Resident satisfaction on their residence and environment (case study of Srondol Bumi Indah Housing of Semarang City)

Paulus Hariyono  
Pandanaran University, Semarang, Indonesia

Corresponding e-mail: phariyono@yahoo.com

Abstract. A piece of an architecture work will be meaningful if it meets the needs of the residents. Likewise, the design and natural environment of a residence will surely be meaningful if it is able to satisfy the residents. The degree of satisfaction can be referred to the theory of human need hierarchy proposed by Abraham Maslow. Although his theory is an old one, it is still a good one for a reference. Socio economic status (SES) also affects someone in understanding the comfort of his resident. This research has some purpose: 1) to know the satisfaction level of the residents, 2) to know the effects of socio economic status towards the residents, and 3) to know the natural environment aspect to resident satisfaction. The method analysis used is qualitative analysis. The major finding are: 1) security factor is the main aspect of the human need residents; 2) upper and lowerclass residents have different knowledge and understanding regarding the natural environment satisfaction on the house they live.

Keywords: satisfaction, house, Maslow Theory and socio economic status, natural environment.

1. Introduction
A piece of an architecture work will be meaningful if it meets the needs of the residents. Likewise, the design and natural environment of a residence will surely be meaningful if it is able to satisfy the residents. The degree of satisfaction can be referred to the theory of human needs hierarchy proposed by Abraham Maslow. Although his theory is an old one, it is still a good one for a reference. Aside from that, the socioeconomic status affects someone in understanding the comfort of his resident.

1.1. Maslow theory
In his theory, Abraham Maslow [1] mentions that human needs continue to thrive. In 1954 Maslow suggested that there were five human needs that continue to thrive. However, in 1956 Maslow and his friends [2] added three other hierarchies of needs: the needs to understand, the needs for aesthetic and the needs for transcendence. Therefore, based on Maslows’ theory [3], there are now eight hierarchies in human needs:

1) The basic needs of human being are physiological needs that include the needs of shelter, food and clothing. Physiological needs should be met first.

2) Once a person’s physiological needs are relatively satisfied, their safety needs will come after. Safety and security needs include the security of their residences and environment and job, safety against accidents and their adverse impacts. Therefore, the building where they live should be strong and safe from theft and interference.
3) After physiological and safety needs are fulfilled, the third level of human needs is the needs of affection. This need involves feelings of being attended, having friendships and intimacy. Therefore, a special room where every member of the family and their friends can express their affection is needed.

4) All human have a need to feel respected; this includes the need to have self-esteem and self-respect. On this level, the residents have already had proper social and economic status. Therefore they need to have their house provided with prestigious philosophy concepts such as styles from Ancient Greece, Rome and even the styles of local but complicated culture such as Joglo.

5) Cognitive Needs or the needs of knowledge and understanding. On this level, the residents are able to express their knowledge and understanding about particular culture with its symbols through their chosen styles. For example a house with an Ancient Greece style will not only have exotic Greece pillars, but also furnished with Ancient Greece antiques and statues.

6) Aesthetic needs. These needs are fulfilled by completing the residence with exterior and interior elements from a particular culture such as Ancient Greece or Ancient Javanese Art.

7) Self-actualization. On this level of need the residents will express their philosophy innovations through exterior and interior elements of a particular culture. For example is by combining Javanese philosophy and modern arts.

8) Self-transcendence. This need refers to an understanding of spirituality in which the residence will be decorated with religious nuances.

This research shows what level of satisfaction of residents in Srondol Bumi Indah Housing towards their house according to Maslow’s theory above.

![Figure 1. Maslow’s Hierarchy of Human Needs](image)

1.2. Maslow theory

Everyone has different level of satisfactions. One of the most influential aspects which lead people to fulfill of demands is socio economic status. Those with low social status level tend to have more simple demands. According Mangkunegara [5] the low social economic status needs a thing that is cheap. But, according to Maslow’s Pyramid of Need Hierarchy [6], the demand of those who have low social economic status might be very simple. They need shelter for them to live. They even ignore the needs of safety. They will take a simple house even though it is almost collapsed because what they need is only a place to shelter.

