final
architectural
design
studio

ENGKU PUTRI
INTERNATIONAL FERRY TERMINAL

with adaptive re-use and critical regionalism approaches

Qois Ridha Dhiyaulhaq
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Supervisor
Dr-Ing Putu Ayu Pramanasari Agustiananda, S.T, M.A.



Final Architectural Design Studio
Department of Architecture
2020/2021

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DEPARTMENT of ARCHITECTURE

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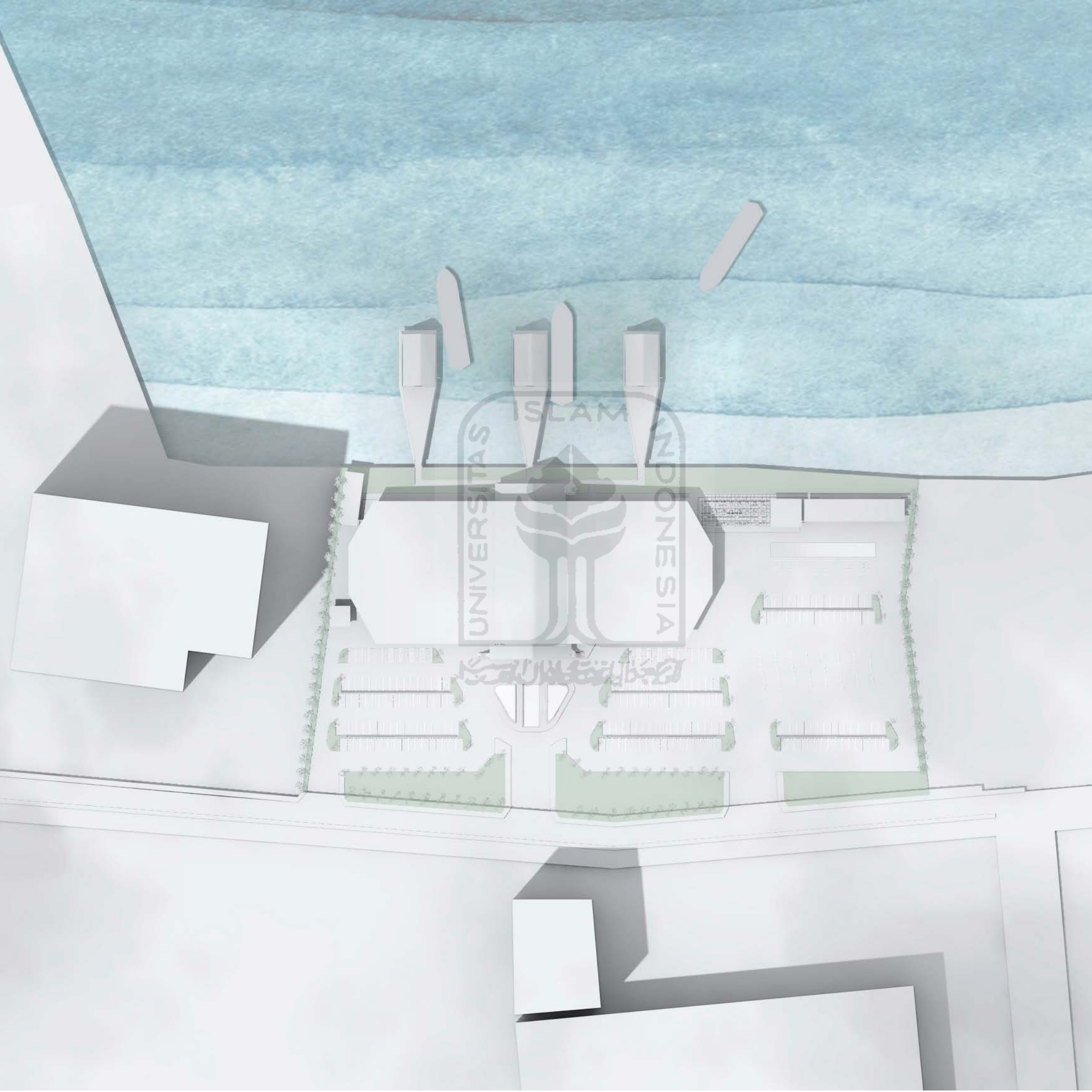
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Faculty of Civil Engineering and Planning



Existing Condition Intl Ferry Terminal
Source: google.co.id, 2021



Authentication Sheet

Final Architetcural Design Studio Entitled:

Design of Engku Putri International Ferry Terminal
with Adaptive Re-use and Regionalism Approaches in Batam

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Has been evaluated and agreed : **Yogyakarta, 12th July 2021**

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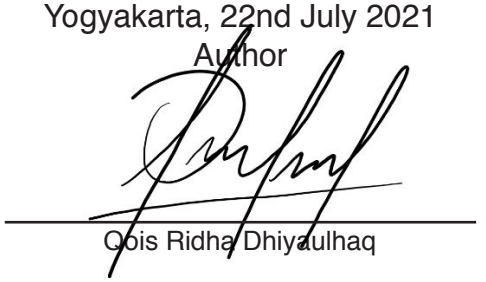
Author Greetings

Praise and gratitude to Allah SWT who has given the grace and guidance, so that the author can complete his study at the Department of Architecture at the Universitas Islam Indonesia in the International Program by completing the Final Architectural Design Studio entitled ***Engku Putri International Ferry Terminal with Adaptive Re-use and Regionalism Approaches*** as well as possible. The author is aware that the process of preparation and implementation at the Final Architectural Design Studio can not be done without the support of many parties, therefore the author would like to express appreciation and gratitude to:

1. Allah SWT for thw blessings and mercy so that in the process always guidance and convenience are given in the making of this Final Architectural Design Studio.
2. Heri Supratiyo (Dad), Wagiyem (Mom), and Nuha Bariatus Sholihah (Sister) who always give support and pray for the author. Dr-Ing. Putu Ayu P. Agustiananda., ST., MA as the supervisor as well as the academic supervisor in the Final Undergraduate Project who has given extra time, knowledge, criticism, advice, and patience so that the author can do better in working on this Final Architectural Design Studio.
3. Dr. Ir. Revianto Budi Santosa, M.Arch as the 1st Examiner Lecturer during the Final Architectural Design Studio who has provided criticism and suggestions as well as very helpful input, so that this Final Architectural Design Studio can be an even better work.
4. Prof. Noor Cholis Idham, Ph.D., IAI. as the 2nd examiner lecturer during the Final Architectural Design Studio who has provided criticism and suggestions, so that this Final Architectural Design Studio can be an even better work.
5. All lecturers and staff at the Department of Architecture, Islamic University of Indonesia who have guided the author and provided knowledge that can be useful for the author while being a student at UII.
6. Batam Center International Port officer which has provided information on the location of the design clearly to the author.
7. Friends of same group, Abe, Sofi, Aul, and Ova who are willing to listen to complaints and provide criticism, suggestions, and guidance in working on Final Architectural Design Studio so that it can be even better
8. Burjo Lodadi's friends, Haykal, Abe, Bryan, Noples, Himon, Reza, Elang, Faiz, Razak, Pinoy, and others who are willing to help and entertain at any time and give prayers and support in completing the Final Architectural Design Studio.
9. SMANSA Jogja friends, Ipim, Dini, Yulia, Aldo, Faiz, Daffa, Sheila, and others who accompanied the author during the study in Yogyakarta.
10. Seniors who always give their knowledge, Mas Fabri, Mas Ridho, Mas Arjuna, Mas Diba, Mas Rey and others for their very helpful knowledge and experience.

The author is fully aware that this work has not been fully perfect, therefore all constructive criticism and suggestions for the perfection of Final Architectural Design Studio are highly expected. Hopefully this Final Architectural Design Studio can be usefull for the author and all of us.

Yogyakarta, 22nd July 2021
Author



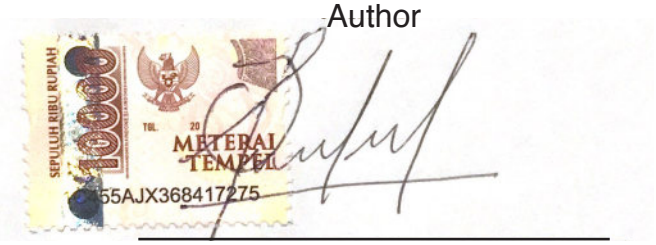
Qois Ridha Dhiyaulhaq

Originality Statement

I as the author of this book declare that in all parts of this work except those mentioned in the references, there are no assistance from other either in whole or in part in the process of making this Final Architectural Design Studio. I also say that there is no conflict of intellectual property rights in this work and submit it to the Department of Architecture, Universitas Islam Indonesia to be used for educational and publication purposes.

Yogyakarta, 22nd July 2021

Author



Qois Ridha Dhiyaulhaq

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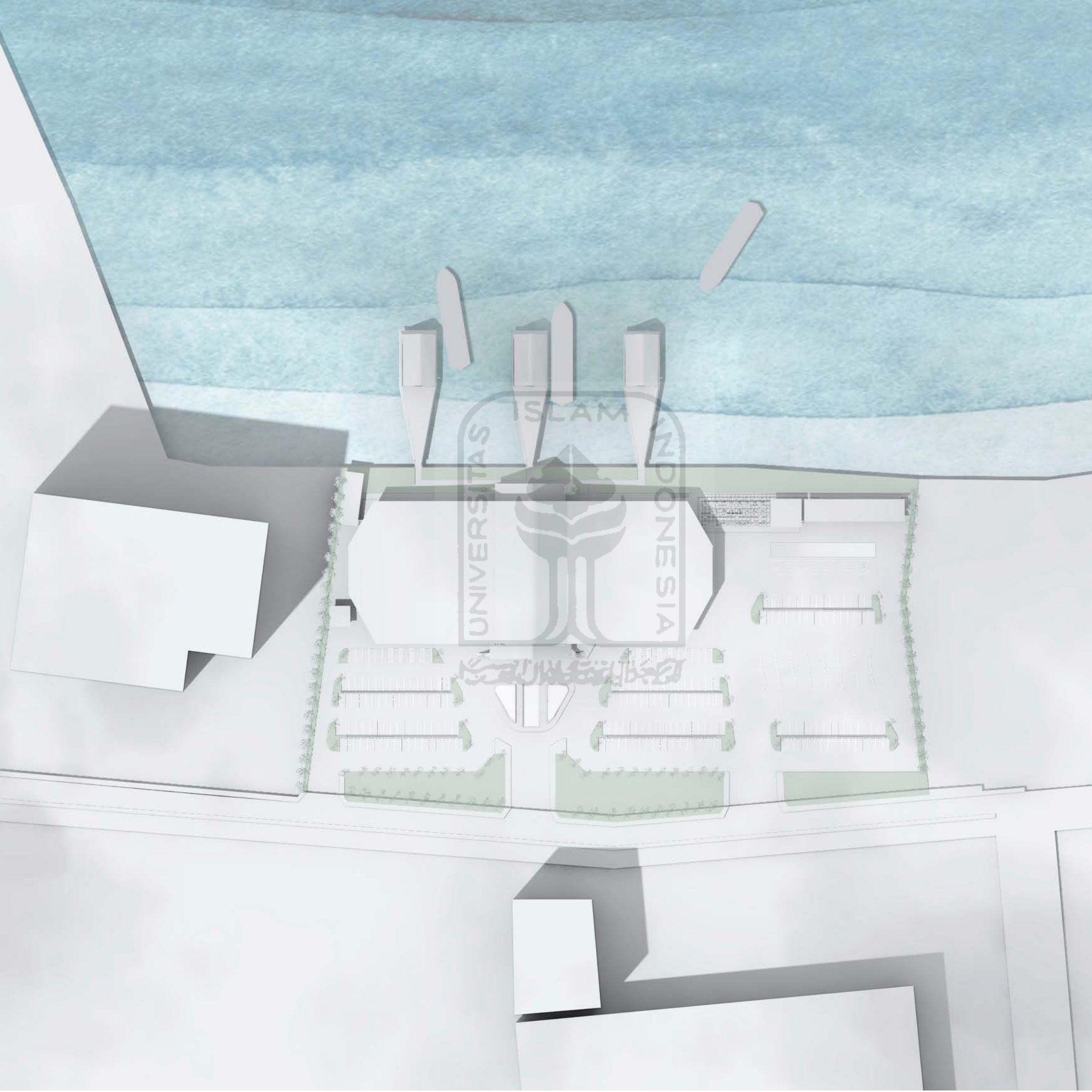
9. Attachment

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Two city landmark in Batam
Source: google.co.id, 2021

1.

batam and its character

design title

ENGKU PURTI
INTERNATIONAL FERRY TERMINAL

with adaptive reuse and regionalism approaches which forms an International Terminal that shows the imagery of Batam and able to create an ease of circulation in ferry terminal



Batam Centre Intl Ferry Terminal
Source: plimbi.com, 2021

design premise



Source: keprihaluan.com, 2021

Sea transportation is very important for Indonesia, which geographically has a sea area that is wider than land. Port become an important place as a means of moving away from sea transportation modes. However, to plan a port that can become the image of a city as a gateway from outer nternational sea is a functional contradiction, where a port is a public facility that does not need to be seen from a strategic point of view and the image of a city which represents an area that is needed to be seen from a strategic viewpoint.

Engku Putri International Ferry Terminal Batam Center is the development of adaptive reuse and regionalism approach in order to create an ease of circulation in an effort to enhance the ferry terminal as an international gateway via sea lanes from Singapore and Malaysia to Batam, as well as an icon and landmark that becomes the first impression when foreign tourists enter the city of Batam. In order to achieve an international ferry terminal that has the characteristics of a region where it was established and which considers the circulation to minimize the travel time of user, it is done by improving the physical area using a regionalism approach and good circulaton in room programming.

To make this design different from other international ferry ports in Batam that apply modern concepts to building forms, the application of regionalism as an architectural design approach is able to improve the quality of the International Ferry Terminal design which upholds the identity of Batam city which is known as the land of malay.

With this, it can create a new branding on the international ferry terminal that brings the values of Malay culture as well as minimizing the time movement of passenger in ferry terminal that reflects Batam.

background

Ports as International Gates

Development of Tourism Areas in Batam

Batam as a Malay Land

Ports as International Gates

According to Peraturan Pemerintah of the Republic of Indonesia number 69 of 2001 concerning Ports, the port is one of the elements in the operation of shipping which has a very important and strategic role so that its implementation is controlled by the state and its guidance is carried out by the Government in order to support, mobilize and encourage the achievement of national goals.

In this regulation, it is also stated that the International Port is a secondary main port which serves to serve the activities and transfer of national and international sea transportation in large numbers and a wide service range and is a node in the international sea transportation network.





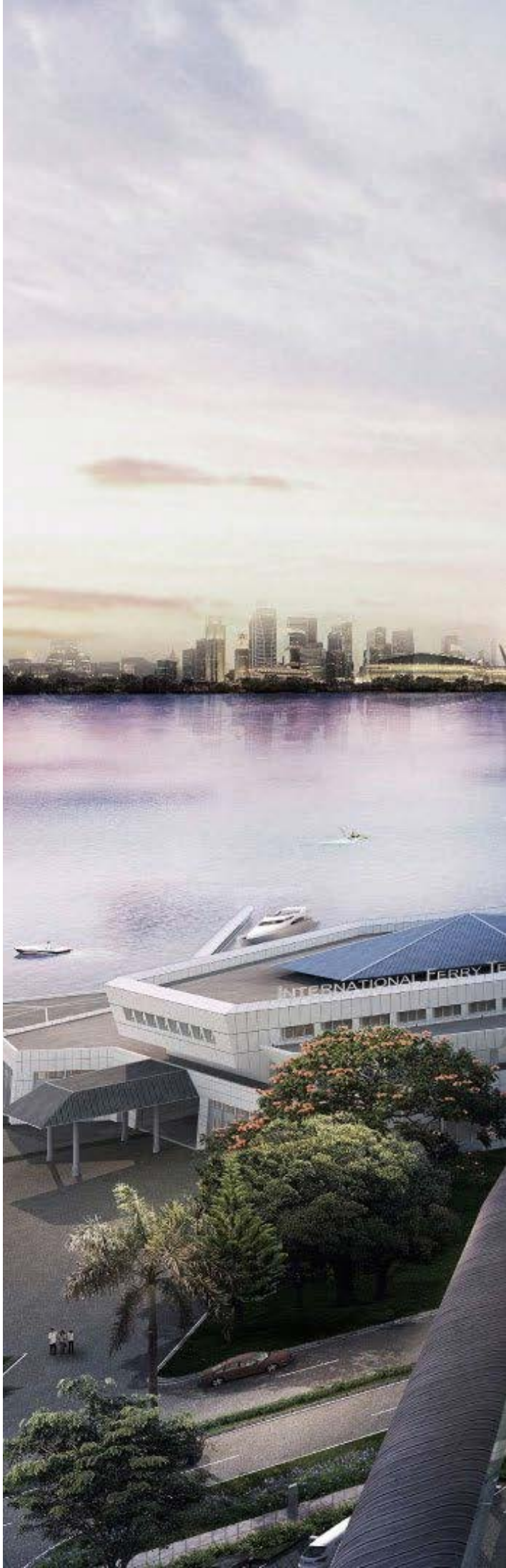
PP no 46 Tahun 2007
KAWASAN PERDAGANGAN BEBAS

Batam sebagai kawasan perdagangan bebas dan pelabuhan bebas (Free Trade Zone)

Sea Lanes of Batam - Singapore - Malaysia
Source: bpbatam.go.id, 2021

Strategic Location of Batam

Geographically, the city of Batam is directly adjacent to the Singapore Strait and the Straits of Malacca. The location of Batam which is close to neighboring countries and the international sea makes Batam is in a very strategic position. The travel time from Batam City to Singapore using sea transportation is only 40 minutes with a distance of about 25 km. Meanwhile, the travel time from Batam to Johor Malaysia Port via sea transportation is only 1 hour 45 minutes with a distance of about 50 Km. This condition is a competitive advantage for Batam. The location of Batam is directly adjacent to two neighboring countries and areas that become international trade and traffic, this certainly has positive implications for the geostrategic position of Batam. From an economic perspective, Batam becomes an attraction for neighboring countries to relocate their economic activities to Batam, ranging from industrial, trade, and service activities. This is due to the availability of sufficient land and labor and the ease of investment provided. From the perspective of national security and defense, Batam as an archipelago bordering neighboring countries, as well as the entrance to the largest foreign tourist visits after Jakarta and Bali, it has a strategic role in safeguarding the sovereignty of the State. The logical consequence of this is that all aspects that have the potential to disrupt security and defense in the Batam are prioritized at the national level. This has further established Batam as a conducive, safe, and comfortable city.



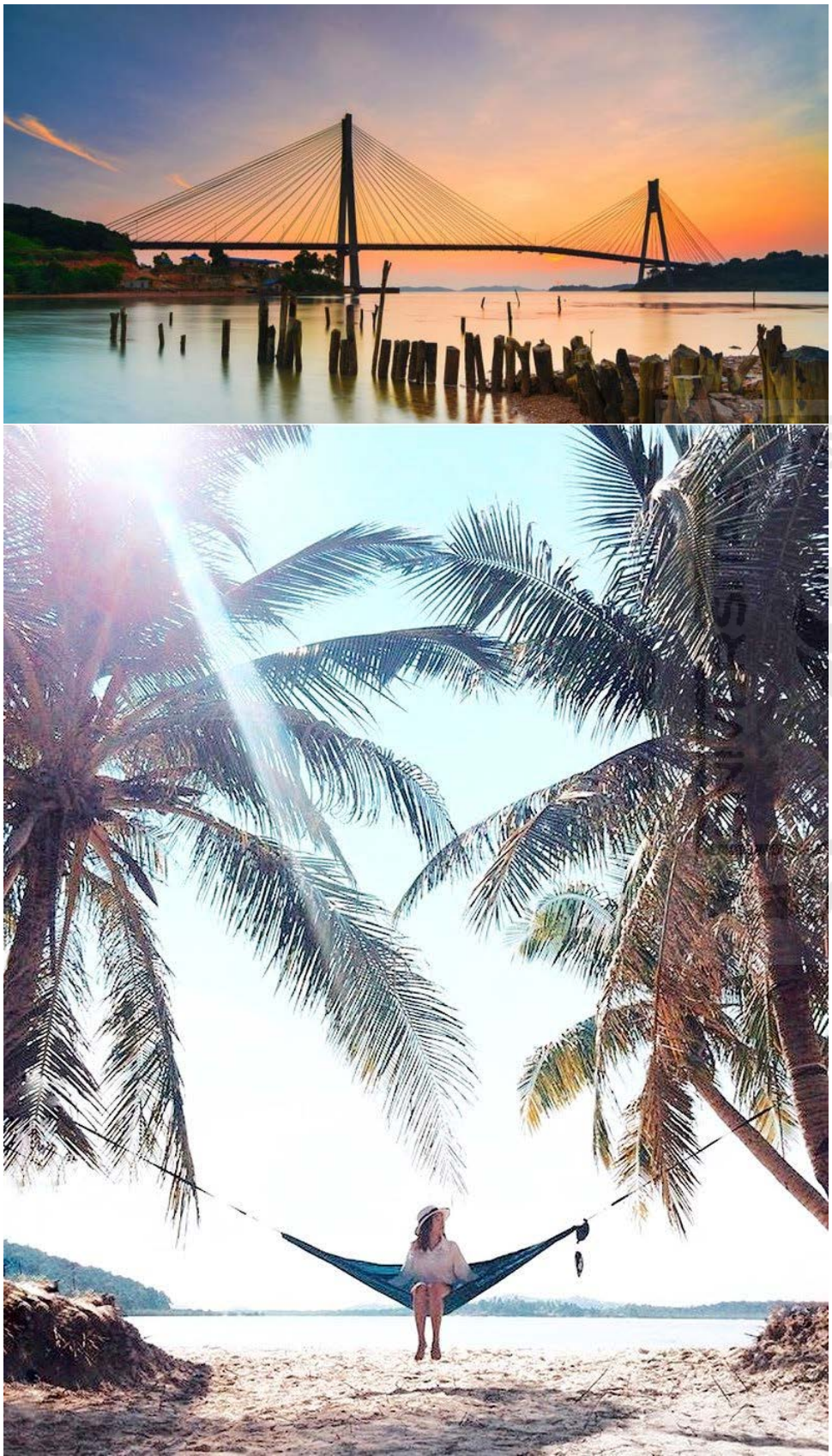
Batam - Singapore
Source: Bayfront City waykambasdesign.com, 2021

Importance of Port in Batam

The importance of sea transportation in supporting accessibility and mobility as well as the economy in the Batam region encourages the government to include sea transportation issues as one of the main issues in the development of the city of Batam. These various economic sectors include the communications sector, the electricity sector, the water and gas sector, the banking sector, the industrial sector and ship transfer, the trade and service sector which is the main sector of Batam, which not only affect Batam, but is also an export commodity for the country.

There are also the international port hub in located in Batu Ampar that focus on the logistic and good. This shows that the important of Batam to having the Port s thier vital point to increase income and tourism.

Development of Tourism Areas in Batam



Batam tourism attraction
Source: tripzilla.id, 2021

Batam is one of the cities in the Riau Islands which in 2019 was designated as the second national contributor to foreign tourists, after Bali. The Central Bureau of Statistics (BPS) recorded that the number of foreign tourist visits to the Riau Islands in January-June 2019 reached 1.13 million.

This figure has increased by 17.42 % or 267,307 visits compared to the same period in 2018 of 17.04 percent or 227,653 visits.

This is due to the very strategic location of Batam Island, which is bordered by Singapore and Malaysia.

According to RPMJD Batam 2016-2021, the government launched a strategy based on a SWOT analysis which states that the government and the Batam Concession Agency work together in exploiting the maritime and tourism potential of Batam City.

According to the 2016-2021 RPMJD Batam there are several important targets that must be achieved, including:

1. The embodiment of sapta charm that provides comfort to foreign tourists.
2. Coordination and similarity of perception between front liners and CIQP (Customs, Immigration, Qurantine, Port)
3. Promotion is carried out continuously, sustainably and expansion of new market shares; Promotion focuses on dominant visitor contributors (Singapore, Malaysia and Korea) and promotion to new markets in China and the Middle East
4. Attractions and implementation of scheduled and sustainable tourism events
5. Providing increased services to foreign tourists, such as providing transport and intensity at the events held.

The achievement of these targets is aligned with the determination of priorities in tourism development stated in the National Tourism Development Master Plan (RIPARNAS), namely:

1. Tourism Industry Development
2. Development of Tourism Destinations
3. Tourism Institutions
4. National Tourism Marketing

Not only Batam has a vision in developing the tourism sector, other areas in the Riau Islands Province such as Bintan, Karimun, and Lingga Regencies also have the same vision related to the tourism and marine sectors. This shows that the tourism and marine sectors play an important role in the growth of the Riau Islands, especially the city of Batam.



Singapore view from Tanjung Pinggir Beach
Source: amazingkepri.com, 2021

Walikota Batam
MUHAMMAD RUDI

Upaya pembangunan fisik bernuansa melayu ini perlu untuk menunjukkan jati diri daerah. Sehingga orang yang datang tanpa perlu diinformasikan pun sudah tahu kalau Batam merupakan daerah melayu.

Batam as a Malay Land

Batam Island was first inhabited by Malay people as strait people since 231 AD. The island, which was once a battlefield for Admiral Hang Nadim to fight against the invaders, was used by the government in the 1960s as the base for petroleum logistics on Sambu Island. The people of Batam City are a heterogeneous society consisting of various ethnic groups and groups. The dominant ethnic groups include Malay, Javanese, Batak, Minangkabau, and Chinese. With the umbrella of the Malay Culture and upholding Bhinneka Tunggal Ika, Batam is conducive to driving economic, socio-political and cultural activities in society.

Even so, the Malay Culture which is identical with Islam is still so thick in Batam City which later became the root of local culture. In everyday life, there are ceremonies that have religious and mythical elements that are expressed in dance, music, and various types of art forms.

The diversity of religions and cultures of the people of Batam city cannot be separated from the awareness that culture is a reflection of the characteristics of a society, so that society and culture is very closely related, because there is no single community that does not have culture. Because the cultural values grow from the society itself. The cultural values that bind the people of Batam city so far are the values of Malay culture. In the context of the city of Batam, Malay culture is a culture that has local wisdom that should be upheld by all people with different ethnic, religious, cultural, racial backgrounds with the aim of creating social harmony in the community. Therefore, Malay culture must continue to exist and be prominent in the life of the people of Batam.





Dance Performance in Batam
Source: pbbatam.go.id, 2021

The Malay culture which is identical to Islam is still very thick in Batam City which later becomes the root of the local culture. In everyday life, some ceremonies have religious and mythical elements that are manifested in dance, music, and various types of art forms.

There are several popular traditional dances, such as the Jogi Dance and the Zapin Dance, which reflect the strong influence of Arabic culture. There is also a tari persembahan which is usually performed when welcoming a guest of honor. Besides, there is Drama Mak Yong which is a dance and song performance drama, telling about a country called “Riuh”, which is believed to be the origin of the name Riau Province.

City Parks
Source: google.co.id, 2021



Malay culture in Batam is very much considered by the government. This is related to the government's vision of preserving Malay culture in everyday life. Mayor of Batam Muhammad Rudi has declared that the construction of facilities with Malay nuances is a priority and this obligation is needed to show Batam's identity as a Malay land. This vision is in line with the plan of the Riau Islands province in terms of cultural preservation through physical development which is implemented to introduce, educate, and indirectly preserve the Malay culture itself.



