

FINAL PROJECT

Protocell Housing

Based on “Back to The Earth Evolution of Wall-E”

d3 Closegap Architecture Competition : Housing Tomorrow 2012



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ISLAMIC UNIVERSITY OF INDONESIA
YOGYAKARTA
2012**

LETTER OF VALIDATION

FINAL PROJECT

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Aprodita Emma Yetti

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Final project dissemination: January 25th, 2012

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LETTER OF REFERENCES

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The title of final project : Protocell Housing

Based on "Back to The Earth Evolution of Wall-E"

The Quality of this book report : **Intermediate** **Good** **Excellent**
* Please marked

So,

Recommended **Not recommended** * Please marked

To become a reference in the next final project product

Yogyakarta, 9th February, 2012

The lecturer,

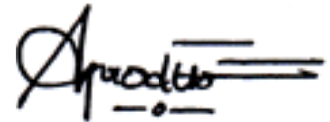

Arman Yulianta., Ir., MUP

LETTER OF STATEMENT

I declare that in this final project report contained another product that have been asked previously to obtain a degree at Islamic University of Indonesia. And so far as i know, another product or opinion ever written or published by others, except that in writing referred to in this product, and mentioned in the literature.

Yogyakarta, February 9, 2012

Author,



Aprodita Emma Yetti





I dedicate this project for...

Allah SWT...

My parents... Mr. M. Zen (Alm), Mrs. Sjofiaty Djamil...

My family.. Datuk Tandoyo Family...

Acknowledgement



Assalamu'alaikum. Wr. Wb.

I say thanks to Allah SWT, for so merciful and gracious to the author, so that the design of this Final Report can be completed. Final Design Report is a requirement for first graduate, in Department of Architecture, Faculty of Civil Engineering and Planning at Islamic University of Indonesia. With the title of the project is *Procell Housing : Based on "Back to The Earth Evolution of Wall-E"*.

On this occasion, the author would like to thank for persons - those who have helped authors in this Final project, among others :

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Wassalamu'alaikum. Wr. Wb.

Yogyakarta, February 9, 2012

Author,



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ABSTRACT

Ideal image of the earth is to have a thick forest, blue sky, clear water, no pollution, is the dream of human habitation. If the image of the ideal future is destroyed by the technology and the destruction of nature, the Earth is full of junk, unhealthy air, the green is very little land, no life. How the human future ? Where is the future of human ? Where is the human habitat ?

Through the film Wall-e, we can see a picture of how the future of the earth. Tells how about 200 years, humans will live beyond the earth with all the modern equipment, advanced, and completely automatically, but also negative effects on behavior and human development, but that the situation is inversely proportional to the situation on earth. In this film, people want a place to stay where they are in the midst of nature, nature is their future. they rebuild their world, and live well together, with others, a green environment, and other living things.

Protocell is genetically modified of Rachel Armstrong research that explores the potential of advanced technology in architecture. The idea is to create a technology that helps us relate to the environment so the buildings we have a positive impact on our environment of today that they have a negative impact. genetically engineered products manufactured protocell. when mixed with paint and exposed to CO₂, will absorb and convert it into calcium carbonal / shell lime. which serves to stop the greenhouse gas, to repair damaged / cracked wall, and extend the life of the structure.

With Protocell, produce an answer or expectation of occupancy, occupancy that can be connected with nature, synergy, and a positive effect, is really sustainable. As a form of synergy between technology and nature in order to support each other, without destroying each other, and have a positive effect on nature.

Keyword : Wall-e, Protocell, Genetically modified , Technology, Nature, Green environment, Sustainable, Calcium carbonal.

CHAPTER 1

INTRODUCTION

1.1. TITLE OF FINAL PROJECT

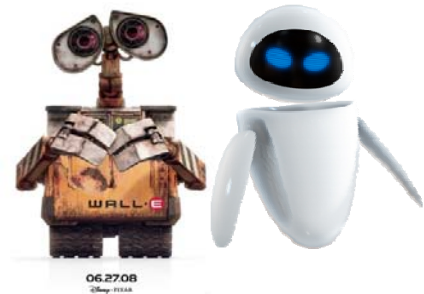
ProtoCell Housing : Based on "Back to The Earth Evolution of Wall-E

1.1.1. Definition of Title

- ProtoCell** : Product of genetically engineered results of research Rachel Armstrong. when mixed with paint and exposed to CO₂, will absorb and convert it into calcium carbonal / shell lime. that serves to stop the greenhouse gas, to repair damaged / cracked wall, and extend the life of the structure.
- Housing** : A building or structure that has the ability to be occupied for habitation by humans or other creatures. The term house includes many kinds of dwellings ranging from rudimentary huts of nomadic tribes to complex structures composed of many systems. English-speaking people generally call any building they routinely occupy "home". The social unit that lives in a house is known as a household. Most commonly, a household is a family unit of some kind, though households may be other social groups, organizations or individuals.
- Evolution** : Any change across successive generations in the heritable characteristics of populations or something. Evolutionary processes give rise to diversity at every level of organisation.
- Wall – E** : Animated film with the setting and the story about the human condition on earth in the future with all the problems.

1.2. BACKGROUND

Conflict of interest raised from assumptions about how the future of humans, technology, and civilization as well as how the architecture of some 200 years in the future. Through the movie Wall-e, we can see a picture of how the future of the earth. Tells how about 200 years to come, humans will live in space with all modern equipment, advanced, and completely automated, but also negative effects on behavior and human development, other than that this situation is inversely proportional to the situation on earth.



Wastes from human activities of daily accumulated due to waste not processed. Earth's ecosystem is damaged. It can be said poor environmental quality. So what should be done in order to reproduce and fix the occupancy is much more feasible and better than ever.



Picture 1.1
documentation by author

City of the future portrayed very modern and sophisticated, but this causes the man to be the figure of individualism, does not interact directly among humans. Like the environment, but the man who actually need the environment and ecosystem. need some fresh air, interacting directly with every other human beings and the environment, because if man moves static then it will cause negative effects on behavior, even the nature of health care quality.



Picture 1.2
documentation by author

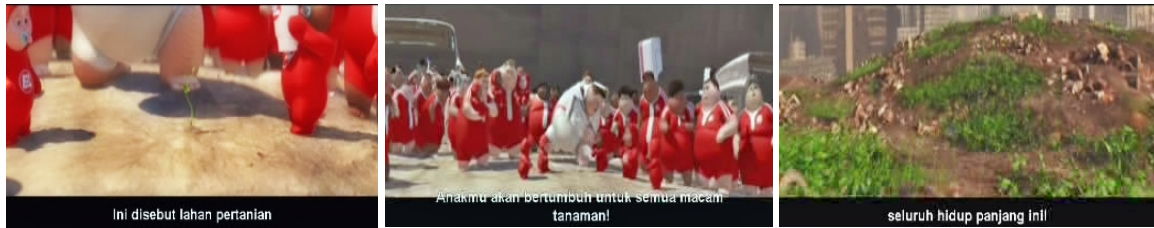
Ideal image of the earth is to have a thick forest, blue sky, clear water, no pollution, is the dream of human habitation in the future. This activity is also necessary to move the center of the existing human sophistication.

In fact, the earth at that time is inversely proportional to human expectations, and inversely proportional to the sophistication moderanisasi there. Earth is full of junk, unhealthy air, very few green areas, there is no life. Where is the sky blue? Where green plants? Where the human future? Where is the man's house ?



Picture 1.3
documentation by author

In this film, humans desire occupancy where they are in the midst of nature, nature is their future. they rebuild their earth, and live together well, with others, green environment, and other living creatures.



Picture 1.4
documentation by author

1.3. PROBLEMS

1.3.1. General Problem

How the structure appropriate settlements and can be applied to the dwelling of the future, to avoid repetition ecosystem damage ?

1.3.2. Specific Problem

- How the design a house in the future that will not destroy nature and ecosystems, technology and nature actually support each other to produce a design which environmentally friendly and sustainable ?
- How to revive the relationship between others human, and human with nature ?

1.4. GOAL

Expected to result in concept and design of dwelling with facilities that can be applied now and in the future, to solving problem of ecosystem damage. As well as the relationship between human beings, environment, and technology.

1.5. TARGET

- Result in dwelling design are the result of a combination between nature and technology, which environmentally friendly and sustainable
- Produce dwelling creates the relationship between fellow humans, and humans with the environment.

1.6. SCOPE OF DISCUSSION

In designing the future of residential design, the scope of discussion to be covered are:

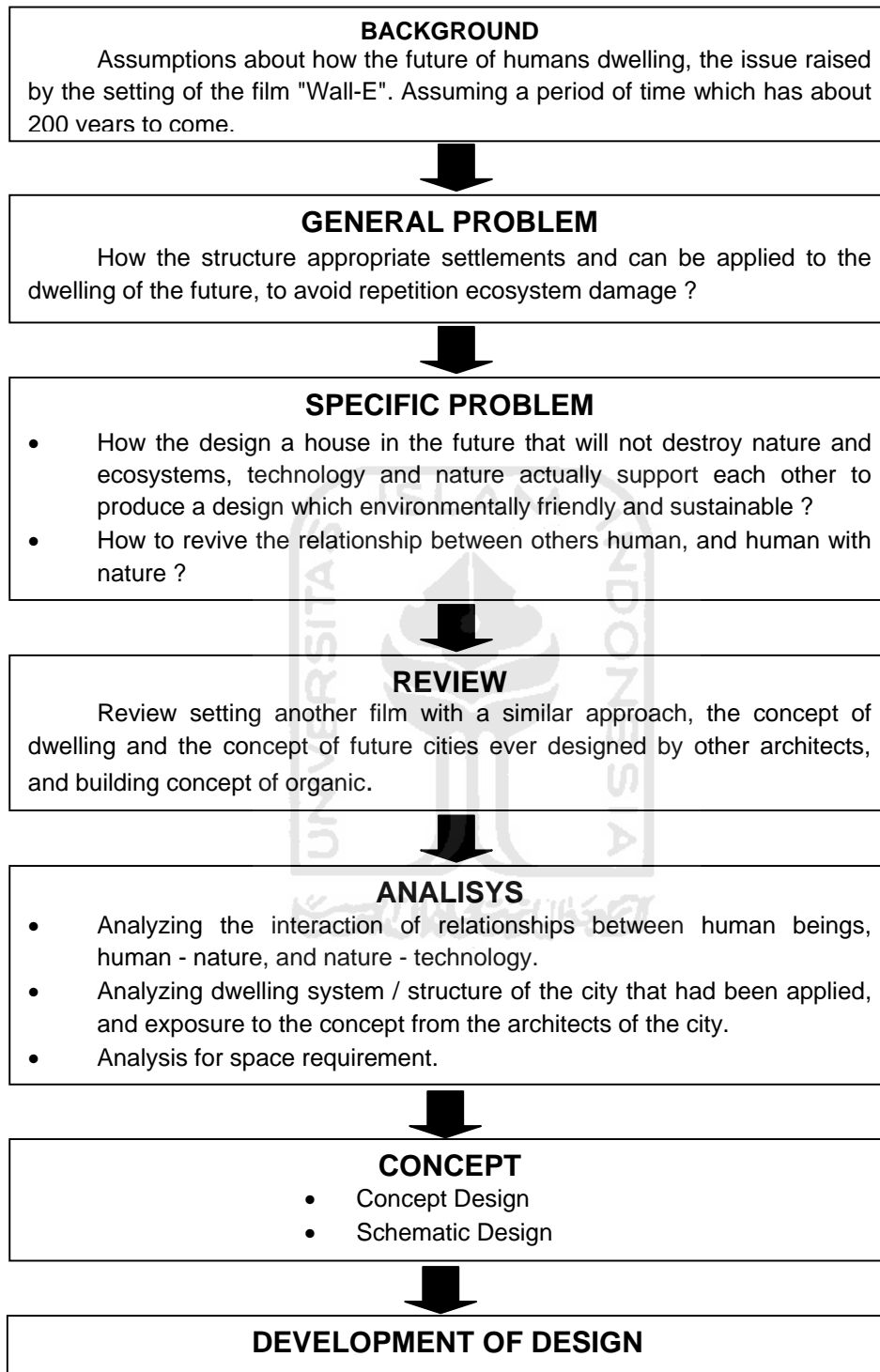
1. The discussion is restricted according to the problems that have been determined and based on existing data, in accordance with the architectural design goals and objectives,
2. Discussion in terms of residential architecture is focused on human behavior that make up about 200 years to come,
3. Discussion of the technology will be focused only on the extent of its application in the realm of architectural problems.

1.7. METHOD OF DISCUSSION

The discussion carried out by analyzing the data and information obtained through the assumption of some films with the theme of the future, the source readings relating to human behavior, space, and architecture. Stages of the discussion as follows:

1. Discussion of the problems background that generate the initial idea, concept, future residential function, design issues, goals and objectives, scope discussion, as well as the method of discussion,
2. Discussion of review of the assumptions of the future, the concept of a future utopia residential, and existing, sustainable architecture, and its conclusions,
3. Discussion the analysis of interactions among humans, human-natural, nature-technology, analysis of all three interactions with a sustainable architecture,
4. Discussing the concept of design that is focused on approaches sustainable concept, the concept of building mass, the concept of zoning, and the concept of the interior.

1.8. FRAMEWORK THINKING



Picture 1.5
Processed by the author

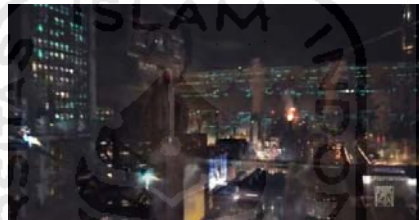
CHAPTER 2

BASE | LITERATURE REVIEW

2.1. Comparison - The Concept and Setting the Film that Tells the Future

- **Television Serial "Teranova"**

In this series depicted in the 200 years that will come on earth ecosystem quality is declining, at that time humans will depend on the air filter, scarce food resources, all the result of environmental damage caused by the greed human nature to explore, so it was natural become damaged.



Picture 2.1
documentation by author

Finally, with the technology, human go back in time to reorganize his life. dwelling settings are described in the past is how the dwelling side by side with nature. governance structure is in the middle of town, dwelling areas were among the government, and support facilities located in the outermost scope of the city.



Picture 2.2
documentation by author

Typology dwelling on the setting of this film looks communal, blend in one area, however, designed dwelling per unit.

- **City of the Ember**

In this series described in 200 years to come, humans will live in the soil, in anticipation of man will damage the environment at ground level. They built an underground city with governance structures in downtown, dwelling in the second tier, support facilities located on the very outside. Natural resources temporarily replaced by the generators for electricity, water sources are also treated. Household waste is processed into recycled goods to meet the needs of everyday life, look at the clothes they wear, as well as home furnishings.

2.2. Urban and Dwelling System

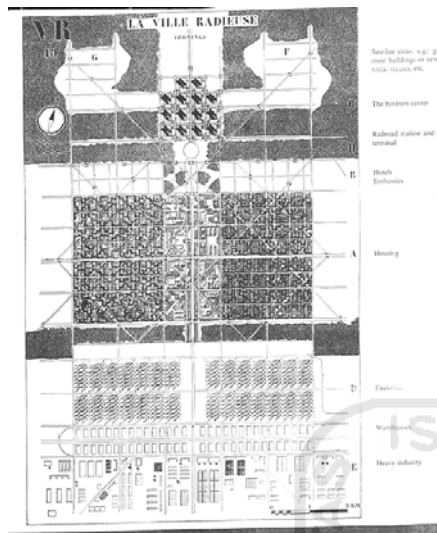
- **The Radiant City by Le Corbusier**

The Radiant City grew out of this new conception of capitalist authority and a pseudo-appreciation for workers' individual freedoms. The plan had much in common with the Contemporary City - clearance of the historic cityscape and rebuilding utilizing modern methods of production. In the Radiant City, however, the pre-fabricated apartment houses, les unites, were at the center of "urban" life. Les unites were available to everyone (not just the elite) based upon the size and needs of each particular family.

The scale of the apartment houses was fifty meters high, which would accommodate, according to Corbusier, 2,700 inhabitants with fourteen square meters of space per person. The building would be placed upon pilotus, five meters off the ground, so that more land could be given over to nature. Setback from other unites would be achieved by les redents, patterns that Corbusier created to lessen the effect of uniformity.

Transportation systems were also formulated to save the individual time. Corbusier bitterly reproaches advocates of the horizontal garden city (suburbs) for the time wasted commuting to the city. Because of its

compact and separated nature, transportation in the Radiant City was to move quickly and efficiently. Corbusier called it the vertical garden city.



Dwelling structure at radiant city that depicted the location of dwelling in the middle, while the supporting facilities are in the second layer, while the industrial estates and factories located in the suburbs. Dwelling structure at radiant city that depicted the location of dwelling in the middle, while the supporting facilities are in the second layer, while the industrial estates and factories located in the suburbs.

