



FINAL PROJECT - RA.141581

TOURISM DEVELOPMENT IN THE PROVINCE OF EAST JAVA THROUGH AGROTOURISM

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**Supervisor:
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**Department of Architecture
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LEMBAR PENGESAHAN

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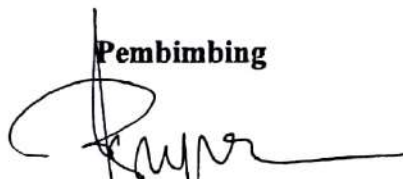
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Periode : Semester Genap Tahun 2017 / 2018

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Surabaya, 09.07.2018

Yang membuat pernyataan



Kristina Krasteva Peneva

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ABSTRACT
TOURISM DEVELOPMENT IN THE PROVINCE OF EAST JAVA
THROUGH AGROTOURISM

By

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The tourism sector in Indonesia plays an important part in the national economy and it is a significant source of income. Agrotourism is very important for rural and urban communities. The tourism sector in East Java Province still needs to be improved in order to avoid being a transit area, but a primary destination for the tourists. *Rose damascena*, better known as Damask rose, is a hybrid rose, derived from *Rosa gallica* and *Rosa moschata*.

This flower is famous for its excellent fragrance, and is sold commercially to the rose oil industry and rose water and tea production. This project is an attempt to develop an rose agrotourism center in Batu as a new tourism attraction, using modern, concept-based design and it's suitable for small-and-medium business. It consists of fourteen low-rise buildings - a restaurant, an exhibition hall, an office building and villa facilities.

Key words : agrotourism, *rosa damascena*, rose oil, small-and-medium business, tourism

CHAPTER 1

INTRODUCTION

1.1. Background

The tourism sector in Indonesia plays an important part of the Indonesian economy and it is a significant source of foreign exchange income. It is ranked as the 4th largest among goods and services export sectors. Indonesia has a high potential for agricultural development, especially in rural areas which are still home to a big part of the country's population. This potential has not been fully used yet and can be expanded. In addition, the country has a growing international and national tourism sector, therefore certain area are used for agro-tourism attraction. *Agro-tourism*, according to the Cambridge Dictionary, is "*the business of providing holidays for people on farms or in the countryside*". It focuses to the rural culture as an attraction and mainly includes participating in traditional farming activities without damaging the ecosystem or area productivity; supporting agricultural activities during visits, collecting of fruits and vegetables, souvenirs trade; accommodation, food, activities, festivals on agriculture and retail sales - where tourists can interact directly with the farmers. Some of the farmers convert their farmland into an agro-tourism destination to help educating and introducing agriculture to the society, while others do so as a way to supply their income during off-season. Agrotourism is very important for rural and urban communities. It gives opportunity for additional income, employment, accommodation, conservation of natural resources, place for recreation and education. One of the major problems of farming activities in many developing countries is the low direct income. Agro-tourism is also intended to build a harmonious relationship between tourism stakeholders and local communities (farmers) who live in rural areas of Java.

An obstacle of the tourism development in East Java is that the province plays mostly a transit role only for international tourists before or after they visit Bali, West Nusa Tenggara, and Daerah Istimewa Yogyakarta. The tourism sector in East Java still needs to be improved and in order not to become a transit area,

but as a primary goal, benefiting from the different natural resources found in the area. Batu city is known as one of the tourist city in Indonesia which has the potential of tourism and its economy is supported mainly by the agriculture sector. Besides, Batu Town is located in a mountain area that gives an opportunity to grow various types of agriculture.

1.2. Issue and Design Context

Indonesia is the forth most populous country in the world agriculture place important role in the country's economy which employs nearly half of the population and takes a half of the total GDP. The rich resources and high market demand, both national and international, makes the sustainable development of the country challenging nowadays. The challenge is how to continue the agricultural and economic development of the growing population while simultaneously protect the environment. The fast growth of the agricultural sector, as well as commercialization, industrialization and urbanization, has led to changes in the agricultural production. In some parts of the world modernization and technologies has increased the production, while others have been left behind.

Concerning the current condition in agricultural tourism in Indonesia and globalization nowadays, which encourages the young generation for multicultural exchange of culture and information, agrotourism can be developed as a way for environment friendly tourism. While the agro-centers on Bali island with its mostly foreign tourist visits, present mainly the local and tropical agriculture such as coffee, tropical fruits, tea, etc., on East Java, and especially in Batu region, there has been seen a growth of foreign agriculture, which are more interesting for the local society.

The globalization, agricultural technologies development and the rich natural resources in Indonesia give the chance for agrotourism growth especially with foreign cultures which can satisfy the taste and interests of the young communities. This project is an attempt to design an agrocenter in Batu district which has a suitable climate for rose farming (especially *Rosa Damascena*) and

the potential for agro-tourism development.



Image 1.2.1. Rosa Damascena
Source: www.biofoundations.org

1.3. Design problems and design criteria

The issues to be raised in this final project is how understanding the potential of roses agriculture in East Java Province can help in the development of tourism sector, internationally as well, in this province.

The second problem is how to make an architectural effort that can face the needs of agro-tourism development in rural areas for small and middle-sized business.

The design criteria and goals in this projects are as follows:

1. The design choice should allow the visitors to have a direct experience with the rose culture and traditions in Bulgaria and Turkey, both theoretical and practical.
2. The design should keep the balance and focus to the both - buildings and landscape's attractiveness.
3. The design should be new and creative in order to be attractive enough for visitors and represents the rose agriculture..
4. The design should allow the use of natural and low cost materials and easy low-raised structures, which can prevent from the need of additional expenses.

CHAPTER 2

DESIGN PROGRAM

2.1. Programming

1. Rose Plantation Facility

The Plantation Facility serves as the workplace to the workers and foremen, and the visitors' attractions. This facility consists of:

- A. Changing rooms used by garden workers to prepare at the beginning and end of working hours.
- B. Common space for the workers. This space serves the employees break time, meeting room
- C. Toilet and Pantry

2. Exhibition Facilities

This facility serves as an exhibition and show room. The space is divided into two smaller halls. This room has special equipment to show production process of rose water and rose jam and presenting rose oil production.

- A. Exhibition halls
- B. Rose Storage that serves to keep roses from the herb and be further distributed to the exhibition halls

3. Commercial Facilities / Services

This facility supports the activities in the plantation center. The facility is planned to serve not only the needs of the visitors, but is open to the public.

- A. Restaurant (open for public)
- B. Souvenir shop

4. Utility Rooms

5. Rose Gardens and Conservation Parks

Rose gardens are situated in open space as a transition between visitors'

6. Administration Facility

This facility serves as a workplace for the managers and administrators and visitor and guest lodging information centers.

- A. Lobby
- B. Office managers and administrative employees.
- C. Toilet and Pantry

7. Accommodation Facilities

A. Villa is a guest lounge and equipped with a bedroom, pantry and dining table, bathroom, rose garden, pond.

B. Service rooms such as lobby, laundry room, storage, kitchen, employees rooms, toilets and pantry.

2.2. Site Description



Image 2.2.1.. Site location
Source: www.googlemaps.com

Batu Town is known as a center of agribusiness, tourism and other urban activities. Therefore, the selected site for agro-tourism center is located at Jl. Raya Tlekung, Tlekung Village, Kec. Junrejo , Batu, East Java, Indonesia. At present moment it is used as a plantation of various vegetables, and it is owned by the surrounding community. There are other plantations to the north and to the east. In the south the site follows the line of a small river. On the left side there's the main road Raya Tlekung Str. The size of the site that is rosa damscena plantations center in this project reaches 540m long and 80-140m wide

(depending on river line). In addition, the site is located on a hill with a height difference of about 40m from the highest point to the lowest.