Government Building
Source: google.co.id, 2021

In its application, the physical preservation of Malay culture can be seen from various points of view in Batam. For example, the construction of city parks that incorporate Malay elements into landmarks and also in government buildings that more or less adopt Malay forms and elements. However, its application to new development, **more modern buildings are still lacking in terms of giving the building a Malay value**. As a city that is located in a very strategic location, as well as being one of the entry points for foreign tourists to Indonesia. The application of physical elements with Malay nuances is not visible. Especially the airport as the entrance from the air route, and the port as the entrance to the sea route. **All ports in Batam do not even give a prominent Malay nuance to their building elements.** This is what makes the author carry out international port design with the application of critical regionalism. Thus, a port design will be obtained as an international entrance that presents a Malay nuance into the overall building design.

problem thinking

	transportation and international terminal	vision of tourism of Batam		development on the existing ferry terminal
issues				
	International Ferry Terminal	development tourist area	adaptive reuse	critical regionlism
context				
	maximize the circulation on the international terminal by adapting the existing condition		implement the critical regionalism concept in order to show the image of City	
analysis				
	designing an International Terminal to show the image of Batam with the application of critical regionlism and adaptive reuse for having an effective and efficient circulation to create an ease of access for passengers			
hypothesis				

Problem Mapping Diagram
Source: Author

problem mapping

non-architectural issues

1. Batam City is one of the international entrances via sea from Singapore and Malaysia
2. International tourists who come to Batam are increasing every year
3. The vision of Kepulauan Riau Province, especially Batam, is to improve and develop the tourism, economic, and industrial sector.
4. The need for the preservation of Malay culture in Batam which is a city for migrants from other areas in Indonesia

architectural issues

1. Need for more space at the ferry terminal with limited vacant land in Batam
2. The application of Malay elements in building seems forced to exist, so it seems like an addition attached to the building.
3. Malay architectural element can only seen in most of the government buildings
4. International Terminal which does not reflect the locality of Batam.
5. Ineffective circulation and space in international terminal buildings

general problem

How is the design of the International Port to show the image of Batam with the application of critical regionalism and adaptation to the existing building to to create an ease of access for passengers

↓

specific problem

1. How to design an international port layout in order to create an ease of access for passengers as well as the zone grouping for departure, arrival, check-in, inspection, immigration, boarding, passengers, employees, and visitors?
2. How to design a port building that is able to adapt with the existing condition in order to create the new building to enhance the terminal facilities that show the image of Batam?

problem statement

Based on the background of the problems described above, the following problem formulations are obtained

General Problems

How is the design of the International Port to show the image of Batam with the application of critical regionalism and adaptation to the existing building create an ease of access for passengers?

Specific Problem

1. How to design an international port layout in order create an ease of access for passengers as well as the zone grouping for departure, arrival, check-in, inspection, immigration, boarding, passengers, employees, and visitors?
2. How to design a port building that is able to adapt with the existing condition in order to create the new building to enhance the terminal facilities that show the image of Batam?

goals & objectives

Goals

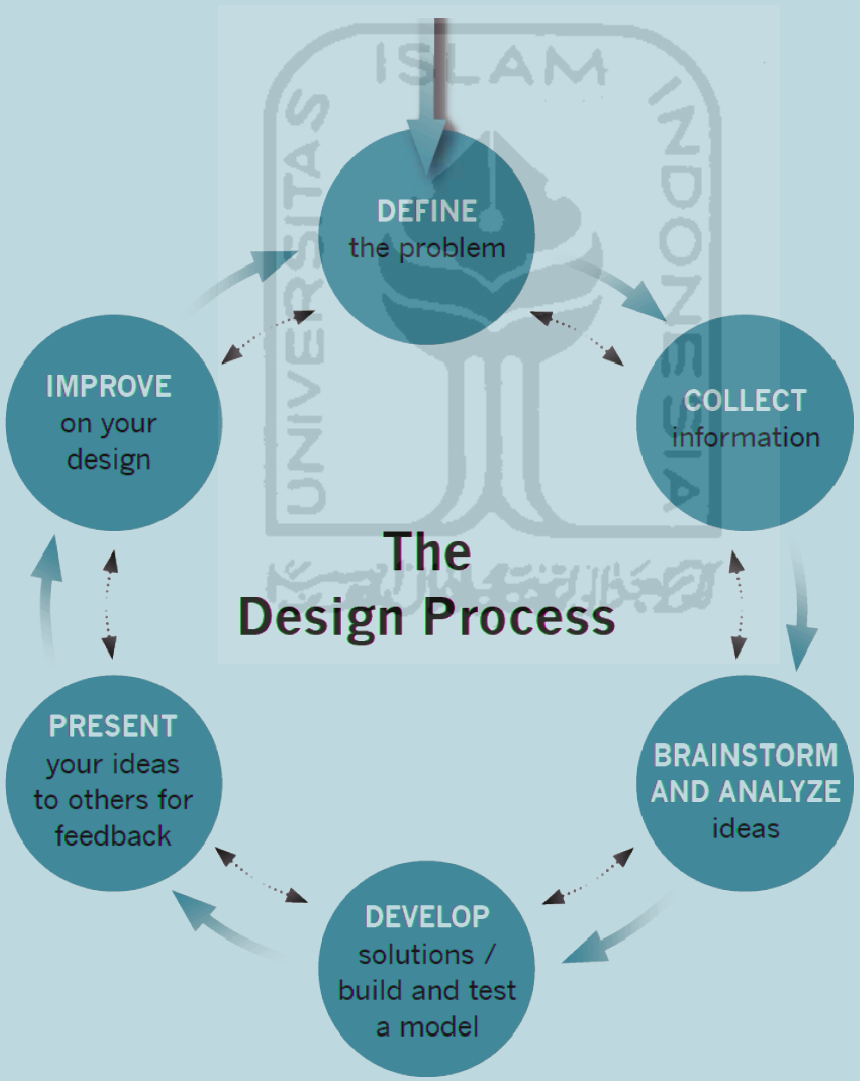
1. Designing an international port layout create an ease of access for passengers as well as zone grouping for departure, arrival, check-in, inspection, immigration, boarding, passengers, employees, and visitors.
2. Designing an International Port building that is able to adapt with the existing condition in order to create the new building to enhance the terminal facilities.

Objectives

1. Forming a comfortable international port layout in accordance with the principle of room comfort
2. Embody architectural quality at the International Ferry Terminal
3. Shows the strong image of Batam in the International Ferry Terminal building

preliminary design method

According to Andrew Pressman (2012), the Process is about thoughts and feelings that are interrelated and assume a certain magnitude and direction. This process must of course be clear, individual, and constantly evolving. Forced to find a goal in the process, I would characterize it as repetitive, requiring sequential loops, each of which yields more information and the resolution of the previous one. A resolution may get results or a suggestion to reformulate the problem and a question to answer. The design process map shows the negotiation between a problem and a solution with each seen as a reflection of a scheme.



Problem Mapping Diagram
Source: Chicago Architecture Foundation, *The Architecture Handbook* (taken from *Designing Architecture: The Element of Process* book by Andrew Pressman)

The design method is a method or stage that is carried out in a design process, this method is needed to facilitate the designer in developing design ideas. In this International Ferry Port Terminal Design, the designer performs an initial description of the design method. The method stage begins with the collection of related data to the final design process.

The following is a schematic of the author's method through adjustments to what Andrew Pressman has put forward in his book on the design process diagram in The Architecture Handbook by the Chicago Architectural Foundation.

1. problem statement
2. preparation phase
3. analysis phase
4. programming
5. concepting phase
6. design development
7. design evaluation
8. final design

Initial Design Method Scheme
Source: Author

Problem Statement
Identify problems with macro, micro, and potential physical functions of the building and site, as consideration for system development and determination of the initial design theme. Formulate problems or issues that are non-architectural or architectural and determine goals and objectives in the design.

Preparation Phase
This preparation stage is in the form of a data collection process. Begin research by examining precedents (similar building types), identifying applicable codes and regulations, and collecting the site data and climate data including the immediate context and region. In the data collection process, primary data is needed in the form of the latest physical building data, a review is also carried out on the regional discourse in the development of the tourism sector which will later affect the basis for this design made. Then the secondary data collection is in the form of literature studies to get references through journals and precedents that will be used as design references. Secondary data is also in the form of consideration of the study of the typology of similar buildings that have applied the effectiveness of space programs and theories regarding the design approach of critical regionalism.

Analysis Phase
A careful analysis is a meaningful prerequisite for designing, it results in a clean, orderly, and fine-grained view of the problem, and maybe a trigger for innovative design ideas. Converting program, site, and other data into graphic forms can be solved analytically.

Programming
As a direction of problem mapping and processing of the data that have been found and identifying problems, as well as consideration of determining the design concept in the next phase.

Concepting Phase
The concept of design is the author's strategy in underlying solutions to problems and considerations of recommendations and design solutions that are described descriptively by the author, reinforced with sketches or diagrams that can be understood and support the arguments that have been described.

Design Development
The stages of the design process that answer the analysis of problems, data, and programs. design development also adapts to the design concept that has been determined as a strategy in determining preliminary design.

Design Evaluation
The initial design is then evaluated to find out whether the quality of the design is good and whether it can answer the specific problems formulated. The design evaluation process uses several 2D, 3D, and BIM simulations

Final Design
After the design evaluation is carried out, the plan is then continued and developed further and in detail. This process is the final stage of design, refinement related to details so that all aspects of the building are more displayed

design frameworks

object	**ENGKU PUTRI INTERNATIONAL FERRY TERMINAL**			
issues	transportaion and international terminal	vision of tourism of Batam	preservation of Malay culture	development on the existing ferry terminal
context	International Ferry Terminal	development tourist area	culture as the image of the city	adaptive reuse
general problem	How is the design of the International Port to show the image of Batam with the application of regionalism and adaptation to the existing building to minimize the time and distance of passenger movement			
specific problem	How to design an international port layout in order create an ease of access for passengers?		How to design a port building that is able to adapt the existing conditino and show the image of Batam?	
literature study	*port typology*	*regionlism*	*adaptive reuse*	*circulation*
	ship, passenger, building		form, sense, material, culture	
	room programming	circulation	structure	massing	building facade	landscape
synthesis	*architectural port design with implementing the regionalism while adapting to the existing building and create an ease of access for passengers*			

Design Framework Diagram
Source: Author

originality and novelty

Terminal Penumpang Internasional Dede, Toli-Toli

Terminal Penumpang Internasional Semayang di Balikpapan.

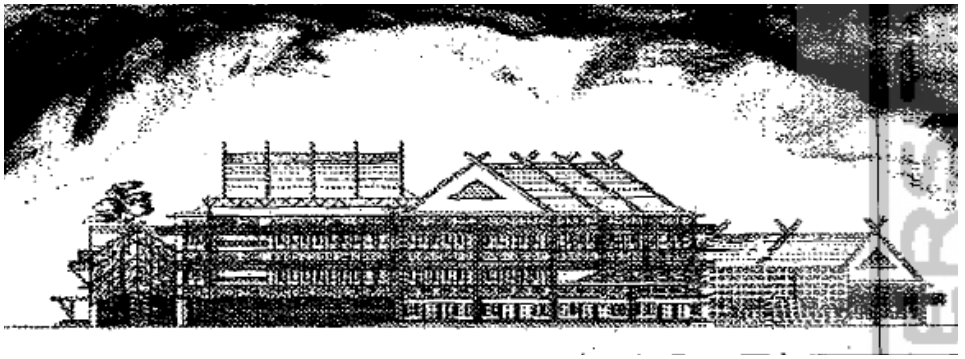
Terminal Pelabuhan Penumpang Kupang.

Perancangan terminal penumpang pelabuhan Di Kabupaten Natuna Kepulauan Riau: Tema high-tech architecture

Perancangan Pusat Seni dan Kebudayaan di Kutai Kartanegara

Terminal Penumpang Internasional Dede, Tolitoli. *Dengan Konsep Arsitektur Tropis Modem Dalam Perancangan Kenyamanan Ruang Dan Penampiian Bangunan*

Approach	: Modern Tropical Architecture
by	: Muhammad Sabran (UII)
Publication	: 2005
Concept	: Tropical Architecture and Thermal Comfort
Similarities	: International Terminal
Difference	: not at the same approach of critical regionalism



Design 1
Source: Sabran, 2005

Terminal Penumpang Internasional Semayang di Balikpapan. *Kontemporerisasi Budaya Dayak secara Arsitektural*

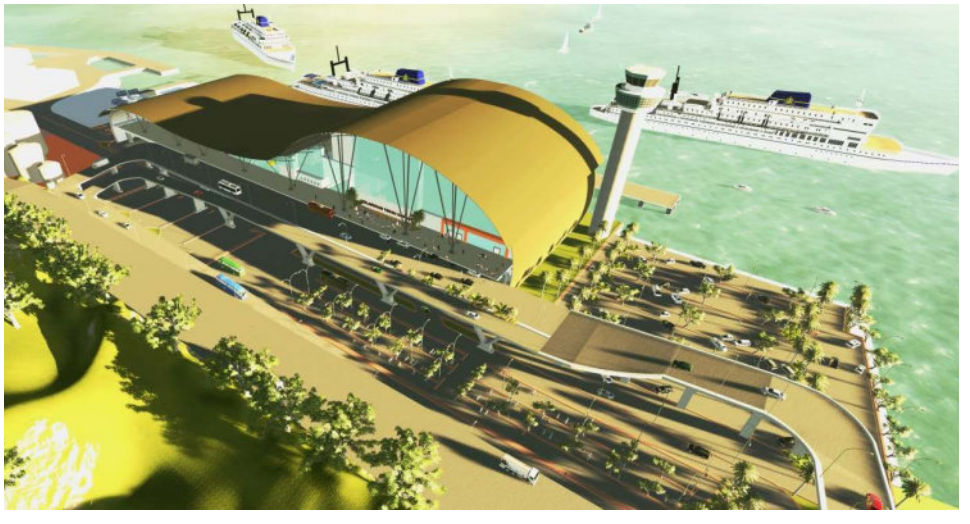
Approach	: Contemporer Architecture
by	: Gabriel Pardamean Hutagalung (UNSRAT)
Publication	: 2015
Concept	: Kontemporasi Budaya Dayak Secara Arsitektural
Similarities	: International Terminal with culture as the design idea
Difference	: Different problem of the efectivity and efficiency of circulation



Design 2
Source: Gabriel, 2015

Terminal Pelabuhan Penumpang Kupang.

Approach	: High Tech
by	: Johan Umbul Katanga Wolagole (ITENAS Malang)
Year	: 2015
Concept	: High Tech Architecture
Similarities	: Passenger Port Terminal
Difference	: Different approach and concept



Design 3
Source: Walagole, 2015



Design 4
Source: Andriyanto, 2013

Perancangan terminal penumpang pelabuhan Di Kabupaten Natuna Kepulauan Riau: Tema high-tech architecture

Approach	: High Tech
by	: Dedi Andriyanto (UIN Malang)
Year	: 2013
Concept	: High Tech Architecture
Similarities	: Passenger Port Terminal, and using some malay elemnt on the design
Difference	: Different approach and concept



Design 5
Source: Jannah, 2020

Perancangan Pusat Seni dan Kebudayaan di Kutai Kartanegara

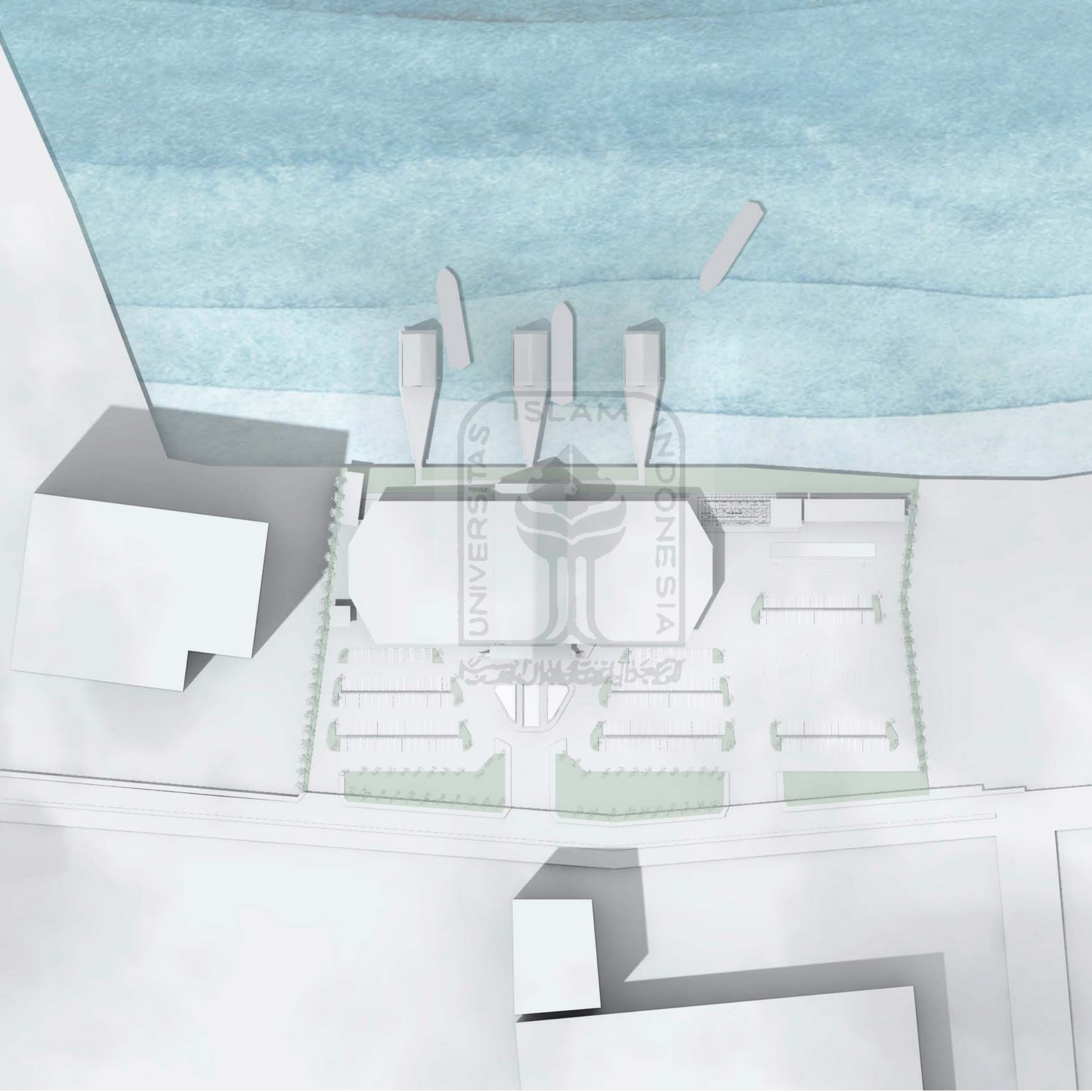
Approach	: Flexibility & Critical Regionalism
by	: Miftahul Jannah (UII)
Year	: 2020
Concept	: Place Making by Critical Regionalism
Similarities	: The same approach of Critical Regionalism
Difference	: Different design object



Author Design
Source: Author

Engku Putri International Ferry Terminal *by adaptive reuse and critical regionalism approaches in Batam*

Approach	: Adaptive Reuse and Regionalism
by	: Qois Ridha (UII)
Concept	: Regionalism approach which forms an International Terminal that shows the imagery of Batam and able to create an effective and efficient ferry terminal space





Barelang Bridge
Source: https://batam.tribunnews.com, 2019

2

batam and its context

location context

Batam: Metropolitan City in the Borderline

Codes and Regulation

Engku Putri

Site Location

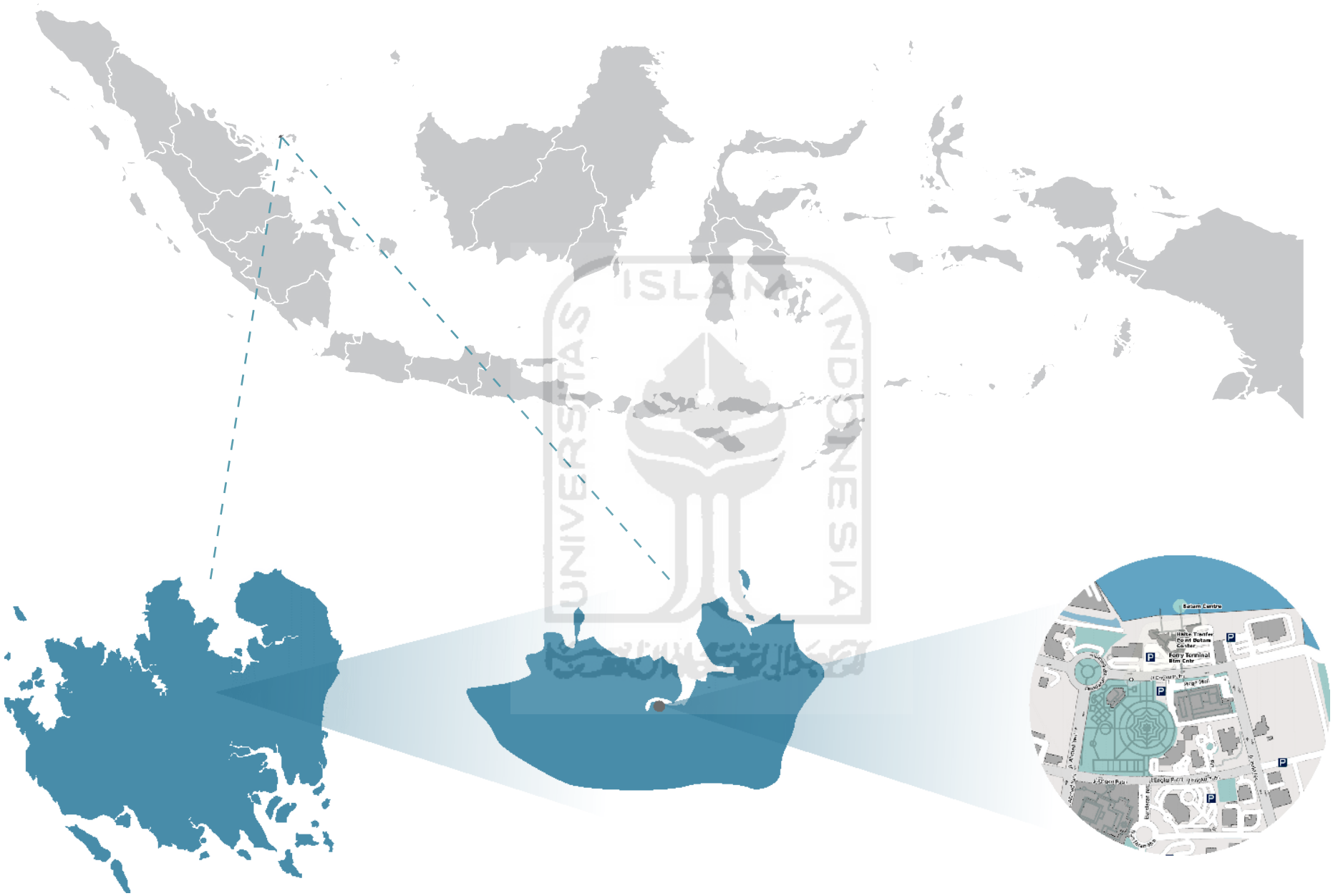
SWOT Analysis of Site Location

Analysis on Existing Building



Picture 2.1 Map of Batam
Source: openstreetmap.com, 2021

Jl. Engku Putri, Kel. Teluk Tering Kecamatan Batam Kota, Kota Batam, Kepulauan Riau, Indonesia



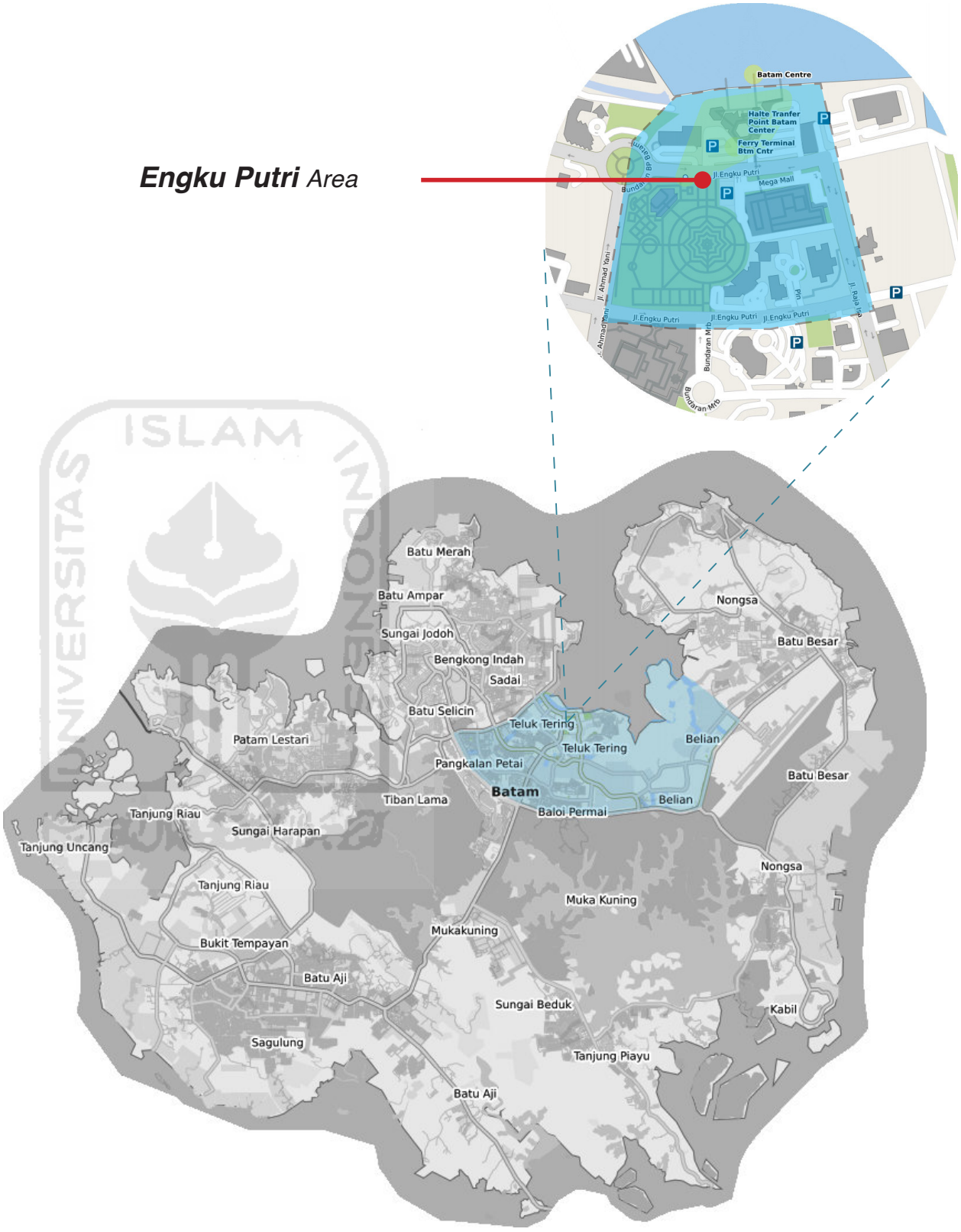
Batam *Batam Kota* *Engku Putri Area*

Macro-Micro Map
Source: Author

Geographical Condition

Batam City is a city located in the Riau Islands Province, Indonesia. Batam City area is located on Batam Island and its entire territory includes the Singapore Strait and the Straits of Malacca. Batam is the largest city in the Riau Islands and the largest city in the Sumatra region after Medan, Palembang, and Pekanbaru. The location of Batam, which is directly adjacent to Singapore and Malaysia, consists of ± 400 islands. The total area of 3,990 km2 consists of a land area of 1,380.85 km2 and a sea area of 2,950 km2.

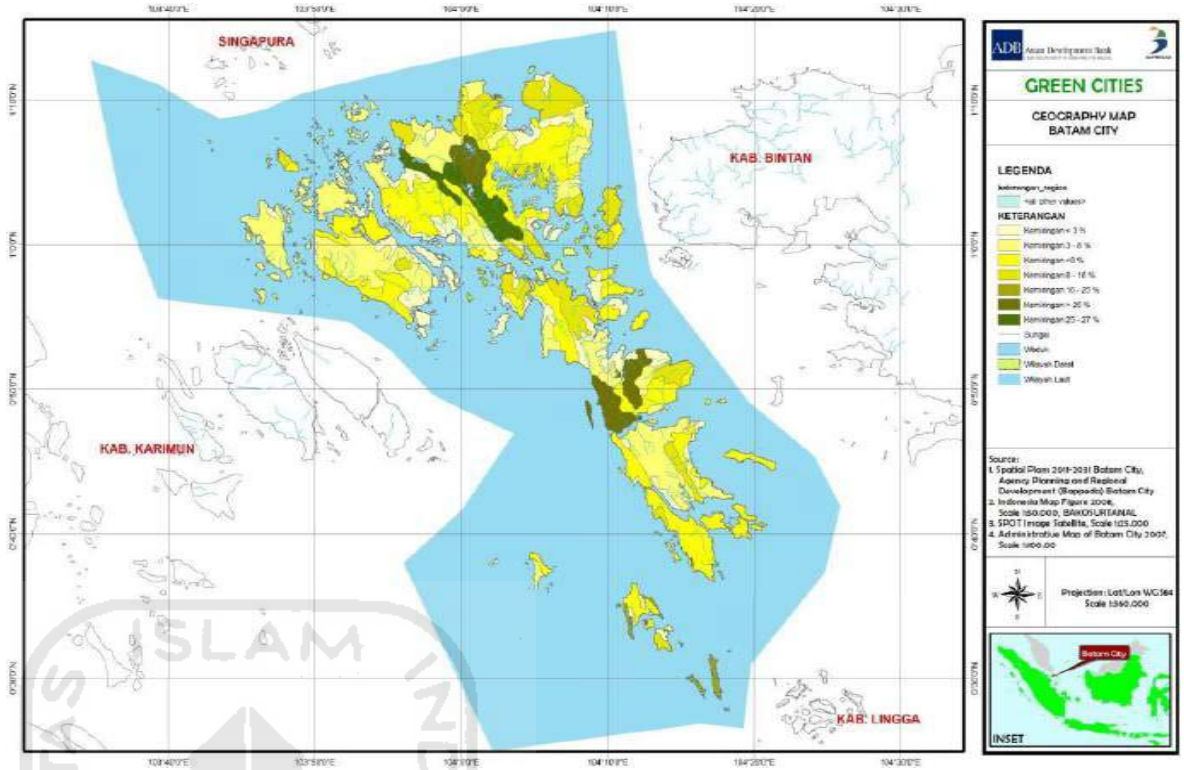
According to the Dinas Kependudukan dan Catatan Sipil Kota Batam as of 2015, the total population of Batam has reached 1,164,352 people. With a population exceeding 1,000,000 people, Batam City can be categorized as a Metropolitan City (batam.go.id). Batam Metropolitan Area consists of three islands, namely Batam, Rempang, and Galang which are connected by a bridge, namely the Barelang Bridge.



