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# Energy Efficiency Efforts at Dukuh Golf Kemayoran Apartment

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**Abstract.** The existence of apartments today has become a residential choice for people in big cities, including Jakarta. These vertical dwellings usually consist of various types of dwellings and buildings are designed with an area, space pattern, location of furniture, and supporting facilities that are similar in each type. Another thing to note is that most middle and upper-class apartments are equipped with high technology facilities such as private lifts on certain units, wifi, and smart home technology systems, one of which is in the apartment of the Mansion Dukuh Golf Kemayoran, Jakarta. Apart from being designed with lighting and ventilation through the openings in each room, the residential units in this apartment also use technology applications in several types of residential units. This study aims to determine energy efficiency efforts at the Kemayoran Golf Hamlet Apartment. The study was prepared using a qualitative descriptive method. The expected benefits of this study are so that apartment dwellers know more and can use technology as much as possible for energy efficiency. From the results of the study note that the layout of the openings and the existence of technology in the Kemayoran Golf Hamlet Apartment is an efficient energy efficiency effort and can create the comfort of its inhabitants.

## 1. Introduction

At present, the presence of apartments is a solution for urban communities amid in landed dwellings that have higher purchasing power. The Apartment is a vertical building which is a horizontal and towering mass formation whose ownership is in by the occupants on the shared land and utilizes the functions available nearby personally or together [1]. The proximity or distance factor to the workplace is also a reason for choosing the location of the apartment [2]. The concept of building design is made by the developer to be able to facilitate the needs of residents. Besides that, there is a need for energy efficiency in apartment dwellings. Technological developments also penetrated its utilization in the residential sector, with one of the implementations of smart home systems. This smart residential system is a system called a smart home that reflects the intelligence of a dwelling [3]. This technology system connects us who are outside the dwelling with a variety of electronic equipment in our dwelling through telecommunications equipment, which has already been set up and control of the equipment first [4]. Equipment is also not limited to tool electronics but can include shading openings in the dwellings where the system is installed [5]. This smart home system technology also has advantages such as if the lights are on, ac, television other electronic devices are lit in the dwelling while we are outside can be regulated through the electronic devices that are with us [6].

The concept of implementing a smart home technology system (smart home) is a concept that can provide comfort, security, and efficiency to users because it is an application that combines technology with services in the residential environment around us [7]. This technology has the concept of simplifying and saving energy through electronic devices and internet networks. Other technological developments namely the Internet of Things (IoT) that connect every human life today [8]. Dukuh Golf



Kemayoran Apartment (figure 1) is a vertical residence in the Kemayoran area that carries an exclusive theme on its design and application of technology systems. There are several towers in this environment and what's interesting is in the Jasmine tower, where the design implements openings in every room in each unit which is a design that responds to natural light and lighting. In addition to the existence of technology, namely the use of smart home systems, private elevators and other technology systems in this tower are made for energy savings for residents.



**Figure 1.** Dukuh Golf Kemayoran Apartment  
Source: google.com accessed 04-24-2020

## 2. Theory and Method

### 2.1. Theory

Apartment is a room consisting of several rooms or functions that are useful as a place to live [9] with different room functions [10]. There are several types of apartment categories [11]: High rise apartments, Mid rise apartments, Walked-up apartments and Garden apartments. While the types of apartments are based on social classes [12] namely simple apartments, medium apartments, luxury apartments and super luxury apartments. To obtain a residence that can make energy efficient is not to reduce or eliminate the energy in the unit. This has more to do with its use for the purpose of user convenience [13]. Technology can also be interpreted as one part science and know something about the work [14] [15]. While the technology also is part of the implementation of knowledge and not apart from theory and order practical application [16]. Energy saving is the energy that minimized without restriction and change the function of the building and it aims for safety, comfort and the achievement of a productive life of residents and it is obtained by utilizing the technology and science that is very active [17]. The smart home stem is an application that combines service and technology and is specifically designed for residential environments for safety, efficiency and comfort. This system consists of a monitor daam pegendali control, automatic control and monitor are connected with computer [18]. The controller is done with the stem to simplify the web-based control and the controlling [3].

