipandang sebagai tindakan pengasingan para lansia sehingga kerap dianggap sebagai hal yang negatif. Maka dari itu,Panti Sosial Nursing akan menerapkan Arsitektur Perilaku, Dimana arsitektur perilaku merupakan arsitektur yang dalam penerapannya selalu menyertakan pertimbangan-pertimbangan perilaku pengguna dalam perancangannnya. Tujuan penelitian ini adalah untuk merancang panti sosial nursing sebagai fasilitas yang dapat membuat lansia nyaman dan aman dengan mempertimbangkan kebutuhan dan pola perilaku pengguna. Metode yang digunakan adalah pendekatan kualitatif yang mana data dikumpulkan melalui observasi, survei lapangan, studi literatur dan studi banding. Hasil menunjukkan bahwa perancangan bangunan panti sosial nursing harus mendukung dan memenuhi kebutuhan para lansia yang cenderung memerlukan teritorinya sendiri, menginginkan area dengan view yang baik, lingkungan yang terang, tenang serta dapat bersosialisasi dengan mudah. Hasil penelitian ini dapat digunakan sebagai dasar bahan kajian dalam perancangan bangunan panti sosial nursing.

Keywords: nursing social institution, elderly, behavioural architecture, elderly behaviour, design

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Introduction

Elderly humans are said to have experienced degenerative or decreased body functions, so facilities are needed to support these changes. Changes in body size and function, as well as changes in attitude, encourage the creation of a tool that can answer these problems. This situation will affectfulfilmentlment of daily needs independently (Turana, 2013). Medan City has an elderly population of more than 7.7%, which will increase yearly. Meanwhile, according to the Central Bureau of Statistics for the City of Medan (2020), Medan Selayang has an elderly rate of around 6.68% of the total population of Medan Selayang District, or a total of 7,427 people out of a total of 111,052 people with 49.2% being older men and 50.7 % are older women. The increase in the life expectancy of the Indonesian population, accompanied by a decrease in the fertility rate, has triggered a rapid increase in the number of elderly Indonesians. This condition has consequences for the emergence of various problems related to physical, spiritual and socio-economic conditions for the elderly and, if not treated immediately, can become a national problem (Ministry of Social RI, 2002).

The law of the Republic of Indonesia number 13 of 1998, article 4, states that efforts to increase social welfare aim to extend life expectancy and productive period. Also, realize self-sufficiency and prosperity, maintain the system of cultural values and kinship of the Indonesian nation and draw closer to God Almighty. One. However, This has not been fulfilled in the city of Medan, especially in the Medan Selayang sub-district, where there are no facilities for the elderly to do activities or adequate housing or social institutions. Moreover, nursing is often seen negatively by the elderly as an act of neglect or alienation for the elderly placed in the nursing home, so the elderly feel less comfortable and happy there.

In fulfilling the functions of various activities and facilities that pay attention to the aspects of effectiveness, safety and comfort of a room for the elderly, a design with the theme of Behavioral Architecture is applied. According to Snyder & Catanese (1984), behavioural architecture can respond to human needs and feelings and adapt to its lifestyle. In other words, Behavioral Architecture pays attention to the patterns, behaviour and habits of its users, namely the elderly, and creates a space or building to be more efficient. The purpose of this study was to produce a design for the Nursing home that can accommodate the needs and activities of the elderly according to their behaviour by considering the user's needs and behaviour patterns. It is expected to realize equal rights between the elderly and the general public regarding nursing homes and adequate health and care services, as well as improve quality and provide positive perceptions of the nursing home by implementing a behavioural architecture.

The behavioural approach emphasizes the dialectical relationship

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between space and humans and the society that utilizes or inhabits that space. This approach emphasizes the need to understand human or community behaviour (which varies in each region) in utilizing space. Conceptually, the behavioural approach emphasizes that humans are thinking beings with perceptions and decisions in their interactions with the environment. This concept thus believes that the interaction between humans and the environment cannot be interpreted and mechanistically but rather is complex and tends to be seen as "probabilistic". Within this complex interaction, the behavioural approach introduces what is known as the cognitive process, namely the mental process in which people acquire, organize, and use their knowledge to give meaning to the space they use (Haryadi & Setiawan, 2010). In other words, this approach sees that different aspects of society's norms, culture, and psychology will produce different concepts and forms of space (Rapoport, 2000).

Behavioural Architecture is also an architectural concept that integrates indoor and outdoor spaces (Luly et al., 2020). The theory of behaviour in architecture related to the elderly is used as a design emphasis because the elderly have physical, psychological and social conditions—spiritual differences from productive age (Krissanti et al., 2017).

Behavioural architecture has behavioural principles that must be considered in its application, including 1) Being able to communicate with humans and the environment. 2) Accommodate the activities of its residents comfortably and pleasantly (Physically and psychologically comfortable. Physically and physiologically pleasant). 3) Pay attention to the conditions and behaviour of users. The word behaviour shows humans in their actions, related to human physical activities, in the form of human interactions with each other or with their physical environment. 4) The shape and style of the building follow the pattern of the user and the user's environment (Form Follows Function, see figure 1). On the other hand, architectural design produces a physical form that can be seen and touched. Therefore, architectural design results can be a facilitator of behaviour and a barrier to behaviour (Tandali & Egam, 2011). The similar thing was stated by Mazaya et al., (2020) that the physical environment in the form of building design and the outside of the building could influence a person's behaviour. The relationship between environment and behaviour is as follows: 1) Environment can influence behaviour – the physical environment can limit what humans do. 2) Environment invites or induces behaviour – the physical environment can determine how we should act. 3) The environment forms personality. 4) The environment will affect self-image. The terminology is defined as a Building or object shape should be primarily based upon its intended function or purpose, where the shape of a building must be adapted to its intended function. The word Form Follows Function was introduced by Louis Henri Sullivan in 1896 in one of his articles, The Tall Building Artistically Considered. Therefore, the masses' composition or formation must be based on the spatial needs and functions, making it easier for the elderly to use the building comfortably.