The site can be considered very strategic for a few reasons. The first

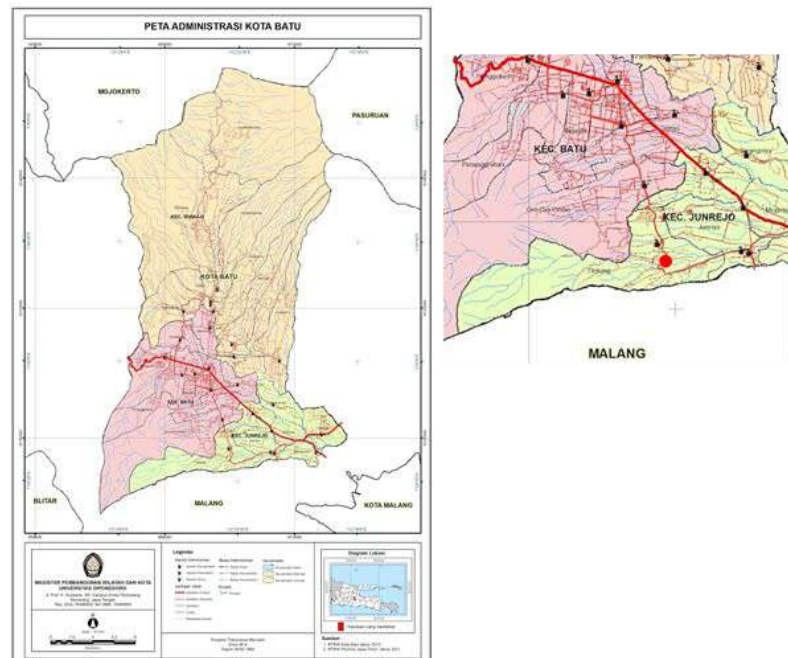


Image 2.2.2. Batu Town Administration Map
Source: inonusa.wordpress.com

reason is that it is located in the city of Batu itself, therefore there is no need for additional facilities for the plantation workers because they can find ready-to use accommodation close by the plantation. Besides, there is access to all the necessary infrastructure such as roads (which are also often skipped on trips to other tourist attractions such as Coban Rais) and drainage, electricity and water supply. The river in the south can be used as a natural boundary with the neighbors and it can also be used as an architectural element and landscape. The other good characteristic of the site is the hill location with a view to Malang city which can be benefit for view orientation.



Image 2.2.3 Site Top View
Source: www.googlemaps.com



Image 2.2.4. Site Map and Elevation (2.5m)

Peraturan Daerah Kota Batu Nomor 7 Tahun 2011 Tentang Rencana Tata Ruang Wilayah Kota Batu Tahun 2010-2030 determines the role of Batu City as an Agricultural City (Agropolitan), especially for vegetables, fruits and flowers, and strengthening of agricultural products and agriculture industry (agro industry) which is considered both at the regional level (East Java) and the national level. It also seeks for increasing the position and role of Batu into a tourism center that is calculated at the regional or even national level, by adding a variety of and tourist attractions and objects. Tlekung Village as an environmental center is equipped with a village and health-care center, health facilities developed for regional services, basic education facilities, agricultural development center

facilities.

According to the Regulation, a small river in a residential area has a 10 meter border on either side of the river body and 50 meters in the outer area of a settlement. The border line of the crowned river is calculated from the riverbank at set time. The utilization of spatial density of the river can be utilized for cultivation activities except for constructed areas as long as the activity does not impair the function of the river.

The type of industry allowed is a non- pollution industrial type, while for industries that can cause pollution are not allowed to develop in Batu Town. The industries that are allowed to be developed in Batu can be small and medium scale, such as an agricultural product processing industry and home industry. Every industrial activity as far as possible must use environmentally friendly methods or technologies, and should be complemented by management efforts for possible industrial disasters.

Industrial intensity and enforcement which are present in agro industry or agriculture industry and the determination for KDB is 40-60%, KLB is 0.4-1.2 and TLB is 1-2 floors. Trade and services outside the downtown area or in BWK and similar services are designated KDB 60-70%, KLB 0,6-2,1 and TLB 1-3 floors.

CHAPTER 3

DESIGN APPROACH AND DESIGN METHODS

3.1. Design Approach

The site is divided into agro-agricultural zones and non-agro zones, where non-agro zones are developed with the addition of conservation zones and buffer zones, which complement the function of this agro-tourism and are filled with building complex.

It is determined that this project will be devoted to Small-and-Medium Business and will be planned in two stages. The main reason is that a farm can not benefit directly but it takes a lot longer time for plants growth. The second reason is that Small-and-Medium entrepreneurs most likely do not have enough capital to invest all the necessary funds at the very beginning of the project.

Stage 1: The first requirement is to plant 70% of the site with rose damascana, as it takes a minimum of 2 years to grow. The first two building to be build are restaurant and the exhibition hall located on the west side of the site and next to the main road. The exhibition hall may include a gallery with photo, video and information content, as well as gift shop with rose products, imported or local.

Stage 3: Building villas spread between the rose plantation on the east side of the site and leaving space for conservation areas. The resort will be filled with separate rooms with decorative rose gardens. It should be considered that most of the rose plantation should be moved to a wider and specialized land for commercial production.

Rosa damascena, better known as Damask rose is a hybrid rose, derived from *Rosa gallica* and *Rosa moschata*. The flower is famous for its excellent fragrance, and is sold commercially for rose oil (one of the "rose otto" or "rose absolute") which is used in perfumery industry and production of rose water and rose tea. *Rosa damascena* can grow up to two meters. The number of sepals is 5-7; Flowers are colored from pink to red, manifold and usually have a red or white color.

Rose plants like sandy soil, silt and permeable. Oil climbing plants like mild climate, clear, bright and airy. The bloom period is in May and June. If the humidity is relatively high, the rainy weather and dewy blooming flowers are covered in water, which will prevent the loss of oil, by evaporation. Isparta which is the center of rose oil cultivation in Turkey has a relative humidity of 65-70%. The annual rain is 500-600 mm and the district gets 41% in winter, 29% in spring, 9% in summer and 21% in autumn. Maximum and minimum air temperature is +38 ° C and - 15 ° C. Isparta is 1052 m above sea level and in bloom time May and June rain 67mm and 37mm.

Plantation can be done by placing cuttings in the trenches. The trenches are 50cm deep, 45-50 cm wide and 1.5 - 2.0 m apart. Once in every 8- 10 years the plant is cut from the ground to rejuvenate. Plantations can live other 15-20 years after the rejuvenation process. The irrigated plants in June and July are more productive. Roses can be successfully grown on various soil types but best is well-drained soil, with a soil pH of 6.0-6.5. Orientation of land, especially North-South, allows maximum exposure to sunlight. It is generally believed that the more sunlight a rose receives, the more shoots it produces and, respectively, higher yields are obtained.