Picture 2.3

Source : <http://www.google.com/>

- **Garden City by Ebenezer Howard**

The Garden City Concept is one out of many attempts to reduce and solve social problems during the Industrialization Period. The problems occurred, as more and more farmers became workers in the factories. The living conditions became worse, due to the fact that many workers' settlements were located next to the industrial areas or within the cities.

The idea of the Garden City was formulated by Ebenezer Howard in his book: "To-morrow: A Peaceful Path to Real Reform", 1898, and was revised in 1902 under the title "Garden Cities of To-morrow".

The Garden City consists for different zones, street types and green.

The core in the centre is about 4 km² and contains a central park, surrounded by a commercial, cultural and administrative zone. Here, the idea of the shopping mal came up, as Howard wanted to develop a "Crystal palace" where goods such as hand craft produced by the

inhabitants could be sold protected from weather. During the weekends the core was supposed to be the cultural and recreational centre.

Six magnificent boulevards connect the centre with the circumference, dividing the city into six parts.

A wide (Grand Avenue) and some smaller (First to Fifth Avenue) ring roads are arranged circular around the centre, and together with the radial roads, they form the wards - living area. Every family has a house of a minimum size of 6m x 30m with a shared or owned garden. Social infrastructure (i.e. schools) is located along the Grand Avenue .

The outer ring is supposed for small scale industries and manufactories to keep the inhabitants away from emission and a green belt and a circle railway mark the border to the countryside.



Picture 2.4

Source : <http://www.google.com/>

To avoid problems which occur in expanding cities, the concept limits the city maximum population up to 32,000 people.

Further growing of the Garden City is not possible. Therefore a new city has to be founded in a reasonable distance of about 7 km to the others to protect the countryside. The cities are well connected through a railway system to exchange goods.

2.3. Organic Architecture and Technology Advances

Organic Architecture, Blobitecture, and Sustainable Architecture

There has been a large move towards integration between nature and the manmade world of architecture. Great examples of this come from the styles of blobitecture, organic architecture, and sustainable architecture.

- **Blobitecture**

The first of these, blobitecture is a very interesting style that draws inspiration from various organisms in nature. The idea in this architecture style is to emulate amoebas, and various other organic life forms. Instead of using perpendicular lines and straight shapes, blobitecture uses various curves, and rounded shapes. The example is Sage Gateshead designed by Norman Foster.



Picture 2.5

Source : <http://www.google.com/>

Blobitecture is a very new style which was first described by Greg Lynn in 1995 when discussing the importance of new computing power and computer-aided design for architecture. The name of this style comes from a computer science term BLOB, the which refers the binary representation of an object. The name of this style comes from the BLOB computer science term, which refers to the binary representation of an object. Advances in computer science have made possible due blobitecture large amounts of computation and mathematics are required and That Could have only been made possible by computerised. Advances in computer

science has made possible blobitecture large numbers as mathematical calculations and the necessary and possible.

- **Organic Architecture**

Organic architecture can in many ways be very similar to the previously discussed blobitecture. Instead of emulating nature like blobitecture, organic architecture attempts to integrate with nature so that the building and the surroundings can be one. Instead of believing the regular design styles that “form follows function,” most organic architects believe that “form and function are one.” The design is to build the entire structure from the inside, similar to how a tree grows from the inside of a seed. Many architects design the entire building, including insides to ensure that everything flows together perfectly and matches.



Picture 2.6

Source : <http://www.google.com/>

This style of architecture has been around for the end of the 1900's and become incorporated into many ideas as the materials and styles became accepted and possible. The most famous building based on this style is the opera house in Sydney by Jorn Utzon in 1973. In addition to famous organic buildings, there are architects who's entire career has been based on these styles. Frank Lloyd Wright, the designer of Fallingwater in Pennsylvania is one of the most well known organic architects.

- **Sustainable Architecture**

While blobitecture, and organic architecture are in general used to strongly influence the look and feel of a building, sustainable architecture adds an additional dimension. This style refers more towards making buildings sustainable, using recycled materials, and introducing technologies that lower the impact of the building and its inhabitants on the environment. The architects aim for maximum efficiency and sustainability.



Picture 2.7

Source : <http://www.google.com/>

2.4. Rachel Armstrong results of research at TED

What if the building had lung that can absorb carbon emissions from the city and turn it into something useful? What if they have skin that can control their temperature without the need for radiators or air conditioning? What if buildings Could come "alive?" What if the building could come "alive?"

Dr Rachel Armstrong, TED senior fellow and co-director of Avatar, a research group exploring the potential of advanced technology in architecture. "Over the next 40 years, 'living' buildings - biologically programmed to extract the carbon dioxide out of the atmosphere - Could fill our cities."

Armstrong works on the cutting edge of "synthetic biology," a Relatively new science Devoted to the manufacture of life-like matter from synthesized chemicals, and is something of an evangelist for the discipline.

The chemicals Armstrong works with, concocted in the lab, are engineered to behave like organic microorganisms - with the added benefit of That They can be manipulated to do Things nature can not. Armstrong refers to Them as "protocells."

The idea of this is to create a technology that helps us connect with the environment so That our buildings have a positive impact on our environment rather than the current That They have a negative impact.

2.5. REFERENCE

- a) First winner housing tomorrow 2010

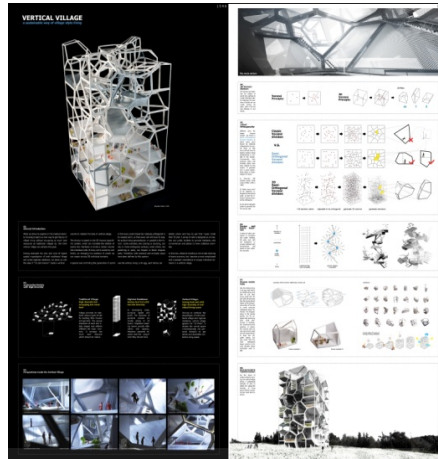


Picture 2.8

Source : <http://www.d3space.org/>

Home Spun residential building with the concept of a function that adjusts and solve problems of weather, lighting and natural resource requirements by adapting the form of buildings on the natural environment.

b) First winner housing tomorrow 2011

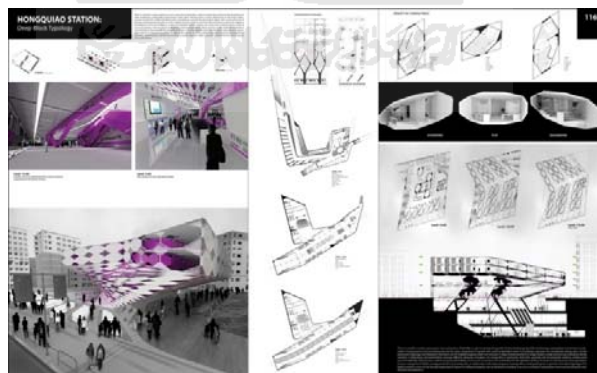


Picture 2.9

Source : <http://www.d3space.org/>

Vertical rural residential village offering vertically, the concept of form in adaptation of the arrangement of shapes orthogonal softwere obtained from the experiments and analysis of shapes, and try to resolve the problems of density.

c) second winner housing tomorrow 2010



Picture 2.10

Source : <http://www.d3space.org/>

Hongquiao station: living within the subway system, inspired by the habits of the people in tokyo bermigtasi to work every day with the subway. This design uses the concept of landscape subway lines. And connected to

the subway station, so that the land above the subway can also be used as a residence which overcomes the limitations of residential land in Tokyo.



CHAPTER 3

ANALYSIS

To make the assumption that the occupancy appropriate to the future with wall-e movie set, the author examines some future movie set, and the concept of residential or urban utopia or an existing one, by comparison, and the positive things that can be applied.

3.1. Analyzing the interaction of relationships between human beings, human - nature, and nature - technology.

Analysis conducted assuming the problems and conditions are taken from the setting of the film and product design from the architect and city of residence.

Setting the film was taken setting the television series "Terranova" and "City of Ember", while the residential concept in the analysis is the concept of group archigram, and architect of the theme group stayed hybrid concept. From the assumption of the relationship between human interaction, human - nature, and nature - technology. The author can see what the problems faced in each setting situations. How is the relationship between related objects, and how the solutions to the problems in take on setting situation. results of these assumptions may be considered in developing the concept and design. Analysis presented in Table 3.1





3.2. Analyzing dwelling system / structure of the city that had been applied, and exposure to the concept from the architects of the city.

As has been described in the previous chapter. Analyses were conducted on the concept of the city which is made by Le Corbusier and Ebenezer Howard.

3.2.1. The Radiant City by Le Corbusier

Concept presented is to promote the city of practicality, effort equalization of social status, and optimization of land.

The building was deliberately designed vertically, all facilities are provided on a mass of buildings which united with place of residence. Practicality and optimization of land is reached on this concept, but the social relationships between people and equitable distribution of social welfare can not be said to be achieved. Can be seen from the application of a vertical housing, such as apartments with full facilities in it, practicality is provided in the apartment is currently only perceived benefits for the middle class and above. Even the flats in Indonesia, which reserved for people who are less able to switch the function of its benefits, leased and used by the society can afford, whether used as a residence or business area. And finally among the poor still inhabit the slums, and social disparities persist. One example of the failure of the vertical housing projects in urban areas is the project "Pruitt Igoe" in 1954 at St. Louis, Missouri, which was sharpened racial disparities between blacks and whites in America. The building was finally in rubuhkan total in 1970.

The results of this analysis are used to see what the dwelling system that can be applied in the future, or if there should be changes the system, a system like what is appropriate to be applied in the future.

3.2.2. Garden City by Ebenezer Howard

That brings the concept of synergy is a city with green parks, where residential and commercial space located within or between the park. Trying to restore the residential to the middle of nature but still with a supporting element of the urban areas. Obstacles that may be in the face if this concept is realized is how people adjust to the setting of the situation. The upside of this concept is the interaction between human beings and the environment. Reduce the effects of global warming, obstacles that will be faced people's behavior may be assessed by the completion of the architecture. architectural make of human behavior in it to keep it modern but not selfish with the surroundings.

By analyzing the concept of both cities, the author can see the strengths and weaknesses of the existing city concept, and may be a consideration in design.

3.3. Behavior analysis and human needs of the future

According the excerpt book "Architecture and Human behavior" Joyce Marcella Laurens, human behavior is formed because of two factors. Nature and nurture. Nature is a factor which is an inherent of human nature, for example instincts. while nurture is human behavior that forms due to an event or experience. Nurture is influenced by factors such as social environment, family, and even traumatic.

Some opinions and views about what behaviors, instincts and basic human needs either formed by nature or nurture.

Robert Ardrey	Abraham Maslow	Alexander Leighton	Henry Murray	Peggy Peterson
Security	Selfactualizing	Sexual Satifaction	Dependence	Harmavoidance
Simulation	Estem	Expression of Hostility	Deference	Sex Affiliation
Identity	Love & Belonging	Expression of Love	Dominance	Nurturance
	Safety & security	Spontanity	Exhibition	Security
	Pysiological need	Securing of Recognition	Nurturance	order
		Orientation interm of one place	Order	Frame orientation
		Securing & Maintain membership	Rejection	Identity
		Sense of belonging	Sentience	Exhibition
		Physical Security	Sex succorance	Defendence
			Understanding	Aggression
				Rejection
				Deference
				Play
				Variety
				Understanding
				Meaningfull
			Self Actualization	
			Asthetic	

Tabel 3.3. Basic Human Needs
Source : Processed by the author, 2008

In the case of wall-e settings, human behavior before humans back to the earth formed from nurture. Individual behavior, selfish, are formed because they are familiar with the full facilitated by technology. Almost 90%, they interact with technology, but very low direct interaction with fellow human beings, so that behavior that individuals are unconsciously much more powerful than their human instincts. Their sensitivity to the feelings such as empathy, sympathy, expressing themselves become very low. With behavior that brought the custom in previous situations, the resulting design should be able to restore the human instinct, to accommodate the basic human needs.

Humans will adapt to back to nature, and prefer to do the work manually. The technology used to support the full daily activities, may still be used reasonably (but not total), humans have the instinct for care of each other, then people will reshape the smallest system of society as before, that is the family. To control the people, required the government, or in a small scope group required figure of the leader. This system is required in order to form deliberation, and formed human behavior than nurture, which is open to each other, take care of each other, and other human instincts.

If the previous setting, human live as an individual, in this system people will live in groups, in a residential group contained three families in it. Each family will be staying in a small shelter which provided only a bedroom and bathroom. Other activities will be contained in the communal space, which will be used jointly with two other families. Why in a scope of of small groups, limited to maximum of 3 families who are on it? Assumed, there are only 3 family limitation is to anticipate the emergence of gaps in the group. More than three-family conflict is assumed to be often, because of differences of opinion, personality, and mind perspectives with each other. In addition to achieving the interaction between people and nature will be difficult to achieve, because if the capacity of the group

too much, people will make the boundaries themselves each and difficult to open up to others.

To accommodate the basic of human needs that are formed by the natural instinct, every family remains on the facilitation of private occupancy. But the only form of facilities for rest and activities of individuals or other private, the rest, other activities such as cooking, interacting with the family centered on a communal space that lies in the midst of such occupancy.

3.4. Analysis for space requirements

3.4.1. Building functions

In general, the function of this building is the house / human settlements, with a setting time of 200 years in the future. which not only houses, but also reshape human instincts, and the structure of the environment.

Space requirements

Group activities	Types of space	nature of space
Dwelling unit	<ul style="list-style-type: none"> • Parents bedroom • Child's bedroom • Bathroom 	Private Private Private
Comunal Space	<ul style="list-style-type: none"> • Parlor • Living room • Kitchen 	Public Public Public

Tabel 3.4. Space requirements

Source : Processed by the author, 2008

3.4.2. Organization of space

Spacious standard rooms and circulation resulting from the assumption of human body dimensions on the setting of the movie Wall-e. assumed based on the comfort of human motion, circulation and activities undertaken. to the size of a normal human body now, the circulation for a person in assuming about 1 meter, to measure the human body in the movie wall-e, the circulation for a person in assuming about 2 meters, from the circulation and the standard assumption that dimension of the space formed to standardize the used in building design.



CHAPTER 4

CONCEPT

Exposure to theoretical analysis in the previous chapter, this chapter will explain the concepts used in the design of future occupancy. Approach to future discussions on the concept of residential and alternative scenarios that formed the setting for future housing.

4.1. Design Concept

Resulting from the assumption of how the concept of mindset, activities, interactions among humans, human interaction with nature, and human interaction with technology. Assumption of how the architecture of forming the pattern, the natural instinct of human nature that people return to form. By forming the structure of the small community of families, and facilitate the design of residential architecture within a single dwelling which does not only consist of one family, but more. Thus re-formed fellow human interaction that is not only an individual and just clumped in one family, but the interaction of mass society. however the design still facilitate the activities of the personal / private.

How technology and nature interact with each other, manifested by the presence of synthetic biology to produce a genetically engineered form of the protocell. that if genetic engineering is to collaborate with the architecture will have a positive impact on the environment.

Designing a model for future housing, in which the architecture to accommodate the results of research on synthetic biology Rachel Armstrong in housing. translated into a residential home life that can blend in with nature and sustainable.

Concept that produce residential occupancy that humanist, in synergy with nature, forming bonds between humans and the environment again and others, with not leaving the technology, but technology is not an enemy that makes human dependence, but the technology support to residential and nature synergy.

From the analysis, the authors generate the assumption that only covers the actual occupancy requirement for activity breaks, bathing, and other private needs. Other activities such as gathering, cooking, which is usually done at home in one family, done jointly with other families in the communal space provided. So we assume there are three in one family dwelling. expected with this design, the aim of forming instincts of human togetherness back to form.

4.2. Schematic Design

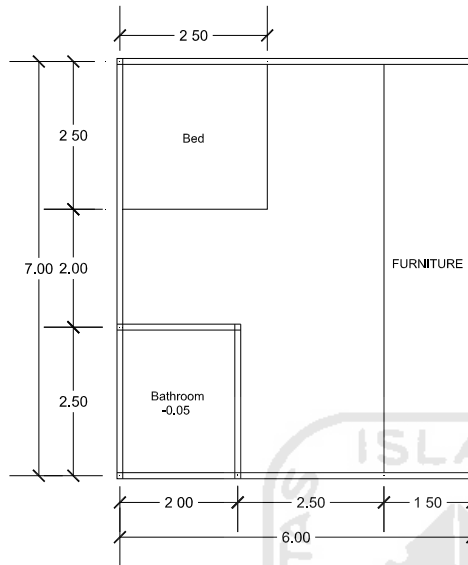
To answer the design problems, it generated some design alternatives in accordance with the possibility of setting some circumstances.