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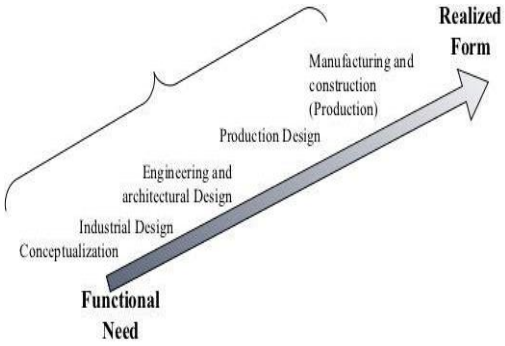

Figure 1 Illustration of Form Follows Functions (Source: Pathak, 2012)

In connection with the influence or influence relationship between humans and their physical environment, there are four views related to the extent of the influence of architectural design on human behaviour as users, including the Free-will Approach. This approach argues that the environment does not have any impact on behaviour. It was clarified that since humans have firm boundaries as biological beings, this situation cannot be maintained any longer. Architectural Determinism (Architectural Determinism). This term is sometimes referred to as physical determinism or environmental determinism. Environmental Possibilism. Another perspective on the influence of behaviour in the built environment has developed as a reaction to architectural determinism.

Rather than assuming that the environment ultimately determines behaviour (as in determinism), the concept of environmental contingency views the environment as a place where behaviour will occur. The environment opens vast opportunities where human behaviour can occur or otherwise cannot occur. However, humans are only partially free to make their choices because each individual has motivation and competence that are at least not influenced by the natural environment, social environment, and cultural environment. According to this concept, the behavioural outcomes we choose are determined by our environment and choices (Bell et al., 1978; Lang, 1987).

Between the determinist and possibility positions in architecture and behaviour, there is also another orientation, namely environmental probability. In comparison, determinism assumes that the environment determines behaviour absolutely, and the possibility that the environment plays a significant role in individual choices makes it difficult to make predictions about the influence of the environment on behaviour. Probability is a compromise. This concept assumes that organisms can choose a variety of responses to various environmental situations and at that time, probabilities arise related to design case examples with specific behaviours. This probability reflects the influence of non-architectural factors, such as design and behaviour influences.

Methods

The data collection types and techniques in the nursing home design are descriptive-qualitative. Two types of data will be analyzed in this design process: primary and secondary data.

Primary data is data collected based on observations regarding objects or problems that exist directly. Primary data is obtained through direct observation or surveys and documenting the site and the area around the site. Observations on the site include the following aspects: 1) Conditions on the site. 2) Potential problems on the site and the area around the site. 3) Access and circulation on the site. 4) Existing facilities and infrastructure needed by the site. 5) Limits on the site. 6) Climate on the site (such as seasons, wind, sun and others). These aspects are then documented in writing, drawings/illustrations and photographs

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to be considered and evaluated for site analysis and design.

Furthermore, secondary data was obtained through literature searches such as books, standards or regulations regarding buildings, journals, and comparative studies of buildings with similar functions. The literature sources used must have valid information and sources to support the design of a Nursing home.

The scheme or stages in designing the nursing home with the application of a behavioural architecture begins with identifying existing problems and backgrounds, then collecting valid data and analysis. After the analysis is complete, the results of the analysis will be considered and become a design concept. The design scheme can be seen in Figure 2

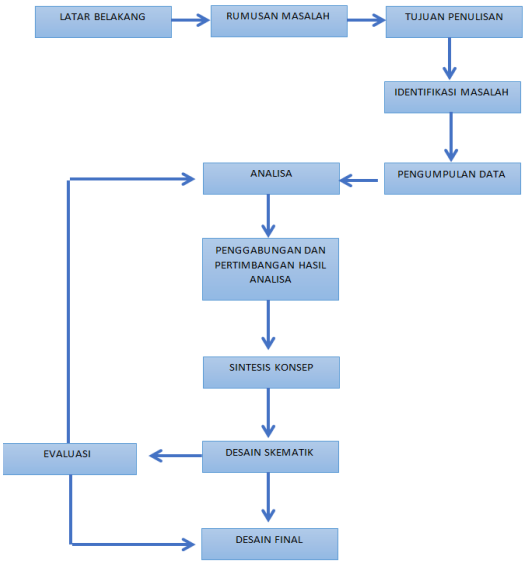

Figure 2. Design scheme (source: author, 2022)

Results and Discussions

Elderly Behavior and Activity Patterns

The elderly is categorized as a person over 60 years old (according to articlearArticleticle I, paragraph 2 of Law No. 13 concerning health) with certain limitations that can hinder their daily activities in meeting their needs and socializing. Meanwhile, according to Evian Devi in the journal Nursing Home Spatial Planning Patterns Based on the Activities and Behavior of its Occupants (2016) and the results of researchers' observations of the elderly, in general, the elderly have the behaviour or characteristics described in table 1 below as follows.

From table 2, it can be observed that the elderly are degenerative both physically and in their senses. As for behaviour, it tends to be more emotional, so it needs special care and cares with facilities and space according to its needs. The most important thing in designing the nursing home is how aspects of safety and comfort for users can be met, such as good lighting and ventilation, as well as the presence of *handrails* and *ramps* to make it easier for the elderly to access or carry out their activities.