Harvesting. The time of the harvest of roses is late spring and early summer. It generally blooms at week 3 or 4 of May. Harvesting takes 25-30 days. The accumulated flowers must reach the production plant of rose oil within 24 hours.

Rose petals have many benefits, including using as antidepressants, antivirals, antibacterials, anti-inflammation, and sources of vitamin C. It is a high-value horticultural commodity such as cut flowers and low oil seeds used in the perfume industry. Roses can also be used for tea, jelly and jam.

Rose oil - the classic ingredient in perfumes and cosmetics - is an essential oil that is distilled from freshly harvested rose petals (*Rosa damascena*). Rose oil in Bulgaria is a national symbol associated with tourism, festivals and traditional events. Due to its complexity, no one is able to synthesize the true smell of *Rosa damascena*. This oil is distilled from flowers is an important

commodity, especially in Bulgaria and Turkey, but also in China, France, Lebanon and Afghanistan. The high-quality Bulgarian rose oil is priced at \$ 5,750 per kg by 2014. It takes 1.25 million self-selected flowers and about 800 working hours to produce 1 kg of rose oil. Industrial fragrances / fragrances, cosmetics and perfumes are the biggest buyers. The main components are phenyl-ethyl alcohol, citronellol, geraniol and nerol.

Rose water is one of the best traditional cosmetic cleansers of all time for the face and can be used in skin care in many ways. Natural rose water is used to treat acne and inflamed skin and also has a moisturizing and nourishing effect suitable for facial masks and hair care. It can be added to bath water for relaxation or as a moisturizer afterwards. In addition, roses can be consumed as food and drink.

3.2. Design Methods

In order to produce certain and specific result in the architectural design process of rose argotourism center, it has been used a combination of design methods with prevailing of a concept-based. The concept-based method is used primarily to establish in the very beginning the main principles and characteristic of the design which can be used and followed in every further stage. The idea of rose plantation as a touristic attraction and intercultural exchange is new in East Java, with a few exceptions. The plantations with foreign agriculture in the province are mostly of fruits and vegetables, while the flower farming is more or less still neglected. Introducing a new look to flower gardening as a raw product for rose oil, food and rose water industry, beside as a decoration, grabs attention as something new in the local market. For this reason, a concept - based design method would give a chance to release the idea into a non-typical design, while pattern-based method can be used as a tool for detailed plan.

The method uses the main characteristics of a rose such as:

- form and shape of rose petals
- colors
- lines

The pattern-based method is use as a finishing tool and determines the characteristics that can be used directly from previous design experience such as room standards and programming design style characteristics.

CHAPTER 4

DESIGN CONCEPT

4.1 Formal Exploration

Concept-based design

The design method which is used in this project is concept-based. It contributes in finding an unique form for agricultural center's design. The center needs to have a modern look combined with attractive and outstanding design for activities which are widely considered traditional and fitting in suburban areas, such as agriculture and farming.

The rose plantation center is planned to include a complex of various buildings, each with its different type, function, capacity, need of space and activities. In order to make a connection and harmony between them and prevent the site plan to look chaotic look, there has been created couple of design principles, through the design method, repeated in each building design.

The first step is finding the main principles and characteristics of the rose blossom shape. Looking from the top, it has very smooth edges and lines with a circular continuous order, as it is shown in the two examples below.



Image 4.1.1. Geometric Rose Abstract Line
Source: www.istockphoto.com



Image 4.1.2. Geometric Rose Abstract Line (2)
Source: www.istockphoto.com

The buildings in the rose agricultural center are planned to have modern minimalistic style combined with natural elements. Modern architecture, in general, is characterized by asymmetrical compositions with more abstract design than following the true natural lines and forms. In order to follow the modern abstract and clean geometric lines, in the next stage of form progress the lines are simplified and reshaped into triangles, one surrounding another, each with its own orientation. The lines of a flower still can be guessed but needs more abstract view to be recognized. The lines are kept smooth and continuous in a circle.

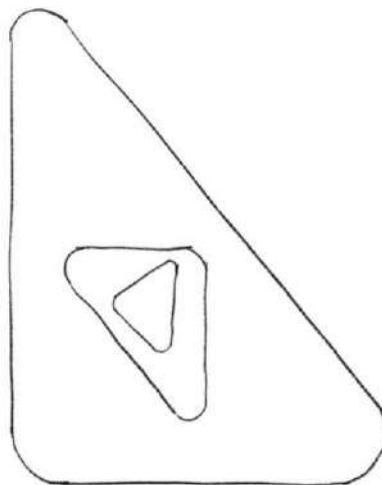


Image 4.1.3. . Form Exploration (1)

However, after analysis of the suitability of the exact same shape in a tropical and humid environment, a few important disadvantages has been found. According to the design approach, this project is supposed to use efficiently the daylight and natural cooling systems as much as possible to avoid waste of energy, potentially caused by dark and stuffy spaces.

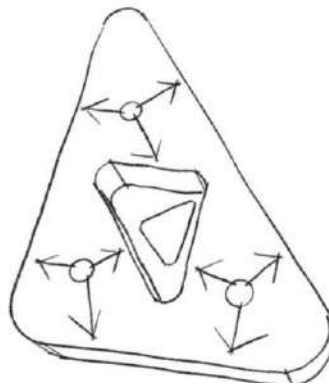


Image 4.1.4. Form Exploration (2)

It has been concluded that certain parts of this shape might have deficiency of daylight and natural cooling which brings us to a reconsideration of the form. The final shape of the top view has been made with parallel triangles surrounded by each other.

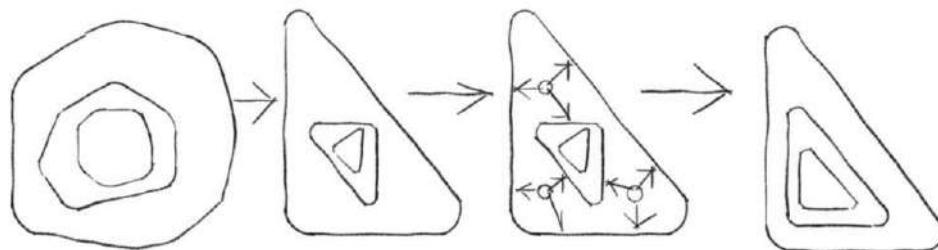


Image 4.1.5. Form Exploration (Process)

Geometry

Geometry is a fundamental science of forms and their order which

contributes a lot to the process of composition and designing in architecture. It deals with geometrical forms and figures as elements, angles and transformation and their relations. Architecture is strongly connected with geometry figures and forms. In the past architectural rules have been based mostly on the ideas of proportions and symmetries which were found in the nature. In contemporary architecture design is way more free for geometrical play and there are no fixed rules, but there are still connections with the geometric space design.

In this project each building follows a specific ratio and a pattern. Each triangle form uses sides with length of $3(x)$, $4(x)$ and $5(x)$ with 90 degrees angle. Besides, in order to smooth the edges, the radius of the curves is quick to find following simple geometric rules.