4.2.1. Build the interaction between human beings

The initial scenario, when human returns to earth, humans will form a small family in advance, to form the structure of the smallest communities. Family will live in groups with other families, and connected by the public open space. Which then-occupancy dwelling will experience the design development.

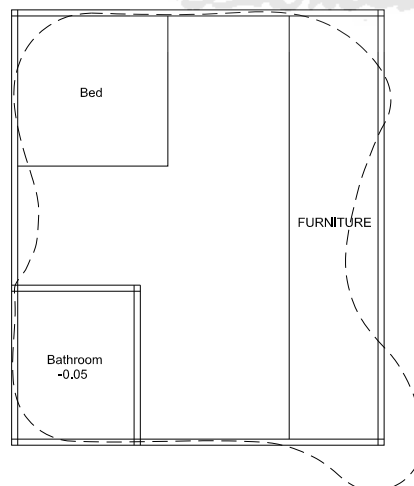
Module For The Form

- **First Alternative**



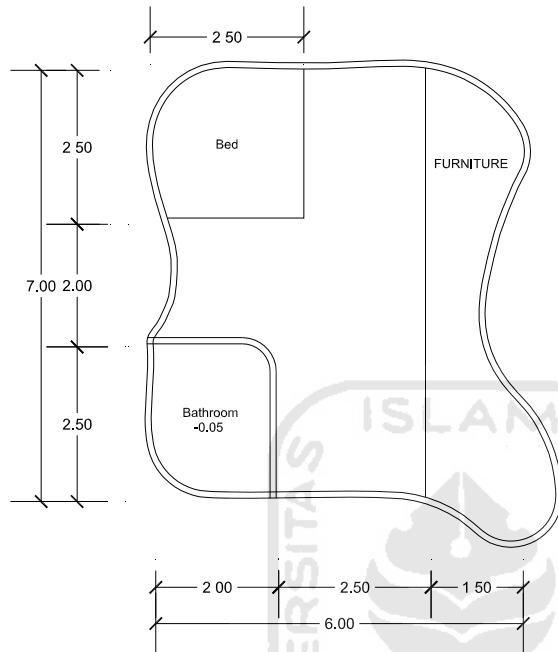
The first form is formed from the assumption of space requirements based on space, circulation, human comfort, and furniture in accordance with the assumption that the dimensions of the human body on the setting of the movie Wall-E.

Picture 4.1
documentation by author



To produce a more efficient space, then there is the transformation of the building mass. By adjusting the furniture in the interior needs, then the space is not functioning optimally, there is redesign as shown at the picture.

Picture 4.2
documentation by author



Without ignoring the comfort and function space, this design produces a more organic and dynamic, adjusting to the site conditions and more efficient, both in space and producing design.

Picture 4.3
documentation by author

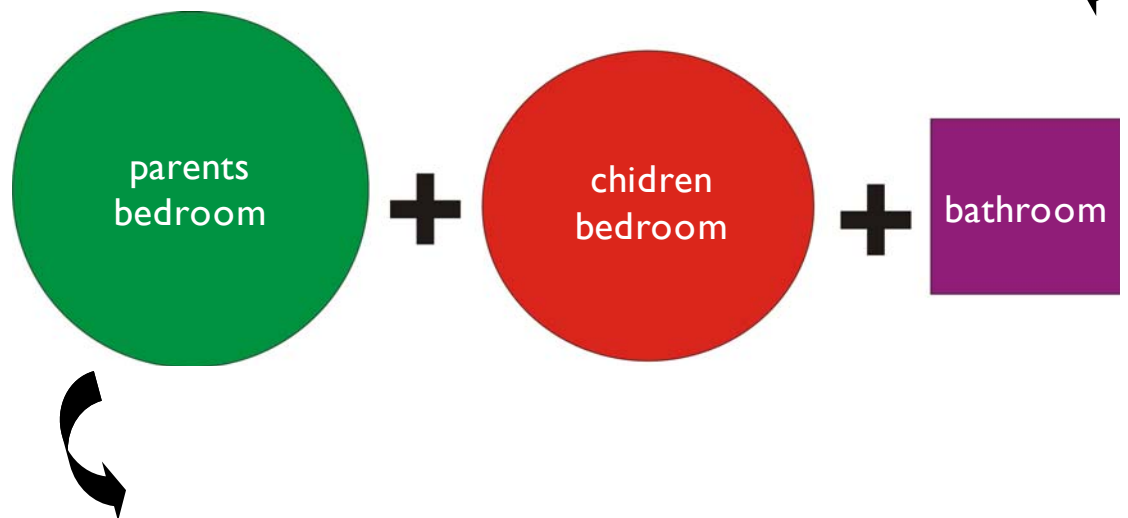
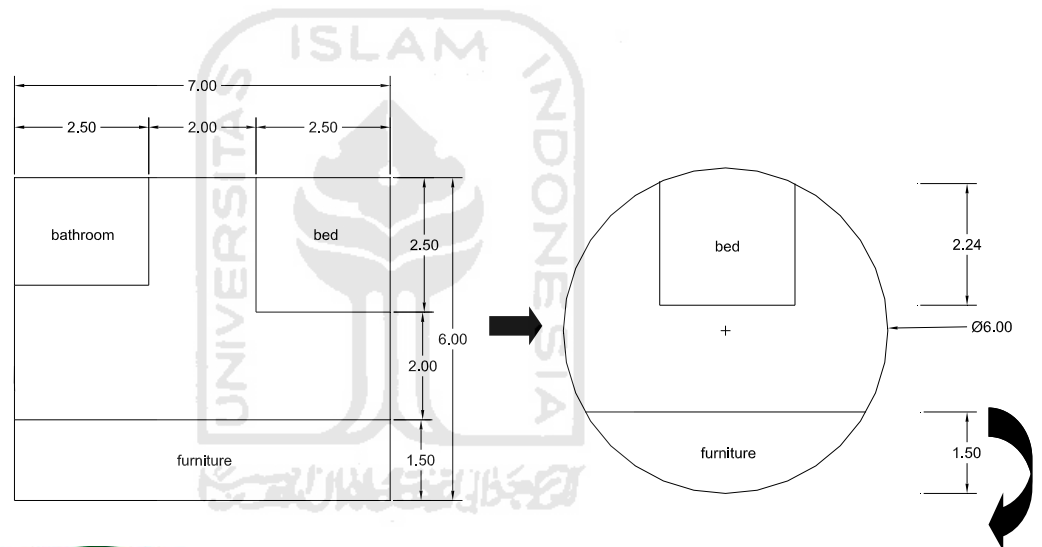
Floor Plan for this alternative setting

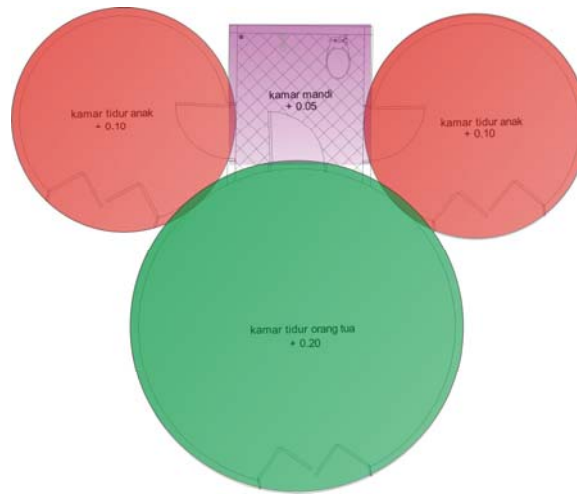


Picture 4.4
documentation by author

The authors generate the assumption that only covers the actual occupancy requirement for activity breaks, bathing, and other private needs. Other activities such as gathering, cooking, which is usually done at home in one family, done jointly with other families in the communal space provided. So we assume there are three in one family dwelling. expected with this design, the aim of forming instincts of human togetherness back to form.

- **Second Alternative**

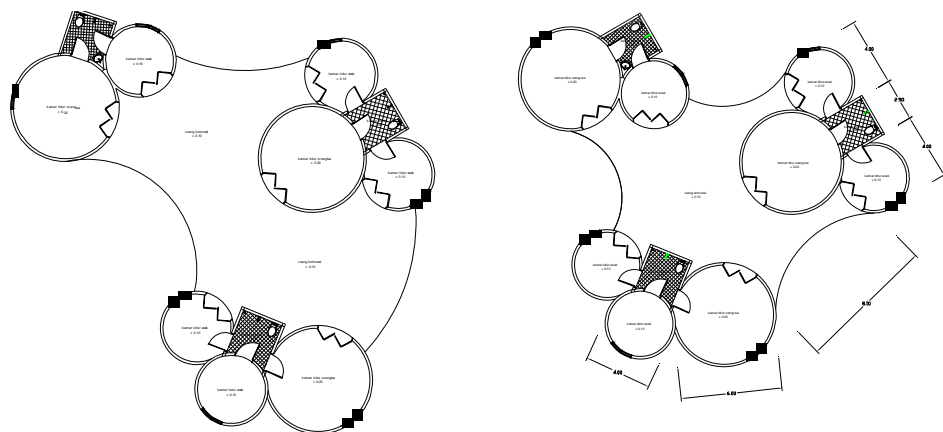




Picture 4.5
 documentation by author

Of the module at an alternative plan at the first of design space, at this design offers another alternative. With further simplify the function space, and psychological aspects of architecture, the space module is used, using a circle pattern, with the diameter of 6 meters for the parents bedroom, and a diameter of 4 meters for the child's bedroom.

Floor Plan for this alternative setting

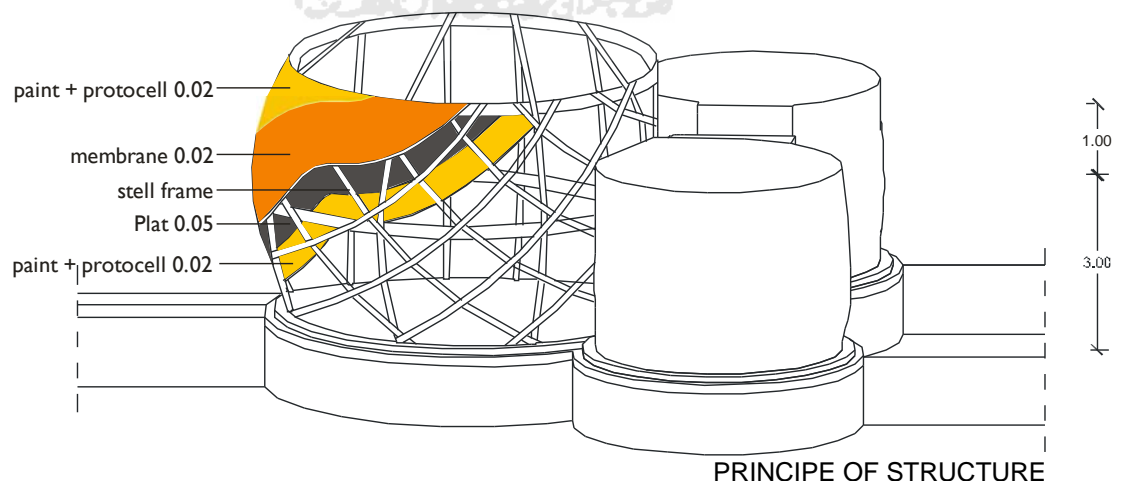


Picture 4.6
 documentation by author

Plan on the design principle is the same as in the previous room floor plan design alternatives. Where there is no floor plan reference is accurate. Floor plan is formed by the accordance circumstances of site. Each break room would be connected by a protocell. Which then of each chamber will be connected with the existence of shared communal space. There is only one provision of the two alternative designs. Namely, the total maximum of communal living space is 50 square meters, and a total area of minimum space is 40 square meters. This provision resulted from the assumption of the need for space and comfort for 15 people occupants.

4.2.2. Interaction between nature and technology

The interaction between nature and technology in the design will accommodate this protocell. Protocel will produce shells that grow and adapt to its environment section, linking the building units, the formation of organic form, and with housing protocell site will grow to fit the site and the growth environment at the time.



Picture 4.7
 documentation by author

Use of modern materials of steel, and steel recycling process from the proceeds of the existing waste at a setting of the film combined with genetic engineering and chemistry produce an environmentally friendly building products and actually blend in with nature.

Metamorphosis of housing growth

- **Situation of the building on the first ecosystem protocell and the paint started to form a layer**



icture 4.8
documentation by author

Situation of the earth at the first humans will form a dwelling, the earth looks still very dry, humans need to clean up, and will establish a new ecosystem, by planting of plants. existing metal waste, will be administered to humans as the utilization of materials that will be their dwelling habitable.

- **Procell and the paint started to form a shell**



Picture 4.9
documentation by author

With the intensity of sunlight and carbon dioxide on buildings, levels of protocell in the paint will work together to form 'Calcium carbonal' or lime that will grow the building envelop. then as the ecosystem is formed, the building also "grow" and supporting ecosystem to make it more sustainable.

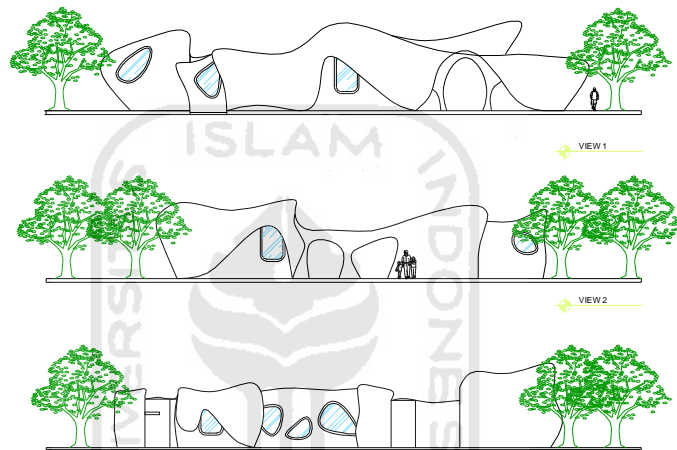
- **Through the process of sunlight and CO₂ to the protocell existing capacity, formed a perfectly formed shell**



Picture 4.10
documentation by author

When the ecosystem is formed, then the building has also been formed in accordance with optimal levels of procell that is mixed in it. The building will be connected to one another. synergy with nature, and produce a design that is really sustainable to support the environment to be better than before.

Alternative fasade

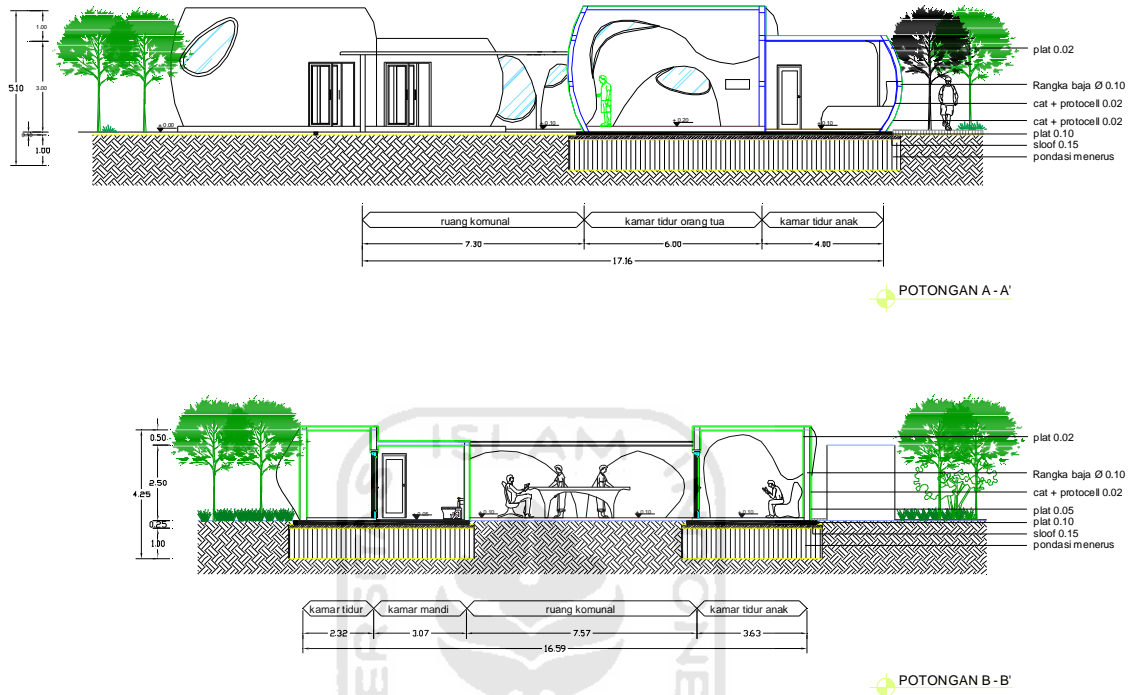


Picture 4.11
documentation by author



Picture 4.12
documentation by author

Section of the building



Picture 4.13
 documentation by author

As well as the shape of the building, floor plans, and looks. The resulting pieces not too raw. The resulting pieces can be changed according to the development of these procell house, to show the details of the building. But the principle remains the same structures used.