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Table 1. Characteristics of the observed elderly

Characteristics of the Elderly	Building safety and comfort criteria
Biological	
Use assistive devices when walking	• use hand rails in public spaces that can be accessed by the elderly and in residential units • Provide wheelchair circulation • Sharp corners for buildings and furniture • Flat floor. Using a *ramp* every time there is a floor difference
Easily tired	• Provide seats with every few meters on long circulation • The distance between rooms is relatively close
Lack of balance	• Using towel l • Using a non-slippery floor material • Blunt furniture corners
Problem with Visibility	• Some markers can be seen clearly • Use of different textures
The ability of the eye to adjust to the light in space	• Avoid making space that is not exposed to direct sunlight • Maximize aperture
Difficulty in distinguishing objects	• Use bright and contrasting colours
Memory and hearing decline	• Unwinding circulation • The use of different colours and textures in certain rooms • There is a means of communication
It needs healthy air and a comfortable temperature	• Having good openings and views and ventilation of at least 5% is appropriate • Comfortable room temperature (about 16-25 degrees)
Vulnerable to fall	• Provide an alarm in the building or bedroom • The room is bright to minimize falls • Use anti-slippery hand-rail and floor material.
Easily sick and dependent on drugs	• There are health facilities that can prevent or recover the elderly.
Psychological	
Requires privacy	Have a private unit that can be used privately
Easily emotional, depressed, easily anxious	Consultation with psychologists and the presence of daily nurses who support the elderly
Requires calm n	• Requires a space that is not too noisy • Make the water flow to create a calm atmosphere
Have interactive activities to divert the mind	• Having an area for activities or developing skills, *hobbies* and talents of the elderly • Having a space or area that can restore the emotional state of the elderly, such as a therapeutic garden
Social	
The desire to be understood and cared for	Living in an area that is as emotionally supportive as other seniors and medical personnel who provide support
Desire to interact	There is an area for interacting in a comfortable group
The desire to remain functional in society	Some activities can produce something beneficial for themselves and the community, and there are community service activities or other volunteers for those who are still mentally and physically able.

(Source: Devi, (2016) *and Research Results, (2021))*

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Space requirements

The capacity of nursing homes must consider the elderly population in the area, with the required bedroom ratio of 4.8 or 5 bedrooms per 1,000 people (Chiara & Callender, 1980). With an elderly population in Medan Selayang totalling 7,427 people, at least the Nursing home must be able to provide a minimum of 36 rooms. The space must be separated according to the mental and physical conditions of the elderly. Based on the function of the building, the spaces available in productive homes for the elderly must fulfil the functions of residential, medical and recreational areas specifically for the elderly (Cicilia, 2019). The space requirements for nursing homes are divided into 4, namely public, semi-public, semi-private, and private.

Basic concepts

The basic concept of a nursing home is how the building can accommodate the needs and behaviour patterns of the elderly and adapt and respond appropriately to users and the environment by applying the Behavior Architecture theme. Buildings are expected to be friendly to the elderly by considering the impression of being "homey" or like being at home so that the elderly feel comfortable, safe and not alienated. Buildings are also designed to be environmentally friendly by implementing sustainability. The eco-friendly concept will be applied to waste and water treatment and how buildings can have natural light and use environmentally friendly materials. Whereas in the homey concept towards its users, this concept will be applied to building placement, internal organization, materials to be used and adapting the building to the needs and characteristics of its users, namely the elderly.

Outdoor concepts

The site's zoning concept is divided into four according to the needs of the elderly, where the front area is used as a parking area for more accessible vehicle users (close distance). Then the semi-public part is used as the main building area, where the main building consists of social areas and health facilities, including the emergency room and geriatric clinic. In the semi-private zone, buildings with the main activities of the elderly are placed, namely dining areas, therapeutic gardens, older people's homes and creative areas. In private areas, worship facilities are placed, namely, mosques where mosques require calm conditions as shown in Figure 3 below:

Figure 3. Site zoning concept (Source: Researcher, 2021)

Mass Construct Concept

According to Ramadhani et al., (2019), the physical aspect (shape) has the most influence on increasing the sense of place to live. It shows the importance of physical environmental conditions in forming a sense of place. So in applying behavioural architecture, the concept of composition significantly influences the user's sense of place. The initial concept of mass starts from a square, where the square will change and respond with an asymmetrical tread formation with the mass formation process as shown in Figure 4 below:

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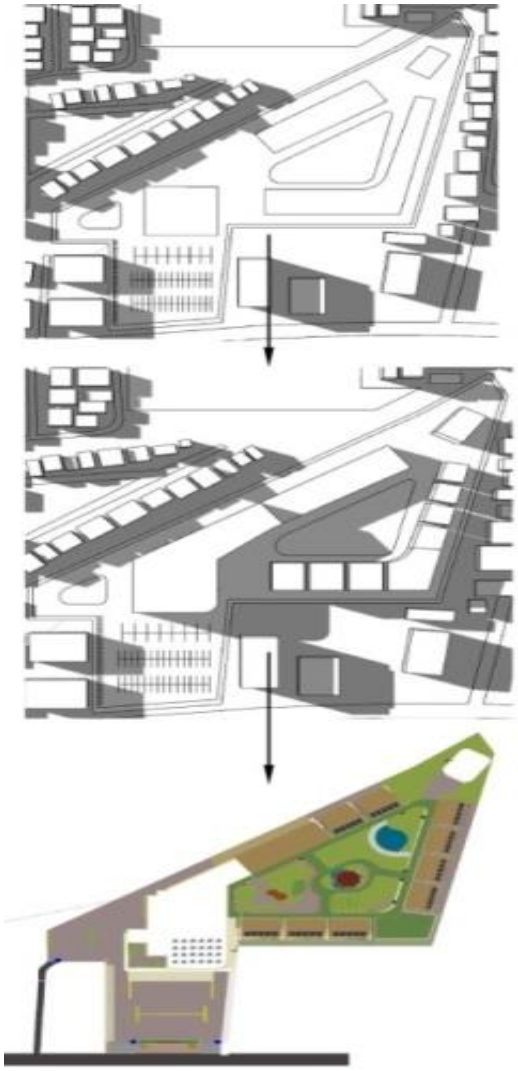

Figure 4. Mass composition (Source: Researcher, 2021)

The square shape will then become a multi-mass where according to the Minister of Health, buildings with health facilities such as clinics must be separated from residences. Therefore the health facilities and the guest house are separated. For a guest house for the elderly, the concept will be like a house where multiple masses can group the elderly on a smaller scale to avoid overcrowding which can cause stress for the elderly. Mass placement will surround the park, making it easier for the elderly to recognize and see other facilities to prevent the elderly from losing their destination. The nursing home will have two floors in the main building, while the guest house, dining area, creative area and Mosque will have a single floor (see Appendix 1).