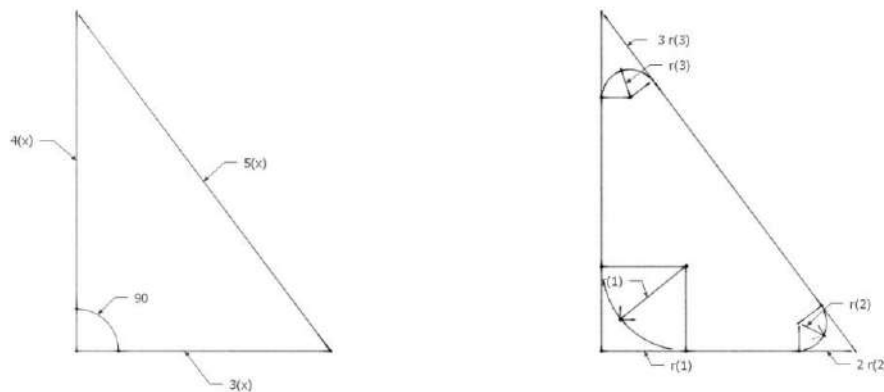


Image 4.1.6. Geometry

Further more, each triangle-form is rearranged reoriented with its sharp

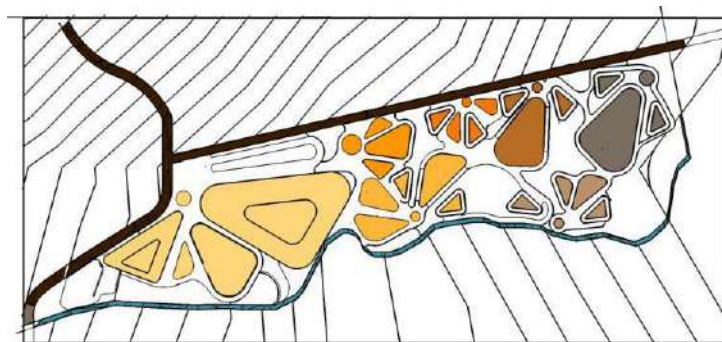


Image 4.1.7. Site Plan (Pattern)

edge into a main points. Abstractly arranged, a form of half shaped flowers can be seen from the top view.

There has been chosen a few central points which draw direction of the surrounding site triangular elements, while the rest of the space is filled following the main shape. Apart of the rose gardens with triangular shape and specific orientation, it is considered it is considered that a conservation part as a filling spread over the site will be needed. It may consist of high raised trees, bushes and grass with an access for walking. The function of these zones is to keep the earth mass on the hill more stable using the trees roots. Also, to keep balance of the temperature and shade in the side, especially during the midday when the sun is stronger. It is able to reduce naturally the potential higher level of noise by the large number of visitors, which can disturb the comfort of the villa guests.

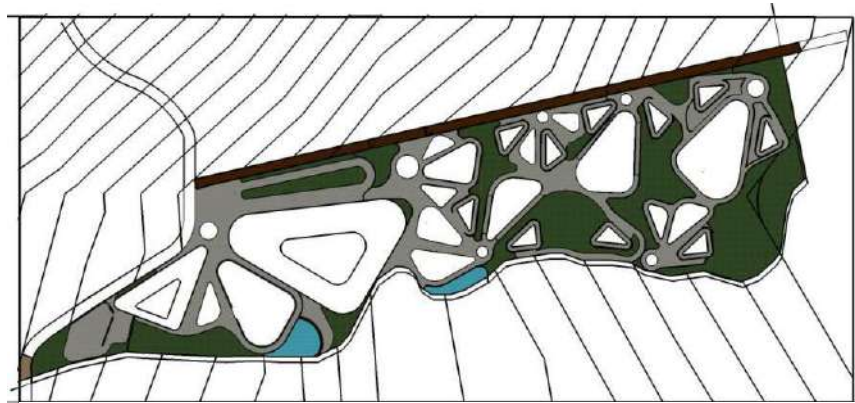


Image 4.1.8. Site Plan (Conservation Areas)

The site is located at a hill inclined from the west to the east with a view to the town. This inclination can be used for re-elevation and



Image 4.1.9. Site Section (Original)

re-arrangement vertically where terraces on different levels can be formed with flat surface.



Image 4.1.10. Site Section (Terraces)

4.2 Technical Exploration

The site is characterized as long and narrow starting from the main road in the west heading to the east side. This corridor-like site does not allow concentration of same zone landscape elements on one place because it can cause the circulation to stagnate and lose its quick access to diverse facilities. Therefore, it has been decided that it would be more convenient if the different zones split to smaller pieces and merge and spread on the site evenly with precaution that the scale of privacy would not be interrupted. In this way there can be created balance between the different landscape elements.

Materials that are used in the project are natural where is possible. However, some parts of the construction and foundation use concrete because of the inclination of the land and possible movement of the masses under the building bodies. The main materials of the design are wood, steel (for roof construction), stone and rammed earth (used for walls). Rammed earth is easy to



Image 4.2.1. Pink Rammed Earth Material
Source: www.contemporist.com

use for walls with curves, “breathable” and natural material which is a benefit in a tropical weather and cheap as a material.

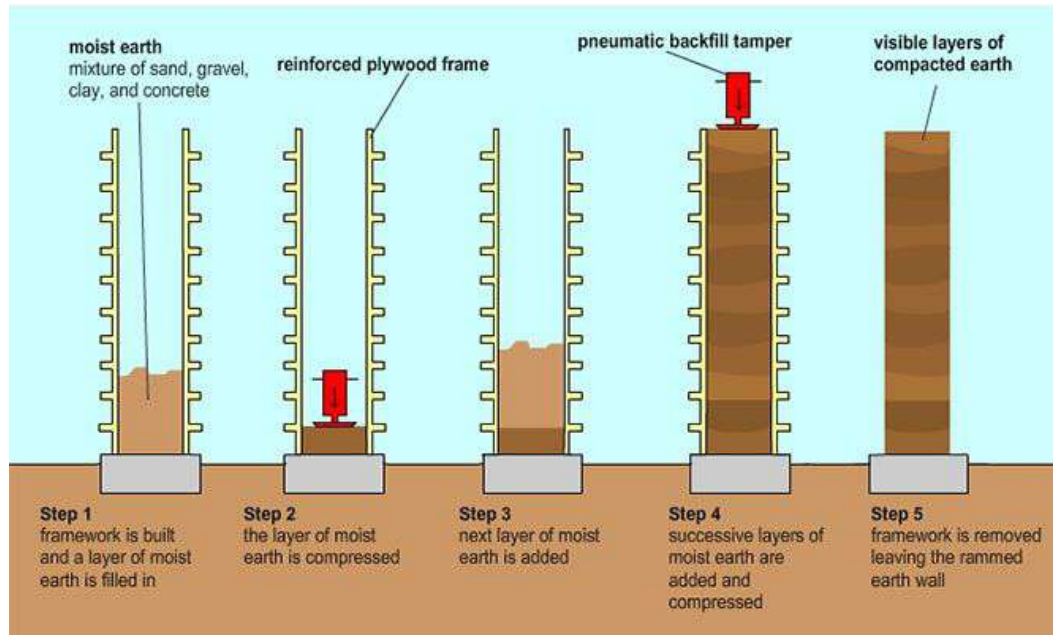


Image 4.2.2. Rammed Earth Process
Source: www.greenspec.co.uk

Green roof

The roof system that is considered for the buildings in this project is green flat roof. It allows the lines of the roof to stay hidden from front view and in the same time doesn't interrupt the clean distinctive lines of flower pattern from the top view. Simultaneously it absorbs the direct sunlight during the day from direct