Concept of Interior on the building



Picture 4.14
documentation by author

Interior concept is based on the principle of maximizing building space, resulting in a design, that dynamic, efficient, convenient and safety. Prioritizing functions / human needs in the design, not use a lot of ornaments. But still show a strong aesthetic in it. Interior of the building is also a consideration in the form of exterior building design.

4.2.3. Interaction between human and technology

Restrictions on the setting of this technology include helping the needs of housing production, helping the needs of everyday people, but the technology is passive and does not move. When a man is in need of technology, then humans who would come to these technologies.

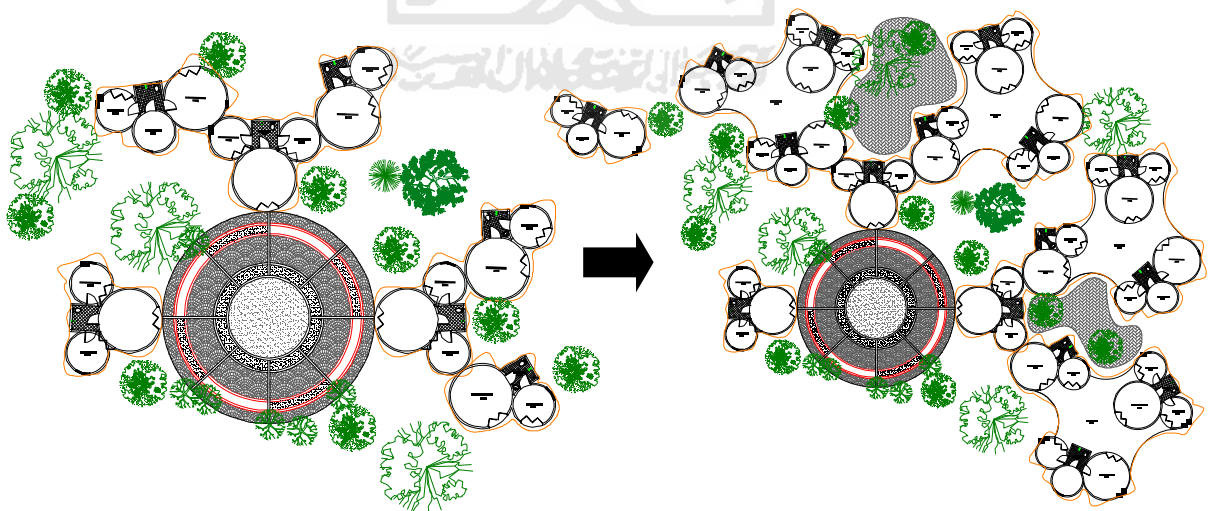
CHAPTER 5

DEVELOPMENT OF DESIGN

In summary, the concept of occupancy can be defined as an organic form, following the natural surroundings. Follow the state of the site grows. Produces humanist character, dynamic, there is an interaction between technology and nature, and formed humans character to interact with others. In principle, the housing will grow as the previous chapter. Protocell will grow to envelop the building, and creating a connecting building.

We never know the form of the future but we can assume, to analyze the possibility of things in the future. In this chapter will present some alternative designs in the future development, the implementation of housing protocell basic assumption in the previous chapter.

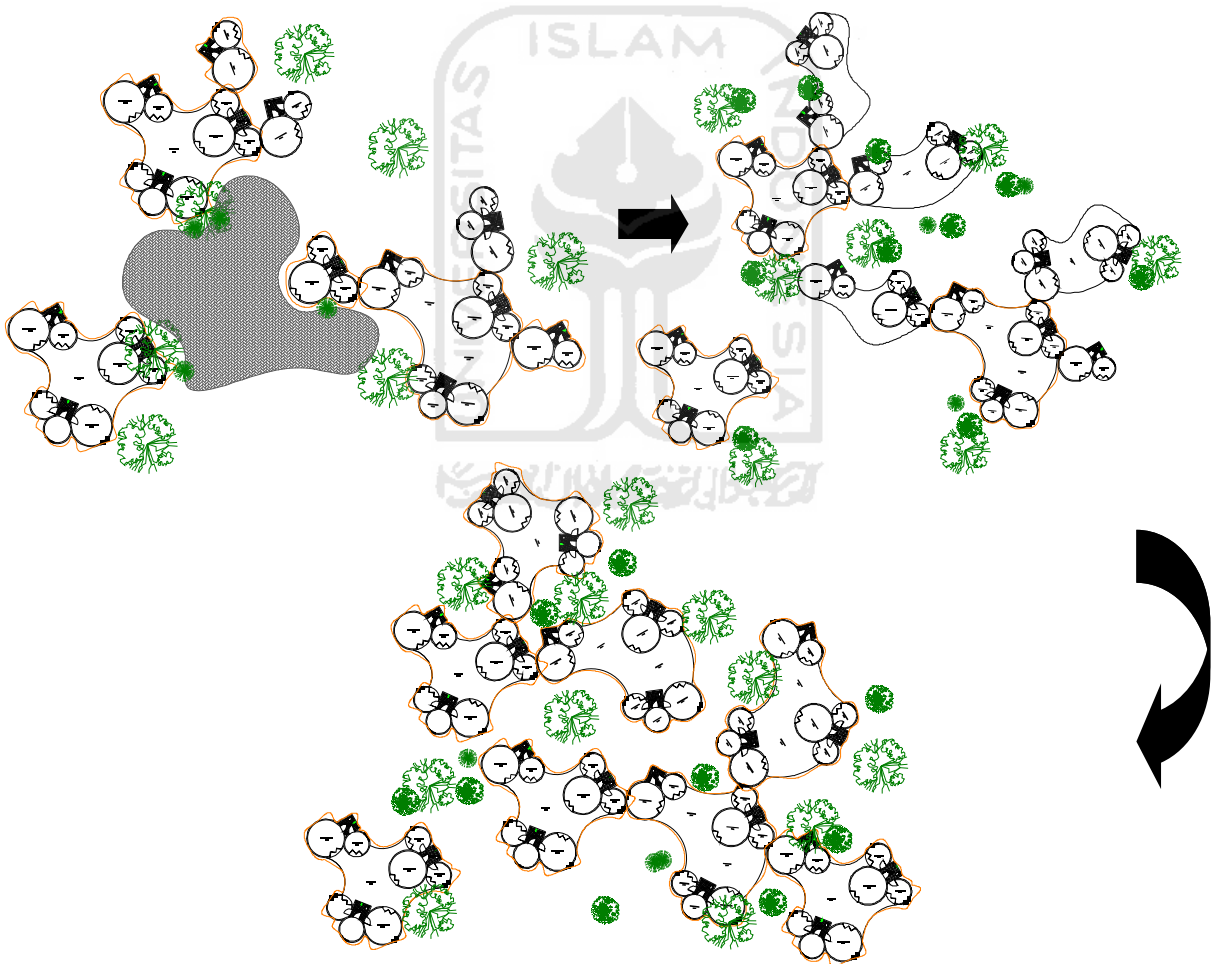
5.1. First Alternative of Development



Picture 5.1
documentation by author

Initial scenario, humans will return to earth, and formed a small family, build a small house as the initial shelter. It also aims to reshape the character and instincts of human nature. shelters will be linked by public open space. limited distance between the shelter at least 15 meters. So when every family has a descendant, a shelter will grow as seen in siteplan. shelter will grow to adjust to the situation of land, development protocell, and the structure of society scenario.

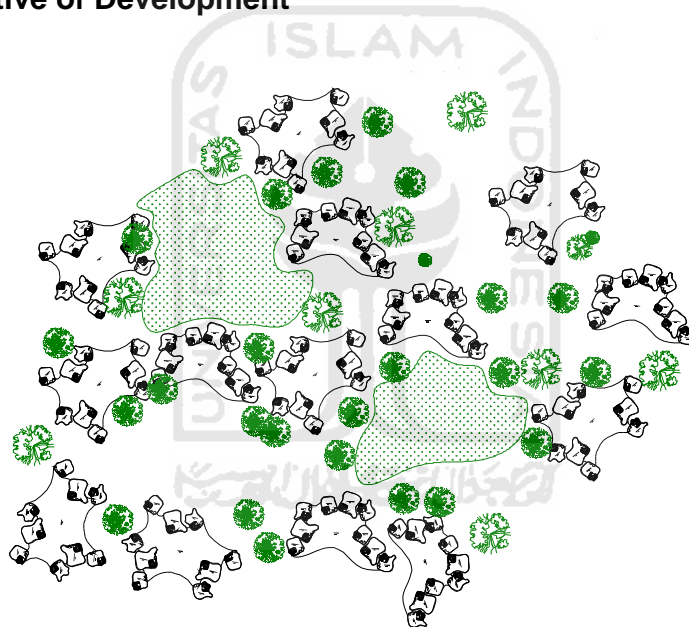
5.2. Second Alternative of Development



Picture 5.2
documentation by author

In the second alternative scenario, when the man returns to earth, man would immediately form a dwelling. Where as in previous designs, in one there are three family dwelling therein. In this alternative, the first dwelling to be inhabited is not determined by lineage. The establishment of a direct character was formed with the togetherness that carried at their daily activities by a third family. Then at development, occupancy based on lineage as in the previous design alternatives can be developed.

5.3. Third Alternative of Development



Picture 5.3
documentation by author

In the third alternative scenario, residential growth is not based on bloodline, occupancy evolve freely, but still with the provisions of any dwelling consists of a maximum of three families, with a maximum limit of communal living space of about 50 square meters. Adapting from the middle to lower settlement patterns in Indonesia, when people mingle freely with one another, the character

of human nature is expected to form. By following the pattern / contour on nature, occupancy will grow not symmetrical, and more organic.

5.4. Scenarios for Region

In fact, everything that exists on the earth, other than living things, are human-made. Then it also applies to the residential and technologies. Then it should be residential and the technology that adjusts the state of the earth, not the other way. As in the alternative exposure of future residential design on the the previous study, the occupancy will grow and evolve to adjust the situation, and the contour of the earth, growing in tandem with the growing re-ecosystems.

Then where lies the industrial, urban, and the supply of human life ? Of this design again provide an alternative option.

- **First Alternative**

Restoring nature of human life, like a deepening tribal, where the interests or needs of human life dwell only on meeting their daily needs, such as eating, drinking, rest, breed / sex, and set aside the issue of money. doing all the needs together and mutual cooperation, and coexistence with nature. Where industry ruled out here. residential product in working together (craftmanship) and supported by technology.

- **Second Alternative**

This residential design, will synergize with the concept of utopia existing city, like the concept of "garden city" owned Ebenezer Howard. Where the design has become one of the design for residential development on the concept of the city, and supports the purpose of establishing the concept of the city.

LITERATURE

Marcella, Joyce Laurens, "Architecture and Human behavior"

<http://en.wikipedia.org/wiki/Housing>

<http://en.wikipedia.org/wiki/Evolution>

<http://en.wikipedia.org/wiki/Blobitecture>

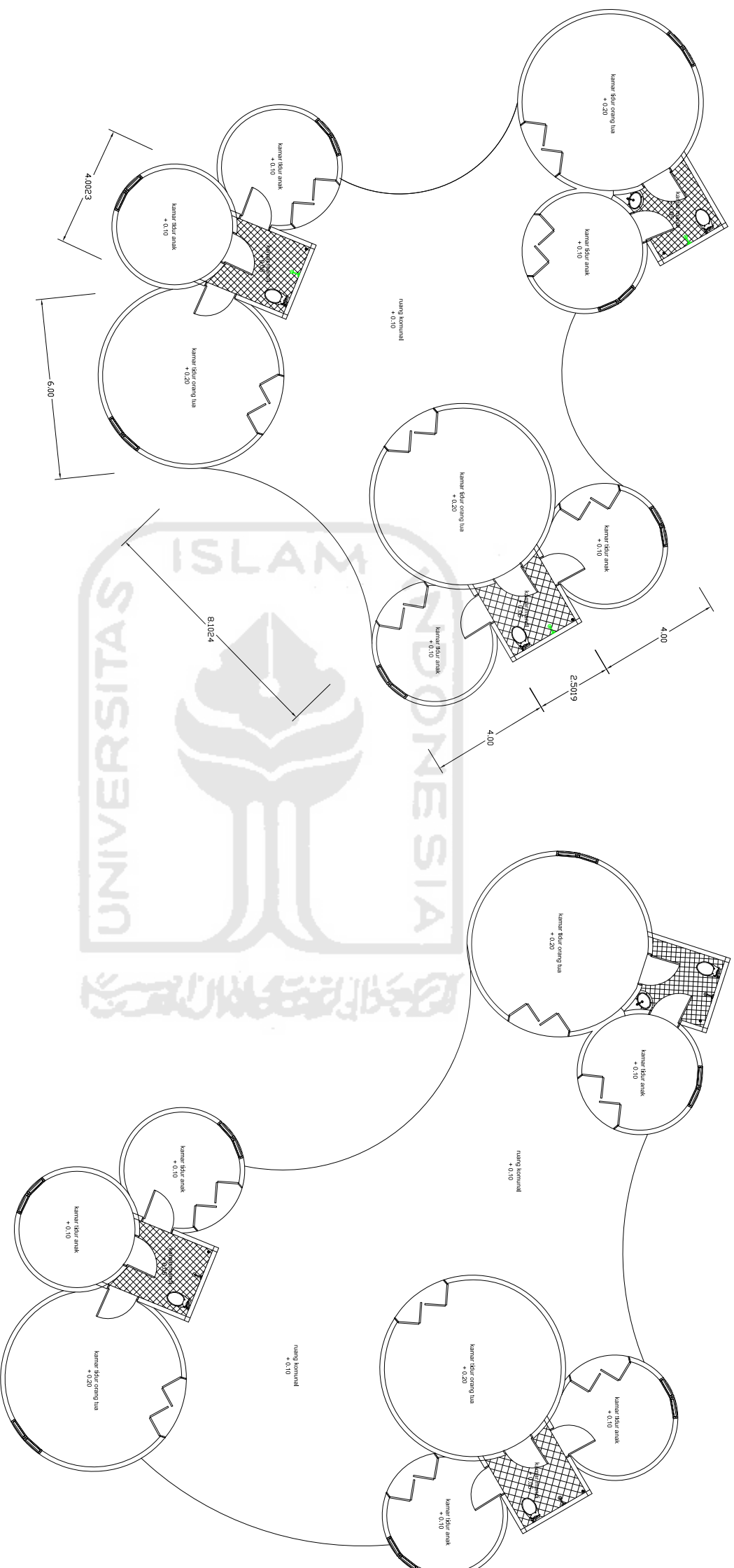
<http://www.arcspace.com>. *Erdos Museum*. 2008

http://en.wikipedia.org/wiki/Radiant_City

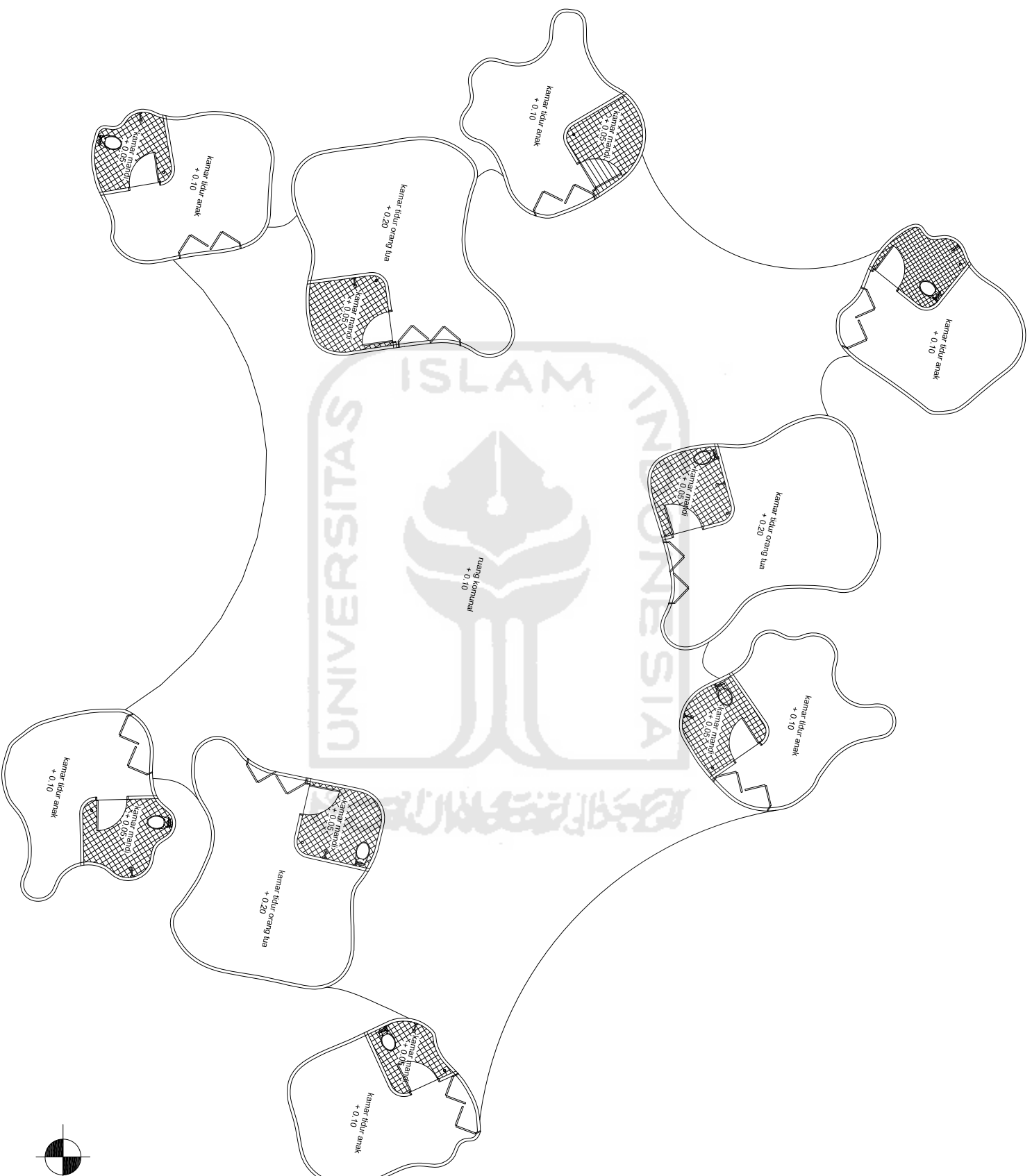
<http://anisavitri.wordpress.com/2009/02/18/garden-city-reformasi-sosial-ala-ebenezer-howard/>