Design Result

The nursing home building was designed by applying the behavioural architectural theme to the building design. In the ground plan drawings (see Appendix 2 and 3), two accesses to the main building on the site are intended to make it easier for users to get to the building relatively quick. The primary access is on the street of Harmonika Baru on the right side, and the exit access is on the left, which public users can access. The alternative access is on the Street of Dawai, beside the site. This access is intended for medical personnel, services and emergencies. This access is distinguished in order to prevent congestion on the inside of the tread.

For pedestrians, especially the elderly and the elderly with disabilities, a unique road is designed from the sidewalk to the Nursing home building, accompanied by hand-rails and shade to facilitate access to the building, as shown in Figure 5. For the elderly who cannot walk up to the building, there is a social/senior orphanage team that helps the elderly by using buggy transportation (pick-up) (figure 6).

The circulation on the site is linear, and the road to the main door does not have many turns to make it easier for the elderly and does not confuse the elderly, who are prone to forgetting or losing their way. Pedestrian paths are also facilitated with seats every 3 meters for the elderly who feel tired when walking. The circulation in the Nursing home facility is linear or rotating, where the building will surround the central park. This circulation is designed so the elderly can easily find the facilities to address.

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Figure 5. Pedestrian access (Source: Researcher, 2021)

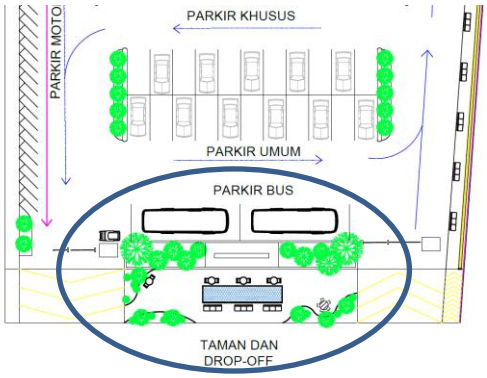

Figure 6. Pick-up and drop-off point areas by buggy (Source: Researcher, 2021)

The circulation between buildings will be open, making it easier for the elderly to know which building to go to and to feel the air and open space (not cramped and not suffocating when walking). They can also return to the central park to look around or the signs provided or to circle the area (without dead ends). Evacuation circulation is located at the back of each building, which is quite broad and leads to an outside area, such as a parking lot (figure 7). The central park also serves as an assembly point during an emergency or disaster. Circulation can be seen as follows:

Figure 7 The design of outdoor circulation to various other facilities (Source: Researchers, 2021)

On the first floor of the main building, there are several rooms designed to facilitate the needs of the elderly (see Appendix 4). Including the lobby area as the main reception area for the elderly, the social area as the prominent gathering place for the elderly, the service area as well as the clinic area and the Emergency Unit (ER).

Every building for the elderly requires an excellent external view (like greenery or a park) in order to prevent stress and as a medium for healing for the elderly. As well as considering that the area around the site is residential housing, the main view of the Nursing homebuilding is a garden, the main one in the middle of the site. View from the back, which is adjacent to residential areas, the area will be used as a back garden (figure 9) and an evacuation route, where the rear garden has a pond with running water and shady plants and plants. So that the view from the site to the outside is more dominant in the designed garden area (see figure 8):

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Figure 8. Therapeutic garden (Source: Researchers, 2021)

Figure 9. The design of the back terrace of the house (back pool) (Source: Researcher, 2021)

Things that need to be considered regarding natural lighting and ventilation are the effect of lighting on low-vision eyes and ventilation for the elderly. Regarding building design, the building must have an outdoor space for elderly activities so that the elderly are not in the room for long periods and can feel natural ventilation (Cicilia, 2019). So, in taking advantage of Indonesia's tropical climate and the outdoor activities considerations and needs for sunlight and fresh air, buildings are given many openings. Such as windows, rosters and semi-outdoor rooms to get wind circulation and natural sunlight which reduces the use of electric power and gives ventilation and natural sunlight. Solar panels are also used as an alternative source of power in buildings so that they can reduce pollution and make the environment and the elderly comfortable in buildings. According to (Dewi & Ekomadyo, 2020), in buildings with relatively high noise, the building is designed by reducing the ratio of openings to walls and windows that are rarely opened.

The concept of vegetation, namely a therapeutic garden in a social institution, is how the garden can become a medium for healing and a stress reliever for the elderly. The therapeutic garden has easy access and short distances. The therapeutic garden area is divided into three parts: 1) Sports areas (such as open field areas, jogging, outdoor sports and mini-golf). 2) The planting area or gardening area is an area where the elderly can freely plant their plants and can pick fruits that are on the trees in that area. 3) Sensory Garden is where the elderly can heal or train their senses with plants. While on the second floor, there is a roof garden specifically for the elderly taking care of the day so they can still enjoy the green area (see Figure 10 and Appendix 4).

Figure 10. Roof garden atmosphere at the main building (Source: Researcher, 2021)

A self-healing garden is provided in the area between one guest house and another. The Self-Healing garden is a separate garden on the side of the elderly house. Unlike the therapeutic garden, this garden can only be used by elderly residents on a small scale (each guest house has its self-healing garden). This self-healing garden aims for the elderly with limited mobility while still enjoying the garden in proximity to the guesthouse.