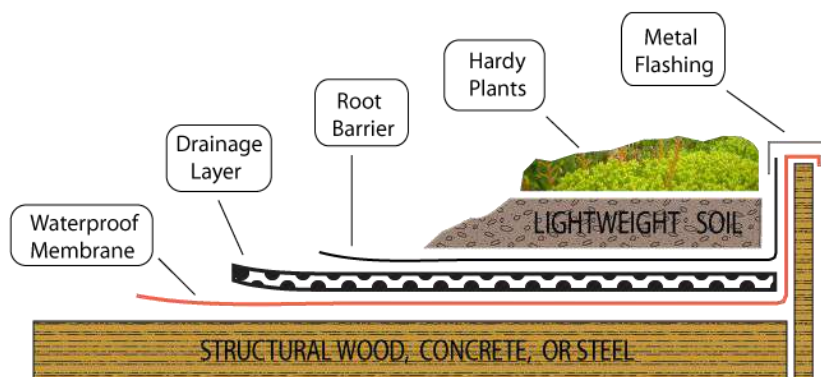


Image 4.2.3. Green Roof Layers
Source: www.bellinghamgreenroofs.com

contact with the structures which can keep it clear. The contemporary green roof is consists of a few layers, as it is showed on the graphic below.

CHAPTER 5

DESIGN

5.1. Formal Exploration

Site Plan

The site is located on jl. Raya Tlekung in Batu Town, East Java. It has a hill shape decreasing from west to east with approximately 8%. The south border with the neighbor is determined by the flow of the river which gives natural curves of the site and makes its width wavering between 80 to 140m. During the design process the features of the river has been transform to advantages for the site development. There has been planned two extensions of the rivers widths which can be used as a natural space for recreation of the visitors. Another advantage from the river existence next to the site is that it plays a separating role between the two neighbor sites and decrease the need for noise and security precaution.

There has been planned three entrances into the side. Two of them are from the main road jl. Raya Tlekung, and one is from the secondary road on the north side. The first entrance is only accessible for the employees and goods delivery vehicles. It is at the highest point of the terrain and is connected directly with the parking lot and restaurant stores. The second entrance is the main entrance which is used only for the guests of the commercial, open for public attractions. It is connected with the guests' parking space, restaurant and exhibition hall. The exit from the same side as the entrance. The third entrance is for the villas guests and the management employees. It is connected with the lobby and service area for the villas, management office and the road continues to the each villa.

The terrain is divided vertically into 4 terraces, each of which are flatten using and exchange of earth mass, from the higher to the lower levels. The ground in the end of each terrace is straighten with stone and concrete wall and are trees need to be plant in order the roots to harden the land below.

The hardscape of the terrain is follows the certain flower-like pattern. It

allows horizontal access to the conservation area and rose gardens. The vertical connection between the different levels is created with outdoor stairs for pedestrians and ramps for vehicles.

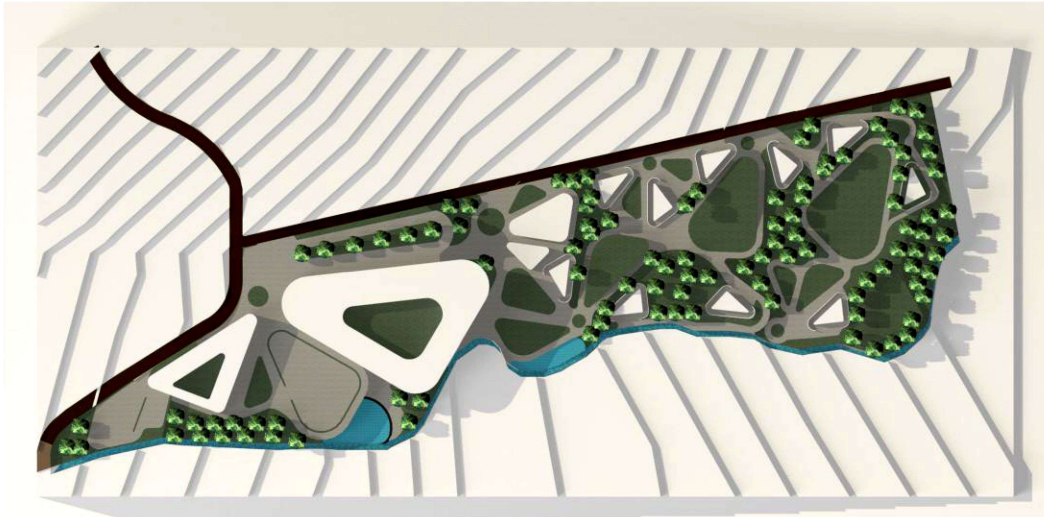


Image 5.1.1. Site Plan

Restaurant

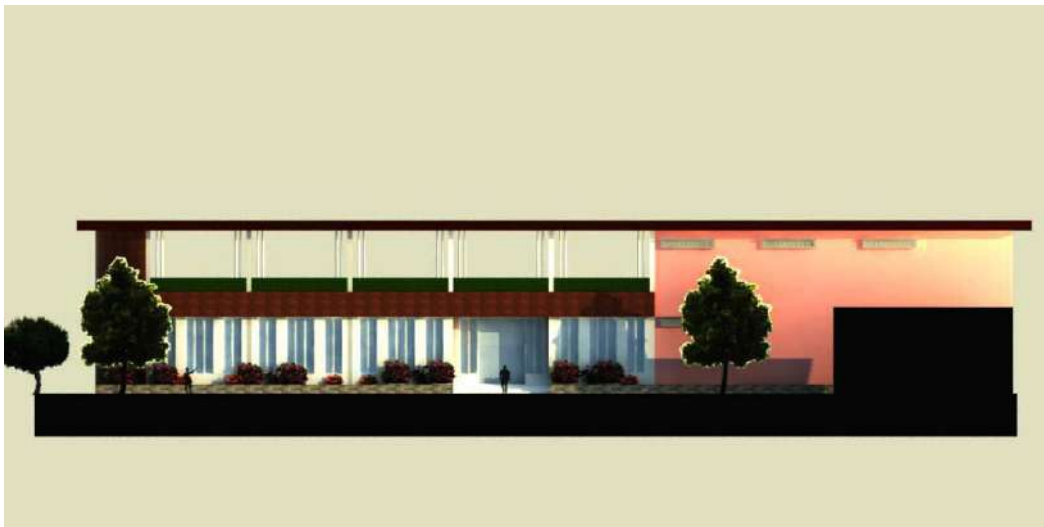


Image 5.1.2. Restaurant - Facade



Image 5.1.3. Restaurant - Interior

Exhibition Hall



Image 5.1.4. Exhibition Hall -Facade



Image 5.1.5 . Exhibition Hall - Interior

Management Office



Image 5.1.6. Management Office - Facade



Image 5.1.7. Management office - Interior

Lobby Villa



Image 5.1.8. Lobby Villa - Facade



Image 5.1.9. Lobby Villa - Interior (1)



Image 5.1.10 . Lobby Villa - Interior (2)