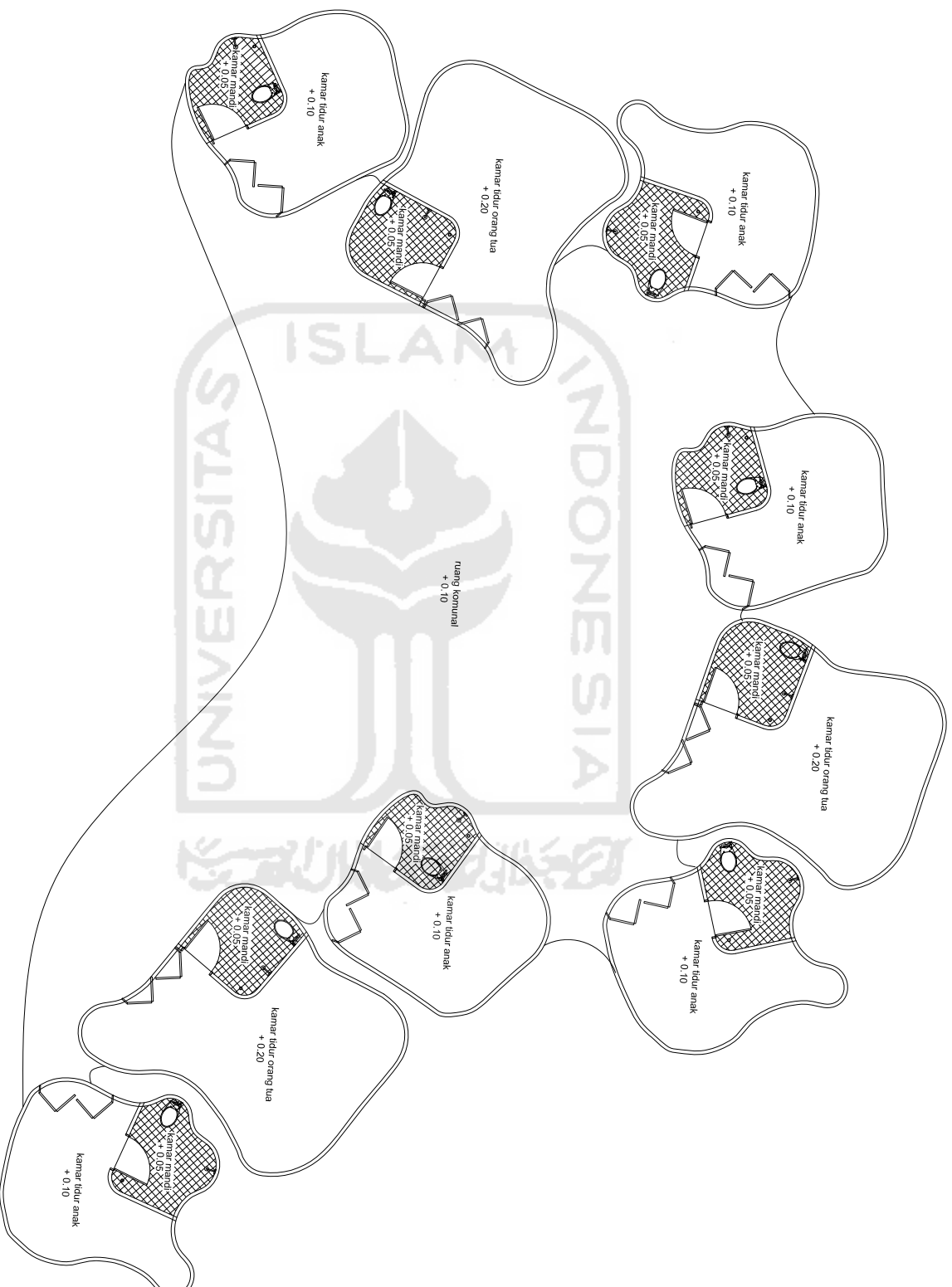
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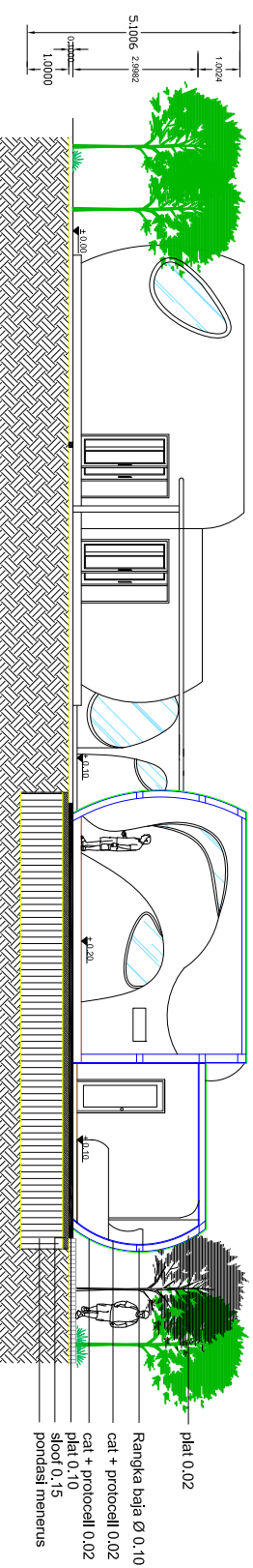
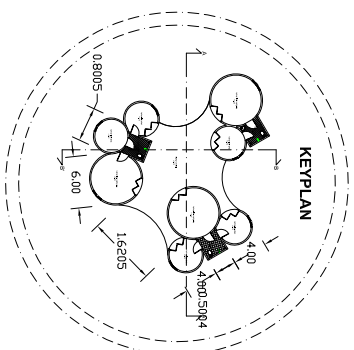
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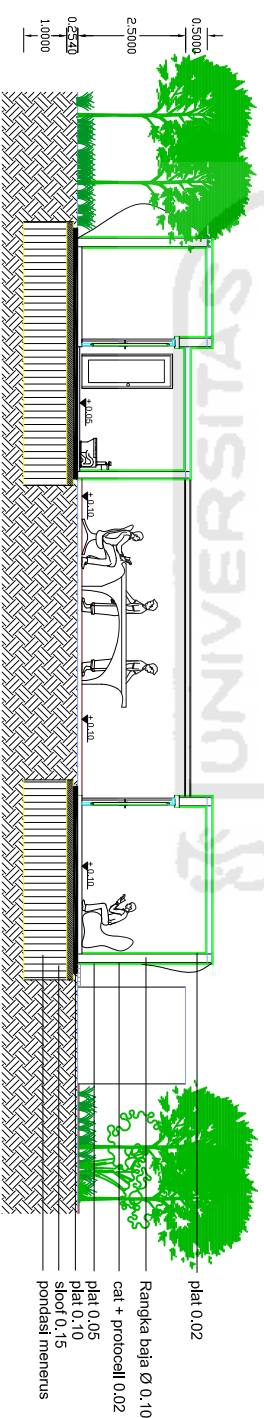
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DENAH 3




ALTERNATIF
DENAH 4

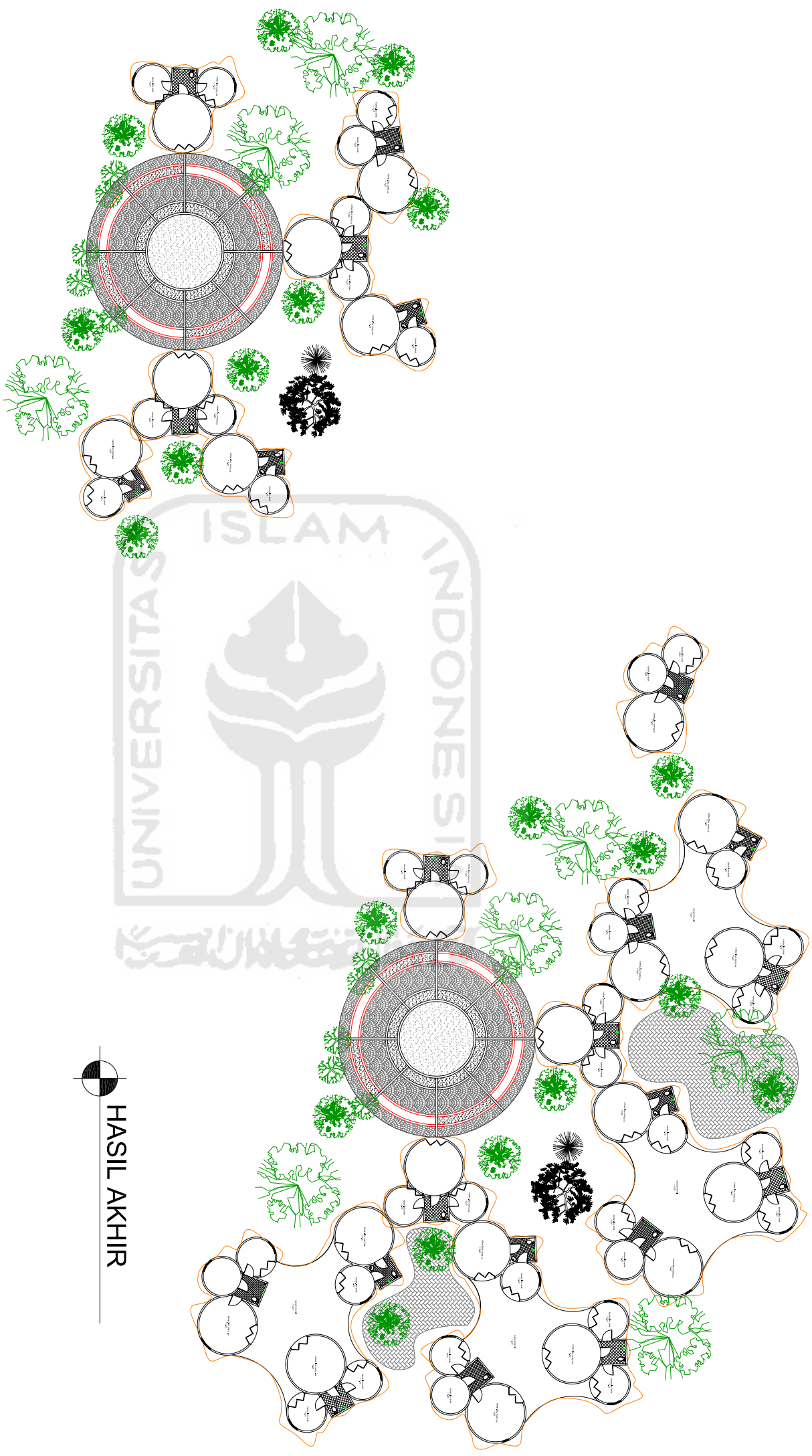


POTONGAN A - A'




POTONGAN B - B'

 TUGAS AKHIR JURUSAN ARSITEKTUR FAKULTAS TEKNIK SIPIL DAN PERENCANAAN UNIVERSITAS ISLAM INDONESIA	PERIODE II TAHUN AKADEMIK 2011/2012	PROTOCOL HOUSING Based on "Back to The Earth Evolution of Wall-E"	DOSEN PEMBIMBING		IDENTITAS MAHASISWA		NAMA GAMBAR	SKALA	NO. LBR	JML LBR	PENGESAHAN
			IR. ARMAN YULIANTA, MUP		NAMA APRODITA EMMA YETTI	NAMA GAMBAR POTONGAN BANGUNAN					



FASE AWAL

HASIL AKHIR

 <p>TUGAS AKHIR JURUSAN ARSITEKTUR FAKULTAS TEKNIK SIPIL DAN PERENCANAAN UNIVERSITAS ISLAM INDONESIA</p>	<p>PERIODE II TAHUN AKADEMIK 2011/2012</p>		<p>PROTOCOL HOUSING Based on "Back to The Earth Evolution of Wail-E"</p>		<p>DOSEN PEMBIMBING IR. ARMAN YULIANTA, MUP</p>		<p>IDENTITAS MAHASISWA</p> <table border="1"> <tr> <td>NAMA</td> <td>APRODITA EMMA YETTI</td> </tr> <tr> <td>NO. MHS</td> <td>07512022</td> </tr> <tr> <td>TANDA TANGAN</td> <td></td> </tr> </table>		NAMA	APRODITA EMMA YETTI	NO. MHS	07512022	TANDA TANGAN		<p>NAMA GAMBAR SKENARIO ALTERNATIF SITEPLAN 1</p>		<p>SKALA 1 : 500</p>	<p>NO. LBR</p>	<p>JML LBR</p>	<p>PENGESAHAN</p>
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PROTODCEL HOUSING
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DOSEN PEMBIMBING