Those with middle socioeconomic status require safety needs to be fulfilled in their houses. The constructions should be strong enough to give them safety feeling. They also need special rooms for them and their friends to meet and chat.

People with higher social and economic status require meeting the needs of aesthetic and transcendent. Their residence will be furnished with beautiful exterior and interior decorations. Thus there is a tendency that the socio economic status affects the level of residents’ satisfaction towards their houses.
1.3. Maslow theory
According to Chiras [7], Natural Environment is all factors which biologically affect organism. In order to give comfortable feelings for the residents, there are biological elements, called Healthy Residence, that need to be considered in designing a residence. Frick [8] says that the indicators of Healthy Residence include: air circulations, temperature, noise, air quality, light, security and humidity. Residents from different strata – upper and lower, will have different understanding on those indicators.

There is a tendency in which residents from upper strata will replace the comfort from natural environment with technology. For example, they replace the coolness of natural air with Air Conditioner (AC). However, residents from lower strata will keep the natural environment to give them comfort in their residence, such as air circulation and greening to enhance the quality of the air.

Referring to the above background, some problem can be formulated as: how much the resident’s satisfaction towards the design of his residence?

The objectives of the research:
1) To know the level of satisfaction of residents towards their house according Maslows’ theory.
2) To know the influence of socio economic status of the resident to the satisfaction of his house.
3) To know the influence of natural environment to the satisfaction of the residents.

2. Methods

2.1. Research description
A design and arrangement of residential space will give the occupants satisfaction if it is designed in certain ways. This study will look at the extent to which a residential design will give a certain satisfaction to its inhabitants. The notion of "satisfaction" according to Kamus Besar Bahasa Indonesia [9] is "fulfilled desire". Therefore, to be satisfied is when the needs and the desire are fulfilled. Abraham Maslow’s theory about Hierarchy of Human Needs will be used as a benchmark to measure satisfaction [10], i.e., the first and basic need of human being is a physiological need (the needs of shelter, clothing, and food). When their standard of living increases they will try their best to fulfill the needs of safety and their needs of affection (love and social belongings), the needs of self-esteem, the needs of cognitive, aesthetic, self-actualization and self-transcendence as well. This study shows to what extent the occupants’ satisfaction towards their house can be fulfilled based on Maslow’s theory, the effects of socioeconomic status of the occupants, and natural environment towards satisfaction of their house.

2.2. Research sites
The level of socio economic status of the residents affects the level of satisfaction of the residents towards their house, therefore, the location of the research is chosen in the area which consists of different levels of residents from different socioeconomic status. Srondol Bumi Indah Estate fulfills the criteria. There are several types of houses located in Srondol Bumi Indah Estate such as: 1) small house (type 90/120); reflecting that the occupants are of low socioeconomic status; 2) medium house (type 150/250) reflecting that the occupants are of moderate socioeconomic status; and 3) large house (type 300/450) reflecting that the occupants are of high socioeconomic status.

2.3. Research subjects
The characteristics of human satisfaction level is determined by the condition of one's socioeconomic status indicated by the type of house they own, in order to obtain the characteristic differences. Different types of housing samples are required.
The group of housing type can be described with the three simplified Likert'scale: not large, sufficient, and large. A group of residences type 90/120 is taken as a type of not large one. A group of residences that is more spacious is taken as a type of house type 150/250. While a group of residences with larger area is taken as a house with type 300/450. These house type groups can be found in Srondol Bumi
Indah Semarang. The stratified purposive random sampling is used as the sampling technique which according to Sutrisno Hadi [11] it is the sampling which is based on a certain strata to achieve a particular goal.

In Srondol Bumi Indah Housing there are about 400 residential units with compositions as follow:
1) House type 90/120 (small type): about 100 units, it is assumed that the occupants earn less.
2) House type 150/250 (medium type): about 200 units, it is assumed that the occupants are from medium income class.
3) House type 300/450 (large type): about 100 units, it is assumed that the occupants are of high-income class.