Map of Batam
Source: openstreetmap.com, 2021

Topograhpy Condition

Batam City area has relatively flat surface contours with hilly variations in the middle of the island with a height of between 7 meters to 160 meters above sea level. Areas that have an altitude of 0 to 7 m asl are on the north coast which is the design location in the Engku Putri area and the south coast of Batam Island and the east of Rempang Island as well as the north, east, and south of Galang Island.



Topography Map of Batam
Source: RPMJD Batam 2016-2021

Climate Condition

Batam City as a whole has a tropical climate with minimum temperatures ranging from 22^{o}C to 25^{o}C and maximum temperatures between 32^{o}C to 34^{o}C. The minimum average temperature during the year is 22^{o}C and the maximum average temperature is 34^{o}C.

Building Regulation

In Peraturan Daerah Kota Batam no. 2 of 2004, Batam Spatial Plan 2004 - 2014 regulates the planning of physical buildings and their boundaries in Industrial, Commercial, Public Facilities, and Residential Areas. The regulation states:

1. The KDB (Basic Building Coefficient) Plan for the Planning Area ranges from **20% to 90%**
2. The KLB Plan (Building Floor Coefficient) for the Planning Area ranges from **0.4 to 6.4**
3. The building demarcation line is **9 meters** from the secondary road and **6 meters** from the pedestrian path.
4. The GCR (Green Coverage Ratio) for the planning must be minimum of 10%

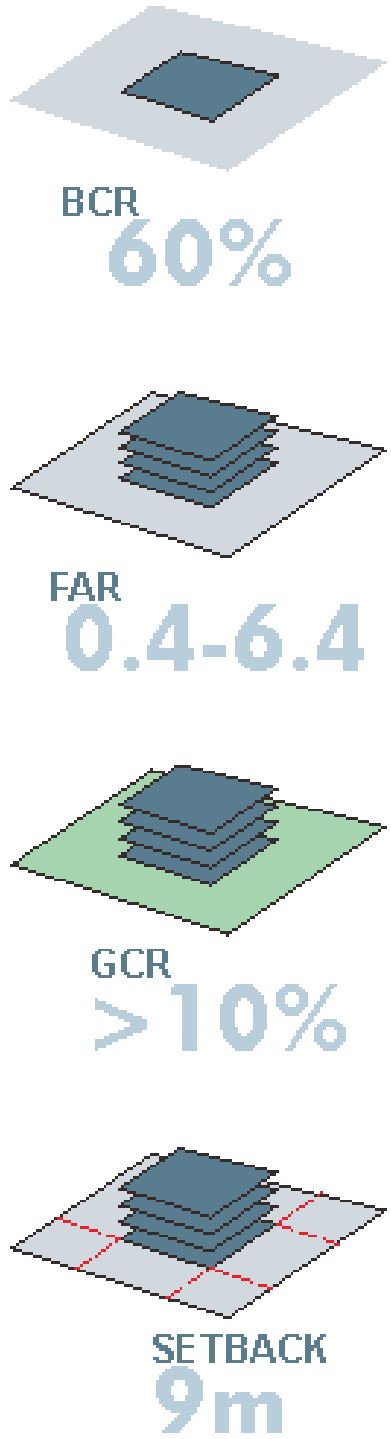
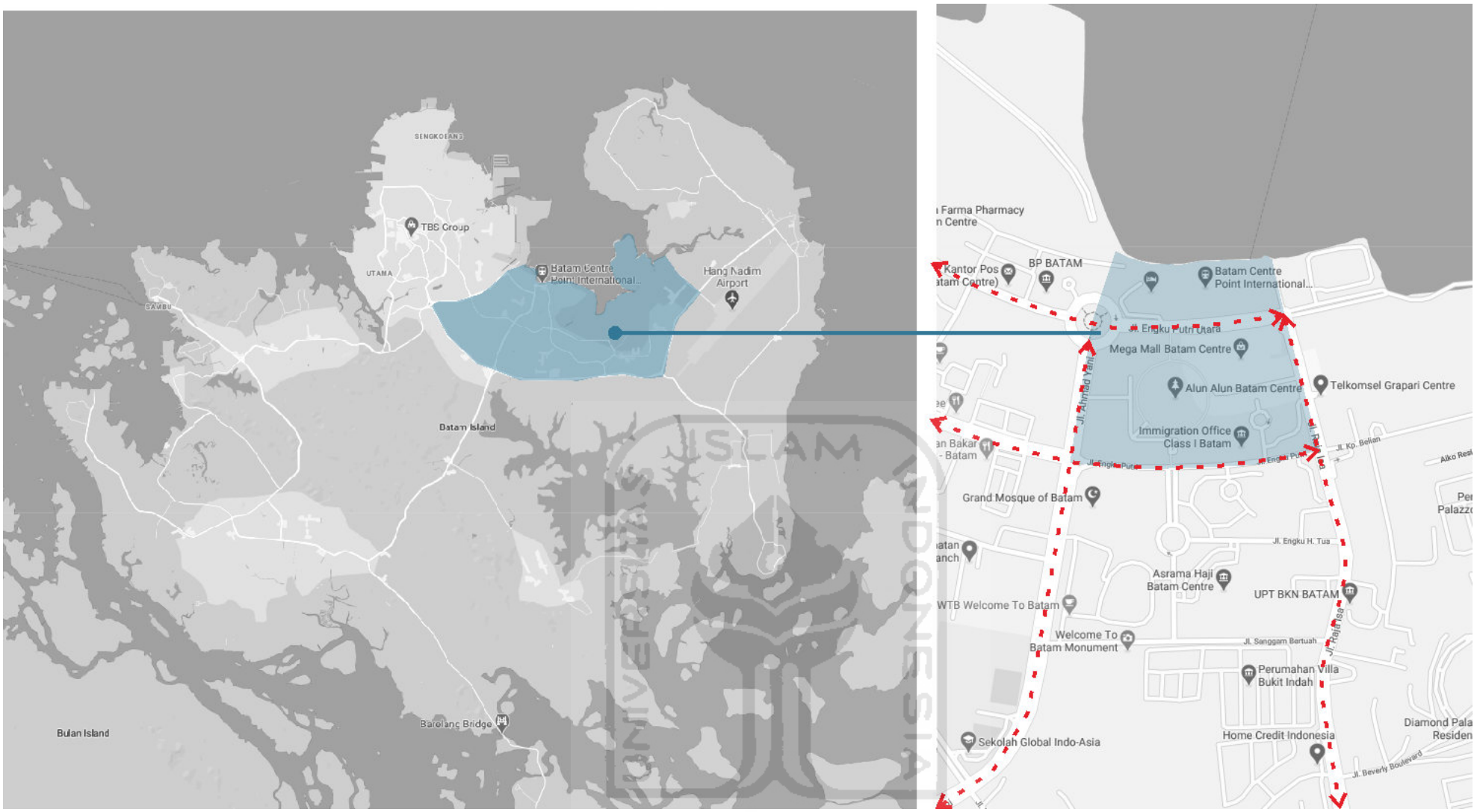


Diagram of Building Regulation
Source: Author

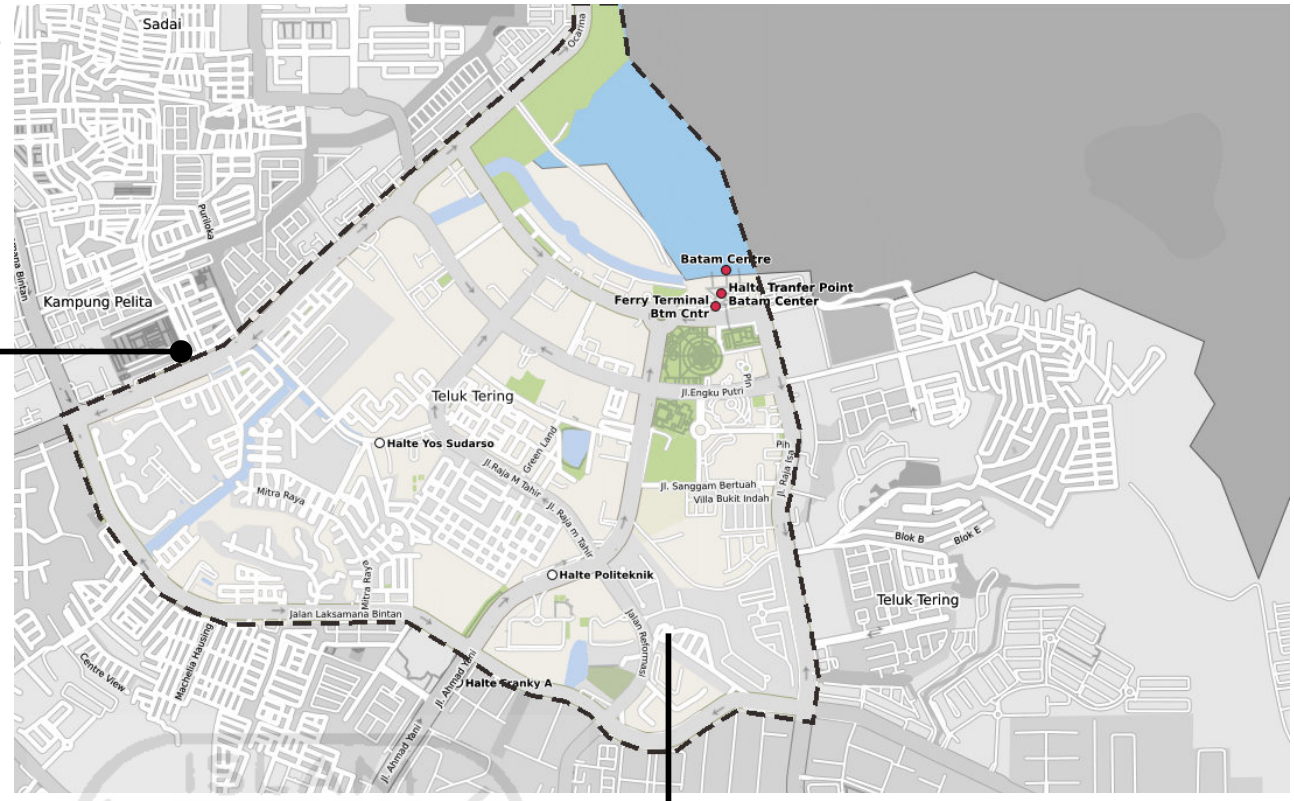
Engku Putri



Map of Engku Putri Area
Source: author

Engku Putri area is a small area located in the Batam City District. The Engku Putri area itself is an area located around Jl Engku Putri. Several government buildings such as the mayor's office, DPRD office, BP Batam office, and other important offices are located in this area. As for the Engku Putri road itself, it is divided into several street sections, namely the Engku Putri street, the East Engku Putri street, and the North Engku Putri street. Besides Engku Putri area which is located in the Center of Batam, it is also one of the city centers that many residents visit. This is because in this area there are several Batam urban tourist destinations such as the Welcome To Batam Monument, Batam Grand Mosque, to Engku Putri Plain which is the Batam city square.

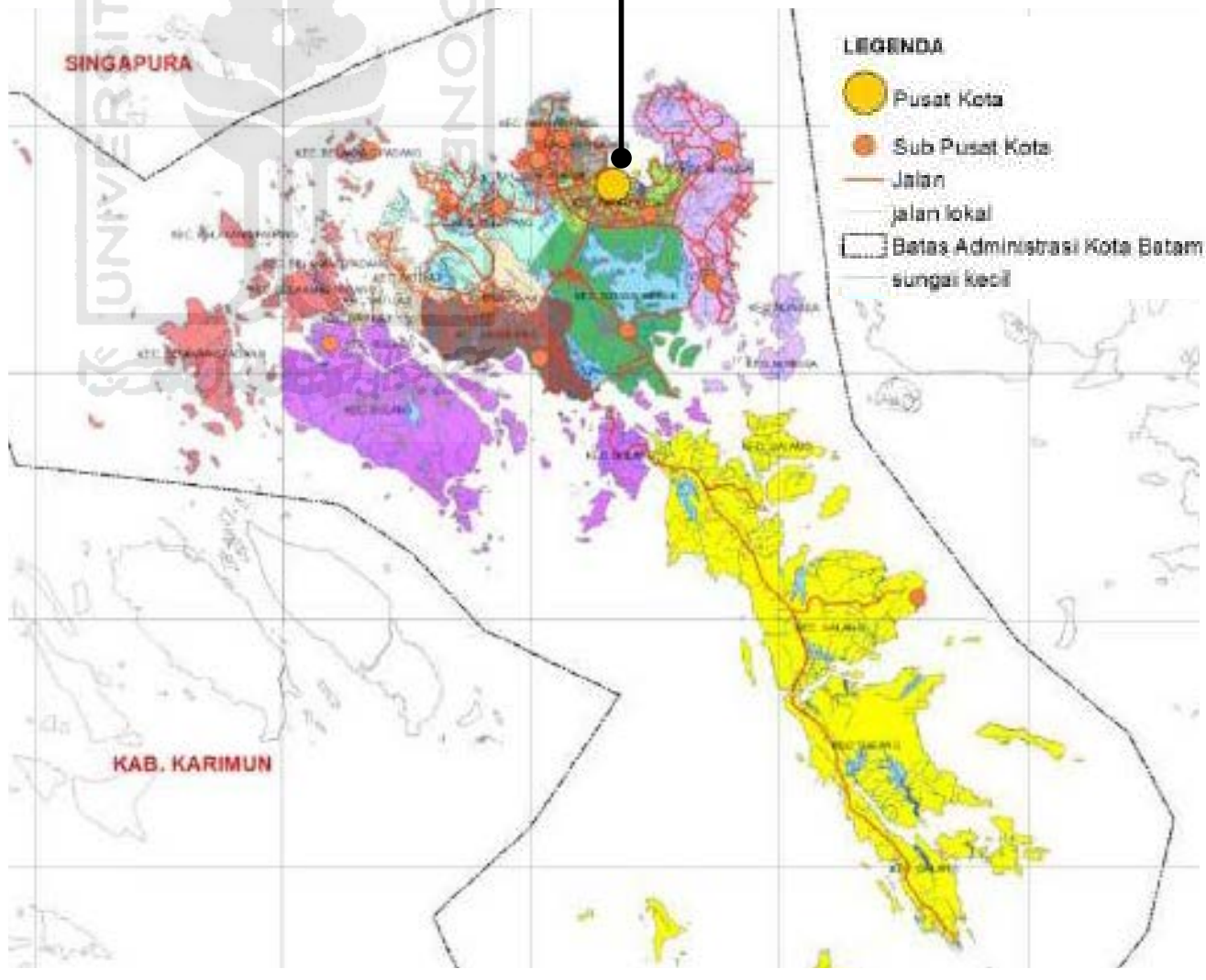
Picture 2.7 Map of Batam Centre Area
Source: Author



***Batam Centre** Area*

Potency of Engku Putri Area

The design location is in the Engku Putri area which is in the Batam Center area, Batam City sub-district. According to the RPMJD (Rencana Pembangunan Jangka Menengah Daerah) 2011-2021, Batam Center is the city center in the city service center system, which acts as a center for government services, trade, services, and industry. In the city center, it is allocated to support the development of the main functions of the Batam City area. such as government, trade, services, industry, seafaring, tourism, and certain service activities required by the Free Trade Zone which will later be transformed into Special Economic Zones supported by adequate infrastructure.



Map of Batam
Source: RPMJD Batam 2016-2021

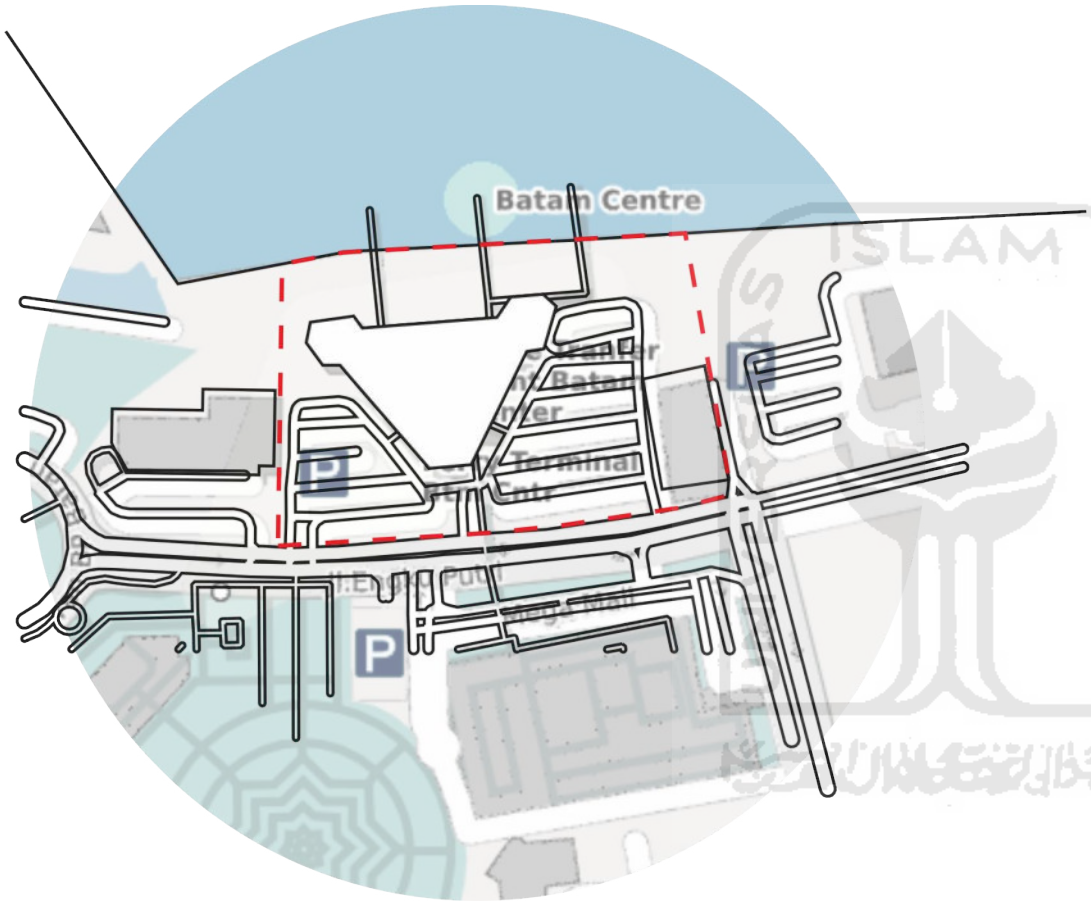
Site Location

The area of the design location has an area of 29.400 m² which is directly adjacent to Jl. Engku Putri Utara as the main access. The design site is located in the trade and services area in the Engku Putri.

The site location is at Batam Center International Ferry Terminal Area which is on the north side of the Engku Putri area. Batam Center Ferry Terminal itself is one of the international passenger terminals in Batam. According to the RPMJD (Regional Medium-Term Development Plan) of Batam 2016-2021 in terms of land use in Batam City, the port has an area of about 2,600 Ha in Batam, including this international terminal.



Site Location on Map
Source: Author



Site Location
Source: Author

Potency of the Site

The site was chosen based on the plan of the Riau Islands Province government as well as to support the activities of the free trade terminal and free port in Batam according to the Decree of the Minister of Transportation Number KP. 330 of 2009 concerning the Establishment of Free Ports in Trade Zones in Batam and based on the Decree of the Head of the Batam Authority Sea Port Office Number 07 / KPTS / PL / 12/2008 concerning the determination of the division of the Batam Authority's ship work areas, that the Batam Management Agency or Batam Authority as the organizer the port prepares the Batam Port Master Plan at the Batam Center Terminal. The Governor of the Riau Islands, H. Isdianto, gave his full support for the development of the Batam Center port. Therefore, this location becomes the design site.

The design limits include:
North : Teluk Tering
South : Jl. Engku North Princess
East : Harris Hotel Batam Center
West : Public Service Mall

SWOT Analysis of Site Location

Strengths

The site is located in the city center, namely in the Engku Putri area. It has adequate access that can be easily reached by the community. In addition, the site is also close to other public facilities in the Engku Putri area such as malls, city squares, public service facilities, and government buildings. The International Ferry Terminal is also one of the busiest ferry terminals in Batam which serves international shipping from Malaysia and Singapore.

Weaknesses

The site has an existing building in the form of an international port but does not have a Malay architectural style in the building. This can be seen from the shape of the building which has a modern style which is in contrast to the styles of the buildings around it which tend to have Malay nuances.

Opportunities

The location of the site in the city center will continue to develop in the trade and services sector, as well as in the tourism sector. The site, which is an international ferry terminal, also has the potential to become a gateway that can represent the face of Batam from foreign tourists.The location also has the potential to become a pilot object for other buildings in Batam.

Threats

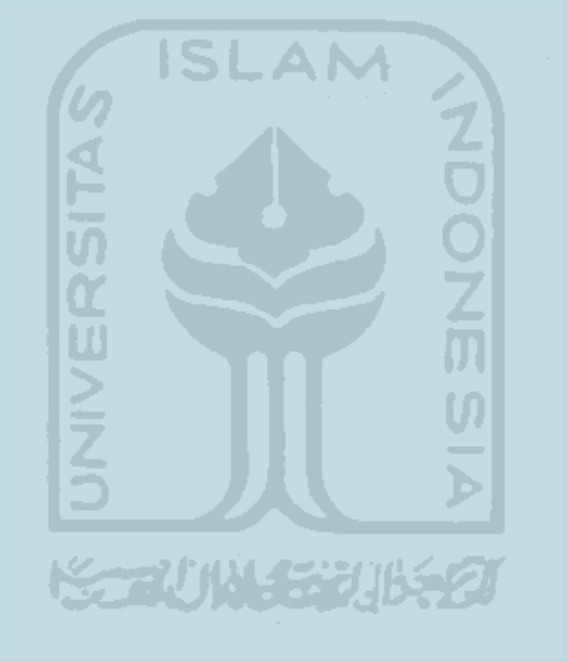
It is feared that the ongoing development of the Batam Center area could affect the vision of Batam in developing Malay nuances in all aspects. In addition, the condition of Tering Bay which has been stockpiled due to reclamation can affect the existing sea of the shipping lanes.

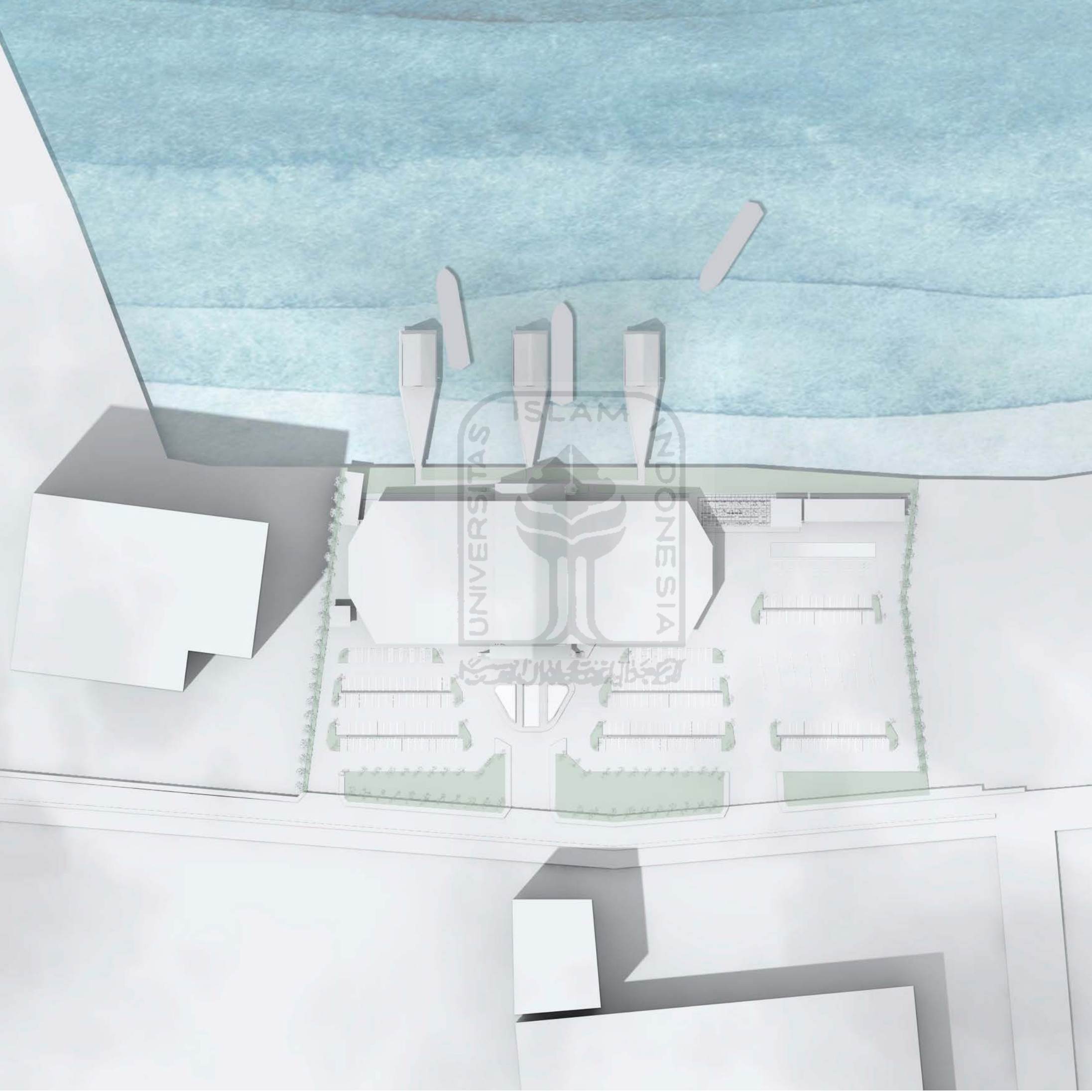
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Batam Centre Ferry Pier
Source: https://www.straitstimes.com, 2016

3

adaptation of port buildings to critical regionalism

literature study

Port as an International Gates

Regionalism

Adaptive Reuse

Circulation

Malay Architecture in Batam

Insertion

Port as International Gates

Definition of Port

According to the Law No. 17 of 2008 concerning shipping, a port is defined as a place consisting of land and/or waters with certain boundaries as a place for government activities and business activities that are used as a place for ships to dock, boarding and disembarking passengers, and/or loading and unloading goods, in the form of a terminal. and a ship berth equipped with safety and security facilities for shipping and port support activities as well as a place for intermodal transportation.

Triatmodjo (2009) on his writing stated that a port is a water area that is protected from waves and is used as a berth for ships and other vessels that function to raise or lower passengers, goods or animals, repairs, refueling and so on which is equipped with docks where ships moor, faucets for loading and unloading of goods, transit warehouses, and storage places for goods for a longer period of time, while waiting for distribution to the destination area or further shipment.





Batam Centre International Ferry Terminal
Source: Badan Pengusahaan Batam website, 2020

Function of Port

Based on Law No. 17 of 2008 concerning shipping, in general, ports have functioned as links, interfaces, and gateways.