IR. ARMAN YULIANTA, MUP

IDENTITAS MAHASISWA

NAMA
APRODITA EMMA YETTI

NO. MHS
07512022

TANDA TANGAN

NAMA GAMBAR

SKENARIO ALTERNATIF
SITEPLAN 2

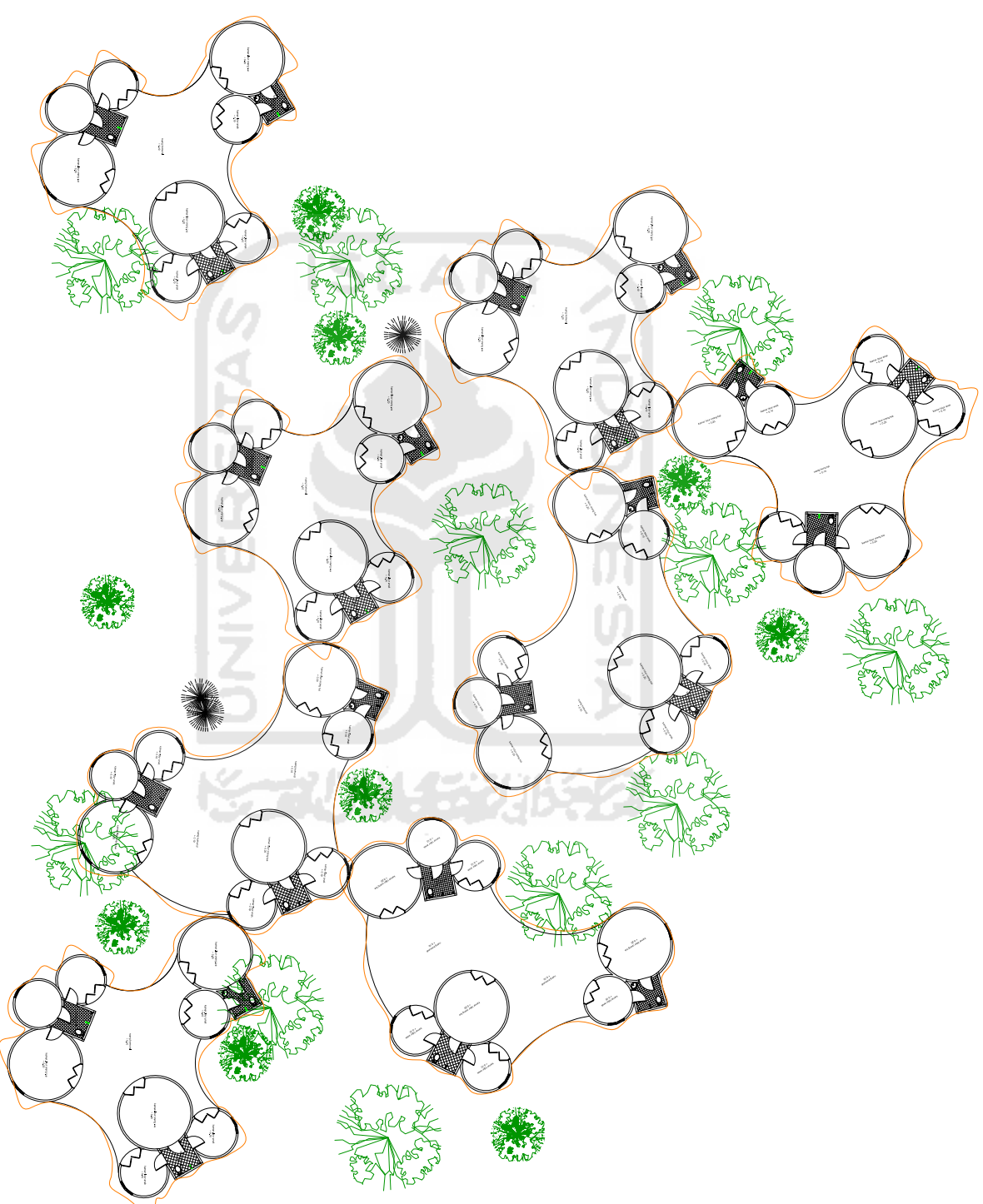
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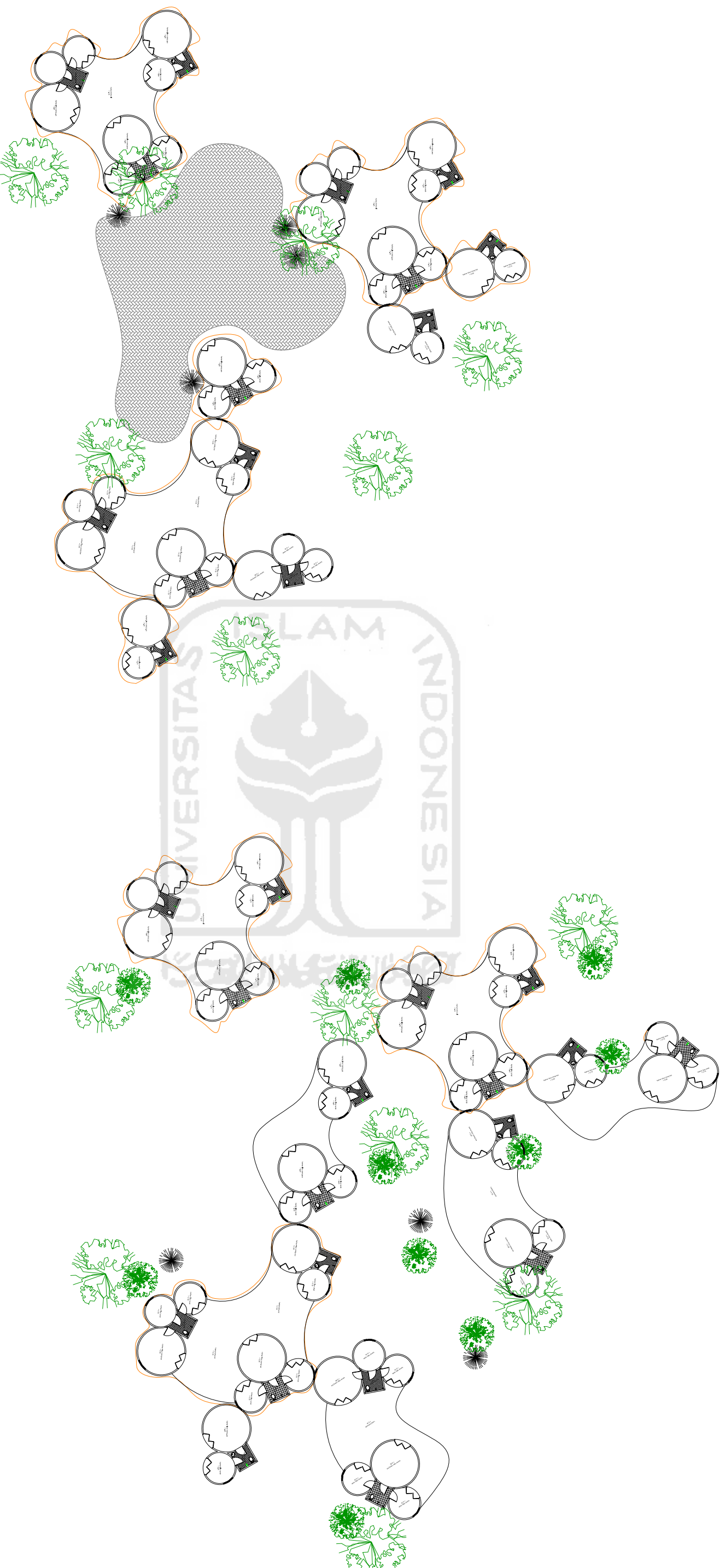
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FASE TUMBUH

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PROTOCOL HOUSING
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DOSEN PEMBIMBING
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IDENTITAS MAHASISWA

NAMA
APRODITA EMMA YETTI

NO. MHS
07512022

TANDA TANGAN

NAMA GAMBAR

SKENARIO ALTERNATIF
SITEPLAN 3
(HASIL AKHIR)

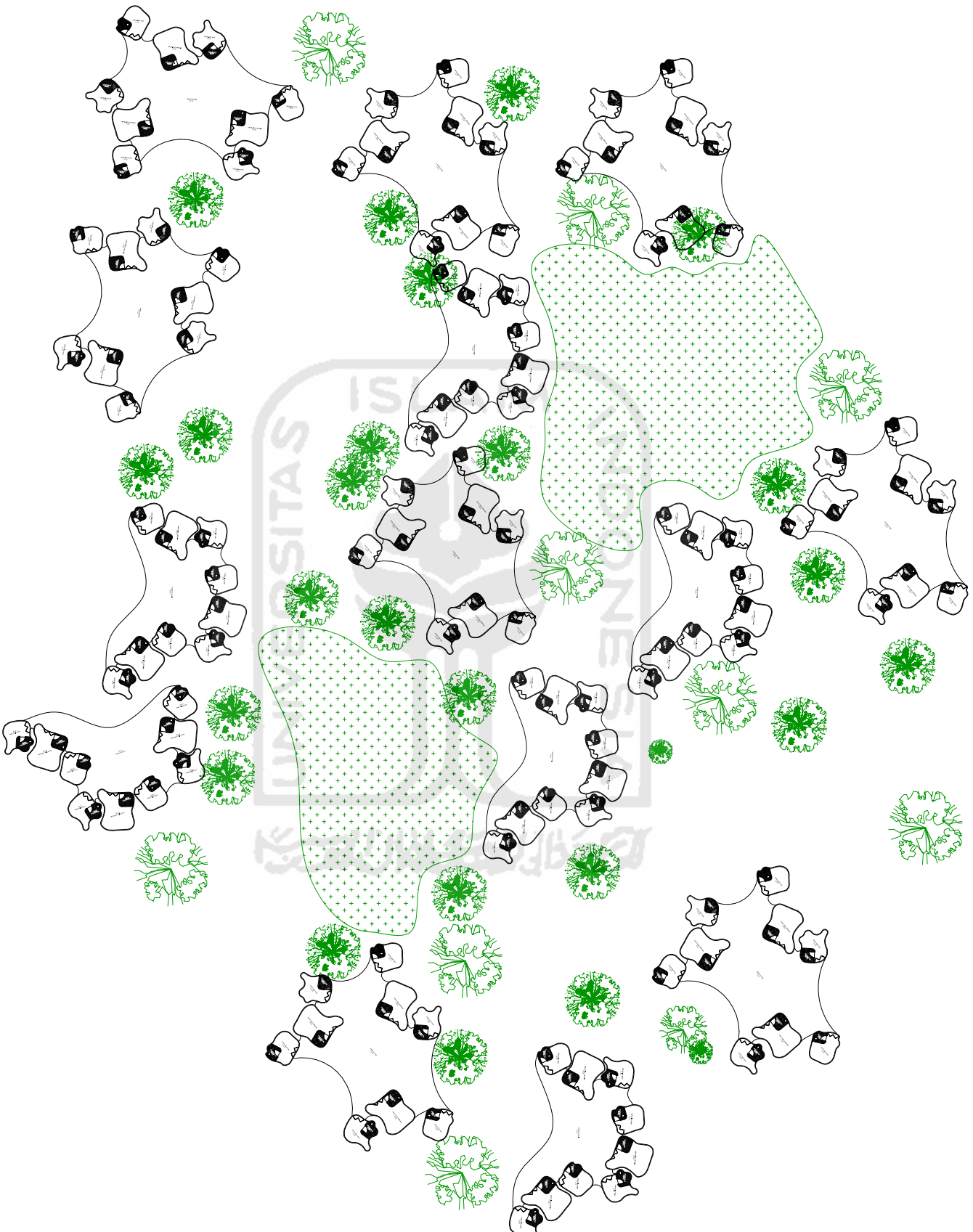
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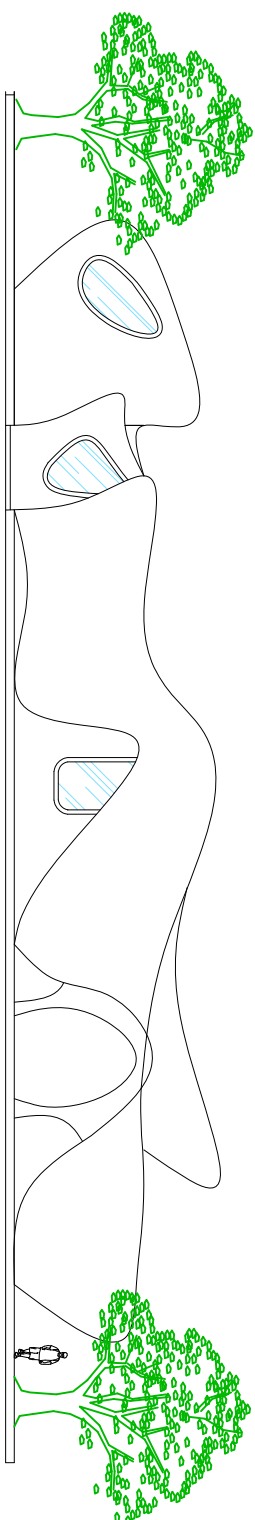
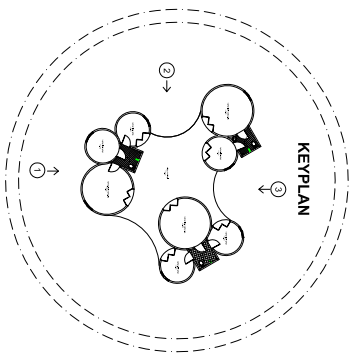
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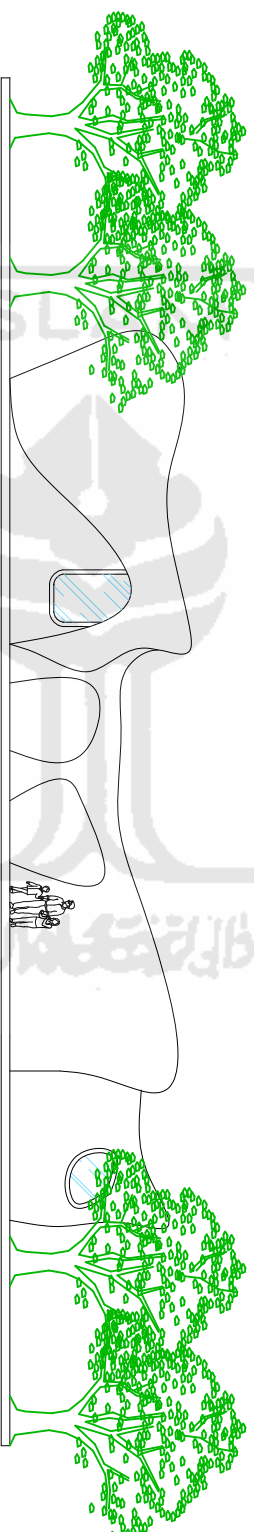
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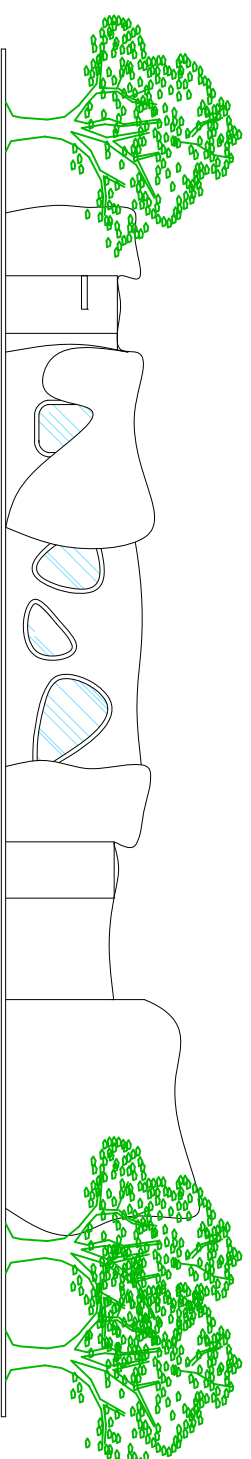





VIEW 01



VIEW 02

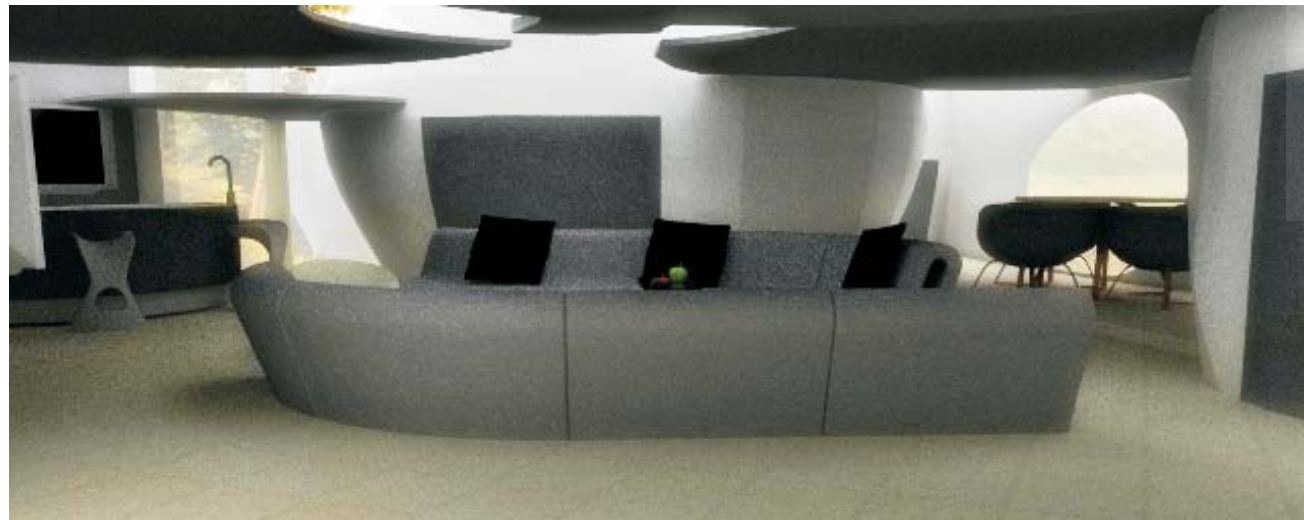


VIEW 03

		TUGAS AKHIR JURUSAN ARSITEKTUR FAKULTAS TEKNIK SIPIL DAN PERENCANAAN UNIVERSITAS ISLAM INDONESIA		PERIODE II TAHUN AKADEMIK 2011/2012		PROTOCEL HOUSING Based on "Back to The Earth Evolution of Wail-E"		DOSEN PEMBIMBING IR. ARMAN YULIANTA, MUP		IDENTITAS MAHASISWA NAMA NO. MHS TANDA TANGAN		NAMA GAMBAR TAMPILAK BANGUNAN		SKALA 1 : 150		NO. LBR		JML LBR		PENGESAHAN	
										APRODITA EMMA YETTI 07512022											



EKSTERIOR



INTERIOR

PROTOCELL HOUSING

BASED ON “ BACK TO THE EARTH EVOLUTION OF WALL - E”

d3 Closegap Architecture Competition | Housing Tomorrow 2012

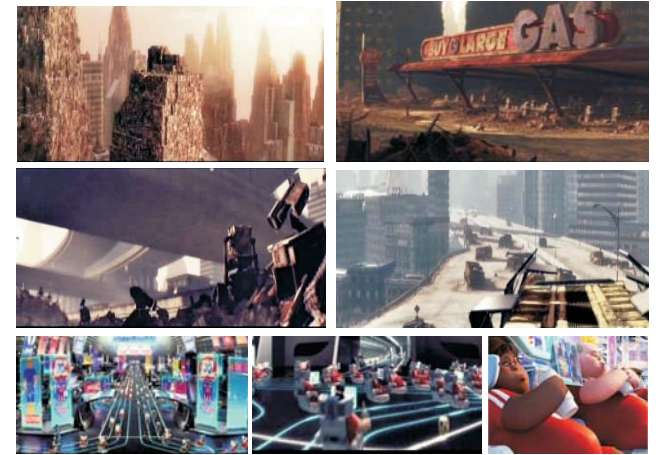
BACKGROUND

Conflicts interest raised from the assumption how the future of human dwelling. How the accommodate the residential needs of people, on the condition and ecosystems of the earth in the future. For helping the author to see how the image of the human condition and the ecosystems of the earth in the future, the author take wall-e movie set as consideration for generating design.