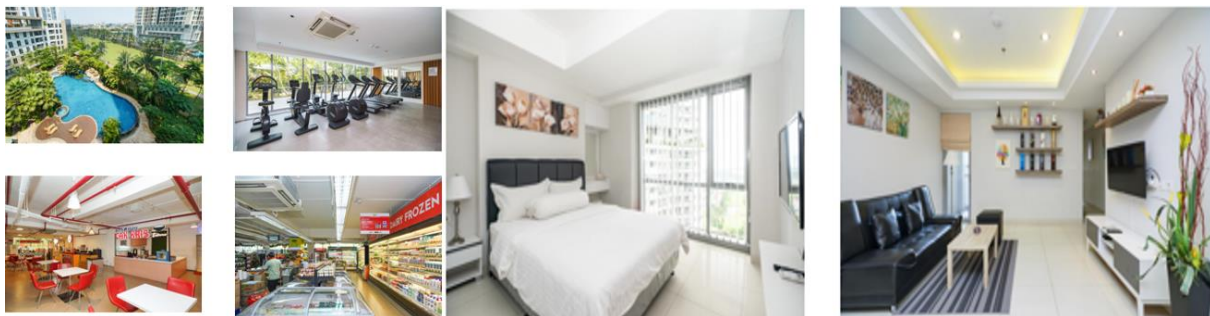
### 2.2. Method

In this study using descriptive qualitative methods. This was chosen because it met the ode is d isajikan descriptively penyampaikan clear and concise with meluki a scan condition of dwelling units selected and analyzed for me n alley kat phenomena in unit studies [19]. In obtaining it used interview techniques and literature studies. Interviews were conducted with residents at the Dukuh Golf Kemayoran Apartment. While are obtained from the internet, books, brochures, theories, reports and journals that have a relationship with the title of this study.

## 3. Results and Discussion

### 3.1. Location

Dukuh Golf Kemayoran Apartment is located at Jl. Trembesi Blok D4 Bandar Baru complex Kemayoran East Pademangan, Pademangan District City Administration North Jakarta.



**Figure 2.** Some facilities at The Mansion Dukuh Golf Kemayoran

Source: windows 360.com accessed 04-24-2020

In its development the developer built 2 clusters namely Bougenville and Jasmine. The apartment is built with the concept of *family resort* which modern ideal for families and include facilities outdoor and indoor as well as technologies that *are up to date* for the comfort of occupants (figure 2.) In this study the energy efficiency of the Jasmine cluster will be examined.

### 3.2. Layout openings as a means of energy efficiency

In this section there is space to use the lighting system and natural heat. It can be seen ON openings in each dwelling unit design in this apartment.

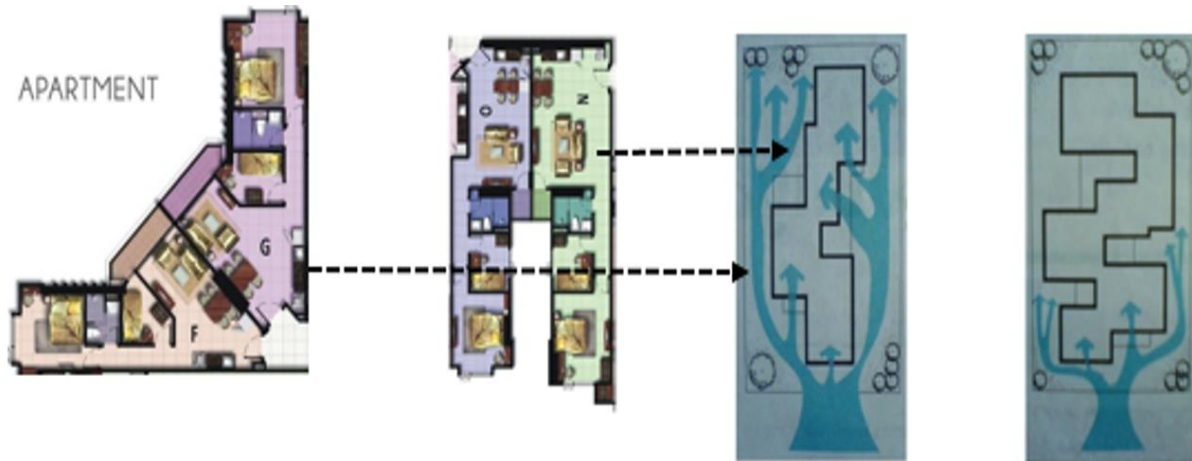


**Figure 3.** Layout of residential units

Source: windows360.com accessed 04-24-2020

In Figure 3 above we can see the layout of the residential units in this apartment with several types. Room layout based on building mass. In this apartment the composition of the building mass looks like a triangle. From the composition of the mass it can be seen that there is an increase in mass on all three sides which are residential units in this apartment. From the results of the literature analysis, it is known that each *bedroom* almost has openings. The openings are in the form of glass windows and balconies. The window is used with glass in order to get light into the room. Two elements used in designing a building that is beneficial to its owner are ventilation and lighting. In this should be done right design that every space within the dwelling unit got light and air, with a goal as comfort for activity and quality of life of its owner. Because a room with good light and air circulation will have a room with good humidity and the health of the owner is also good. In addition, another thing that is very useful is the energy savings in the residential unit. The top can be seen openings that are wide and large in the master bedroom as well as an opening in the side of the balcony in the living room makes the air and