1. Link, namely the port is one of the links in the transportation process from the place of origin of goods to their destination.
2. Interface, namely a port as a meeting place for two modes of transportation, for example, sea transportation, and land transportation.
3. Gateway, which is a port as the gateway to a country, where every visiting ship must comply with the rules and procedures in force in the area where the port is located.

In this PP, it is also stated that the International Port is a secondary main port that serves to serve the activities and transfer of national and international sea transportation in large numbers and a wide service range and is a node in the international sea transportation network.

It can be emphasized that international ports play a role as an entry point for foreign countries to Indonesia. Geographically, Batam is located on the international sea transportation route and is directly adjacent to Singapore and Malaysia. So we need a port that can reflect Indonesia in general and the location of the port in particular.

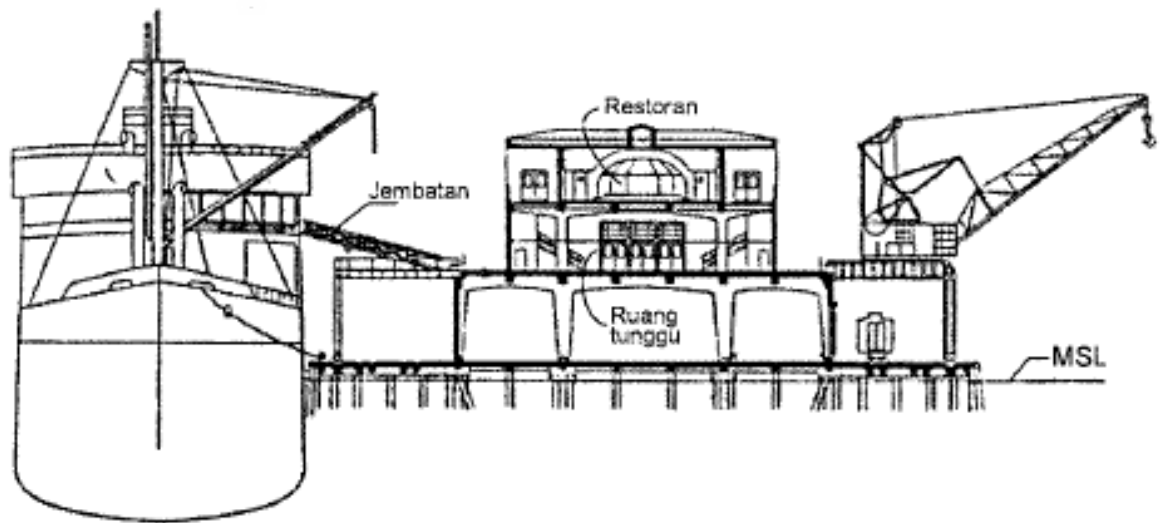




Batam Centre International Ferry Terminal
Source: Badan Pengusahaan Batam website, 2020

Type of Port, According to The Usage

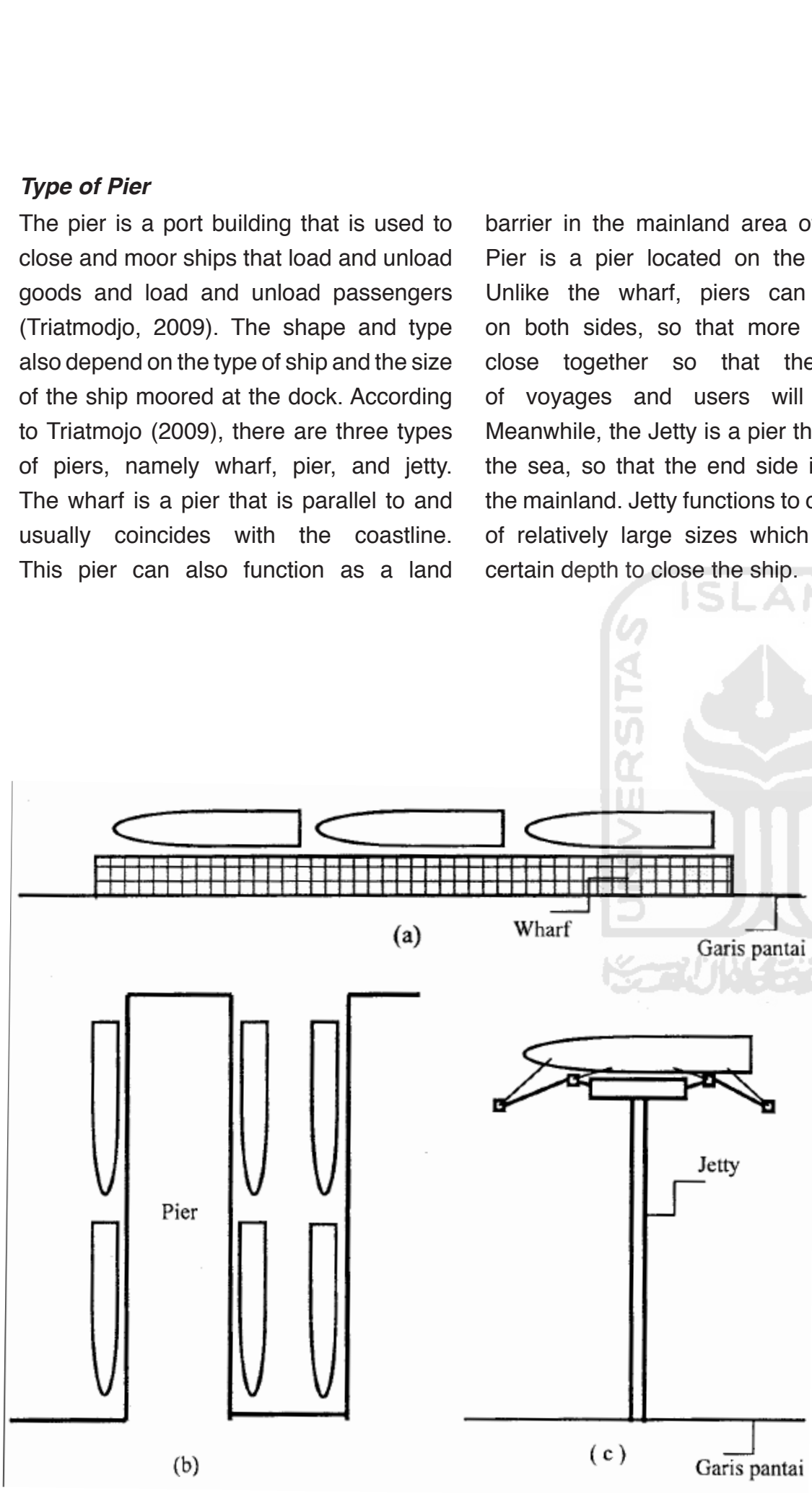
In terms of use, ports are divided into fishing ports, oil ports, goods ports, passenger ports, mixed ports, and military ports. The passenger port itself is a port that serves all needs related to the needs of people who come and travel. (Triamodjo, 2009). The passenger port is used by people traveling by passenger ship. The passenger terminal is equipped with a passenger station that serves all activities related to the needs of people traveling, such as waiting rooms, shipping airline offices, ticket sales points, prayer rooms, toilets, immigration offices, customs offices, security, port directors, and so on. . There are not too many items to be unloaded, so there is no need for a warehouse that is too large. According to Triatmodjo (2009), the ideal is that the pass in and out of passengers in circulation should be separated, so that the circulation of passengers and users is not able to run properly without any disturbance.



Passenger Port Scheme
Source: Triatmodjo, 2019

Type of Pier

The pier is a port building that is used to close and moor ships that load and unload goods and load and unload passengers (Triatmodjo, 2009). The shape and type also depend on the type of ship and the size of the ship moored at the dock. According to Triatmojo (2009), there are three types of piers, namely wharf, pier, and jetty. The wharf is a pier that is parallel to and usually coincides with the coastline. This pier can also function as a land barrier in the mainland area of the port. Pier is a pier located on the shoreline. Unlike the wharf, piers can be used on both sides, so that more ships can close together so that the number of voyages and users will increase. Meanwhile, the Jetty is a pier that juts into the sea, so that the end side is far from the mainland. Jetty functions to close ships of relatively large sizes which require a certain depth to close the ship.

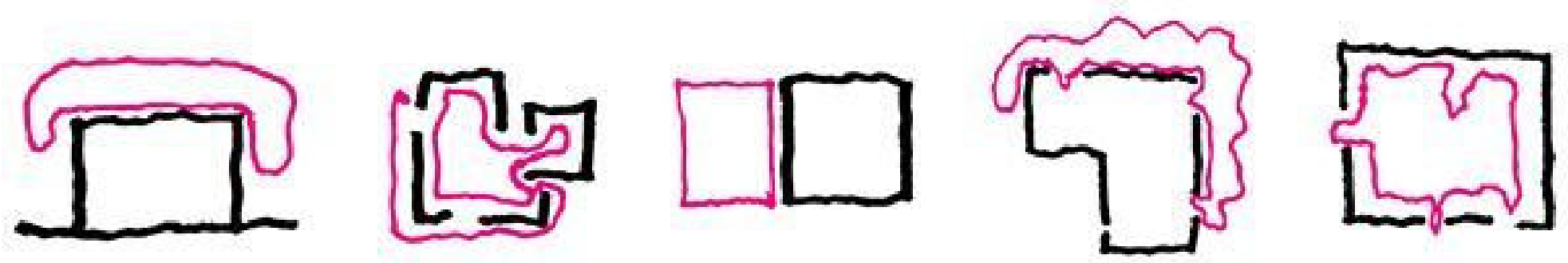


Type of Pier
Source: Triatmodjo, 2019

Adaptive Re-use in a way to Rataining the Old

Adaptive Reuse is a form of adaptation of an unused building which is then reused for a new function and purpose by transferring the old function to a new function that benefits the surrounding community and the area itself. This concept is a step that is described as a process of developing or changing old functions into new functions that are able to accommodate new activities that have and are able to increase the function and economic value of buildings (Kincaid, 2002).

So that reuse or Adaptive Reuse is a form of reusing existing structures by adapting the building steps used, namely by making a minimal change in the space layout and building structure (Douglas, 2006).



Adaptive Reuse Categories
Source: https://www.architectmagazine.com/, 2013

According to Kincaid (2002) in the book Adapting Building for Changing Uses makes basic points that make buildings reusable with some adjustments.

Market

Changing the function of the old building into a new function that has a selling value so as to be able to encourage potential people to invest in buildings or rent buildings.

Refurbish

Upgrading and improving the value of no value to the building with a new function that considers the existing sector or the suitability of the location of new functionality based on location so attractive and able to boost the marketability of buildings for sale or rent.

Modify Use

Modifying the building with changes to accommodate the needs of its users by adding new functions and still related to old functions.

Change Class of Use

Adapting and upgrading buildings with new functions in the form of mixed functions such as shop buildings, residential houses, and offices in one building.

Demolish

Adapting or changing buildings by rebuilding the building because it is not possible to maintain it.

According to Douglas (2006), Adaptive Reuse is broadly defined as interventions and building work to change function or performance, capacity to adapt and improve or reuse buildings in accordance with new requirements and conditions.

Harmonizing

Adapting the old building with a new design whose transformation is adapted to the existing building and its surroundings. So that the new design can be compatible with existing buildings and buildings in the surrounding environment.

Overlooking Neighbors

Adaptation by making changes to the old building design which disturbs neighboring buildings, especially multi-story buildings such as the distance between the front, side, and rear window designs with neighboring buildings.

Authenticity or Dominance

Changing the function of the building but still maintaining the authenticity/originality of the old architectural design by making changes but trying to minimize changes and changes is a form of development related to new functions. So that the authenticity of the building is not completely lost, one of which is by maintaining the structure of the building.

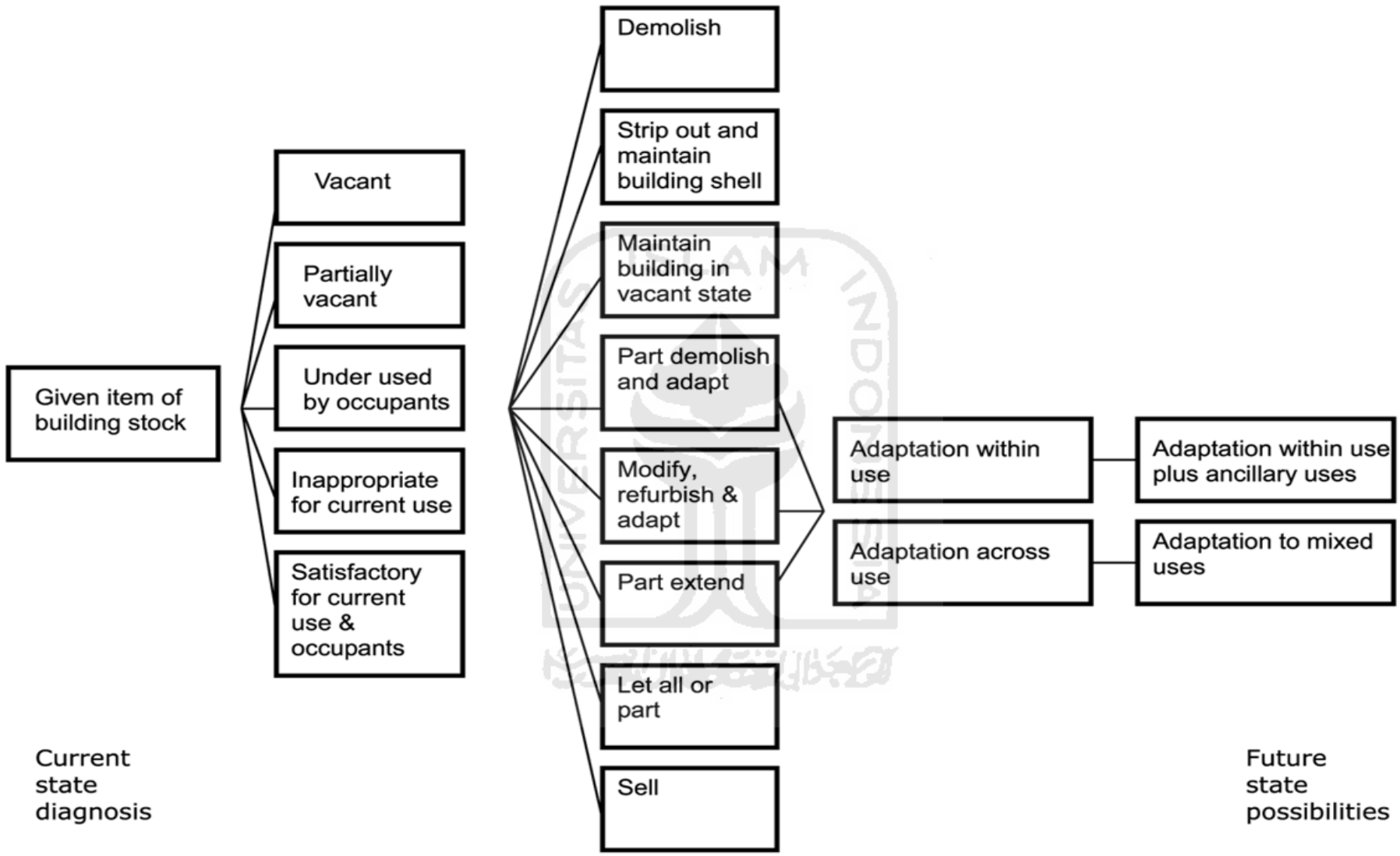
Retrofit

Changes that enrich or strengthen the value of a building through retrofitting the old structure with a new one so that the addition of new construction does not damage but supports the old building.

Demolish

This is the last step in implementing adaptation because the existing building does not meet the criteria to be maintained. Building criteria that can be adapted to demolition, namely Buildings are damaged and are not permanently built. Reduction of the volume of buildings that do not comply with construction standards or regulations. The condition of the building disturbs the surrounding environment in terms of access and aesthetics.

Basic Option for Adaptation



Option for adaptation diagram
Source: Kincaid, 2002 p:12

Physical Change Possibilities

In considering physical change possibilities, it is necessary to be able to differentiate between the relative ease or difficulty of changing any particular physical feature of an existing building. Some physical characteristics can be easily and cheaply modified and improved through minor works alone. At the other extreme, the adaptation of many physical characteristics is impossible without major structural alteration, often involving a demolition (Kincaid, 2002).

There are two types of physical change that need to be consider. The external facade and structure of the building and the internal spaces and layout. It can be maintained and unchange, modified, or upgrading the existing condition. This give the four basic strategies of adaptation

	MAINTAIN EXTERNAL FABRIC	REPLACE EXTERNAL FABRIC
MODIFICATION : INTERNAL SPACE only	Low change	Low–medium change
RECONFIGURATION : SPACE & STRUCTURE	Medium–high change	High change

Types of physical change
Source: Kincaid, 2002 p:53

Low Change

Maintain the existing external fabric with minor modification of the internal space.

Low-Medium Change

replace the external fabric and modify the internal space with no structural change.

Medium-High Change

maintain the external fabric, reconfigure the internal space, with some modification of the building's structure.

High Change

replace the external fabric, modify the building's structure and reconfigure its internal space.

Option for Change

The option of physical change can be systematically devined by theese five stage process.

- Identify the range option that available for physical change within one of the four “low to high change” strategies
- Eliminate any option that are not technically viable or practicable for the particula existing building
- eliminate those physical change options that are not compatible with the potentially viablenewuses as identified by the Use Comparator procedure
- select two to five preferred options from the set of potentially viable physical adaptations for detailed consideration
- conduct comparative business case and technical design evaluations, and select the preferred scheme for implementation.

Change of use through flexibility of the building ‘as found’

The development mainly ofcus on the new uses of the existing building. It’s also consider as the ‘low-change’ type of phisical change. The development are 100% using the existing building layout, facade, even the structure.

Change of use through flexibility with minor adaptation

This minor adaptation is the development on some of the room alyout on the existing building without changing the faade and structure of the building. It’s also trying to look the suitable layout inside to be used again as the new uses,

Change of use adaptation/refurbishment of vacant facility

This development more focus on the vacant building. It looks the same with the first type of development, but the function on the building are change.

Change of use adaptation with selective demolition

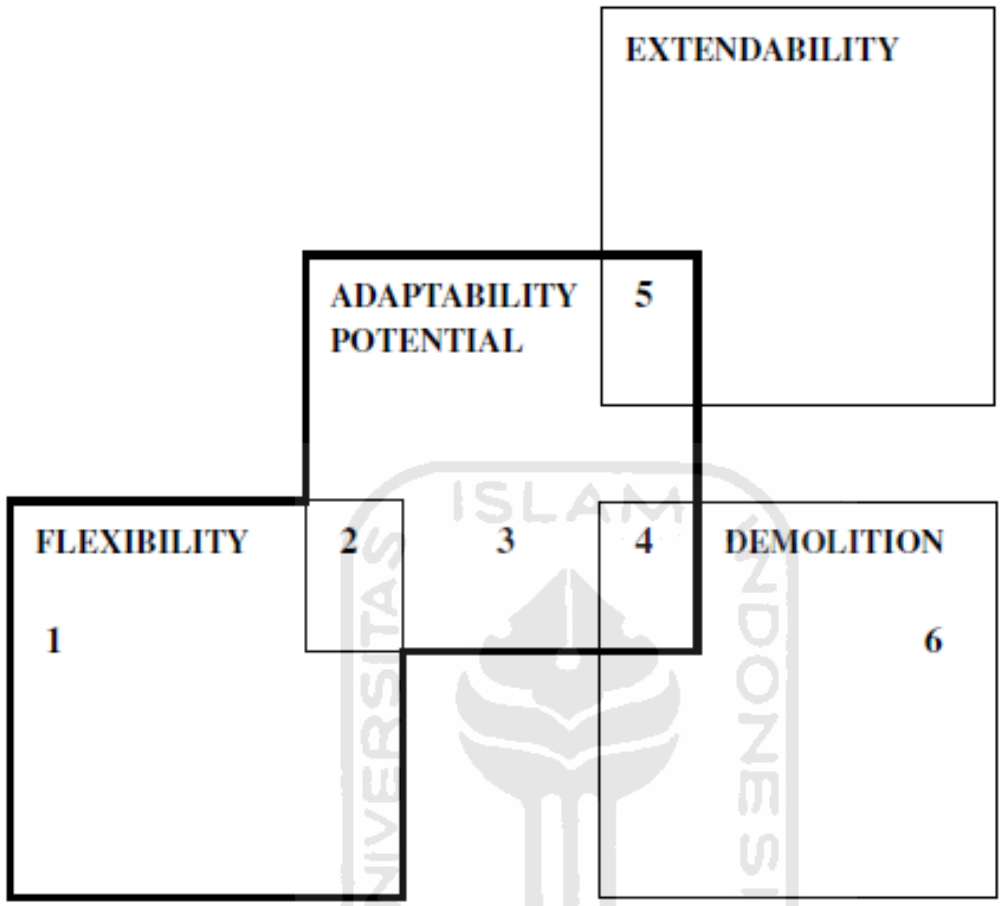
Selective demolition will adapt to some structure that still appropriate with the current situation of the development. Eliminate the structure that are not suitable for the future developmnet of the building. While the rest of the structure are maintained and use for the part of the development.

Change of use adaptation with extension of facility

This development focus on the extension of the building that adapt to the existing building condition. It is also maintaining the existing structure and maybe some of thebuilding element. In the term of layout, it will be change based on the new development of the building.

Change of use through demolition and redevelopment

Demolising development happen when the existing building does not meet the criteria to be maintained.



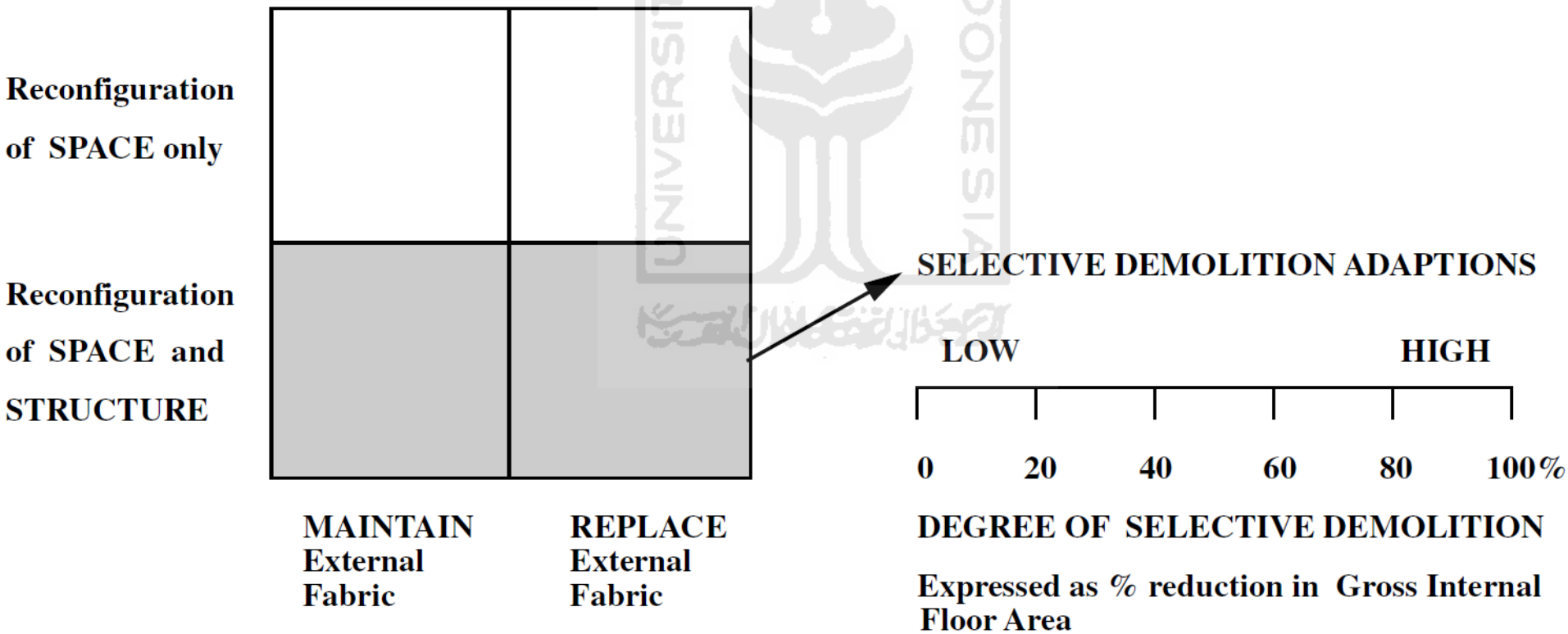
Basic development combinations.
Source: Kincaid, 2002 p:55

1. Change of use through flexibility of the building ‘as found’
2. Change of use through flexibility with minor adaptation
3. Change of use adaptation/refurbishment of vacant facility
4. Change of use adaptation with selective demolition
5. Change of use adaptation with extension of facility
6. Change of use through demolition and redevelopment

	Flexibility	Adaptability Potential	Extension	Demolition	Layout	Facade	Structure
Change of use through flexibility of the building 'as found'	●						
Change of use through flexibility with minor adaptation	●				●		
Change of use adaptation/refurbishment of vacant facility		●			●	●	
Change of use adaptation with selective demolition		●		◐	●	●	●
Change of use adaptation with extension of facility		●	●		●	●	
Change of use through flexibility with min Change of use through demolition and adaptation				●	●	●	●

Selective Demolition

According to Kincard (2002) in his book A*dapting Building for Changing Uses*, Selective demolition is defined as the ***conscious removal of some parts of a building's*** usable floor space, in addition to the demolition during refurbishment
of specific elements of buildings such as walls, services and parts of primary structure. Selective demolition can be part of two of the four main strategies for physical adaptation.



Scale of selective demolition
Source: Kincaid, 2002 p:57

The physical character of a building shas significantly changed or modified as the result of selective demolition. Usually the lost of floor area by the selective demolition, architect had to design an extensions and additional floor area to compensate the lost of space by the action before.

The moset common changes occur through selective demolition are the site, space, fabric (facade) and structure.

Physical attributes				Potential changes
Site	Site access			●
	Boundary conditions			
	Density			●
	Parking provision			●
	Site amenity			●
Space	Size	Total floor area		●
	Size	No. of storeys		●
	Size	Floor plate areas		●
	Size	Primary units of space		●
	Shape	Depth p/p		●
	Shape	Depth p/c		●
	Shape	Length		
	Linkage	Internal	Vertical	●
	Linkage	Internal	Horizontal	●
	Linkage	External	Entrances	●
	Linkage	External	Fire escape	●
	Linkage	External	Party walls	
Fabric & structure	Character	Facade		●
	Character	Interiors		●
	Strength	Foundations		
	Strength	Superstructure		
	Dimensions	Bay width		
	Dimensions	Bay depth		
	Dimensions	Fl to fl height		●
	Dimensions	Elevations		●

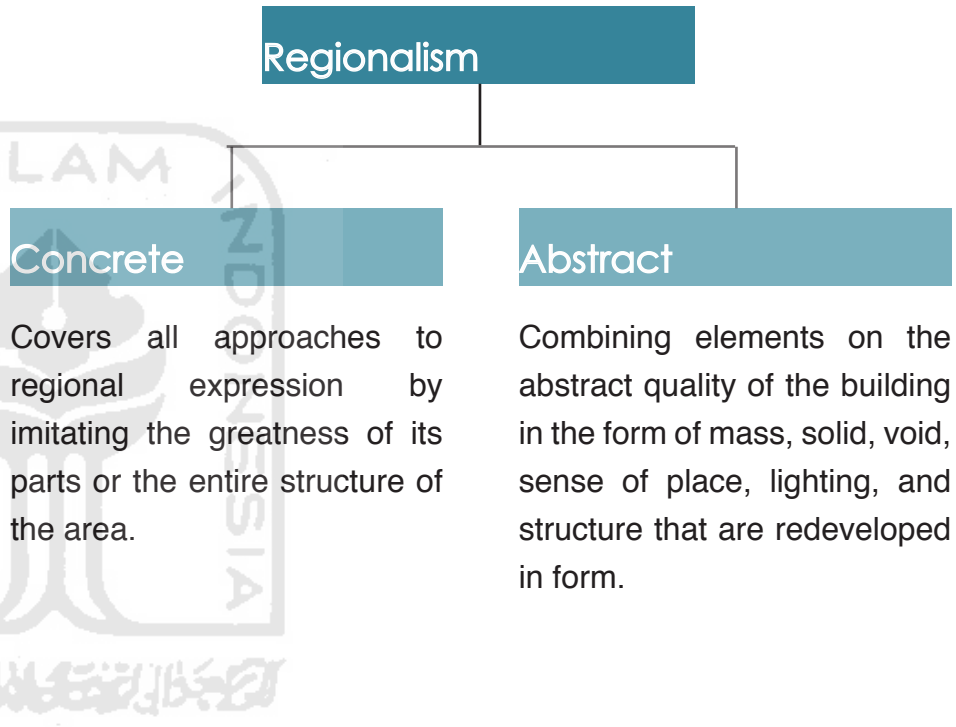
Note: ● attributes typically changed by selective demolition

Possible physical characteristics changed by selective demolition.
Source: Kincaid, 2002 p:58

Regionalism to preserve the locality

In an effort to find a unique architecture that identifies a place, a regionalism concept is needed. Through regionalism, ***it is expected to produce an architecture that is overlasting, fused, or merges between the old and the new, between regional and universal.*** The concept of regionalism has become an alternative in creating an architectural identity. Architect creativity is required to be able to design buildings that accommodate local and global spirit. Application design that is able to reflect local culture while adopting the latest technology. Thus able to preserve culture without being covered up with modern architectural styles, as well as being the pride of the area where the architecture is applied.