Recounted how about 200 years to come, humans will live outside the earth, City of the future portrayed very modern and sophisticated, but this causes the man into a figure of individualism, does not interact directly among humans. As well as the environment, but actual human beings need the environment and ecosystem. need a breath of fresh air, interact directly with each other humans and the environment, because if the human moves static then it will cause negative effects on behavior, even the nature of health care quality.

The ideal image of the earth is to have a dense forest, blue sky, clear water, no pollution, is the dream of human habitation in the future. In fact, the earth at that time is inversely proportional to human expectations, and inversely proportional to the sophistication of existing modernization. The earth is full of junk, unhealthy air, very little green land, no life.

Wastes from human activities of daily accumulating due to waste not processed. earth's damaged ecosystems, environmental quality can be said to be bad. Then what should be done in order to reproduce and fix the occupancy is much more feasible and better than ever.



PROBLEMS

General Problem

How the structure appropriate settlements and can be applied to the dwelling of the future, to avoid repetition ecosystem damage ?

PURPOSE



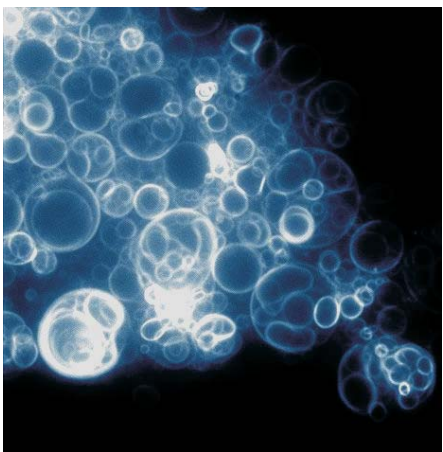
Specific Problem

- How the design a house in the future that will not destroy nature and ecosystems, technology and nature actually support each other to produce a design which environmentally friendly and sustainable ?
- How to revive the relationship between others human, and human with nature ?

Generating future of human settlements in an environmentally friendly, sustainable, and blend with nature. For humans, nature and technology can interact with each other so there is no damage natural repetition. Produce housing that can accommodate "synthetic biology" research results from Rachel Armstrong, that occupancy is a means for mutual symbiosis of nature and technology, resulting in environmentally friendly housing and sustainable.

BASE I LITERATURE REVIEW

Synthetic Biology



Protocells

What if the building was the lungs that can absorb carbon emissions from the city and turn it into something useful? What if they have skin that can control their temperature without the need for radiators or air conditioning? What if the building could come "alive?" What if the building could come "alive?"

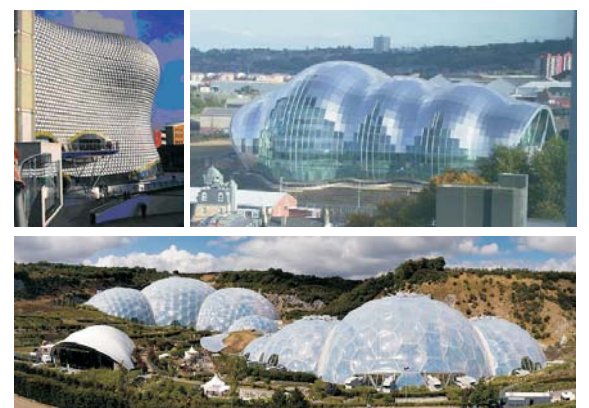
Dr Rachel Armstrong, TED senior fellow and co-director of Avatar, a research group exploring the potential of advanced technology in architecture. "Building Over the next 40 years, 'live' - biologically programmed to extract carbon dioxide from the atmosphere - could fill our cities."

The idea is to create a technology that helps us relate to the environment so that our buildings have a positive impact on our environment than today that they have a negative impact. genetically engineered products that produced a protocell. when mixed with paint walls and exposed to CO₂, will absorb and convert it to calcium carbonal / shell lime. which serves to stop the greenhouse gases, to repair the damage / cracking walls, and extend the life of the structure.

Blobitecture

Blobitecture from blob architecture, blobism or blobismus are terms for a movement in architecture in which buildings have an organic, amoeba-shaped, bulging form. Though the term 'blob architecture' was in vogue already in the mid-1990s.

The term 'blob architecture' was coined by architect Greg Lynn in 1995 in his experiments in digital design with metaball graphical software. Soon a range of architects and furniture designers began to experiment with this "blobby" software to create new and unusual forms. Despite its seeming organicism, blob architecture is unthinkable without this and other similar computer-aided design programs. Architects derive the forms by manipulating the algorithms of the computer modeling platform. Some other computer aided design functions involved in developing this are the nonuniform rational B-spline or NURB, freeform surfaces, and the digitizing of sculpted forms by means akin to computed tomography.



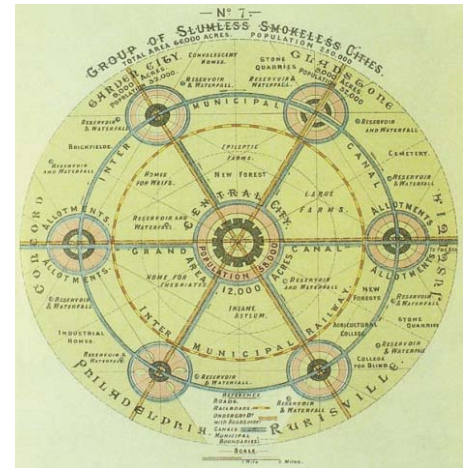
Garden City | Ebenezer Howard

The Garden City consists for different zones, street types and green. The core in the centre is about 4 km² and contains a central park, surrounded by a commercial, cultural and administrative zone. Here, the idea of the shopping mal came up. Six magnificent boulevards connect the centre with the circumference, dividing the city into six parts.

A wide (Grand Avenue) and some smaller (First to Fifth Avenue) ring roads are arranged circular around the centre, and together with the radial roads, they form the wards - living area. Every family has a house of a minimum size of 6m x 30m with a shared or owned garden. Social infrastructure (i.e. schools) is located along the Grand Avenue.

The outer ring is supposed for small scale industries and manufactories to keep the inhabitants away from emission and a green belt and a circle railway mark the border to the countryside. To avoid problems which occur in expanding cities, the concept limits the city maximum population up to 32,000 people.

Further growing of the Garden City is not possible. Therefore a new city has to be founded in a reasonable distance of about 7 km to the others to protect the countryside. The cities are well connected through a railway system to exchange goods.



CONCEPT

Concept that produce residential occupancy that humanist, in synergy with nature, forming bonds between humans and the environment again and others, with not leaving the technology, but technology is not an enemy that makes human dependence, but the technology support to residential and nature synergy.

Designing a model for future housing, in which the architecture to accommodate the results of research on synthetic biology Rachel Armstrong in housing, translated into a residential home life that can blend in with nature and sustainable.



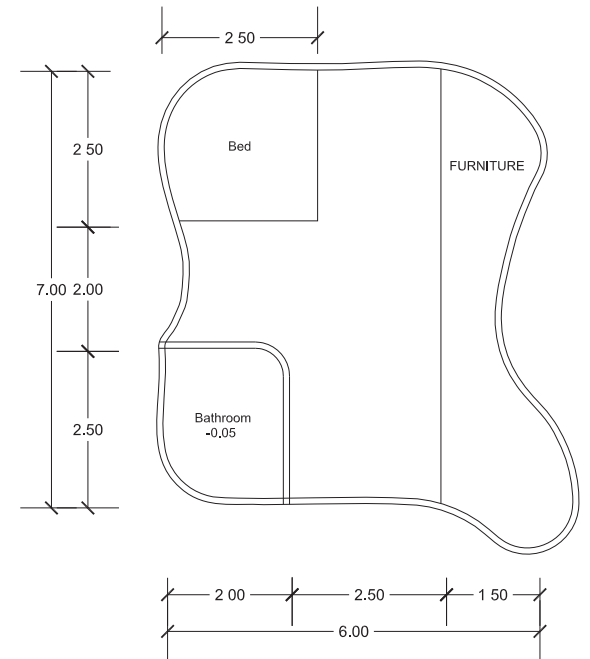
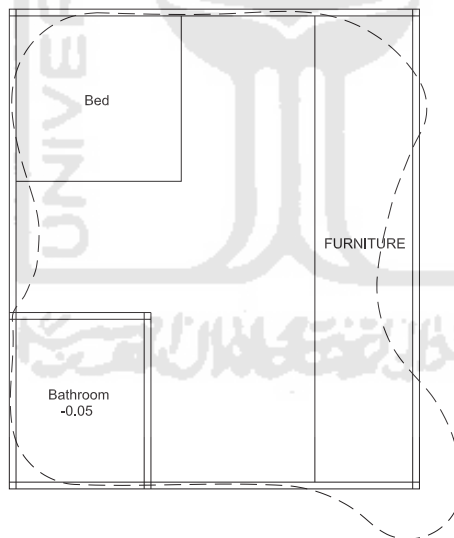
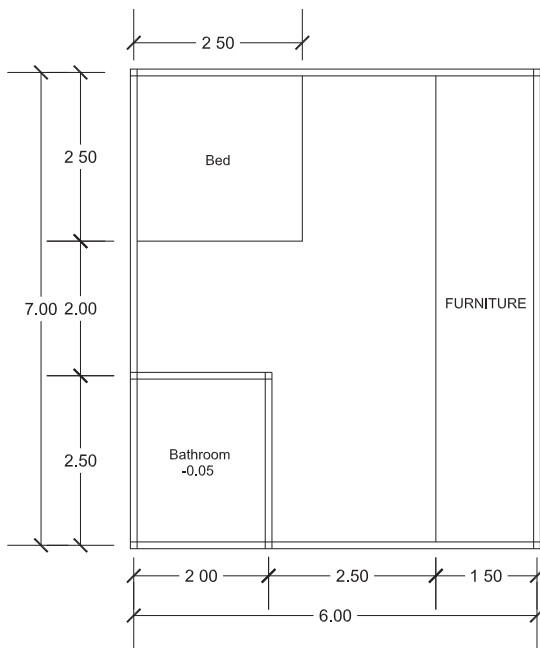
SCHEMATIC DESIGN

• Build the interaction between human beings

The initial scenario, when human returns to earth, humans will form a small family in advance, to form the structure of the smallest communities. Family will live in groups with other families, and connected by the public open space. Which then-occupancy dwelling will experience the design development.

Module For The Form

First Alternative



The first form is formed from the assumption of space requirements based on space, circulation, human comfort, and furniture in accordance with the assumption that the dimensions of the human body on the setting of the movie Wall-E.

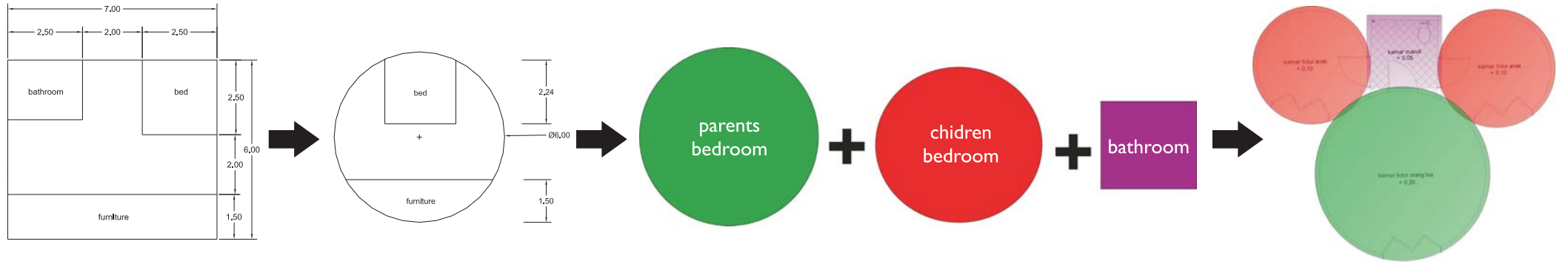
To produce a more efficient space, then there is the transformation of the building mass. By adjusting the furniture in the interior needs, then the space is not functioning optimally, there is redesign as shown at the picture.

Without ignoring the comfort and function space, this design produces a more organic and dynamic, adjusting to the site conditions and more efficient, both in space and producing design.

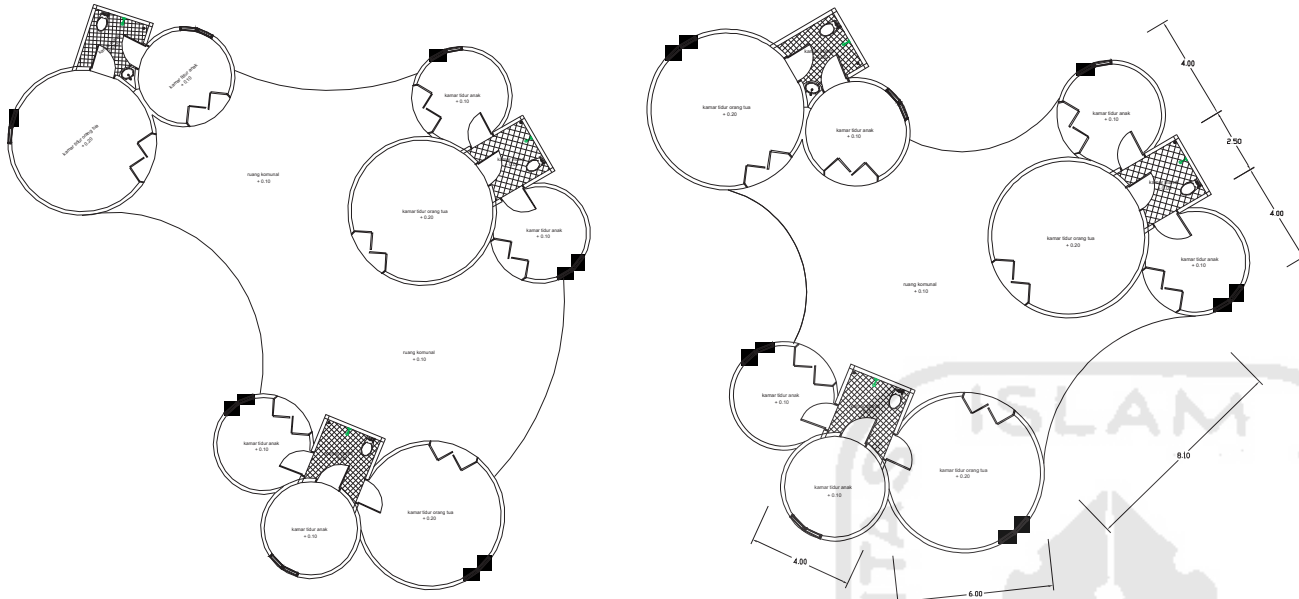


The authors generate the assumption that only covers the actual occupancy requirement for activity breaks, bathing, and other private needs. Other activities such as gathering, cooking, which is usually done at home in one family, done jointly with other families in the communal space provided. So we assume there are three in one family dwelling. expected with this design, the aim of forming instincts of human togetherness back to form.