Villa



Image 5.1.11. Villa - Facade



Image 5.1.12. Villa - Interior (1)

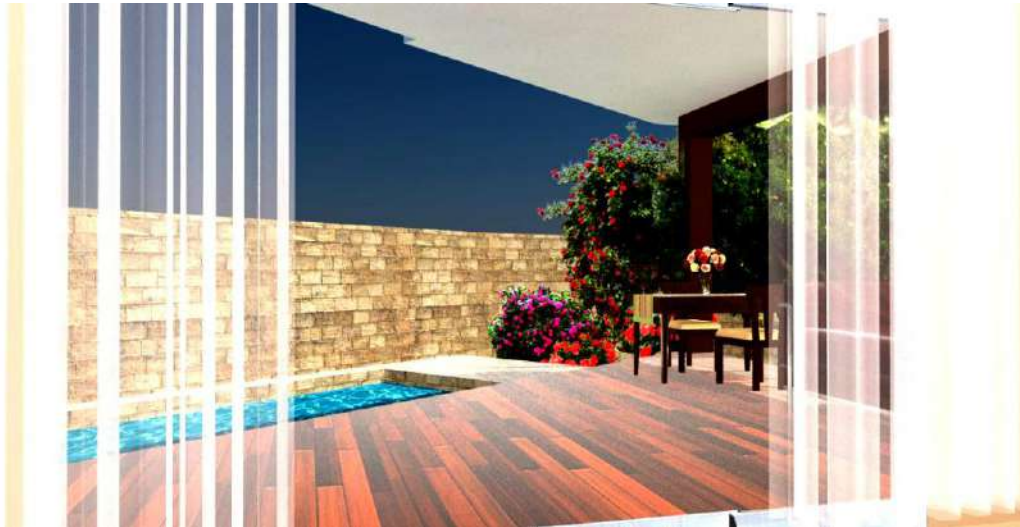


Image 5.1.13. Villa - Interior (2)



Image 5.1.13. Villa - Interior (3)

5.2. Technical Exploration

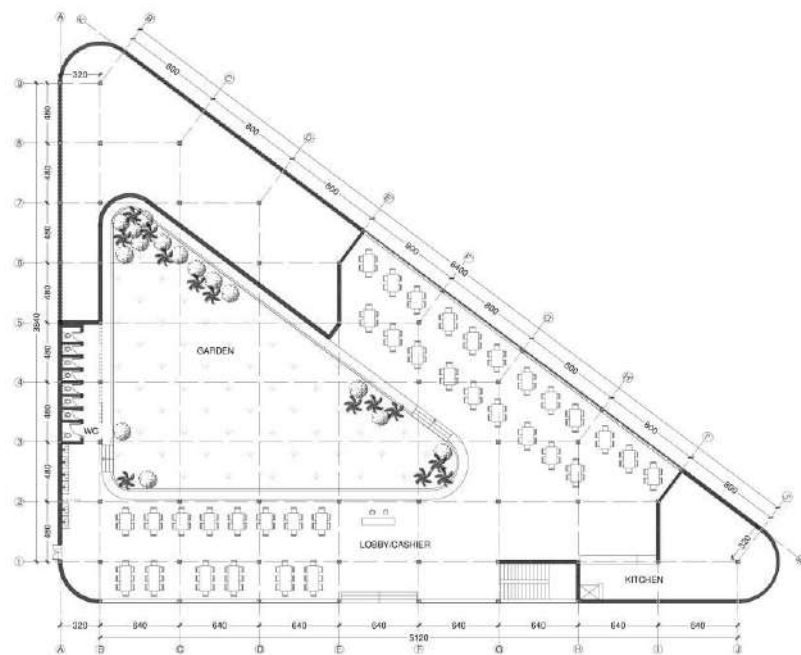


Image 5.2.1. Restaurant - Floor-plan (1st floor)

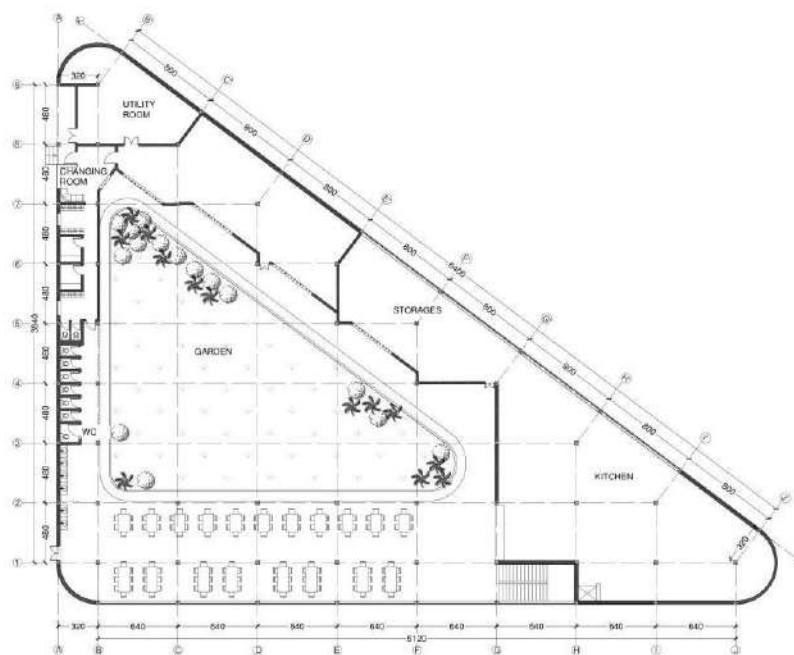


Image 5.2.2. Restaurant - Floor Plan (2nd floor)