Two facilities can be used, namely the green section as a planting medium

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and sensory. The bottom area is intended for the elderly to meditate or heal independently and do activities such as walking around the sand area. Sand is designed to prevent excessive impact when the elderly fall.

Interior design for the elderly has several aspects that must be considered. The things that must be considered and understood by the designer are security, convenience, and comfort. The interior for the elderly must have a positive influence and have a good impact on the psychology of the elderly themselves (Hanindito, 2013). In applying behavioural architecture, the main building is the primary access for the elderly and visitors to the nursing social institution. Where in the lobby or administration, it is designed like a comfortable living room with an indoor garden. The lobby area is designed in warm colours with wide openings so that natural light can enter the room so that the elderly who enter the room can still see, or this room becomes a transition of the eye from the outside area to the inside with a homey feeling (figure 11).

Figure 11. Illustration of lobby interior design (Source: Researcher, 2021)

The relationship between rooms in the main building is adapted to the elderly users. Where there are five different areas, namely the lobby and social areas at the front with consideration of user access and circulation, then there is the Emergency Room (Emergency Unit) on the left wing. On the second floor is a geriatric clinic, daycare, laboratory, and management area. The service area must be closed and not visible to the elderly. Therefore the service area is designed at the back of the site. An elevator and ramp to the 2nd floor of the main building have been provided to make elderly circulation much more effortless. The selection of materials for buildings in the form of anti-virus HPL for ceramic wall panels was conducted. The social area is the central gathering point for the elderly, so the social area is designed to be as comfortable as possible with openings such as windows and outdoor social areas. The existence of vegetation, such as parks, can also help the elderly to be able to interact with plants or as an anxiety reliever (see figure 12).

Figure 12. Interior of a social/multipurpose room (Source: Researcher, 2021)

The shared dining area is designed semi-outdoor with many openings such as rosters and windows that can be opened according to climatic conditions to take advantage of natural sunlight and wind, thereby reducing electricity use. The dining area is given a bright colour, such as yellow, with various materials, such as wood, brick and vegetation, which functions as a marker for different areas and gives a warm impression to its users (figure 13).

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Figure 13. Interior of a shared dining room (Source: Researcher, 2021)

In the elderly home, the guest house is designed like a small dwelling that can accommodate six people. Each senior has a bedroom with full facilities (for those with a private room) and a shared bathroom for seniors with shared rooms. A living room-like entrance area was designed. It includes a sitting area and a small pantry (a kitchen at the guesthouse is not provided to prevent accidents in the elderly). The presence of a nurse on duty at each residence facilitates it. The colours and materials used vary. On the outside, we can see several different materials such as wood, rocks, greenery and braille walls to help the elderly easily identify their destination and mark the entrance to the guesthouse. The floor plan of the elderly homestead can be seen in Appendix 5.

In the living room section, each elderly room door will be distinguished by a contrasting and cheerful colour. This colour will be helpful in the elderly to identify their bedroom more easily with the help of hand-rails and braille walls along the doorway.

The room's material uses vinyl rubber flooring for the floor, which reduces hard impacts to minimize falls or other accidents. Whereas in the bathroom, anti-slip flooring will prevent the elderly from falling in wet areas. The bathroom can be open on both sides, making it easier for the elderly to access it quickly, independently or using a wheelchair. The furniture is designed to be against the bed walls to make the room feel spacious and prevent the elderly from bumping into furniture, and there is a balcony for them to relax on. The colours in the bedroom are bright colours that can encourage the elderly but are not eye-catching, such as ivory white and cream to light wood colours (see figure 14). A contrasting accent colour aims to mark the elderly's room, making it easier for the elderly to identify their bedroom. The bedroom is equipped with a handrail so the elderly can safely move around.

Figure 14. Room interiors at the elderly home (Source: Researcher, 2021)

The building facade must be seen clearly by the eyes of the elderly. It leads to the street of Harmonika Baru (in the south) with an additional and contrasting colour marker on the front. In contrast, the facade must look friendly, homey and attractive to eliminate fear, anxiety and alienation in the elderly who want to go to this building, as shown in Figure 15.

Figure 15. Front view and building facade view (Source: Researcher, 2021)

A friendly and homey impression is realized by choosing bright colours and materials. Such as the use of wood material in the building's secondary skin, shaped like traditional shutters with a

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combination of brightly coloured rooster and wall garden plants, as shown in Figure 16.

Figure 16. The building facade (Source: Researcher, 2021)

The homey impression can be realized by applying behavioural architecture, where the behavioural architecture in the design of the nursing home acts as a building style that can accommodate the needs and behaviour patterns of the elderly to create a homey impression and make the elderly comfortable in the facilities of the nursing, social institution

Conclusion

The study results show that the elderly are more comfortable in areas they are more familiar with or adaptable to themselves. The design of the nursing home applies behavioural architecture, where behavioural architecture is an architecture that considers the behaviour patterns and needs of its users in its design. The elderly behaviour patterns tend to like socializing, being calm and needing help from other people in their needs and activities. The nursing home design has a homey concept, like at home, with supporting facilities such as health facilities, such as geriatric clinics and worship areas like a mosque. It all manifested in the design where the elderly homestead is designed to resemble houses in a complex where many buildings surround the Therapeutic Garden.

A therapeutic garden also functions as a facility for the elderly to socialize, as gardening activities to do therapy and as a natural stress reliever. As for the inside of the room, the interior concept uses warm and bright colours to make the elderly emotionally more cheerful and uplifting. The research results described above are expected to be one of the study materials (references) that can be used in designing a nursing home that can meet the needs of the elderly as its users and eliminate society's negative views towards a nursing social institution.

Author's statement

The authors are with this declare that this research is free from conflicts of interest with any party.