Based on the explanation above, it can be concluded that the ration between the occupants of the 90/150 house type: 150/250: 300/450 is 1: 2: 1. The number of samples is taken proportionally according to the composition of the number of residents and types of house. Below are the proportion number of respondents.
1) Owner of small type of house : 3 respondents
2) Owner of Medium type of house : 6 respondents
3) Owner of Large type of house : 3 respondents
Total : 12 respondents

2.4. Data retrieval
Data were collected using questionnaires, interviews, and observations.

2.5. Analysis methods
This research uses analytical descriptive analysis method from questionnaire, interview, and observation of space and building condition.

3. Discussion
3.1. General description
The description includes ages and incomes of the residents who become the research respondents.

3.1.1. Age. There were three groups of respondents. The first group consisted of retired men who were over 61 years old (67%). All of them were the head of the family. The second group consisted of middle aged respondents, 51-60 years old (25%). The third group was a group of 41-50 years old respondents (8%). They were private employees and entrepreneurs.

3.1.2. Income. Incomes are sorted into low, medium, and high-income. Respondents that are classified as low incomes earners are those who earn less than Rp. 10,000,000, -. While respondents with moderate income are respondents who have income Rp. 10,000,000, - up to Rp. 20,000,000, -. Respondents with high income are respondents who earn more than Rp. 20,000,000, -. The majority of respondents' income is low (below Rp 10,000,000, -), 58.3%, because most of them have been retired from jobs, and over 61 years old. The moderate income - 25%- (Rp. 10,000,000, - to Rp. 20,000,000, -) comes after and followed by high-income respondents (more than Rp. 20,000,000) - 16.7%..

3.1.3. Income. Incomes are sorted into low, medium, and high-income. Respondents that are classified as low incomes earners are those who earn less than Rp. 10,000,000, -. While respondents with moderate income are respondents who have income Rp. 10,000,000, - up to Rp. 20,000,000, -. Respondents with high income are respondents who earn more than Rp. 20,000,000, -. The majority of respondents' income is low (below Rp 10,000,000, -), 58.3%, because most of them have been retired from jobs, and over 61 years old. The moderate income - 25%- (Rp. 10,000,000, - to Rp. 20,000,000, -) comes after and followed by high-income respondents (more than Rp. 20,000,000) - 16.7%.
3.2. Satisfaction of residents

The residents’ satisfaction in Srondol Bumi Indah Residence can be measured by using Human Need Pyramid theory proposed by Abraham Maslow (Globe 1985). In his theory, Maslow mentions eight levels of human needs, namely: 1) Physiological Needs; 2) Safety and Security Needs; 3) The Needs of Affection; 4) The Needs to have Self-Esteem and Self-Respect; 5) the Needs of Knowledge and Understanding; 6) Self-Aesthetic Needs; 7) the Needs of Self Actualization; and 8) the Needs for Transcendence. These needs appear in hierarchies. First of all, people need to meet their first basic needs (physiological needs). Once a person's physiological needs are relatively satisfied, their safety needs take precedence and dominate behaviour. After physiological and safety needs are fulfilled, the next level to be fulfilled is the needs of affection followed by the fulfilments of needs for understanding and knowledge, the needs for aesthetics, the needs for self-actualization, and last but not least the needs for transcendence. Maslow's theory is called "Hierarchy of Needs Pyramid".

3.2.1. Physiological Needs. House conditions can be classified into three. The first one is a house with maximum condition (50%) in which the house is the best place for people to protect themselves from heat, cold, and rain. The temperature inside the house is good. The second is a house with air ventilation but the residents still need fans to make them feel more comfortable (41.7%). The last one is a minimum type of house (8.3%). This size of this type of house is very narrow. Referring to physiological needs, it can be concluded that the number of houses with maximum function as a place to shelter reaches 50%, while those that are considered sufficient reaches 41.7%. The fulfilment of residential house as a shelter cannot reach 100% because some of the respondents still feel that their house is less spacious and the temperature inside the house is still hot.