Regionalism can initially arise as a result of modern architecture trying to leave its past. So that in the next period, efforts began to arise to connect the old with the new. These streams are traditionalism, regionalism, and post-modernism. Regionalism developed around 1960. According to Ozkan, as one of the developments of modern architecture where regional characteristics are closely related to local culture, climate, and technology at the time. Traditional architecture has a regional scope while modern architecture has a universal scope. Therefore, that is what is typical of regionalism architecture, namely the unification of traditional architecture with modern architecture.



Regionalism by Suha Ozkan
Source: Author summary, 2021

The application of regionalism in the era of modernism can be classified into two. The first type is vernacularism, which focuses on image-making to bring contemporary forms, both conservatively (duplication of existing vernacular building forms and techniques) and interpretatively (adopting vernacular forms and techniques in buildings with contemporary functions).

Kenneht Frampton on his writing “Towars a Critical Regionalism: Six Point for an Architecture Resistance” in the book of “Post Modern Culture” state six point for critical regionlism architectur which are Culture and Civilization, Rise and Fall of Avant-garde, Ciritcal Regionalism and World Culture, Place Form, Culture vs Nature, and Tactile than Visual. Critical regionalism focuses more on local characters that are independent by the historical and ethnic boundaries, such as topography, context, climate, lighting, and tectonic conditions.



Säynätsalo Town Hall
Source: Archdaily, 2021

Critical regionalism seeks to carry on the existing tradition while the following modernization. One of the most famous examples of Kenneth Frampton’s use is Alvar Aalto’s Saynatsalo Town Hall. Aalto in its design aligns this modern building with the forest around the site. Teh design uses bricks, wooden floors, stairs, and the abstractness of the treetops around him. According to Frampton, this is an expression of critical regionalism through honesty in materials and designs. These elements, provide a stimulus to the human senses not only visual senses but also touch which can be felt.

From various Theory writer conclude that the similar characteristic about the regionalism architecture are stated into two points.

Environmental Response

Implementation of architectural element as the result and respond to the environmental condition of the place

Expressing Tradition

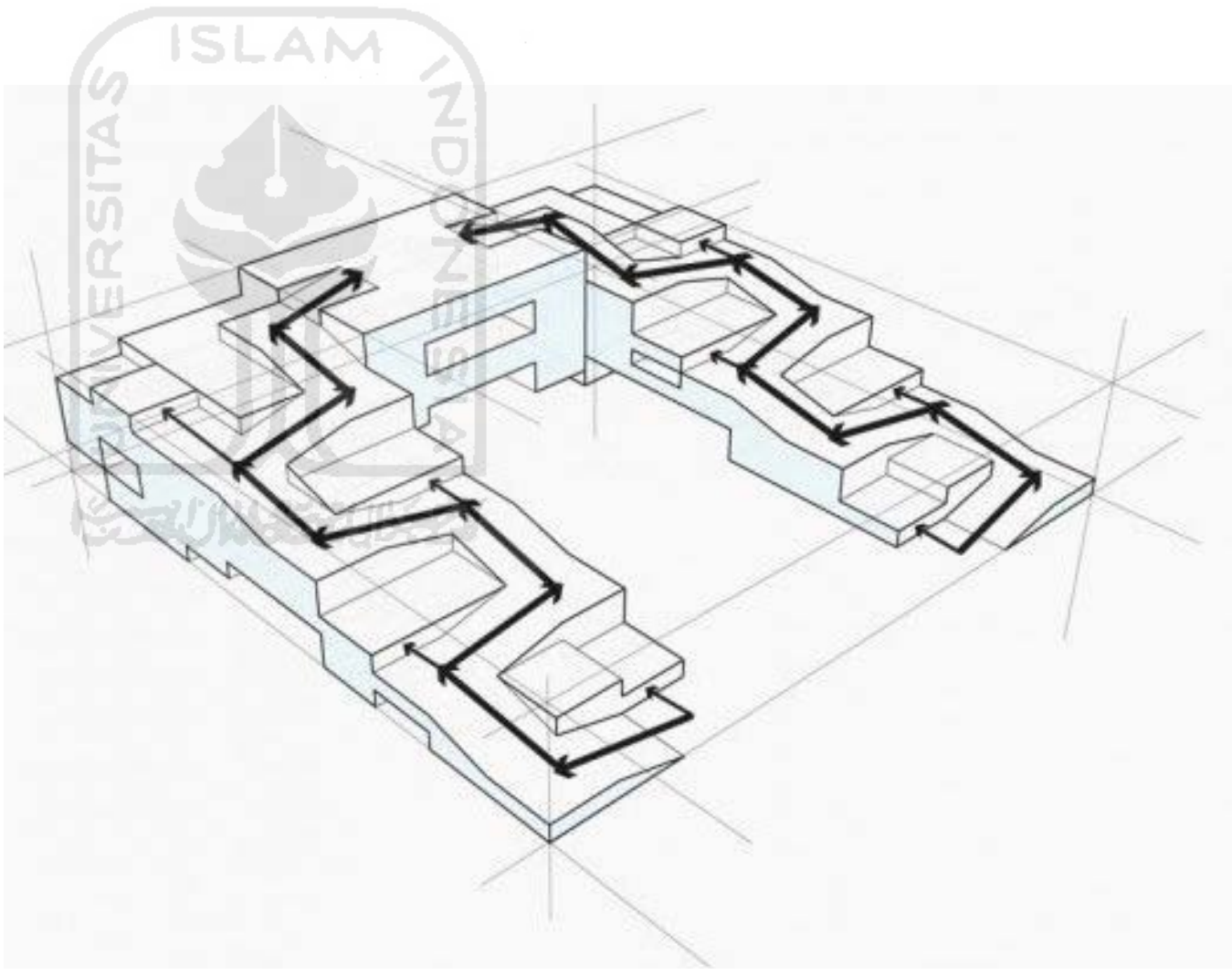
Implementation of traditional element that developed in new and latest technology with the modern but still expressing the tradition

The implementation of regionalism architecture will build an intensive relationship that responds to each other and merges with the social and physical environment so that it is not considered an isolated object and separate from the surrounding environment. Architecture is meant by building a site or place by utilizing the elements and quality of the existing environment and is able to become a point of attraction for a building. Another thing is towards regionalism it is able to express the ideas and traditions behind the use of materials, the components, and the built methods. So that the architecture is not a product or object that just be placed as an addition.

Circulation

Users experienced a spatial experiences related to where we are moving from and where we will go to the direction of the movement. Circulation is both a platform of facilitating this. **The function of the circulation itself is to connect one space to another so that without good circulation the achievement of activity will be difficult to achieve.**

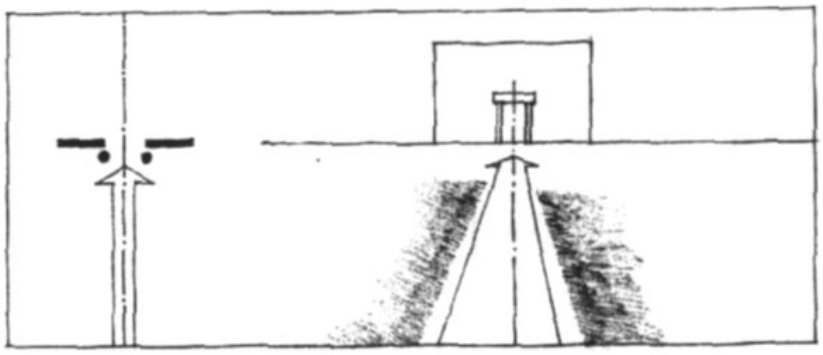
According to Ching (1996) in his book, circulation itself can be defined as a flow of motion which is a thread or string that connects a building or a series of interior and exterior spaces to become interconnected. Therefore we move in time through a spatial phase. We feel space when we are in it and when we set a destination.



Circulation
Source: http://joni.p-ark.net/architecture/competition-circulation-diagram/

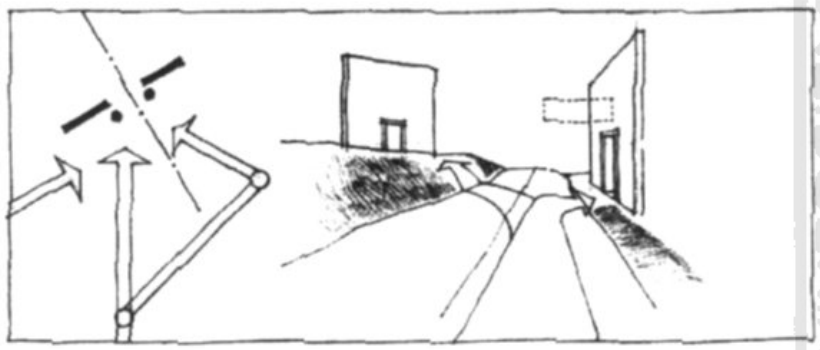
Approach

The first stage in the circulatory system is an attainment that leads to a specific entry or space, where we are prepared to see, experience, and use the spaces in that area.



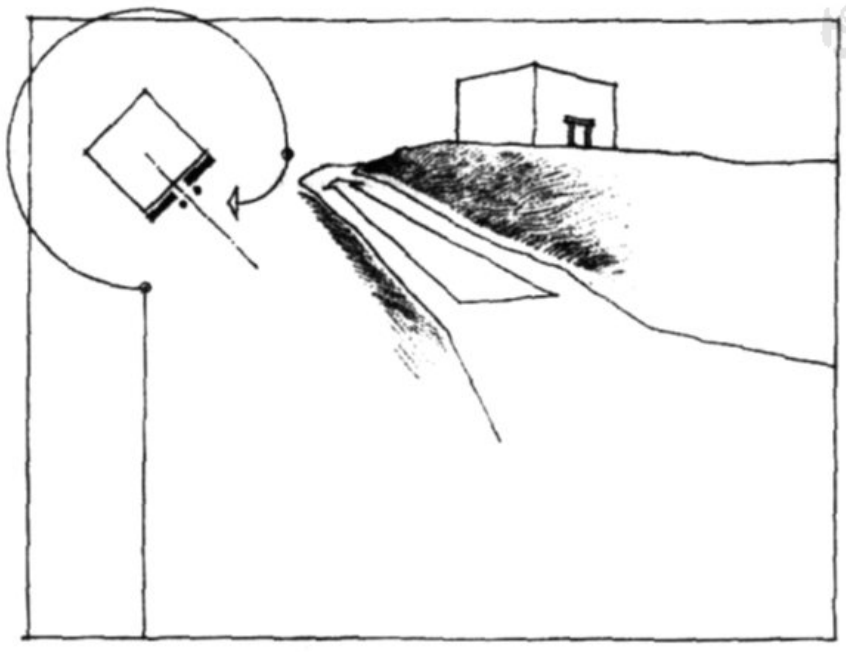
Frontal

The reach directly leads to the building entrance by a straight path. Circulation with the frontal concept can have the aim of circulation efficiency.



Oblique

The approach has a circulation direction that is more or less similar to the frontal circulation pattern, it's just that the oblique has little turning space, so it is not directly facing the building



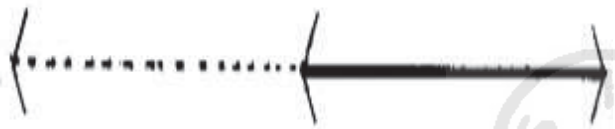
Spiral

The spiral has a circulation that surrounds its center with varying distances, adapting to its needs and natural conditions. Spiral circulation looks more attractive and has a better artistic impression so that it gives its impression to visitors, visitors who go through the spiral circulation will walk a longer distance than visitors who walk in a frontal or oblique circulation pattern because of the spiral circulation conditions

Approach
Source: Ching, 1994

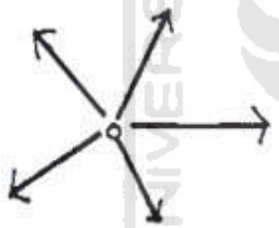
Path Configuration

A spatial configuration path is a form of design or space movement paths from one room to another with the intention of adding aesthetics in order to maximize the circulation of space to be used. The nature of the circulation pattern influences or is otherwise influenced by the organizational pattern of the spaces it connects. When we can imagine the overall circulation pattern within a building, our orientation, and understanding of the spatial layout will become very clear.



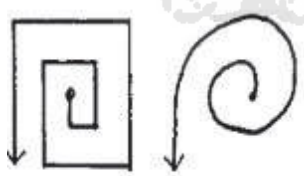
Linear

This pattern has a straight and linear shape. The groove itself can be curvalinear, intersect with other paths, branch, or loop.



Radial

The circulation pattern, characterized by the center of space, develops in all directions, the circulation is not too long, requires a large footprint, and there is a close relationship between spaces. Has a path that spreads from one point or is centered to a point.



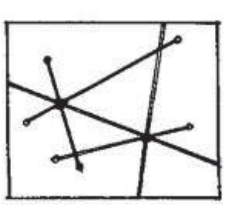
Spiral

This pattern has a single path originating from the center point and circling the center with a distance that changes further from the center point.



Grid

Consists of two parallel intersecting paths that develop in all directions and do not have a center point. Creates a space that is square or rectangular.



Network

A pattern that has paths as a link between points formed in a space

Approach
Source: Ching, 1994

Path-Space Relationship

Circulation is used as a liaison or connection between spaces, which is used as a clear link between spaces and is readily read by visitor s who come so that visitors do not experience confusion when they come. The building must have clear circulation paths so that users do not feel confused, the confusion felt by visitors due to unclear circulation space can cause negative psychological effects.

Pass by Spaces

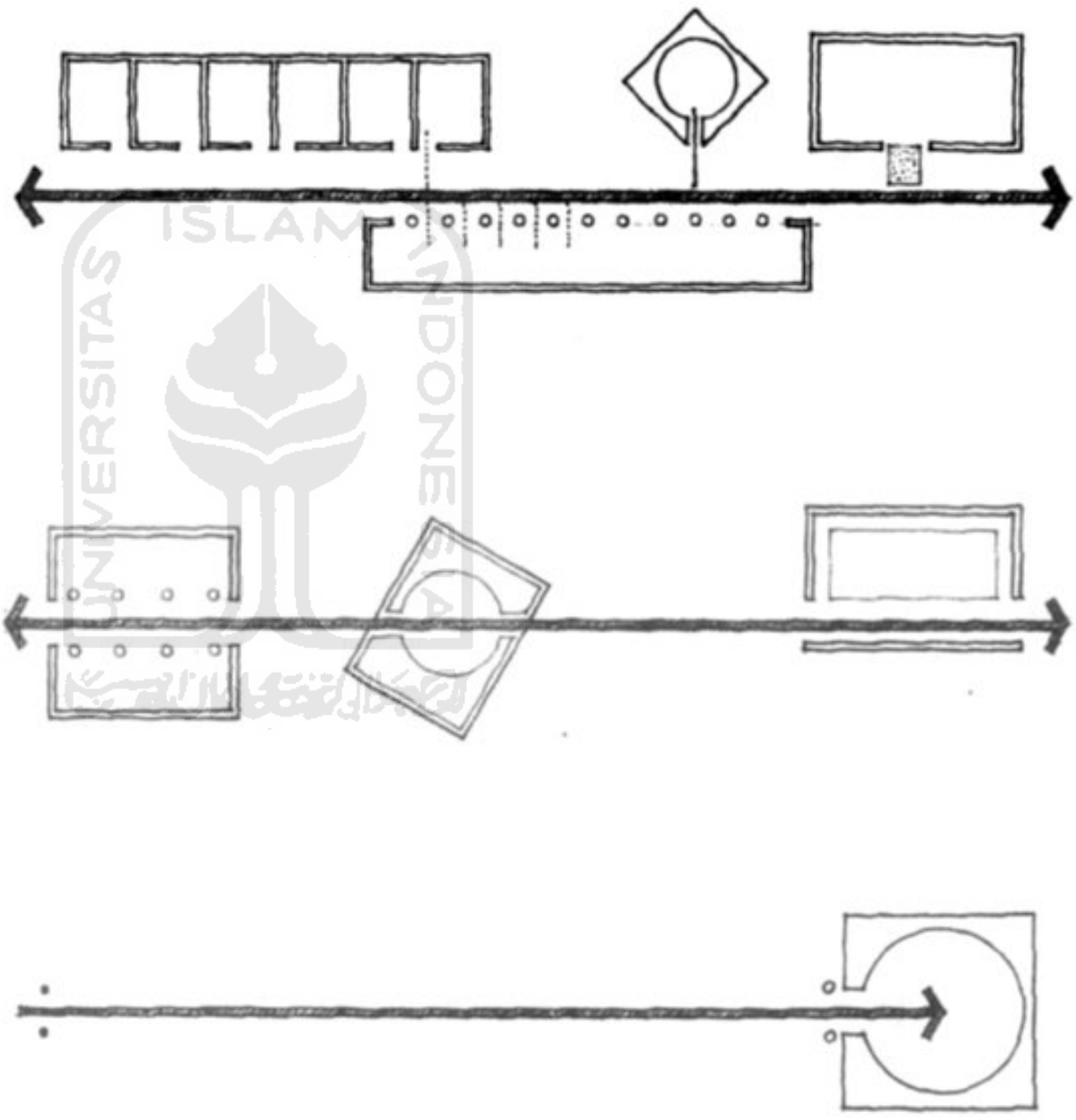
Pass by spaces takes visitors through various locations or spaces that are spaced apart, in going to other designated spaces. The path pattern is flexible, integrity is maintained, and the intermediate space can be used as a link between the path and other spaces.

Pass trough Spaces

Pass trough spaces take the visitor through spaces within space on reaching a designated space. This space path relationship is used to reach and enter important spaces both functionally and symbolically.

Terminate in a Spaces

The terminate in a space circulation pattern brings visitors directly to their destination frontally. This path relationship is used to reach and enter functionally or symbolize important spaces.



Approach
Source: Ching, 1994

Malay Architecture in Batam

Batam is a city located in the Riau Islands Province with the roots of Malay culture as a tradition that has been inherent in everyday life. Referring to the Riau Islands regional regulation number 1 of 2014, the existence of the Lembaga Adat Melayu and the Malay Cultures has been recognized and the Malay cultures have been used as an refference and guidelines in development policies in the Kepulauan Riau Province with their Malay characteristics and identity.

Architecture is one part that describes the characteristics and identity of the region. One of the policies of the Batam government is to require the application of Malay architectural elements in every building design in urban areas as an effort to maintain the identity of the area as a Malay land. The application of Malay architectural elements is represented in accordance with the understanding of each architect without studying the philosophical values of the tradition and the values of the Malay architecture itself.

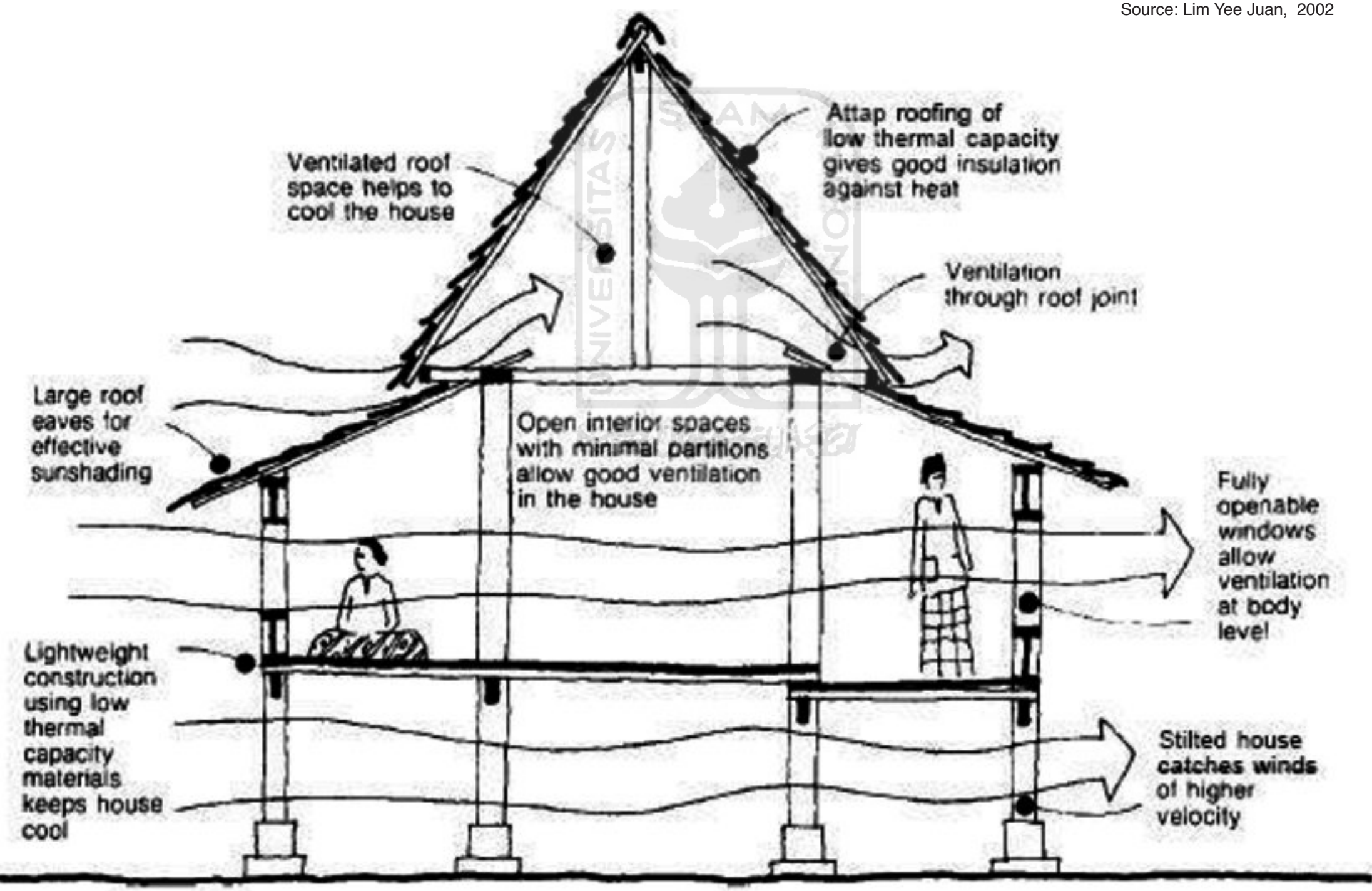


Selembayung
Source: google.co.id, 2021

Malay Stage House

According to O.K Nizami Jamil (2007) in the book Traditional Riau Architecture, Malay architecture is usually a typology of stage houses with a pile height of about 1.5 - 2.4 meters above the ground . It's called Rumah Bumbung Melayu, Rumah Belah Bubung, or Rumah Rabung. The shape of this house is usually to prevent flooding and wild animals, creating privacy and getting better wind flow.

Climate Response in Malay House
Source: Lim Yee Juan, 2002

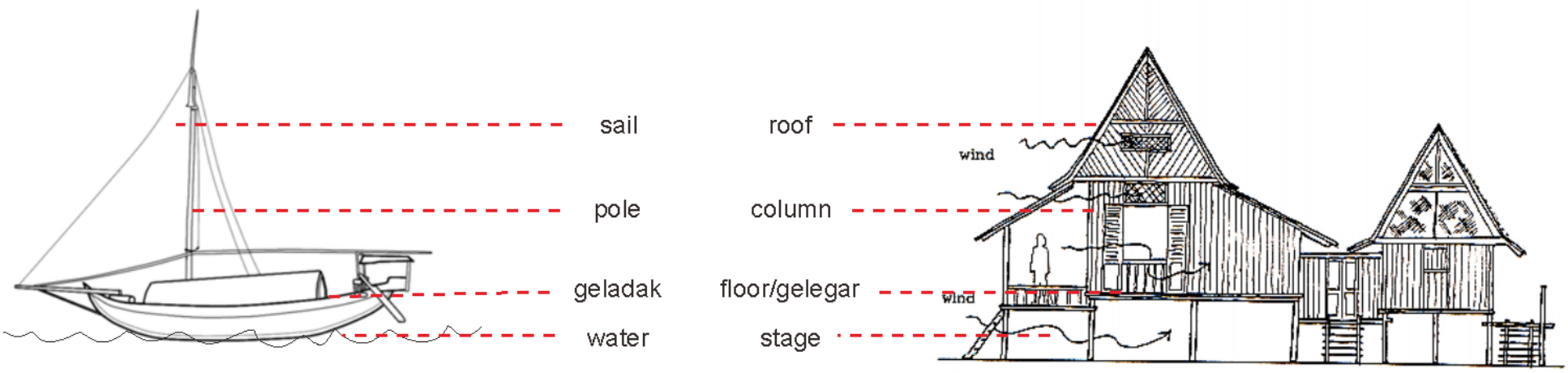


General Form of Malay House

Every individual has a skill in accordance with the conditions of the environment in which he lives. Like the Malays who are very familiar with the areas around the coast. This environmental condition encourages the local community to build houses with high columns, which are often referred to as stage house.

The form of the house itself is a symbol of the boat. This is also because the majority of people are fishermen. Therefore, the making of traditional Melyu houses was inspired by the boat.

This can be seen from the parts of the stage house which are similar to the names of the parts of the boat. For example, a floor that is supported by a pillar on a house is called a deck or gelagar. Likewise, the roof or the ridge of the house is known as the atap layar. At the end of the house in the shape of a triangle, it is called the layar terbentang. In boats, it is the sail to catch the wind so that the boat can move according to the direction.



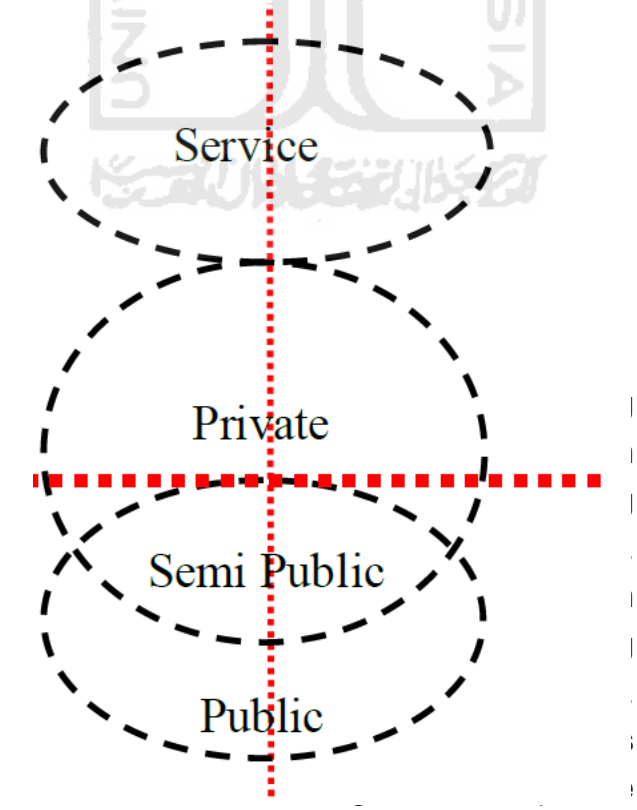
Design Inspiration of Malay House
Source: Author Documentation, 2021

Typologi of Malay House.

According to Jee Yuan Linm (2009) in his book The Malay House, the Riau Malay Architectural House usually consists of an selasar luar, selasar dalam, rumah induk, telo and penanggah. From the layout, we can see a clear that there is a fairly clear division of the room.