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Author(s) Contributionship

Chairun Annisa contributed to design preparation, literature review, data collection, visualization, data analysis, and article drafting.

Amy Marisa contributed to supervising the research design, data analysis, and article draft review.

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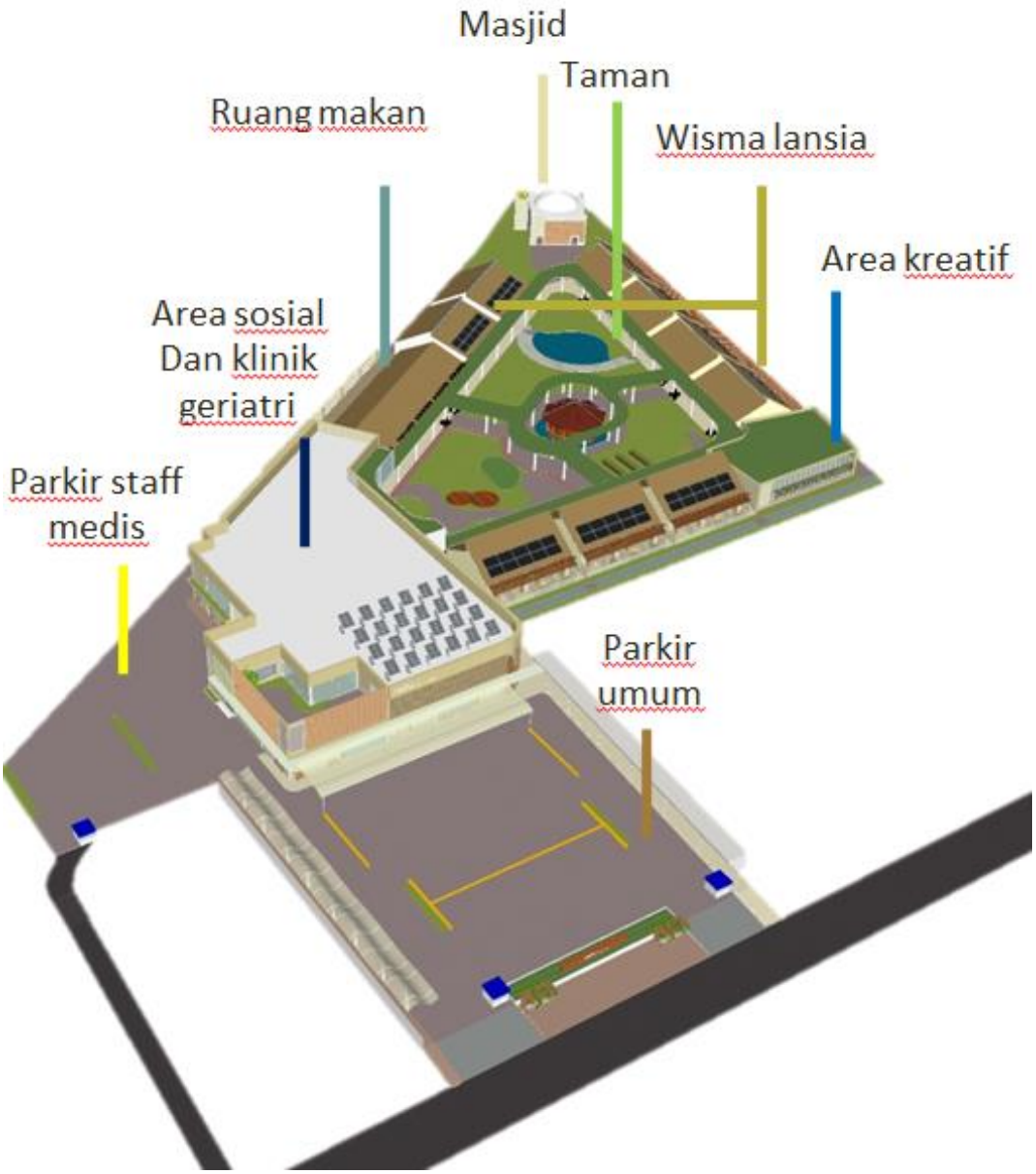
Appendix 1. ***Concept of mass composition of nursing homes***



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Appendix 2. Ground Plan Design