3.2.2. Safety and Security Needs. Safety and security needs include the security from theft and the safety of the house building. The security from theft has been 100% fulfilled because since the last 10 years there has been improvement in the security system. Previously there were only two security guard posts available. That condition was far from expectation. Since then another security guard post and some portals on the streets were built. This additional portals and security guards narrow the thieves’ movement, and therefore the needs of safety and security of the residential area can be obtained. In terms of building design, the residential buildings are usually equipped with trellises to prevent thieves from entering. The safety of the building had not been able to meet the needs of safety since some of houses’ walls were not sturdy enough; there were leakage and cracks on the roof because of termites. Only 50% is perceived to be safe after the standardized frame which had been eaten by termites was repaired. 33.3% considered the house condition is enough, while the rest, 16.7%, said that the house condition was not safe due to leakage and termites. Based on the analysis, it was found out that the common concerns about the needs of safety and security are about the security from theft and the safety of the building condition. 100% respondents said that the needs of security from theft are absolute whereas the needs of the safety of the building take 50%. The average of this fulfilment is (100% + 50%):2 = 75%

3.2.3. The needs of affection. 50% of houses fulfilled the needs of spaces where the residents can express their feelings with other members of the family, while the other 50% said that their houses were not spacious enough for them to have a gathering with other members of the family, in other words, the living room was less spacious. 33.3% of houses had spacious room for family gathering. 16.7% of houses did not have enough places for that activity. This fulfilment is very relative. There are residents who do not mind with their small family rooms because they seldom have time to meet their family due to their busy schedules. Parents go to work, children go to schools. There are also residents who are satisfied with their less spacious family rooms because for them as long as they can sit and have a chat together with other members of the family they are happy.
3.2.4. The needs of self-esteem. The needs of self-esteem are indicated with the sense of pride on the house they live in. The majority of residences (50%) give pride to the owners for some reasons; many people like the housing complex, the house was bought by their own, and that the designs of the houses are always up to date and everlasting. 41.67% of houses had given enough pride due to their up-to-date designs and their popularity among society. 8.33% of houses were not able to give pride due to the small size of the land and the building.

3.2.5. Cognitive needs. The design of a residence reflects particular knowledge and understanding such as the knowledge of air circulation, lighting, and coolness. This kind of understanding found in Srondol Bumi Indah Housing is as follows: The knowledge given to the society by the majority of residences (50%) is about good air circulation, a house that is ecologically healthy and a house that does not need an Air Conditioner. 33.3% of houses are considered standard and have enough knowledge while 16.67% of other house building are not considered having enough knowledge.

3.2.6. A house as an aesthetic reflection. The majority of houses (50%) have been reflecting aesthetic sense of the residents. This is because the residents cannot design their own house freely. Additional designs should be coordinated with the environment with the same design. Just since few years ago, the residents were given freedom to design their own house. 33.3% of the findings show that the house aesthetic is good due to the up to date designs while 16.7% of the houses have very minimum aesthetic values because the designs are made by the residents.

3.2.7. Self actualization. The majority of residents (50%) are able to actualize themselves because they feel comfortable, with good air circulation and fresh air. 33.33% residents also stated the same reasons. There are 16.67% of houses do not need to have self-actualization of the owners.

3.2.8. The need to transcendence. The majority of houses (50%) do not need to express the transcendence value of the owner as they think that they do not need to express their self-transcendence. Houses that are able to express their transcendent values are 25%. Those houses usually provide special places for praying. The other 25% of houses are considered able to express their owners’ transcendence because Srondol Bumi Indah has become a favourite residence. If the benchmark of respondents’ opinion is more than 50%, it can be concluded that the needs of safety and security have been more than enough fulfilled (75%). The other needs such as physiological needs (a need of shelter), affections, self-esteem, self-actualization and transcendent are also sufficiently fulfilled (50%). The reasons why those levels of satisfactions seem low (not more than just the needs of the safety of the house building and the need of security from the thefts) maybe because: first, the residents have been staying in Srondol Bumi Indah for a long time. Approximately, they have been there for more than 15 years. They have been bored with the housing conditions. Second, the financial condition of the house owner is static, they will not be able to renovate their house in terms of knowledge, aesthetics, pride, self-actualization and self-transcendence. Financial condition will affect their satisfaction.