Generally, the room consists of the Selasar, Rumah Induk and Penanggah Selasar is the very front, the floor is lower than the main house, the walls are always half open. In this area there are several names known as Selasar, namely Selasar Jatuh, Selasar Luar and Selasar Dalam. Selasar luar is separate from the main house and is located far in front. If selasar is connected to the main house, but the floor is lower than the floor of the main house, it is called Selasar Jatuh, and Selasar which is attached to the main house is called Selasar Dalam. inner space (ruang dalam) it is used for mothers, as well as a woman's family bed. The front room in the main house has a function as a living area for a private family as a living room for family. At the back of the house, there are Telo and Penanggah. ***Telo*** is a connection between the main house and the pen or kitchen. The Telo room is used as a place to store part of agricultural and fishing tools, as well as a place to store water reserves. At the very back, there is a ***Penanggah*** and a kitchen, which is a place for cooking and a place for family dining



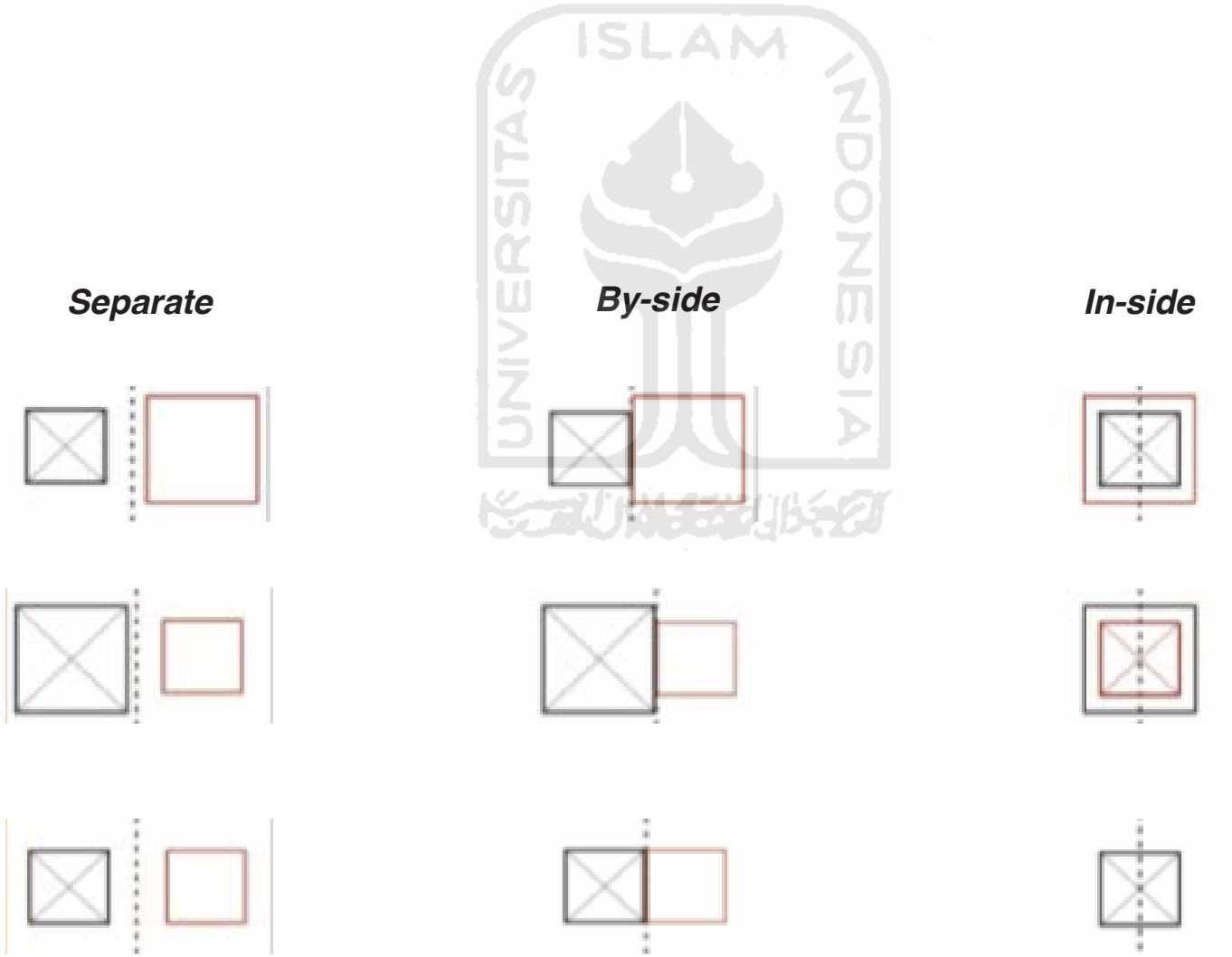


Malay House Hierarchy
Source: Jamil, 2007

family a sadiving room for the family. For

Insertion

According to Adriani (2009), Insertion is an attempt to create a new building by inserting a mass into a complex in the area of the old building. Things that need attention to strengthen and enhance the character of the environment by maintaining local visual patterns. Insertion is a way to create a new building by inserting it into a complex in the area of the old building. The consideration of the scale of the new building is also an important point. The placement of a new building against the old building also needs to be considered by side, separately and inside.



Insertion Placement
Source: Author Documentation, 2021

The insertion of a new building brings harmony between the new and old buildings so that they are compatible with the mass scale, the proportions of the building facades, building materials, colors, mass composition, and architectural style. The visual patterns are then selected and composed according to the existing conditions with an architectural design approach that is in harmony or contrasts with the surrounding buildings to achieve harmonization. In Infill Development, the design approach can be done in various ways to get a formula in order to strengthen and enhance local character, in this case, there are several design approaches according to Norman Tyler that the writer will use in designing.

1 ***Contrasting***

2 ***Compatible Contrast***

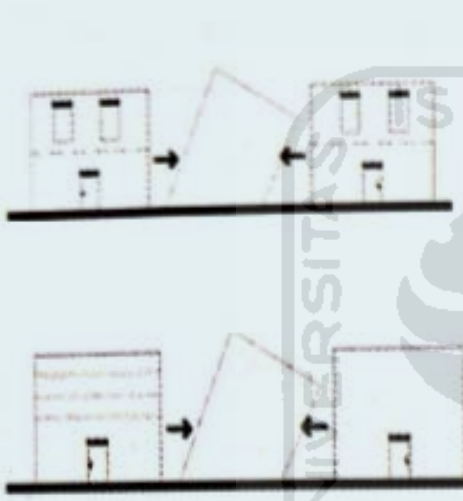
Contrasting

The contrasting design approach is seen with a newer, modern, and simpler look, with a much different building shape. The design approach assumes something new in the existing area with the idea that the new building and the old building are buildings of different periods.

Contrasting Visual Element

Facade

Opening Proportion



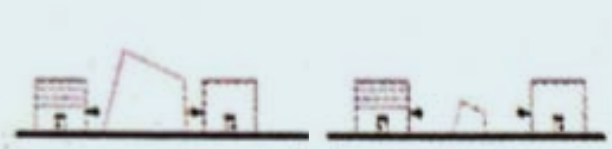
Material

Color

Mass

In the visual contrasting element of the building facade, it does not adopt the facade contained in the existing site, with the use of new and different building materials. the color of the building also contrasts with the surrounding buildings.

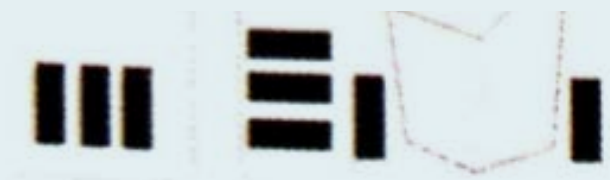
building Height Proportion



Builidng Setback proportion



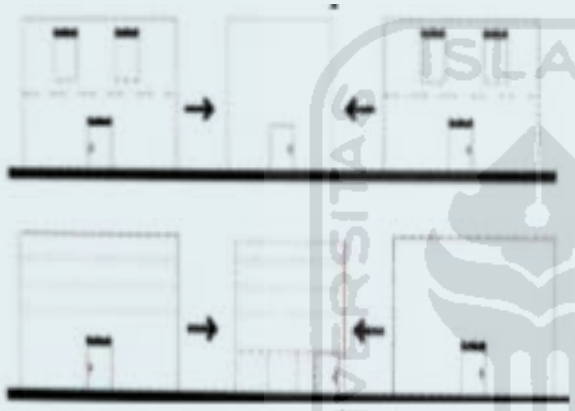
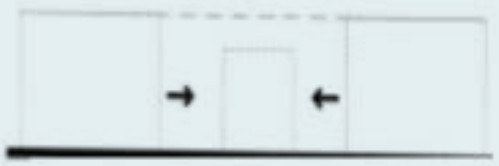
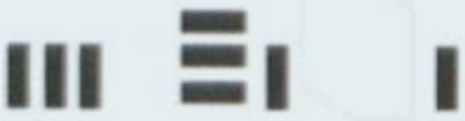
Form and Mass



In the building mass element, the height of the building which is designed to be higher or lower in the existing area with the boundary line is not adjusted to the existing building. The shape of the mass is different from the mass around it.

Compatible Contrast

The approach to the design adopts the old building with the composition of the relationship that is made in contrast to the facade and the shape of the building.

Compatible Visual Element	***Contrast***
Facade	
Opening Proportion	
Material	
Color	
Mass	
building Height Proportion	
Builidng Setback proportion	
Form and Mass	

The application of compatible contrasts can be seen in the application of the facade and the shape of the building which contrasts with the mass of the building which adapts to the existing building. The use of materials is different from the existing buildings around.

In compatible contrast building mass, the height of the building does not exceed the existing building by adjusting the existing building to the building boundaries, the shape of the mass represents a shape similar to the surrounding buildings.

precedents study

Yokohama International Passenger Terminal

Qingdao Cruise Terminal

Lisbon Cruise Terminal

Dutch Embassy Ethiopia

Yoyogi National Gymnasium

Burgos Railway Station Refurbishment

Yokohama International Passenger Terminal

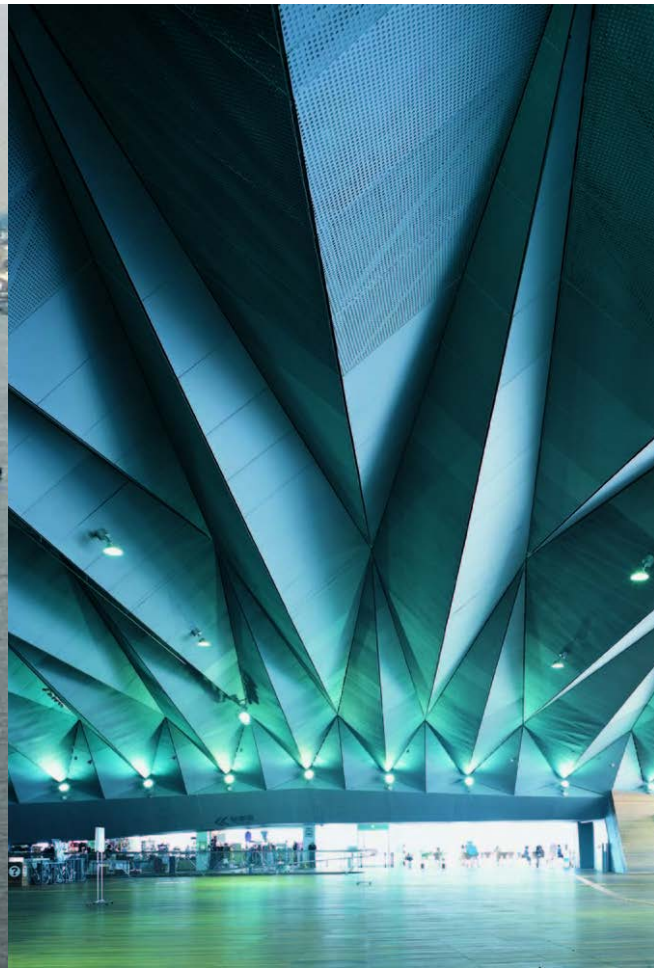
Foreign Office Architects (FOA)



Yokohama International Passenger Terminal
Source: Archdaily, 2021

Located in Japan, which is precisely in the center of the city. Initially this port was named Osanbshi Pier, which later became the Yokohama International Terminal. Dengan total luas kawasan 48.000 sqm terbagi menajadi fasilitas terminal, loading area, service, ruang conference, restauraant, shops, assembly hall, and trnsport faccilities including parking and circulation.



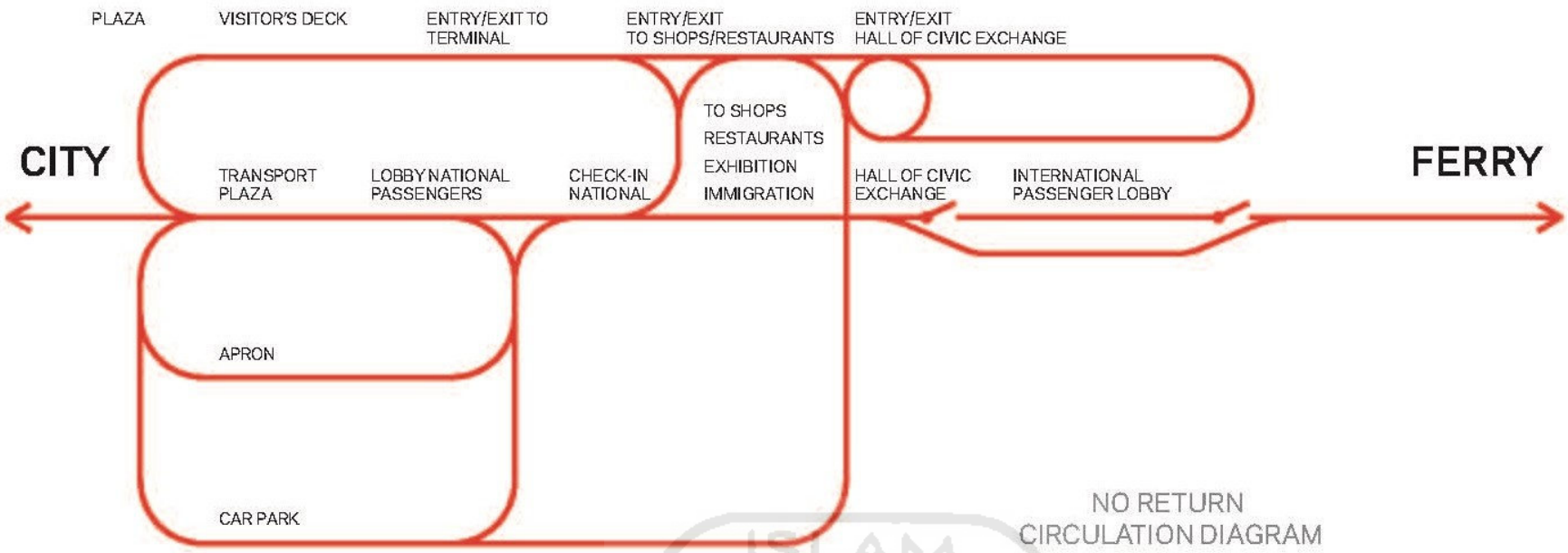


Yokohama International Passenger Terminal
Interior
Source: Archdaily, 2021

The building that located forced to the sea, seems very prominent which at the same time shows the existence of the building itself.

Structure

In terms of structure, the building uses a folding structure that seems simple but gives a solid impression to the interior hall area. Apart from being a structure, this folding structure represents the famous Japanese culture, origami.



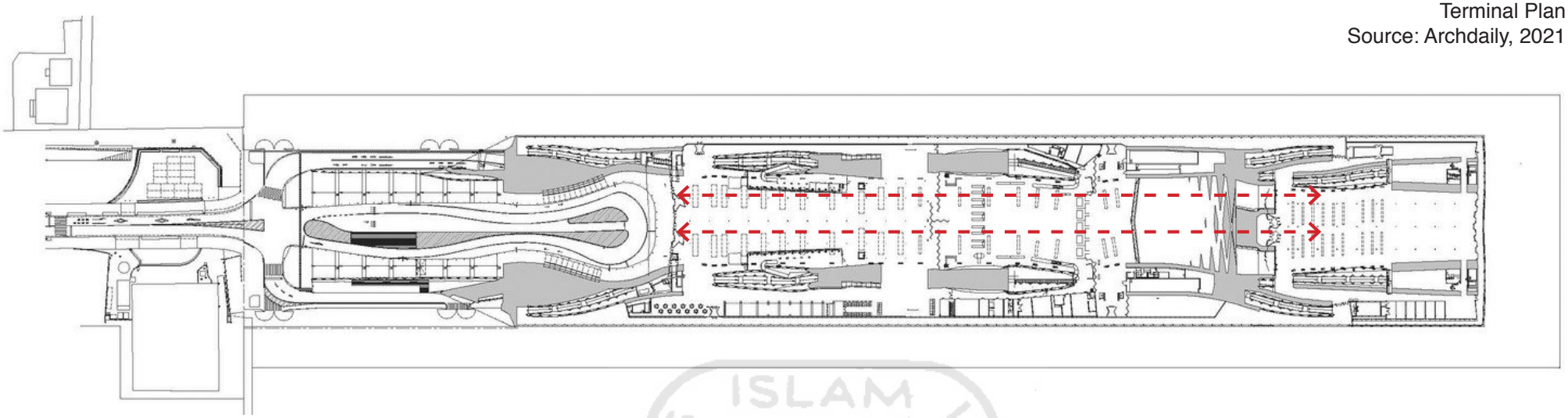
Circulation Diagram
Source: Archdaily, 2021

Circulation

The greatest conceptual strength of the project is perhaps its sensitive relationship with the urban waterfront. With the observation deck doubling as a fully accessible public plaza, the terminal seamlessly emerges from the neighboring Yamashita and Akaranega Parks to make one uninterrupted, universally accessible urban parkscape. Its height is calculated to achieve continuity with the shore and to ensure that inland views of the waterfront remain unobstructed.

The whole design is trying to create an efective and efficient way for the circulation in the whole site, including the outer space and inner space.

The concept of setting the activity zone does not interfere with one another so that the circulation can be properly arranged which gives comfort to passengers because the non-overlapping zones make a smooth circulation. The major orientation of the zone is the Entrance Terminal Area which has a direct and short circulation. Then at the terminal plaza to facilitate other needs besides ferry terminal by using dynamic circulation which is directly related to the Public Hall. Then the access that is slightly separated is the vehicle parking area and the transportation of goods.



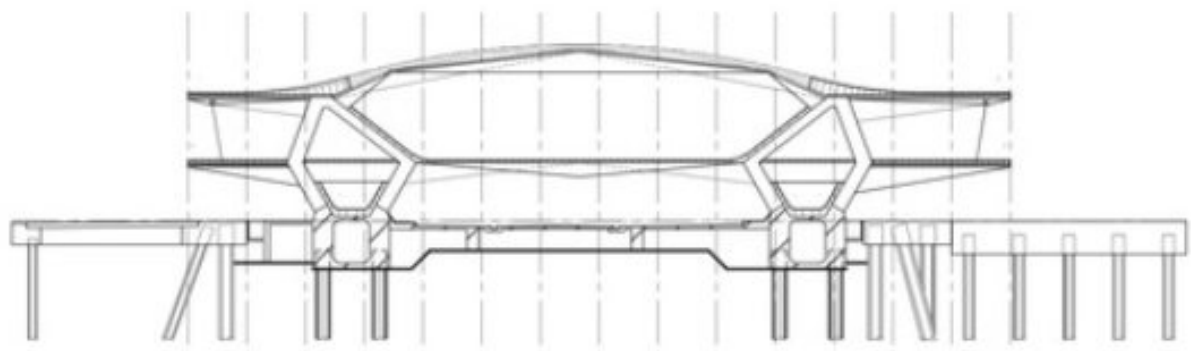
Terminal Plan
Source: Archdaily, 2021

Plan

Based on the building plan, the second-floor functions as an area specifically used as a passenger departure and arrival area. The spatial arrangement that extends from the lobby to the Osanbashi Hall makes circulation easy and does not confuse passengers.

Inner Space

The use of a folding structure and focusing the load on the large column on the edge is intended so that the central space becomes column-free so that the concept of seamless circulation in the building is achieved which allows users to have more freedom of activities.



Terminal Section
Source: Archdaily, 2021

Qingdao Cruise Terminal

CCDI - JING Studio, CCDI - MOZHAO Studio



Qingdao Cruise Terminal
Source: Archdaily, 2021

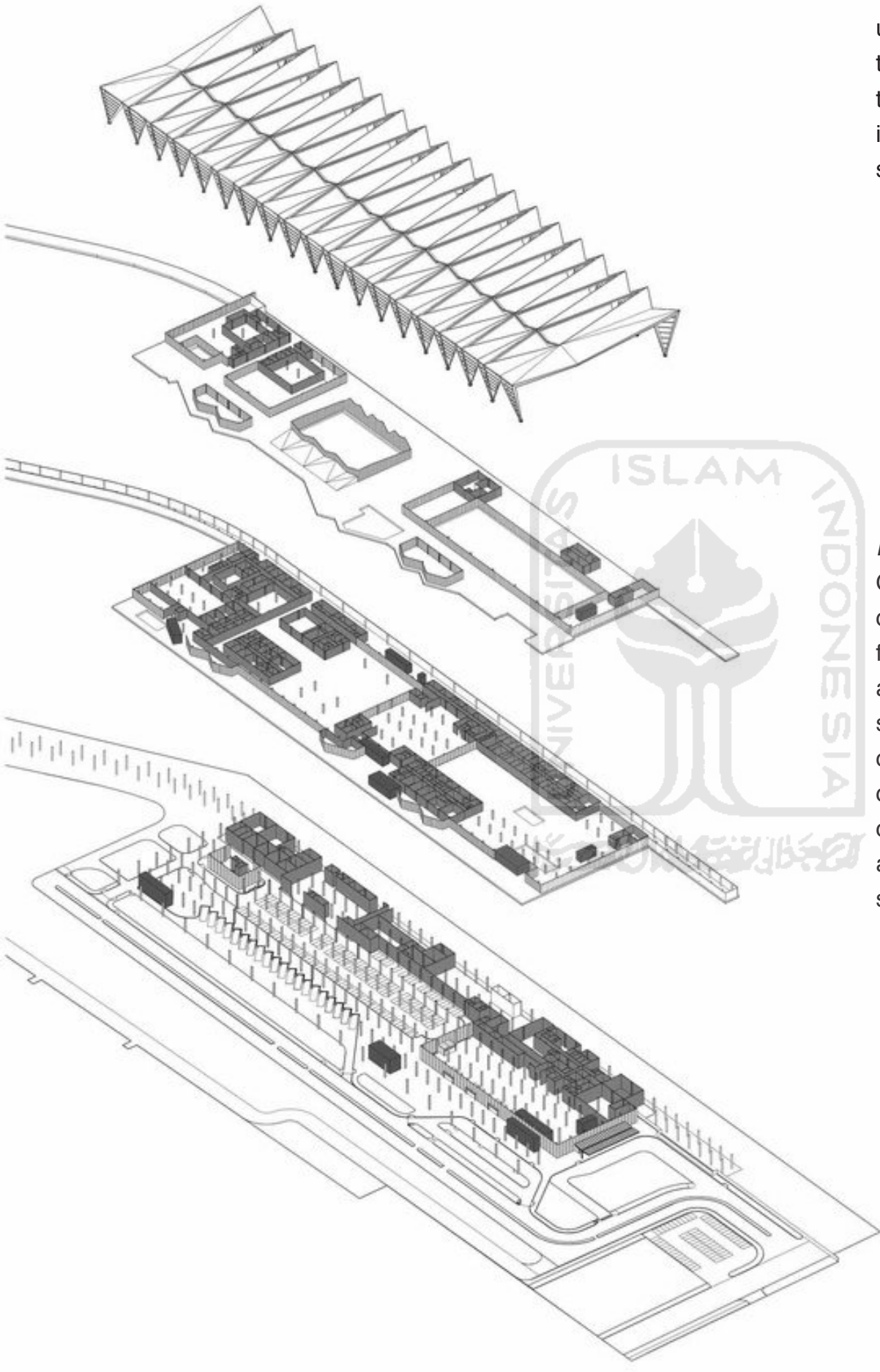
Qingdao communities have a strong sense of belonging to the sea, which can be seen in every aspect of public life in this coastal area. Pier 6, where the cruise terminal is located, is surrounded by water and has the inherent advantage of being able to establish a recreational park that also offers yacht rentals. The cruise terminal's multi-functionality ensures that the liveliness and richness of this coastal city can be maintained, with complementary commercial functions and scenery, permanent and temporary exhibits at the arrival and departure hall.

The implementation of regional value into the design is clearly stated on the building design. from the location for the pier untinl the building form that represent the identity of the Qingdao City.



Qingdao Cruise Terminal View
Source: Archdaily, 2021

The architectural form was inspired by the “sail,” which is popular in Qingdao, The City of Sailing, as well as rows of pitched roofs from historical Qingdao Traditional architecture.



Structure

The use of a folding structure allows for an unsupported space in the middle. This gives the impression of being spacious and freedom to building users. The use of this folding roof is also a form of implementation of the screen shape od the sail

Plan

Qingdao Cruise Terminal has 3 main floors with different functions on each floor. The ground floor is designated as a parking and service area. The 1st floor is used specifically for port services which include the arrival and departure of passengers. As for the upper floor, this area is designated as a public area that the surrounding community can use to relax. This public area also represents decks on the boat that provide space for relaxation and activities.

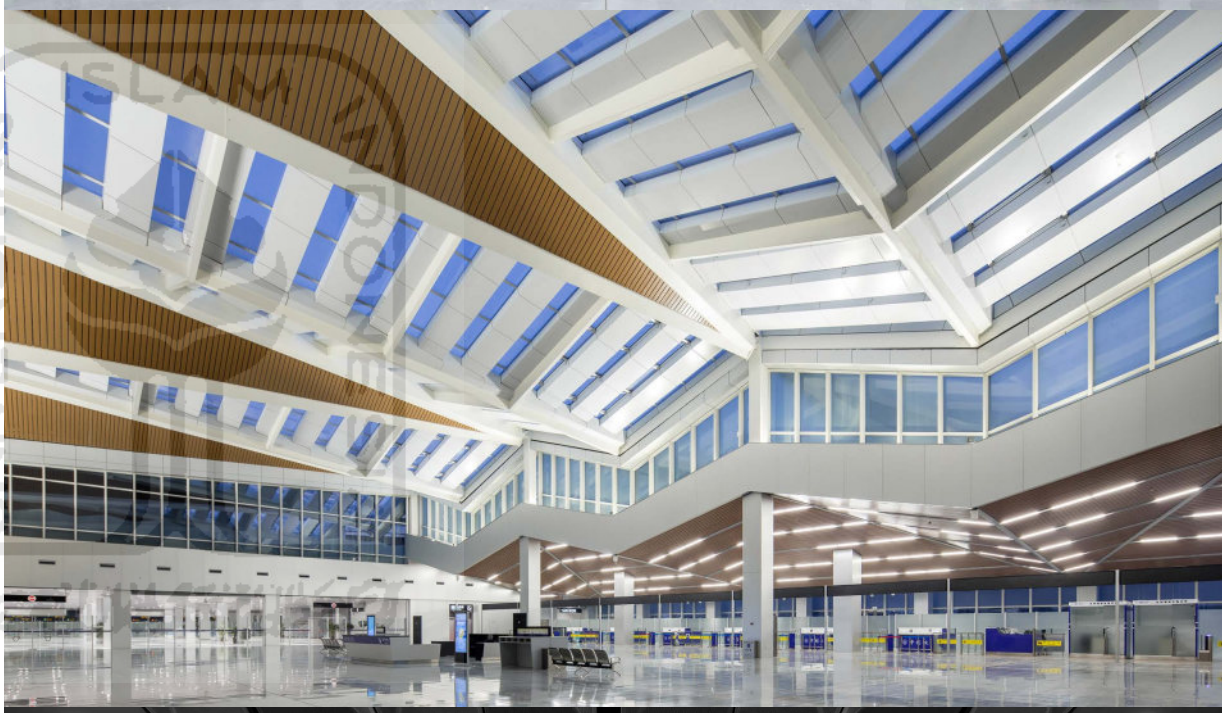
Axonometric Plan
Source: ach2o.com, 2021

Inner Space

Throughout the interior, the roof is displayed wherever possible to provide passengers with a constant connection to the building's impressive structure.

In the arrival and departure hall on the ground floor, a ceiling featuring folded metal panels echoes the geometry of the facades. This gives the architectural style has the same datum used throughout the terminal design. The combination of using solid voids on the terminal roof also provides the best natural lighting quality for the building.