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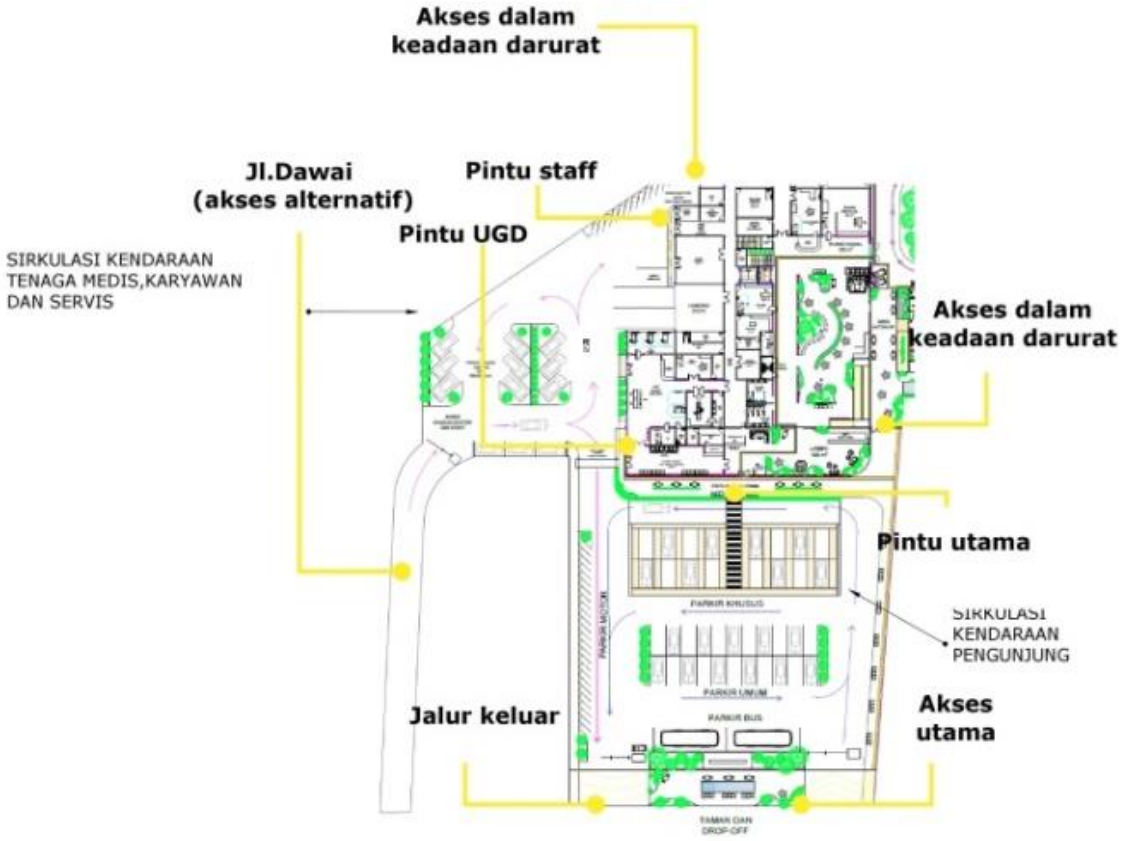
Appendix 3. Access and Circulation Plan



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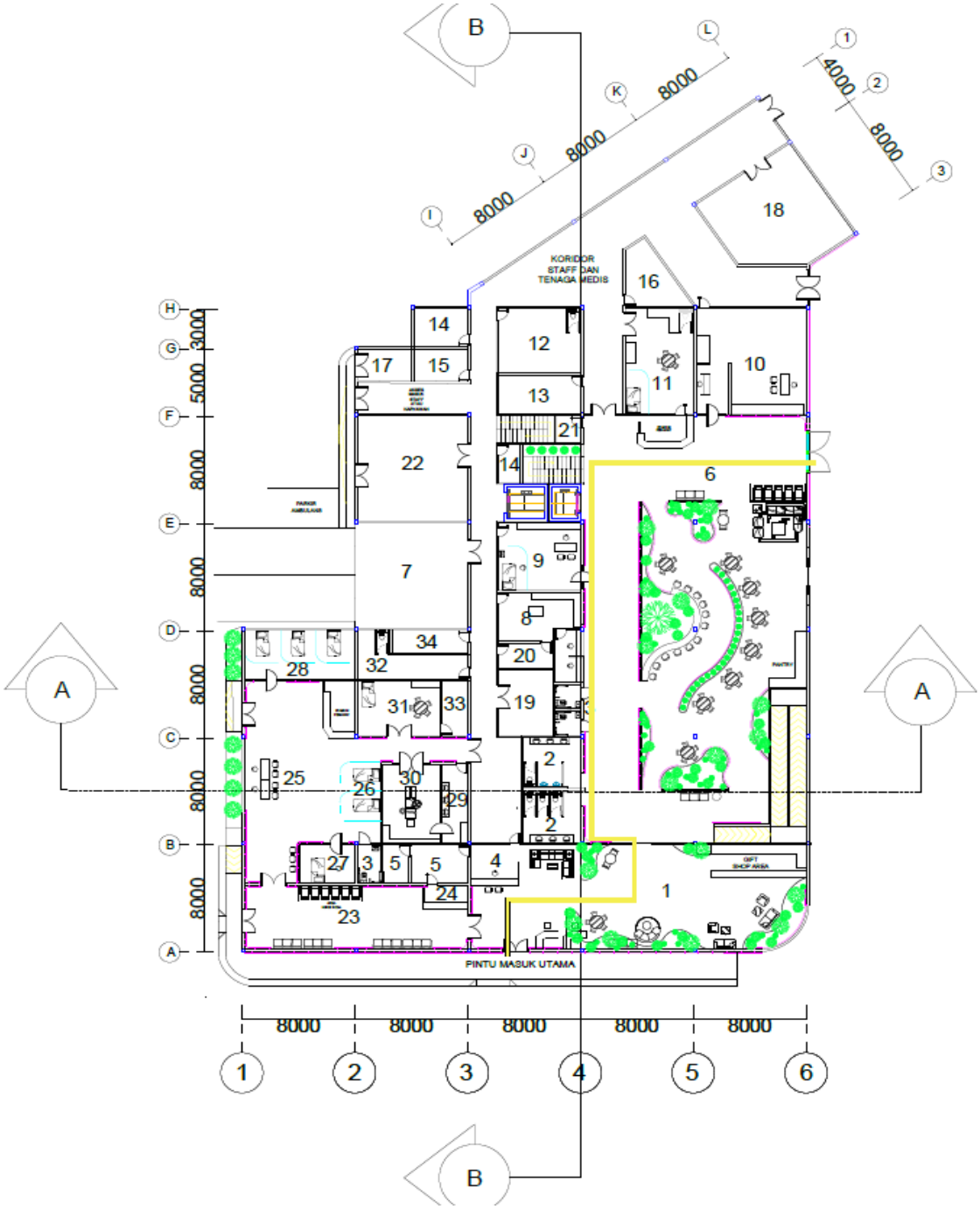
Appendix 4 . Main Building Floor Plan 1 (non-scalatic)