Second Alternative

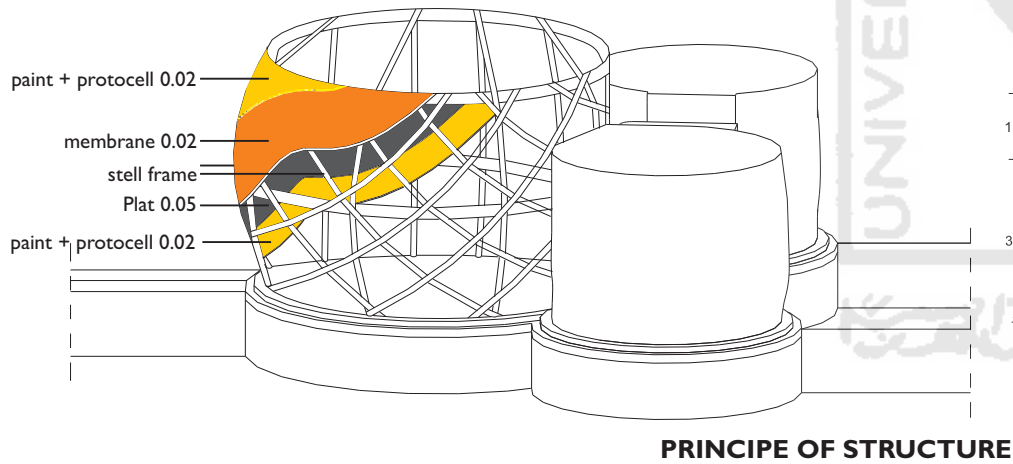


Of the module at an alternative plan at the first of design space, at this design offers another alternative. With further simplify the function space, and psychological aspects of architecture, the space module is used, using a circle pattern, with the diameter of 6 meters for the parents bedroom, and a diameter of 4 meters for the child's bedroom.



Plan on the design principle is the same as in the previous room floor plan design alternatives. Where there is no floor plan reference is accurate. Floor plan is formed by the accordance circumstances of site. Each break room would be connected by a protocell. Which then of each chamber will be connected with the existence of shared communal space. There is only one provision of the two alternative designs. Namely, the total maximum of communal living space is 50 square meters, and a total area of □□ minimum space is 40 square meters. This provision resulted from the assumption of the need for space and comfort for 15 people occupants.

• Interaction between nature and technology



The interaction between nature and technology in the design will accommodate this protocell. Protocell will produce shells that grow and adapt to its environment section, linking the building units, the formation of organic form, and with housing protocell site will grow to fit the site and the growth environment at the time.

Use of modern materials of steel, and steel recycling process from the proceeds of the existing waste at a setting of the film combined with genetic engineering and chemistry produce an environmentally friendly building products and actually blend in with nature.

Metamorphosis of residential growth



situation of the building on the first ecosystem protocell and the paint started to form a layer

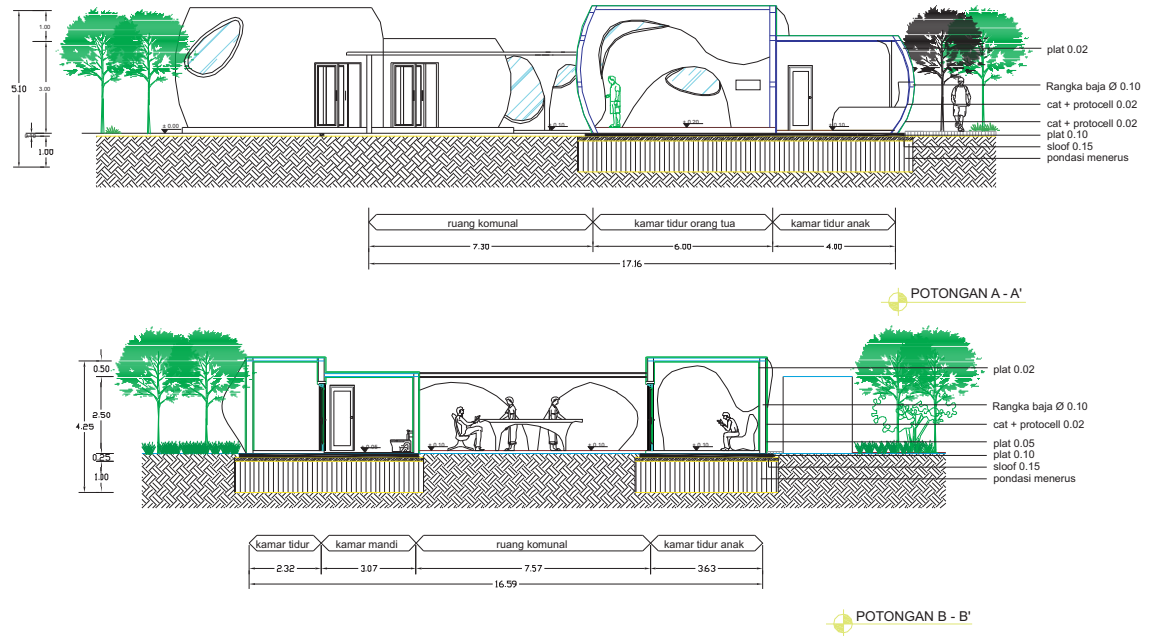
Situation of the earth at the first humans will form a dwelling, the earth looks still very dry, humans need to clean up, and will establish a new ecosystem, by planting of plants. existing metal waste, will be administered to humans as the utilization of materials that will be their dwelling habitable.

protocell and the paint started to form a shell

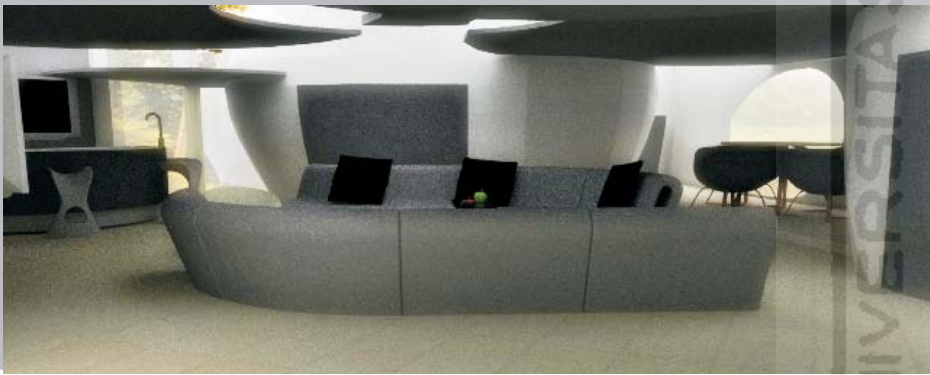
With the intensity of sunlight and carbon dioxide on buildings, levels of protocell in the paint will work together to form 'Calcium carbonal' or lime that will grow the building envelop. then as the ecosystem is formed, the building also "grow" and supporting ecosystem to make it more sustainable.

through the process of sunlight and CO2 to the protocell existing capacity, formed a perfectly formed shell

When the ecosystem is formed, then the building has also been formed in accordance with optimal levels of protocell that is mixed in it. The building will be connected to one another. synergy with nature, and produce a design that is really sustainable to support the environment to be better than before.



INTERIOR

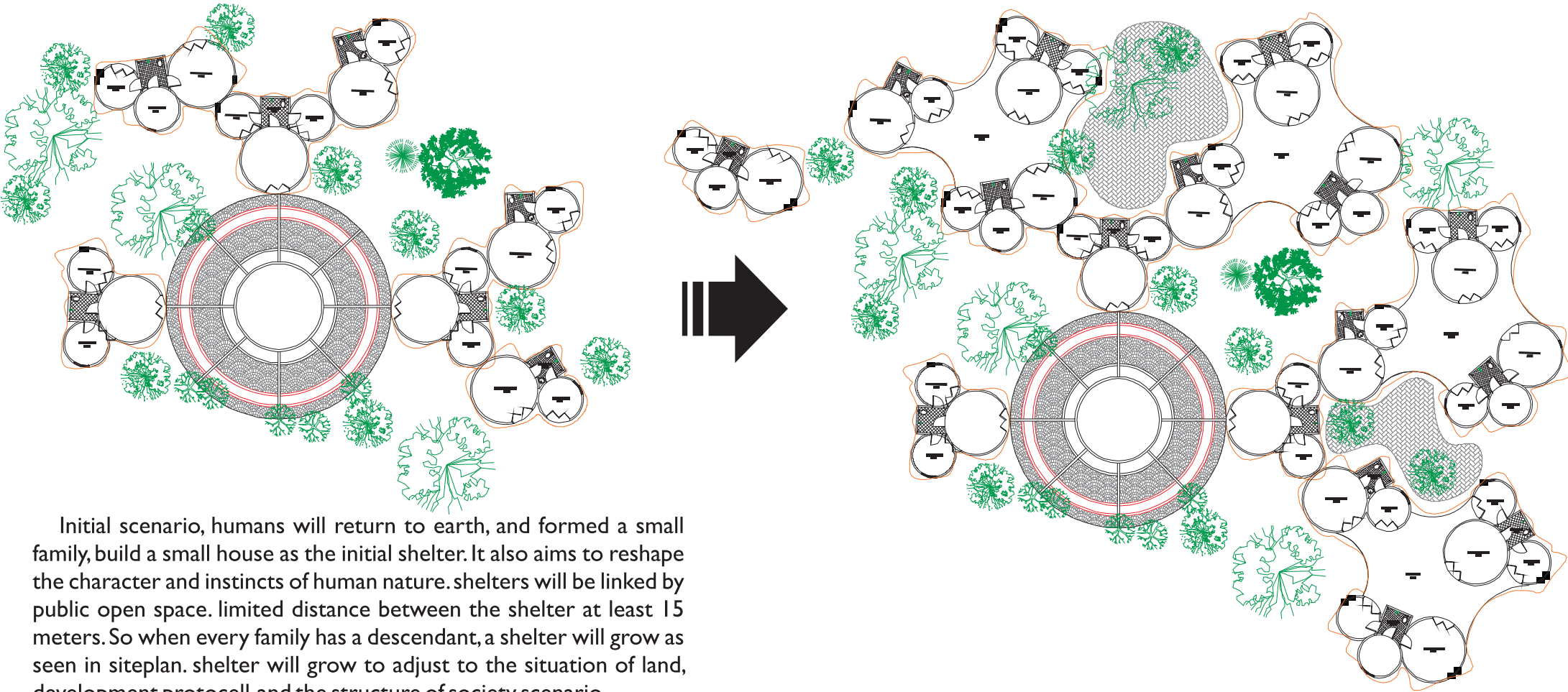


• Interaction between human and technology

Restrictions on the setting of this technology include helping the needs of residential production, helping the needs human daily, but the technology is passive and does not move.

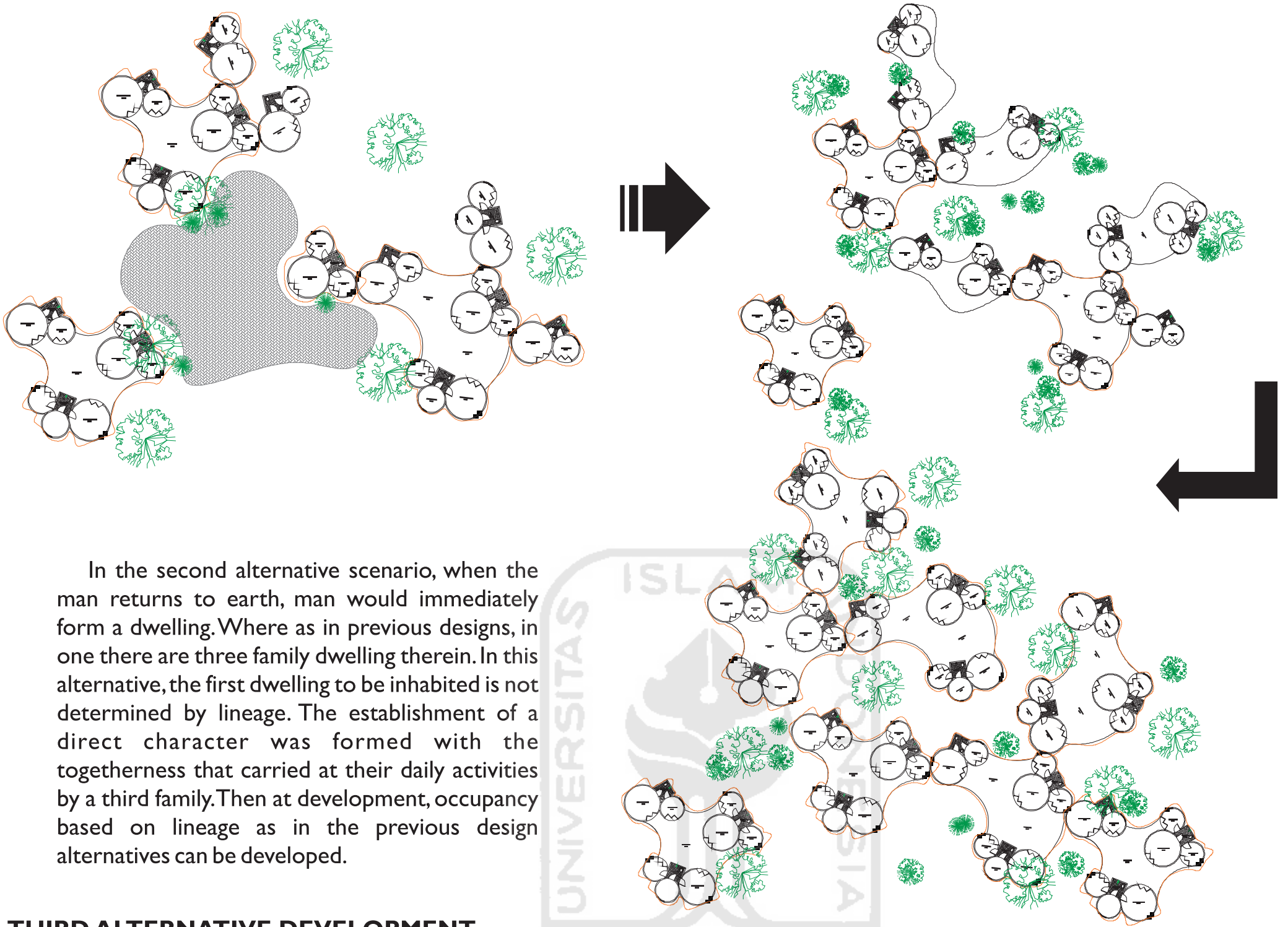
DEVELOPMENT OF DESIGN

FIRST ALTERNATIVE DEVELOPMENT



Initial scenario, humans will return to earth, and formed a small family, build a small house as the initial shelter. It also aims to reshape the character and instincts of human nature. shelters will be linked by public open space. limited distance between the shelter at least 15 meters. So when every family has a descendant, a shelter will grow as seen in siteplan. shelter will grow to adjust to the situation of land, development protocell, and the structure of society scenario.

SECOND ALTERNATIVE DEVELOPMENT



In the second alternative scenario, when the man returns to earth, man would immediately form a dwelling. Where as in previous designs, in one there are three family dwelling therein. In this alternative, the first dwelling to be inhabited is not determined by lineage. The establishment of a direct character was formed with the togetherness that carried at their daily activities by a third family. Then at development, occupancy based on lineage as in the previous design alternatives can be developed.

THIRD ALTERNATIVE DEVELOPMENT



In the third alternative scenario, residential growth is not based on bloodline, occupancy evolve freely, but still with the provisions of any dwelling consists of a maximum of three families, with a maximum limit of communal living space of about 50 square meters. Adapting from the middle to lower settlement patterns in Indonesia, when people mingle freely with one another, the character of human nature is expected to form. By following the pattern / contour on nature, occupancy will grow not symmetrical, and more organic.

SCENARIOS FOR THE REGION

In fact, everything that exists on the earth, other than living things, are human-made. Then it also applies to the residential and technologies. Then it should be residential and the technology that adjusts the state of the earth, not the other way. As in the alternative exposure of future residential design on the the previous study, the occupancy will grow and evolve to adjust the situation, and the contour of the earth, growing in tandem with the growing re-ecosystems.

Then where lies the industrial, urban, and the supply of human life ?

Of this design again provide an alternative option.

First,

Restoring nature of human life, like a deepening tribal, where the interests or needs of human life dwell only on meeting their daily needs, such as eating, drinking, rest, breed / sex, and set aside the issue of money. doing all the needs together and mutual cooperation, and coexistence with nature. Where industry ruled out here. residential product in working together (craftmanship) and supported by technology.

Second,

This residential design, will synergize with the concept of utopia existing city, like the concept of "garden city" owned Ebenezer Howard. Where the design has become one of the design for residential development on the concept of the city, and supports the purpose of establishing the concept of the city.