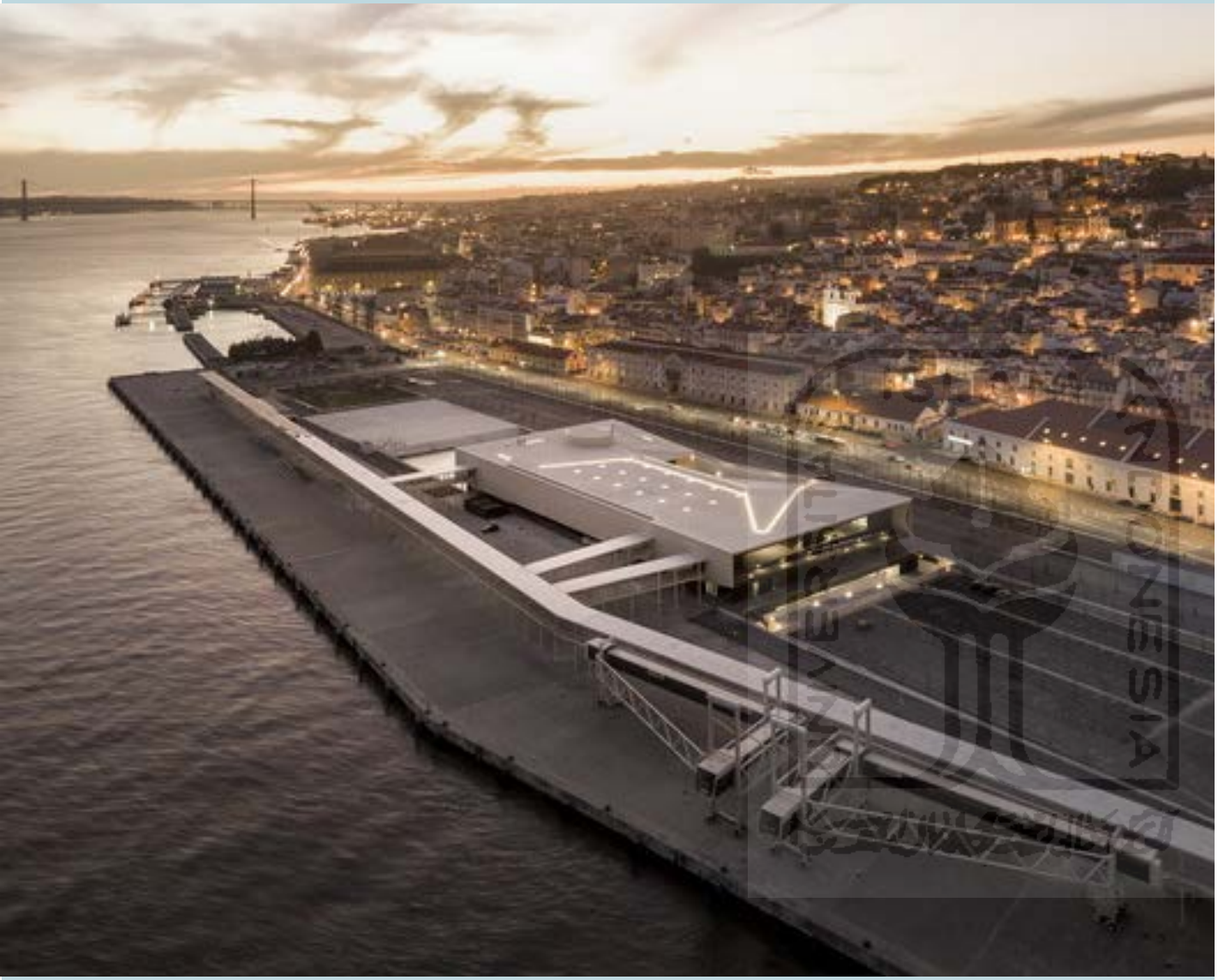




Qingdao Cruise Terminal Interior
Source: arch2o.com, 2021

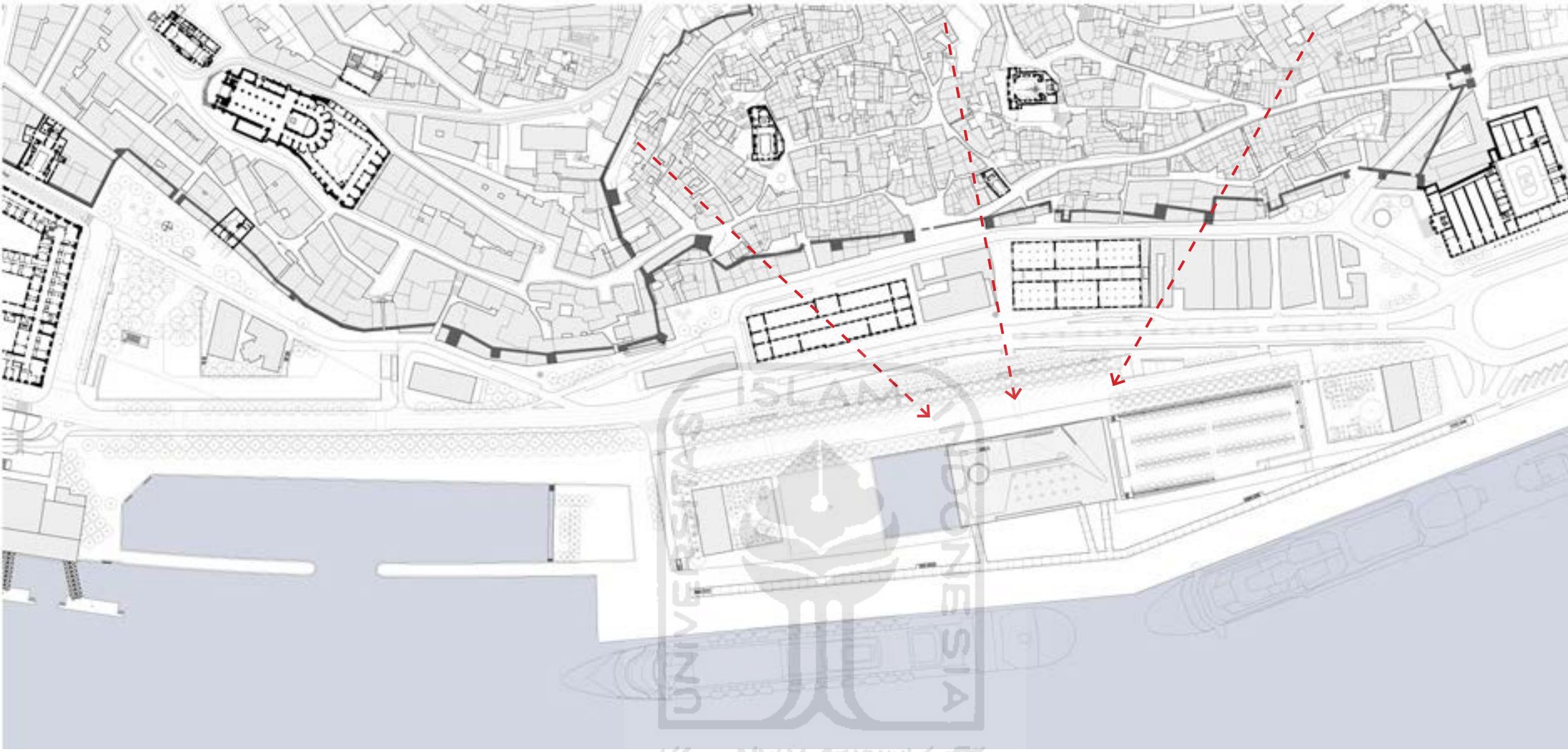
Lisbon Cruise Terminal

Carrilho da Graça Arquitectos



Lisbon Cruise Terminal
Source: Urban Next, 2021

Stand in the slopes of Alfama neighborhood, This terminal is like an amphitheater looking to the Tagus estuary. At the lowest point at the hill, this building facing up and looks back to the city. Has a compact design that every space inside fully accommodates the needs of terminal uses, from parking to the waiting area for the boarding area for the cruise.



Lisbon Cruise Terminal Situation Plan
Source: Urban Next, 2021

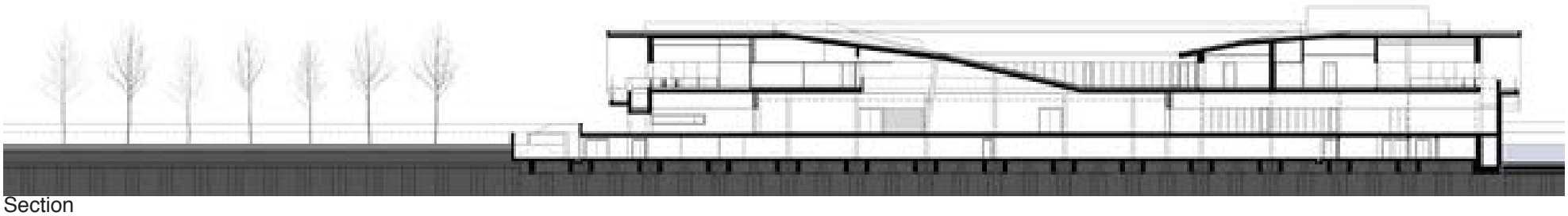
The terminal located on the lowest part of the hill and facing up toward the Alfama Area. This give the sense of amphitheater look both to the terminal building and also the Alfama Hill area. The concept itself represent the building respond and respecting the site condition according to the Alfama area which the terminal is located.



View
Source: Urban Next, 2021

Space

The roof area can be accessed for the visitor to look back to their city of Lisbon especially Alfama and act as an amphitheater looking back to the city. Raised off the ground, it lifts the public space along with it, which is transformed into a terrace/overlook – an abstract topography – between the river and the city, like a transshipment raft that connects and reveals both elements.



Section
Source: archdaily, 2021

Plan

The building consists of 3 floors and 1 basement which functions as a parking area. The ground floor is used for baggage processing, baggage collection, and servicing. The 1st-floor area functions as a shipping service zone starting from check-in, waiting room, to the platform to go to the ship. On this floor, fulfilled with ramp and stairs leading to the top floor which functions as a flexible public space that can be used by the surrounding community for activities.



Rooftop View
Source: Urban Next, 2021

The simple terminal volume faces towards the city and is intended to function as an extension of a new park and boulevard that connects it to the surrounding public areas.

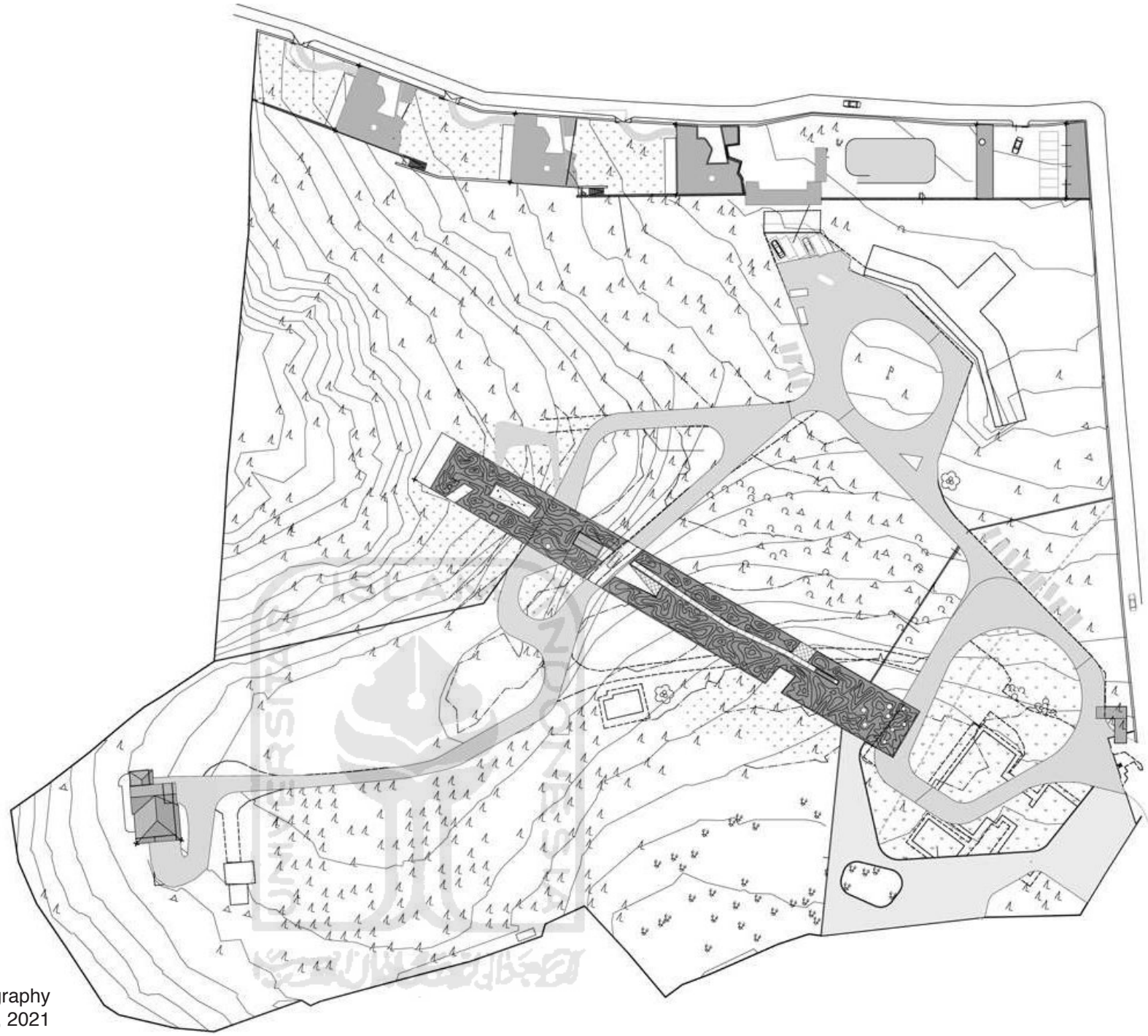
Dutch Embassy Ethiopia

Bjarne Mastenbroek and Dick Van Gameren,



Dutch Embassy Ethiopia
Source: Archdaily, 2021

The theme of unity with the surrounding landscape formed the starting point for the design of the Netherlands Embassy in Addis Ababa, Ethiopia, designed by Dick van Gameren in association with Bjarne Mastenbroek. Located on a site with an area of five hectares which is filled with trees and contours downward towards the city. Dutch Embassy is trying to arrange the five buildings on the site while maintaining the quality of the site's landscape.



Site Topography
Source: Archdaily, 2021

Plan

The mass that tends to be horizontal is placed following the contour of the site. The elements are made as camouflaged with the natural surroundings and with the selection of colors that refer to Ethiopian soil. The interior design also uses natural lighting with roof lights and openings on the side of the building which shows that the theory of critical regionalism is applied to this building.



Exterior of Dutch Embassy Ethiopia
Source: Archdaily, 2021

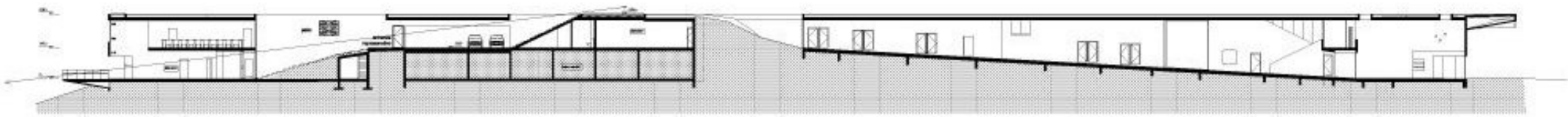
Place-Form

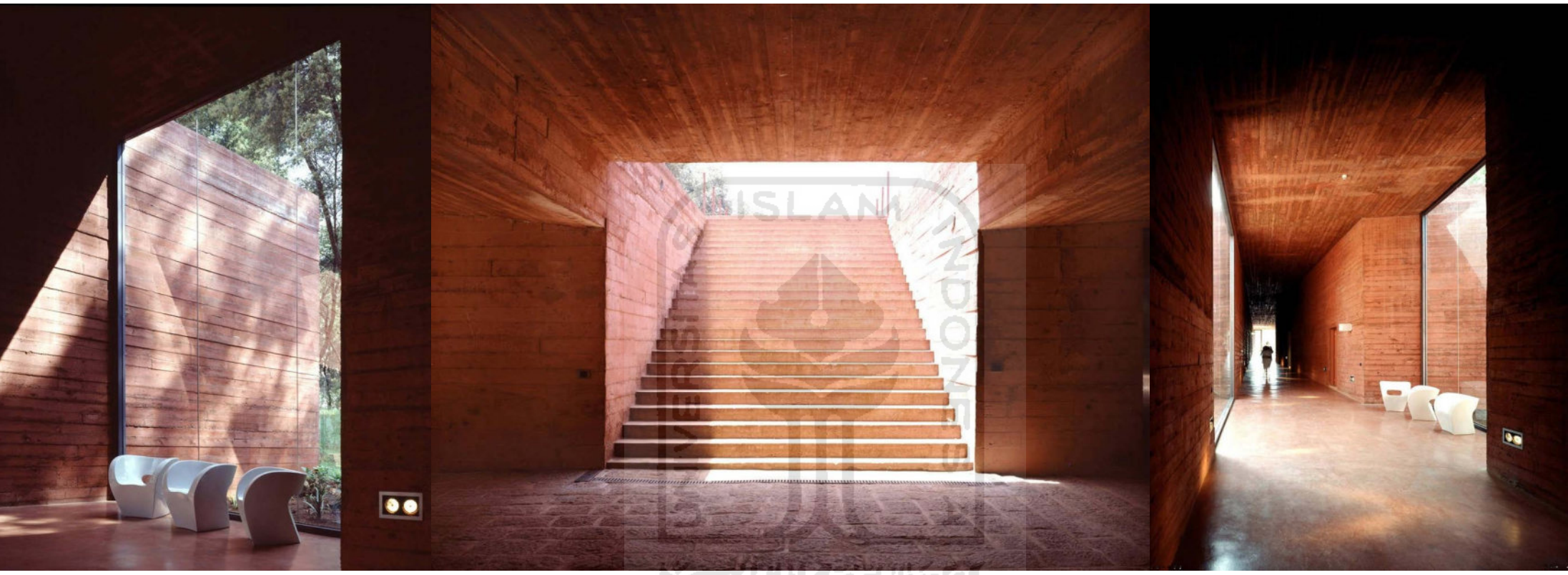
The roof of the building has a shallow pool that illustrates the character of the Netherlands as a country with water management and landscape technology, which is also combined with rock forms in Ethiopia.The location of the building which is also located between the contours creates an effect like disappearing, at a certain point there is only a small pond with trees around it.

The shape of the building that adjusts the contours and colors makes the building camouflaged as a natural rock in the middle of the Ethiopian jungle. The shape of the corners of the building also makes its shape resemble natural rock with the color of the Ethiopian Soil.

This implement critical regionalism in terms of place that the building represent as the Dutch embassy and as the natural environtment symbolism of Ethiopia.

Section and Interior
Source: Archdaily, 2021





Inner Space

The interior of the building also adjusts to the contour conditions on the site. Utilizing natural lighting with a combination of the use of rooflight and openings on the side of the building. This provides maximum natural lighting in the building space.

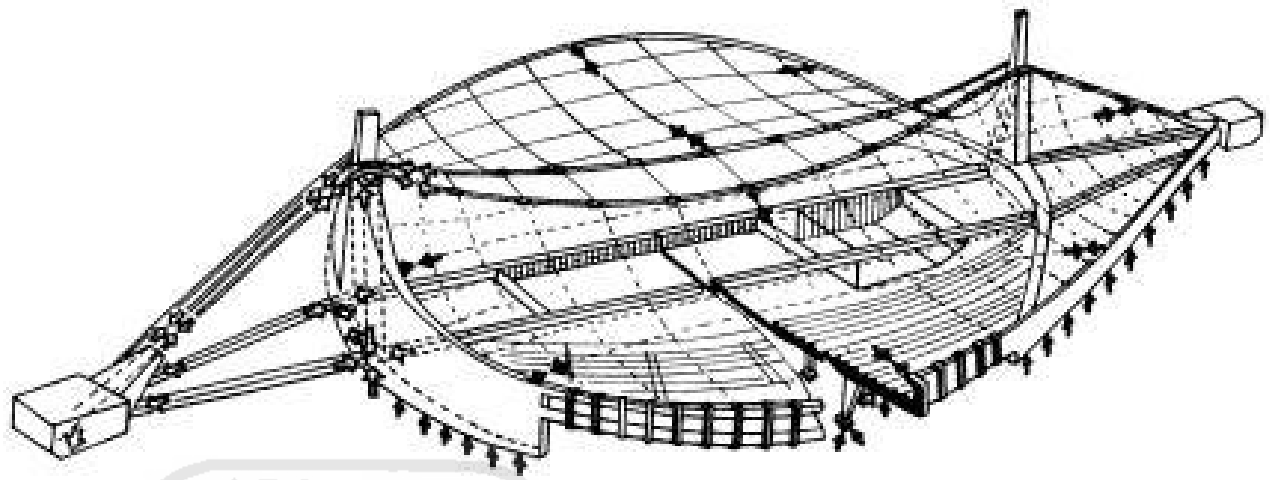
Yoyogi National Gymnasium

Kenzo Tange, 1964



Yoyogi National Gymnasium by
Kenzo Tange
Source: Archdaily, 2021

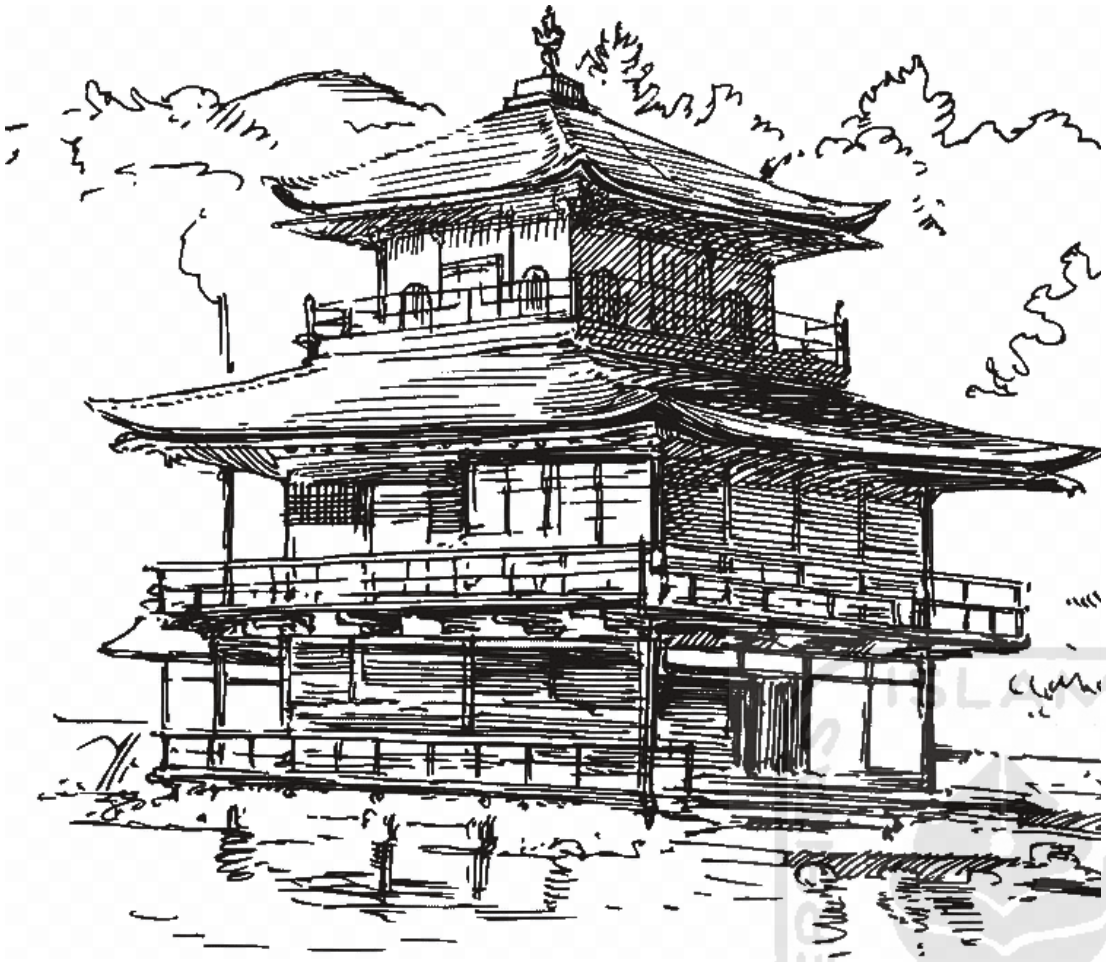
Built for the 1964 Summer Olympic Games in Tokyo, Japan. Located in one of the largest parks in the metropolitan region of Tokyo. This building is a great combination between the modern technology and an adaptation to the traditional Japanese architecture. The unique building form with the silhouette of traditional Japanese pagoda. This give the representation of Japan in the modern architecture.



Section and Interior
Source: Archdaily, 2021

Structure

The use of a wide-span structure with a tensile structure selection using steel ropes creates a column-free inner space in the middle. This benefits the interior space which has a spacious impression and can accommodate various activities.



Adaptation to the Japanese unique form of pagoda
Source: google, 2020



Perspective View
Source: google, 2021

Building Mass

The monumental building is a tribute to the traditional culture of Japan itself. Creating a monumental building that is very often found in various forms and traditional Japanese architecture. The buildings are characterized by sculptural and monumental modern Japanese architecture with distinctive features of the construction elements. This shows a peculiarity of Japanese architecture itself. Apart from that, the monumental building also creates the impression of being magnificent and proud of the work produced. Indirectly, this gymnasium building to show the world that this is what we are proud of Japanese culture, visible and magnificent.

Burgos Railway Station Refurbishment

Contell-Martinez, 2016



Burgos Railway Station
Refurbishment by Contell-Martinez
Source: Archdaily, 2021

Built to rehabilitate the old railway station to accommodate recreational and leisure for children and youth in Spain. The adapted building still has a very thick old building value. The building also performs in-side and by-side insertion of the space in the building. The addition of insertion to the building also takes a contrasting approach. This can be seen from the use of additional materials that are in stark contrast to the existing buildings.

Plan

The plan of the existing building is elongated and is on a large enough area. Additions to the building itself are located in the front, rear, and inside of the building which is intended to accommodate new functions and take advantage of the site area and height of the building so that it can function optimally.