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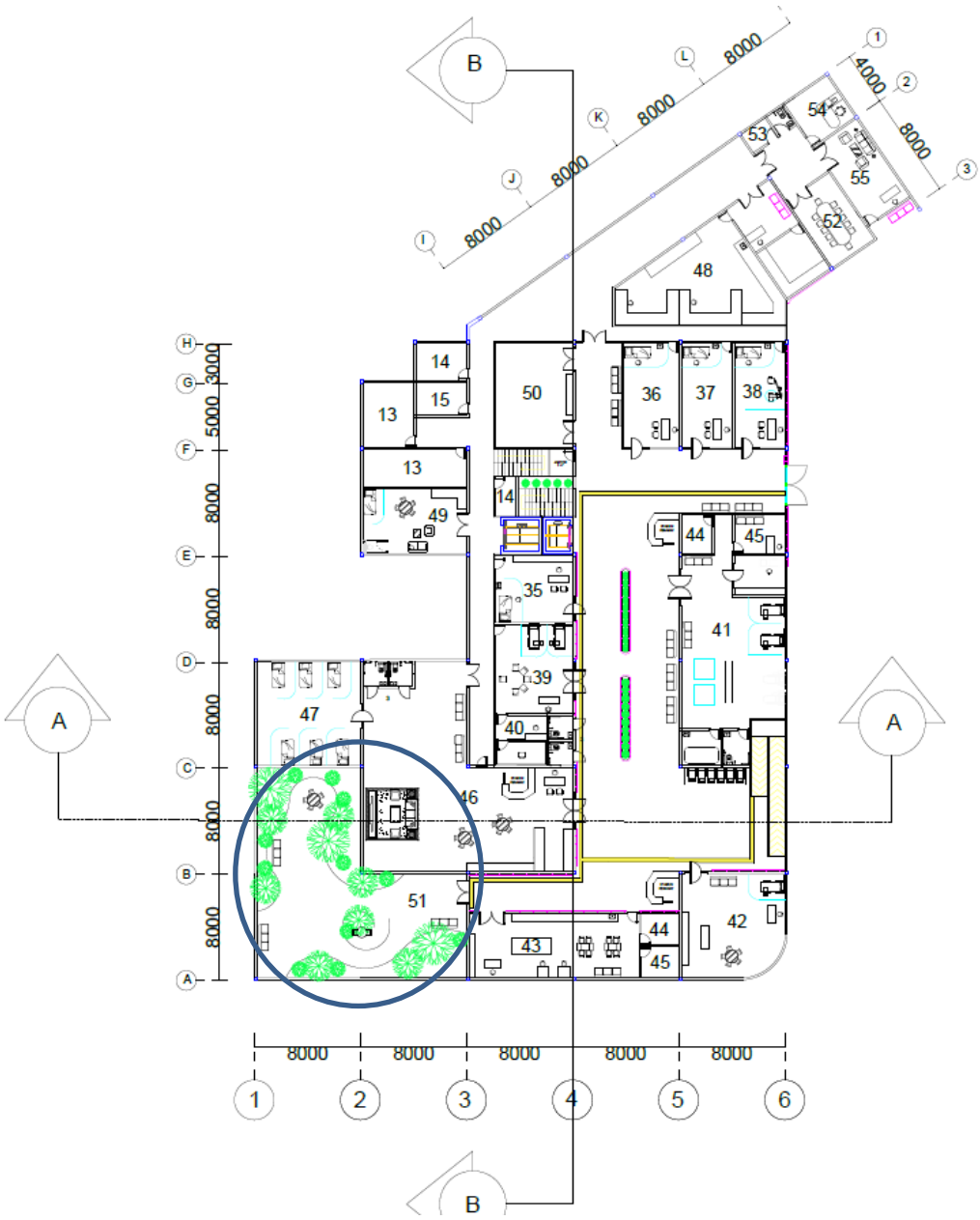
Appendix 5. Floor Plan of 2 Main Building and sensory garden area (non-scalatic)



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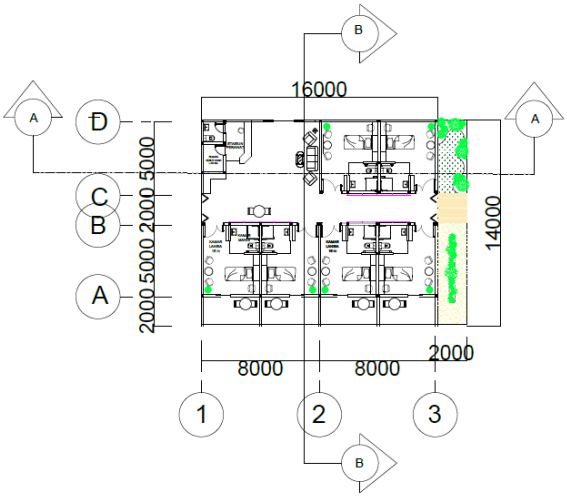
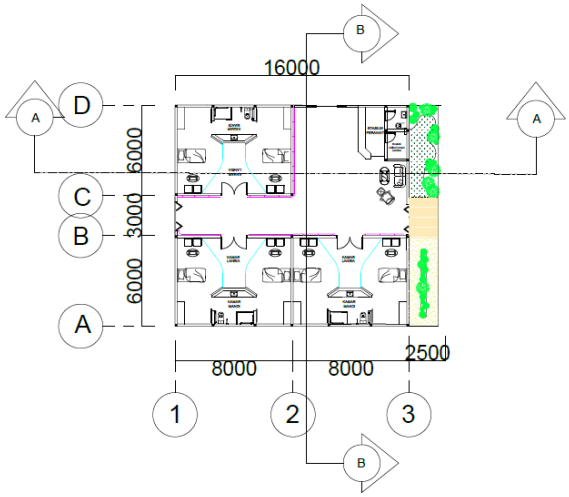
Appendix 5. House Plan (Non-scalatic)



DENAH WISMA LANSIA TIPE 1



DENAH WISMA LANSIA TIPE 2

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