3.3. The Impact of socioeconomic status and natural environment to the resident’s satisfaction
According to Mangkunegara, one’s socio economic status affects them in choosing goods and services. Those who come from high socio economic status tend to choose branded products and long lasting ones. Therefore for the sake of their comfort, they prefer to have instant and constant facilities, such as the use of Air Conditioner (AC) for their stable and comfortable temperature and air circulation at home.

While those who are from lower socio economic status tend to choose cheaper goods to fulfill their daily needs. In order to save their expenses. They manage the circulation of natural air in their homes in such a way so that they do not need Air conditioner (AC). They even grow plants in their garden to enhance the coolness of their homes.
There are differences in understanding about the comfort of residence in regards with socio economic status and natural environment, as follow:

1) As a shelter (physiological needs) for middle class society and lower society: they tend to be less satisfied because of size which is not spacious enough, and that the air is getting warmer.

2) In terms of design, a house is able to give more than enough particular knowledge (50%) for example knowledge about air circulation, room arrangements, and garden.

3) The resident of a small type of house tends to take air circulation and greening as considerations because it contains knowledge of an ideal house.
4) The resident of a big type tends use technology for fulfill their satisfaction.

4. Closing
With a benchmark of 50%, Srondol Bumi Indah Residence has been able to fulfil the needs of safety and security for its residents. The fulfilment is considered enough. But, the satisfaction of design and aesthetic tend can not be fulfilled as they need, because changing the design and aesthetic of the residence need high financing.

The small type of residence owned by lower strata group of society, fulfill the needs of shelter to the residents (physiological needs) due to the good air circulation and its greening program which creates cool and fresh environment.

Big houses, owned by higher strata group of society, do not always give such good environment as small houses do, but they use technology. Socio cultural factors and socio economic status of the residents, education background and knowledge of the residents affect how they fulfill the satisfaction of their residence.

The highest level of fulfilment given to the residents in Srondol Bumi Indah is the fulfilment of physiological needs, safety and security, pride and knowledge sharing, whereas, the needs of affection, aesthetics and self-actualization are sufficiently fulfilled. And the transcendental need is fulfilled in low level. It is suggested that socio cultural aspects and socio economic status of the residents towards their residences need to be done in the next research.

Acknowledgments
Author would like to thank the respondents at Srondol Bumi Indah Housing who have made their time to provide explanation and data collection for the purposes of this research.

References
[1] Goble. 1985:17 Mazhab Ketiga Psikologi Humanistik. Yogyakarta: Kanisius.
[2] Goble. 1985:17 Mazhab Ketiga Psikologi Humanistik. Yogyakarta: Kanisius.
[3] Goble. 1985:17 Mazhab Ketiga Psikologi Humanistik. Yogyakarta: Kanisius.
[4] McLeod, S. A. 2016. “Maslow’s Hierarchy of Human Needs”. Retrieved from www.simplypsychology.org/maslow.html
[5] Haryono, Paulus. 2007. Sosiologi Kota Untuk Arsitek. Jakarta: Bumi Aksara. McLeod, S. A. 2016. “Maslow’s Hierarchy of Human Needs”. Retrieved from www.simplypsychology.org/maslow.html
[6] McLeod, S. A. 2016. “Maslow’s Hierarchy of Human Needs”. Retrieved from www.simplypsychology.org/maslow.html
[7] Hamzah, Syukri. 2013. Pendidikan Lingkungan. Bandung: Refika Aditama.
[8] Frick, Heinz & Mulyani, Tri Hesti. 2006. Arsitektur Ekologis. Yogyakarta: Kanisius.
[9] Kridaklaksana, Hari Murti, dkk. 2010:793. Kamus Besar Bahasa Indonesia. Jakarta:Departemen Pendidikan dan Balai Pustaka.
[10] McLeod, S. A. 2016. “Maslow’s Hierarchy of Human Needs”. Retrieved from www.simplypsychology.org/maslow.html
[11] Hadi, Sutrisno. 1980:17. Metode Penelitian Research. Yogyakarta: F. Psikologi.