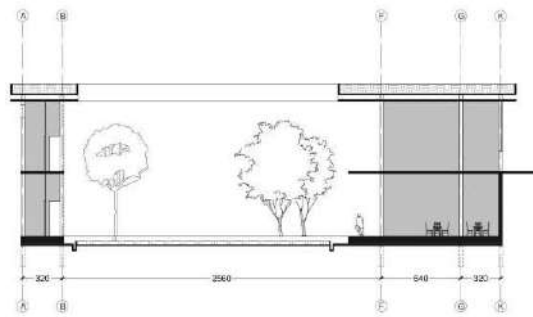


Image 5.2.3. Restaurant - Section

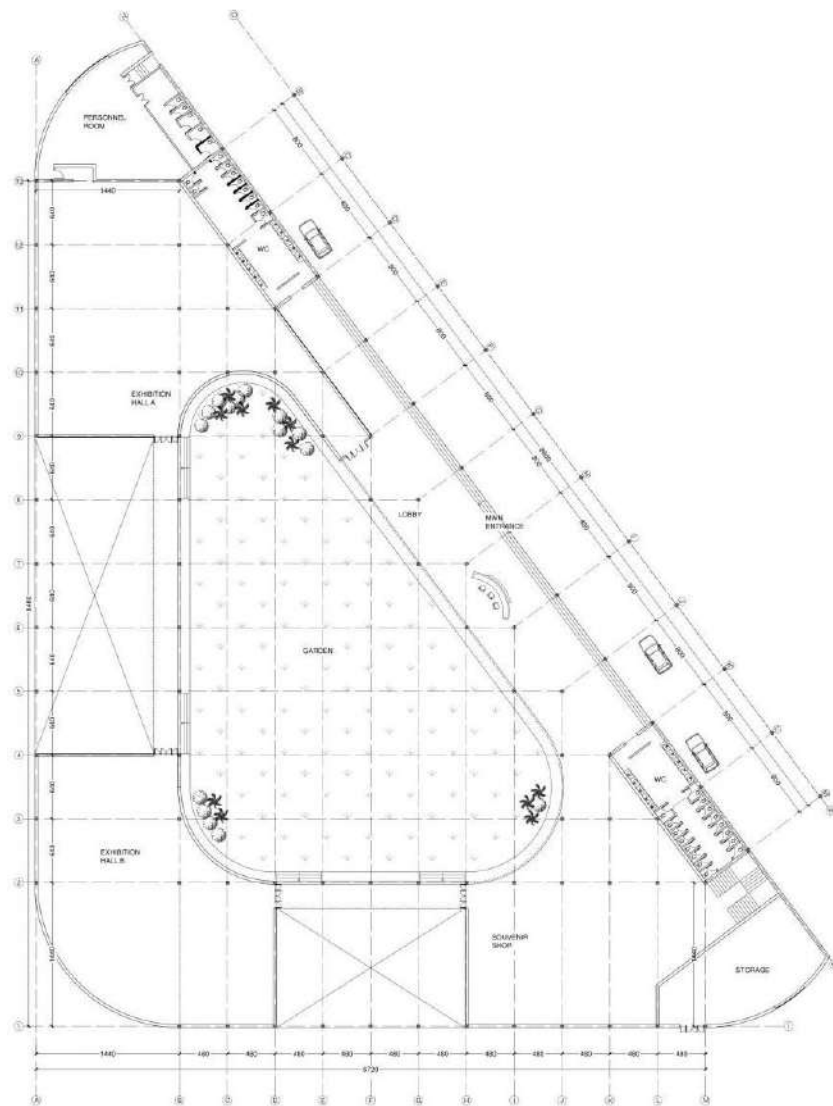


Image 5.2.4. Exhibition Hall - Floor -plan (1st floor)

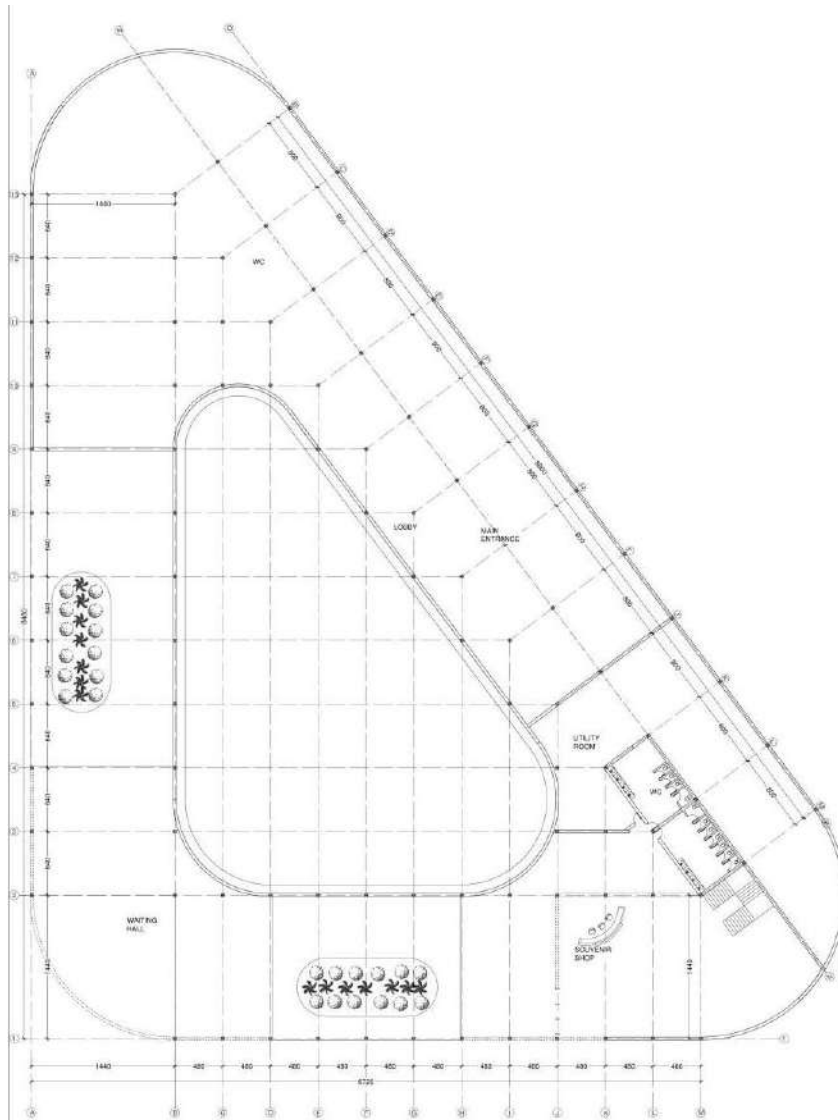


Image 5.2.5. Exhibition Hall - Floor plan (2nd floor)