light can enter the dwelling unit at Dukuh Golf Kemayoran Apartment. If the room has access to air conditioning and natural lighting, from windows or other openings in the dwelling, it saves the necessary electrical energy because it does not depend on artificial lighting or artificial lighting. The residential unit in this apartment is also applied to an energy efficiency residential system based on an analysis of its room layout. The openings also do not directly face south and north, so avoid direct exposure to sunlight, so it is also good for ventilation.



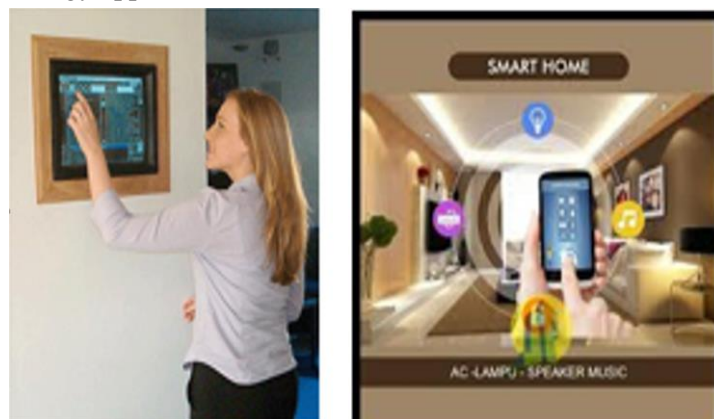
**Figure 4.** Orientation of residential mass that is responsive to natural ventilation

Source: windows360.com accessed 04-24-2020

From the mass placement of residential units in Figure 4. d i above there is also a mass formation that extends occupancy so penghawaan better. In addition, large openings in the main bedroom can avoid overheating. Placement of openings in residential units also does not cross directly but the distance is not close together such as from the main bedroom to the child's bedroom and balcony position is not symmetrical, so that in this residential unit the movement of air enters throughout the room.

### 3.3. Technology application as energy efficiency

This apartment applied CCTV technology, private elevators in several special units and also smart home systems. Smart home system technology that is carried out in this apartment can be used by residents for comfort (figure 5.) Based on interview with Mr. Nobel said that this gives a sense of comfort and can save energy in his residence. According to the use of smart home system applications can control using lights, electronics and remote electronic equipment. In addition, based on the results of the literature known technology applications also with the use of intercom and shutter on residential units.



**Figure 5.** Use of smarthome system for residential

Source: windows360.com accessed 04-24-2020

According to the results of an interview with Ms. Mona, for the application of smarthome is very helpful. Especially if it is still on the way to to the shelter, the air conditioning system and lights already bi sa set before getting to hun i a n vice versa. Electronic equipment that is connected to the stem replaces social and social functions such as *security* services to control occupancy. Electronic control can save both time and energy. If it turns out the owner has turned off the AC overflowing, lights, water heaters, CCTV or other equipment then you can imagine the waste of electricity produced. Its use is only with a mobile phone as a remote control for equipment in residential units. Based on the results of the analysis of the literature this equipment can also replace the function of security or other humans who are usually asked for help for checking in the apartment. The loss of social function is one of the effects of negative d ari application of this technology. The application of other technologies in this apartment is the availability of information technology media for wifi and other equipment such as shutter and private elevator. The application of technology is imple mentasi hun in efficiency of energy

#### 4. Conclusion

Availability of facilities technologist supplied by developers can use to achieve occupant comfort and safety. From the analysis on the above it can be concluded that efforts efficiency energy with technology will be very helpful especially supported the openings in each room, creating a living unit. But to keep the technology's, technology can not replace the state all the social if face to face directly person to person. Technology is also not the only one that plays a role in energy saving elements, but design approaches such as the exact location of openings, the location of space and circulation patterns as well as the right type of material and electrical also support energy savings in the dwelling, in addition to the wise nature of the occupants well utilize the technology. The results of the study are expected to be an input for residents to continue to utilize technology in its place and continue to bring a sense of social housing in the apartment environment.

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