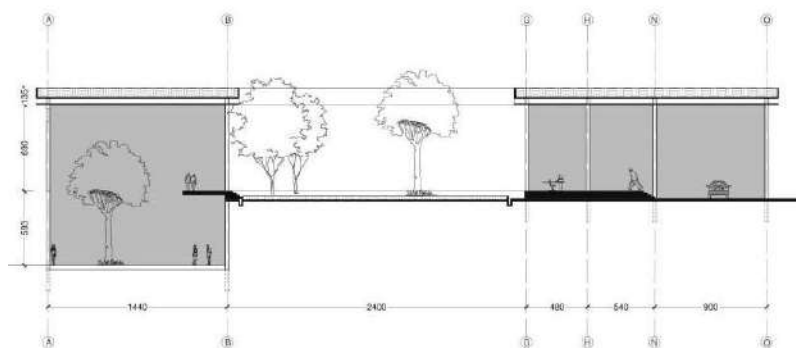


Image 5.2.6. Exhibition Hall - Section

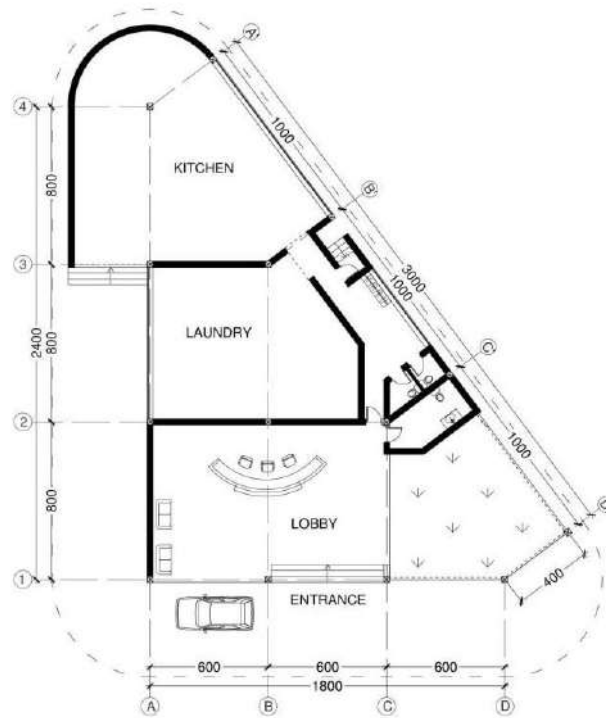


Image 5.2.7. Lobby Villa - Floor plan

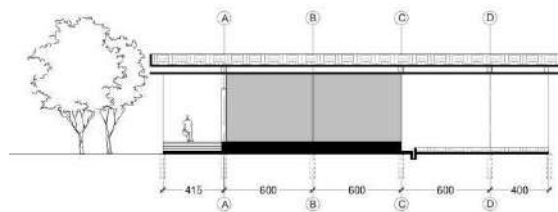


Image 5.2.8. Lobby Villa - Section

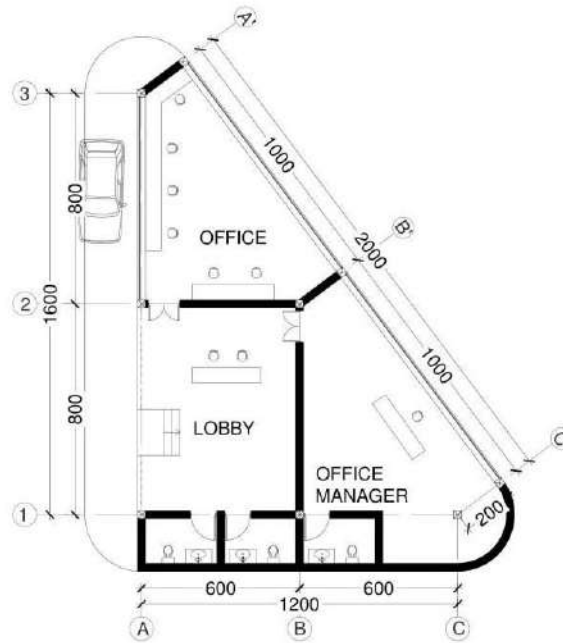


Image 5.2.9. Management Office - Floor-plan

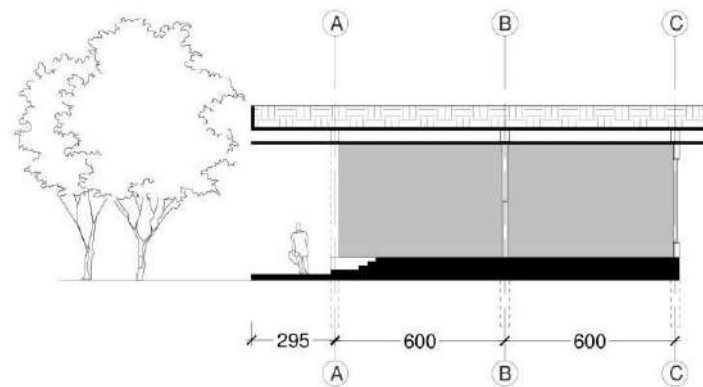


Image 5.2.10. Management office - Section

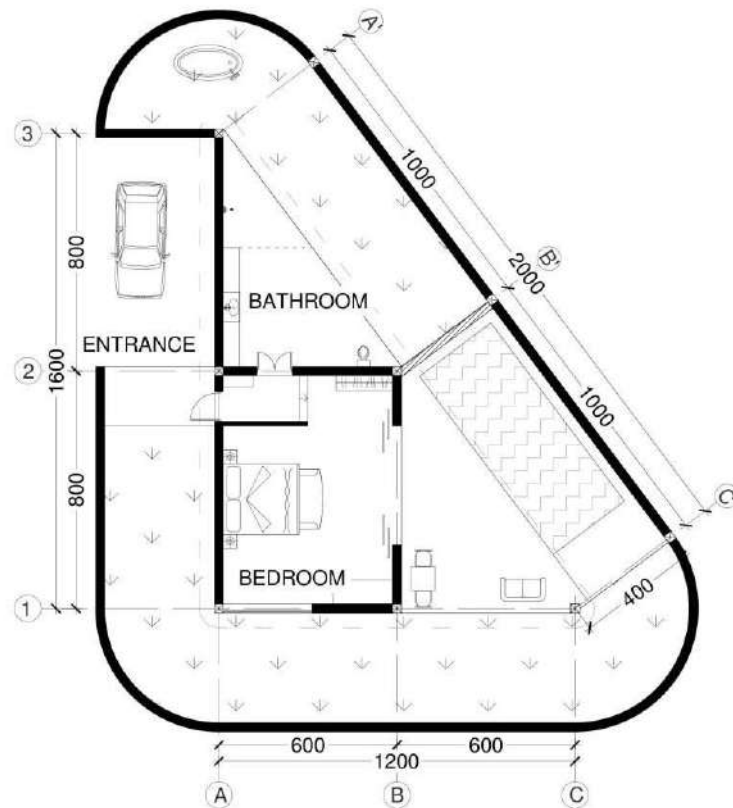


Image 5.2.11. Villa - Floor-plan

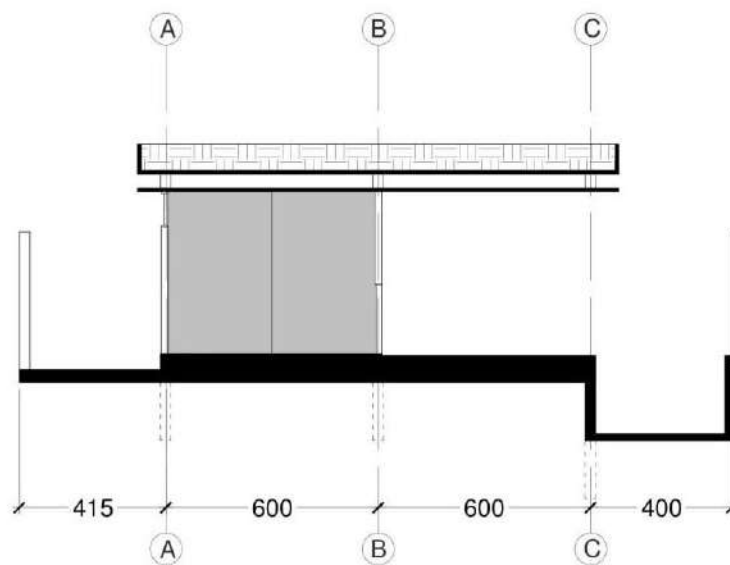


Image 5.2.12. Villa - Section

CHAPTER 6

CONCLUSION

The common stereotypical view of suburban agricultural area as more traditional than modern and local than international starts to change. Alongside with the globalization and the easy access to information online, even in the most remote places, makes the interest of the young generations more complex than the previous generations. Besides, the more and more technologies growth and researches made in the past few years can be applied for realization of projects which require untypical for the certain areas nature.

Rose agricultural and tourist center with its uncommon features brings the questions of rethinking the old stereotypes about international culture, modern versus traditional design and future demands of the consumers, which change more and more rapidly. The location and nature of East Java brings more local than international tourists, compared to Bali and Yogyakarta, which is not a disadvantage if the focus for tourism development is turned to the local society. Developing attractions with focus to globalization, can be helpful for the province to become a spot for education in international matters and culture through tourism.

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