Burgos Railway Station Plan
Source: Archdaily, 2021

Burgos Railway Station Insertion
Source: Archdaily, 2021

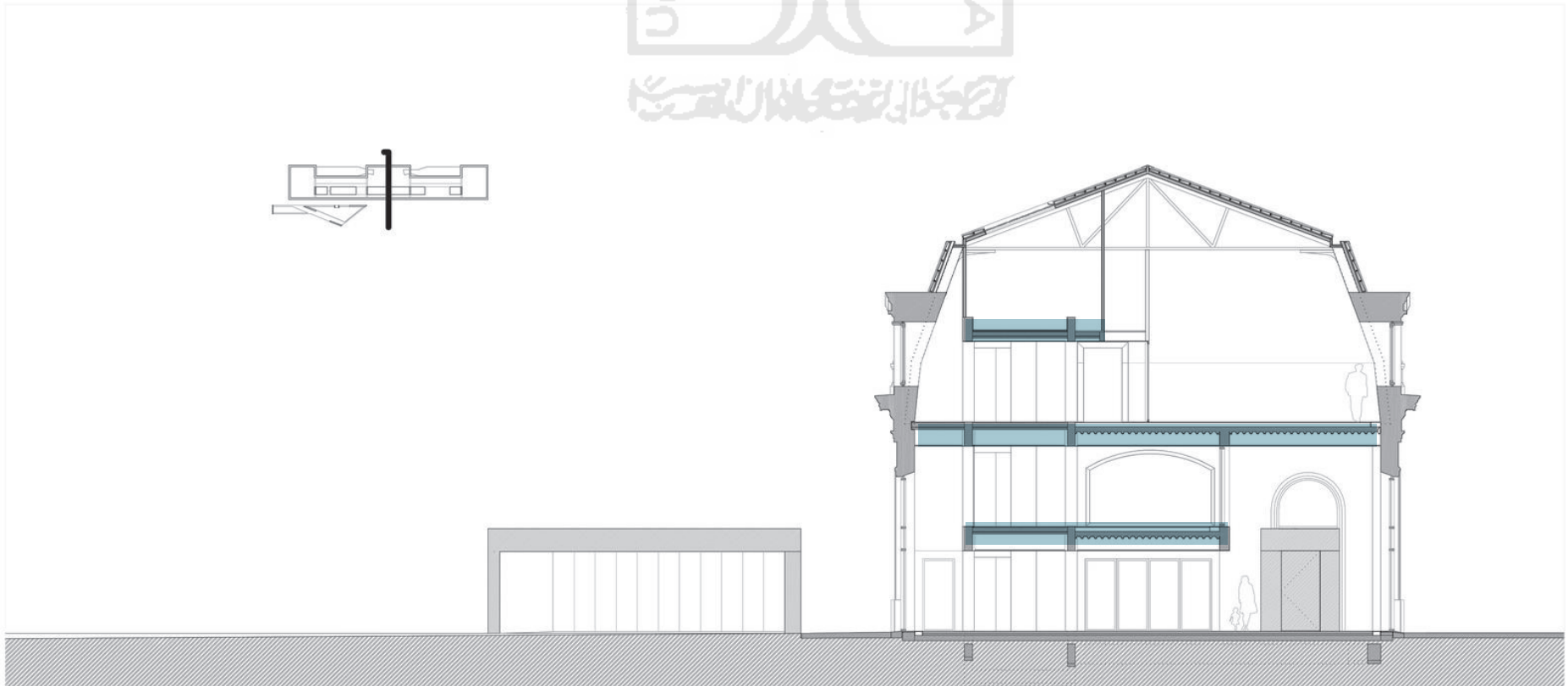


Contrast Insertion

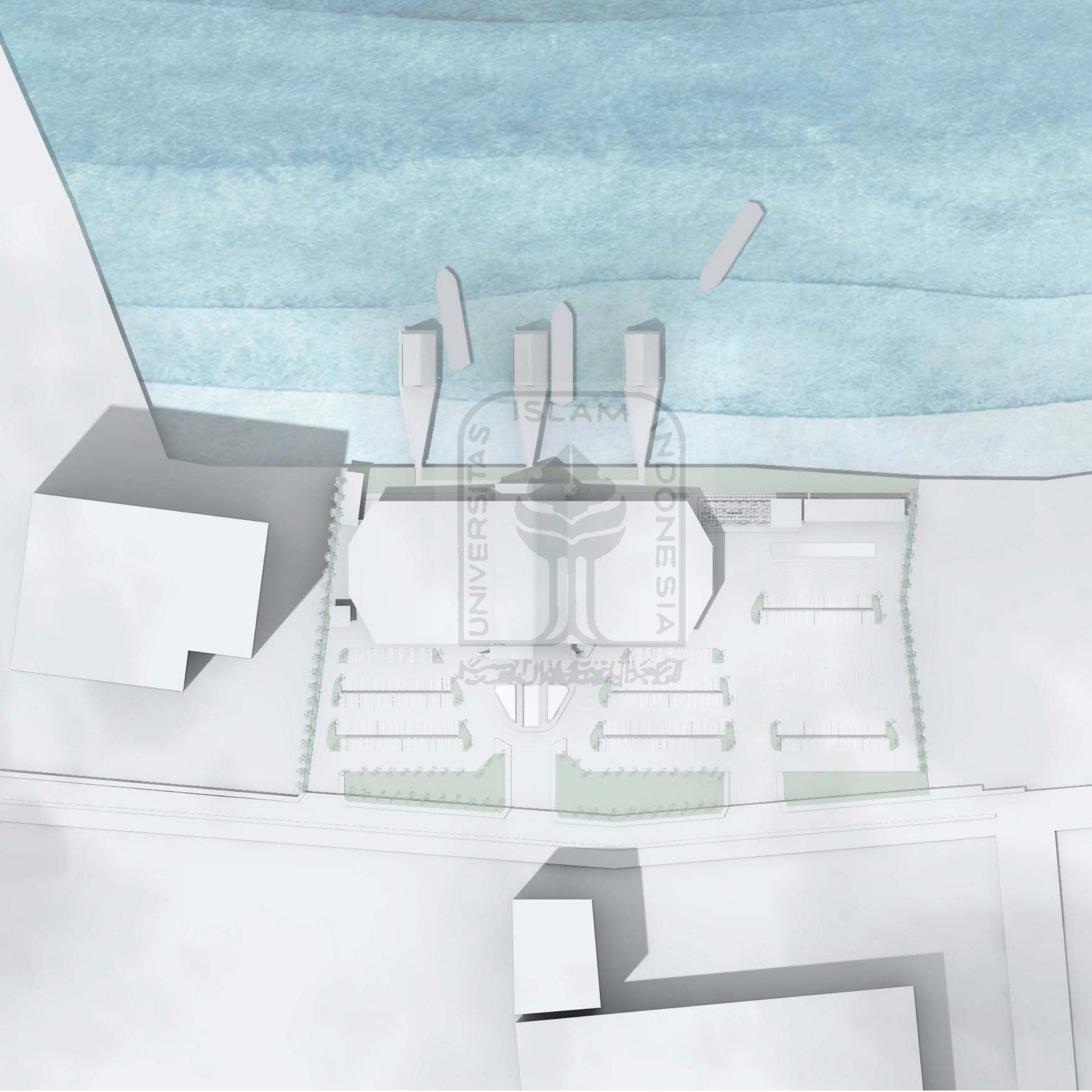
The addition of the building outside uses a contrast insertion approach which makes the whole building have a different time between the old building and the new building. The choice of material also makes it very contrast between the two old and new buildings.

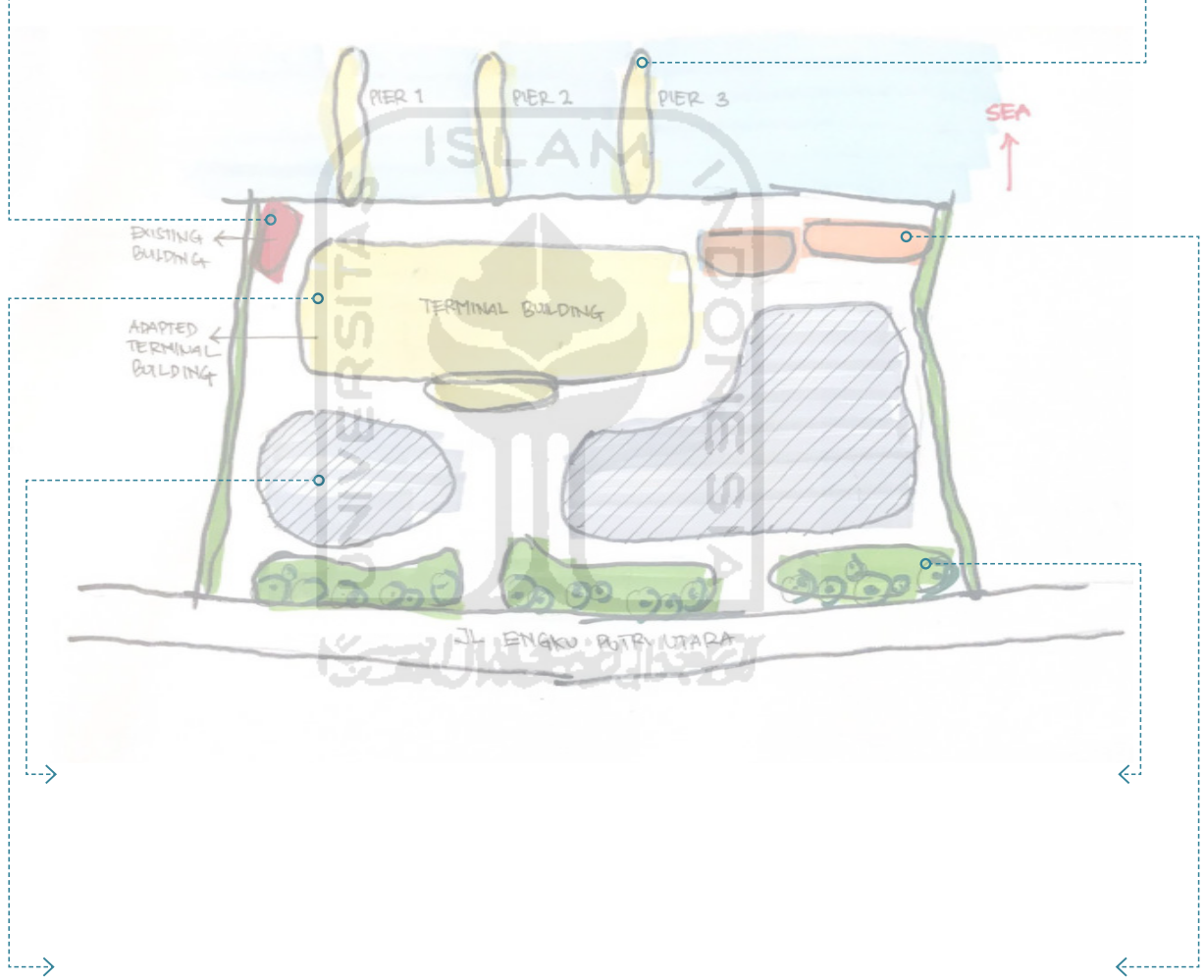
In-side Insertion

Insertion concept of inner space by adding a new platform using materials that are in contrast to existing buildings



Burgos Railway Station Section
Source: Archdaily, 2021





4

design strategy analysis

design strategy analysis

passenger ferry terminal

ease of user flow

what user can do

adaptation on building condition

minimize the site change for the new siteplan

selective demolition and extension to adapt the condition

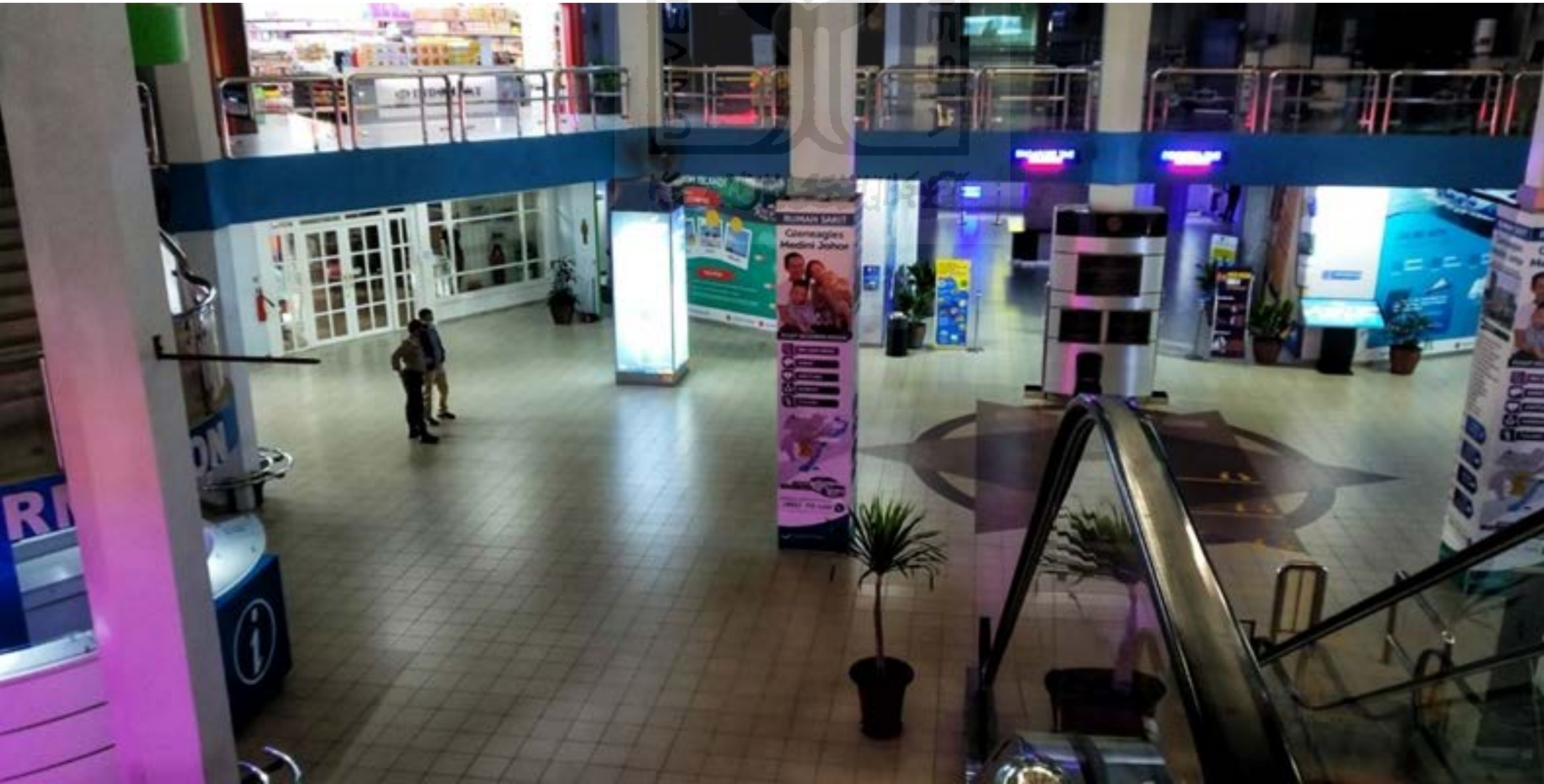
transformation on critical regionlism

building insertion in order to regain area loss

ease of access for clear and seamless circulation

Analysis on function is a study to design a passenger terminals which refers to the functions of public service buildings that consider spatial planning, comfort, security, and safety for passengers, porters or visitors, as well as port officers.

The functions are categorized into two, which are the primary function as a passenger terminal and the secondary function as a supporting facilities for the passenger terminal.



Existing Main Hall
Source: Author Documentation, 2021



Batam Centre Ferry Pier
Source: batamnews.co.id, 2018

Primary Function (Passenger Terminal)

Passenger terminals have a primary function as sea transportation infrastructure. The passenger terminal is a building that has the main facilities as the place to pick up and drop off the passengers from the terminal to sea transportation.

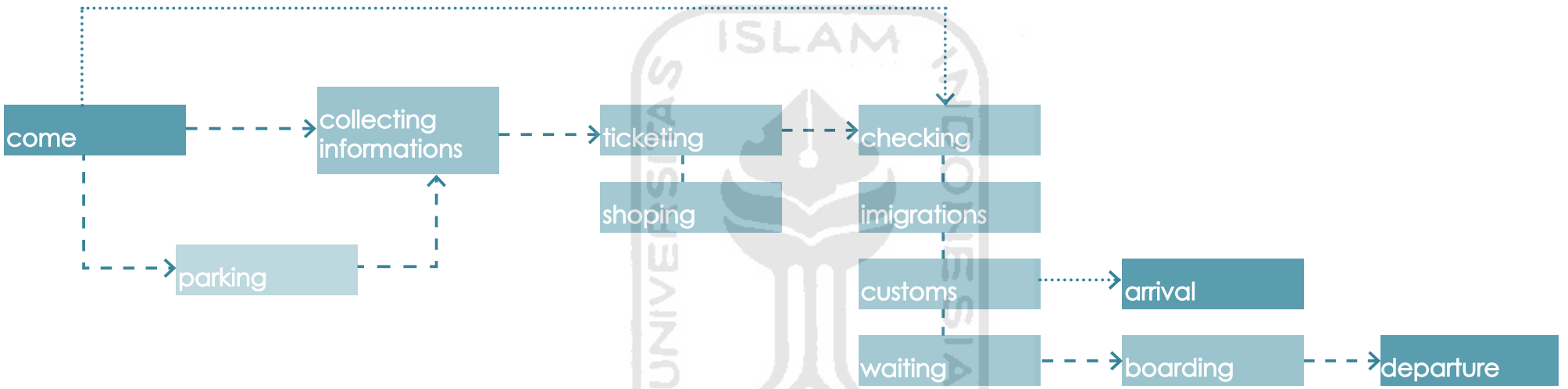
Secondary Function

The secondary function is to support the primary function as the passenger terminal which is the activities of passenger circulation, departure, arrival, circulation of stuff, terminal management, commercial functions, service, and security. The secondary function is also divided into two, the functions intended for management and commercial.

ease of user flow

In general, building users are grouped into four groups, terminal passengers, terminal administrators, terminal services, and terminal security (immigration, custom protection, and BNN). The outline of the user flow scheme is shown in the diagram below.

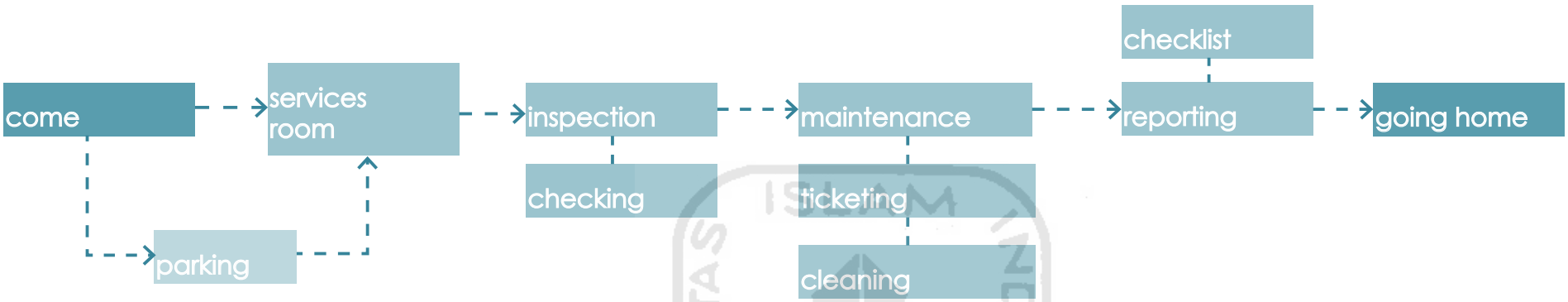
Passenger



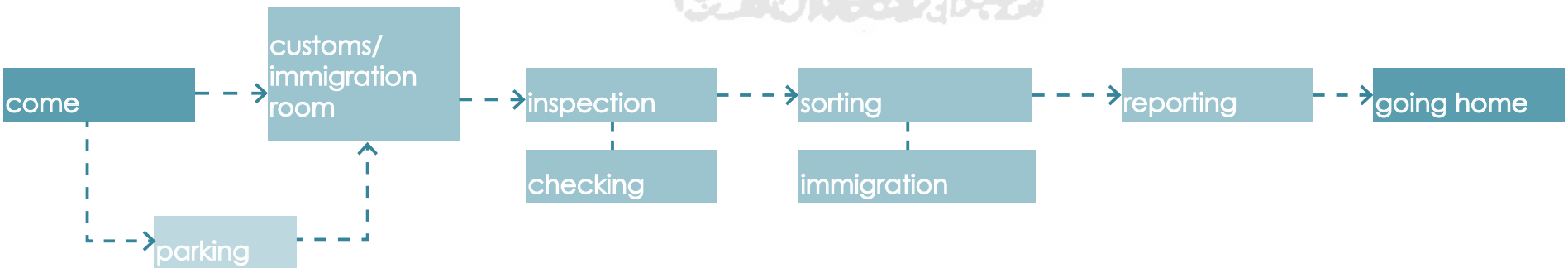
Management



Services



Customs and immigration



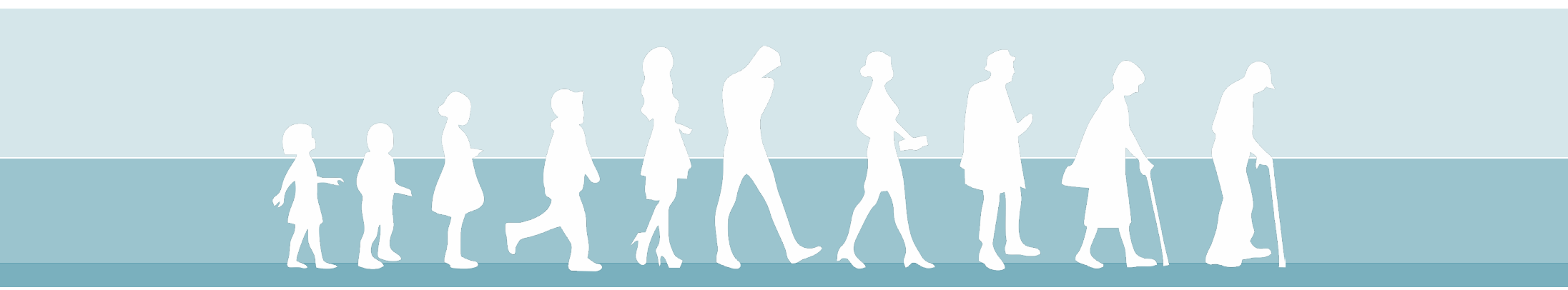
what user can do

Visitors who come to Batam Center International Ferry Terminal are varied, from men, women, children, adults to the elderly. Visitors can be classified as follows

gender	Man and Woman
age	Kids, Tenagers, Adults, elderly
necessity	purchasing tickets, checking in, using ferry transportation to cross between countries.
visitor origin	local and abroad

From this analysis, the terminal building is designed with the consideration of users who come and carry out activities in the passenger terminal building.

Picture 1.0 User Classification Table
Source: author analysis, 2021



analysis on user activities devided and classified into *passenger terminal facilities* (lobby, arrival and departure hall, waiting room, screening zone, immigration , etc), *supporting facilities* (shops, toilet, mushalla, etc), and *management facilities* (office, MEE, immigration, etc)

activities	user	facilities	characters	space needs
come waiting gathering information buying ticket screening check in boarding	passenger port officer seller immigration officer custom officer	semi public facilities	semi public spacious clear circulation accessible	lobby hall waiting room screening area immigration point ferry pier ticketing
eat gather sanitation praying shops commercials	visitors officer seller retailer	public facilities	public cozy accessible safe	canteen toilet hall mushalla shops retail/commercial
administration maintenance meeting sanitation cleaning	management officer technician janitor	private facilities semi private facilities	pirvate calm semi private accessible	guest room archive room janitor room maintenance room meeting room
parking loading/unload security monitoring storing goods MEE control	visitors management officer security maintenance officer	public facilities private facilities	public private accessible clear circulation	parking area security room storage room loading dock MEE room

problem in existing building

After analysing the existing ferry terminal building, author conclude some important points on the current terminal building.

1 structural grid

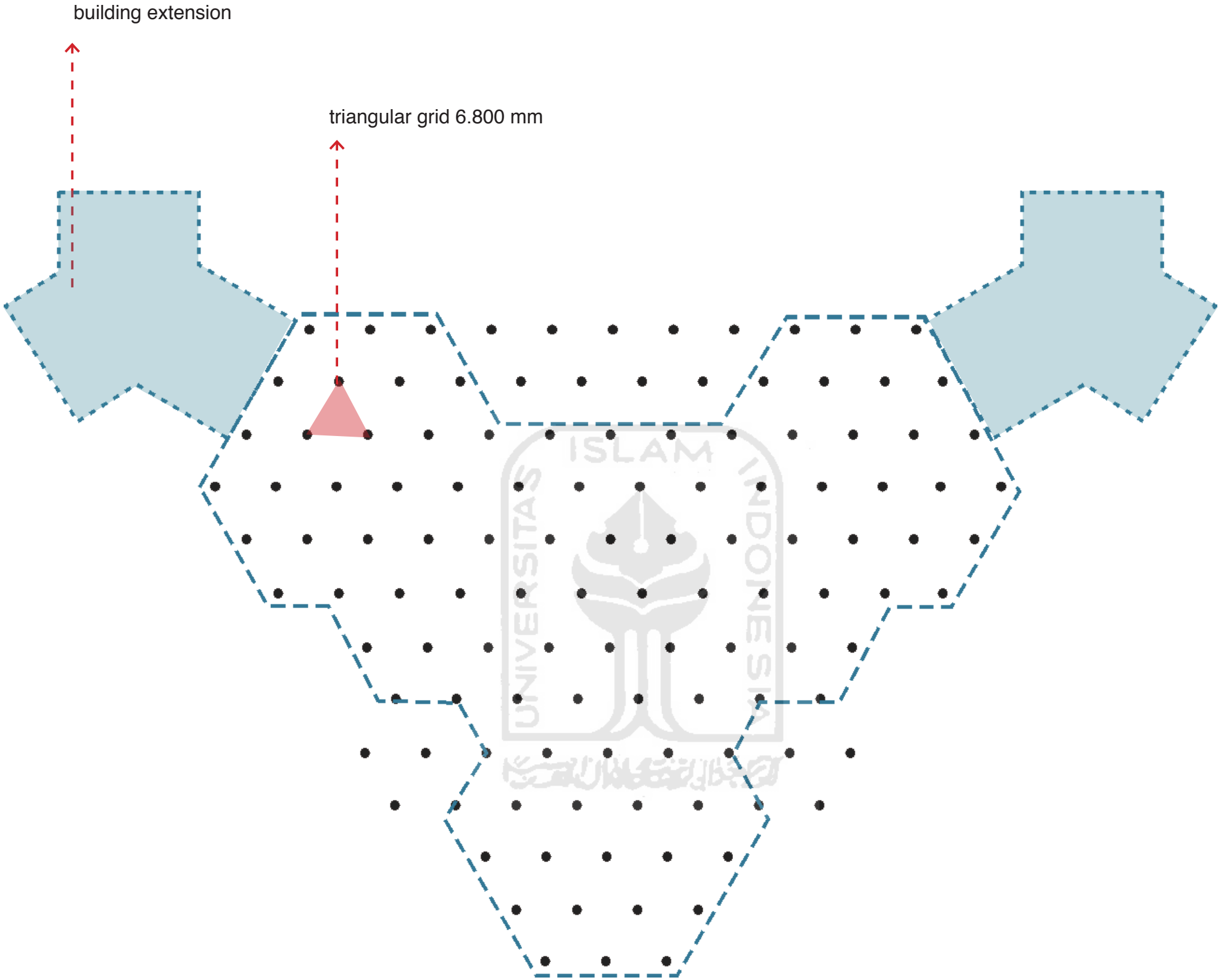
The grid is forming a triangular like form in the middle of the building main hall that creata an uncommon room layout

2 circulation

The circulation also looks very confusing. Zones are not designed in line so that passengers need to go up and down the floor to go to the next zone.

3 building form and layout

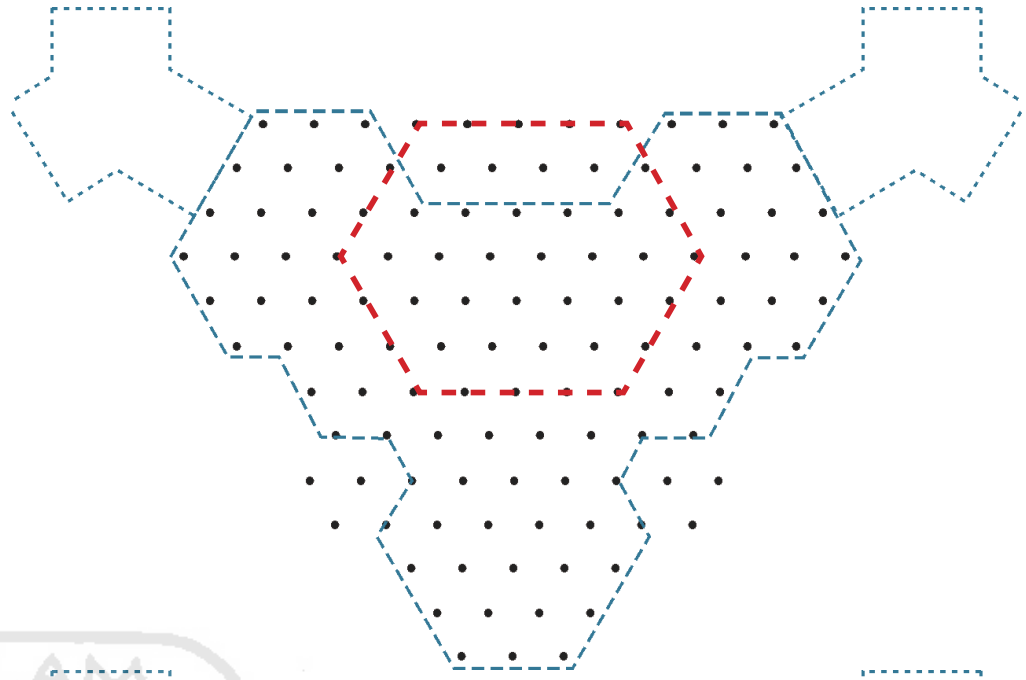
If we see from the vision of the Batam government, the building does not show Malay nuances in terms of form, even though ornamentation.



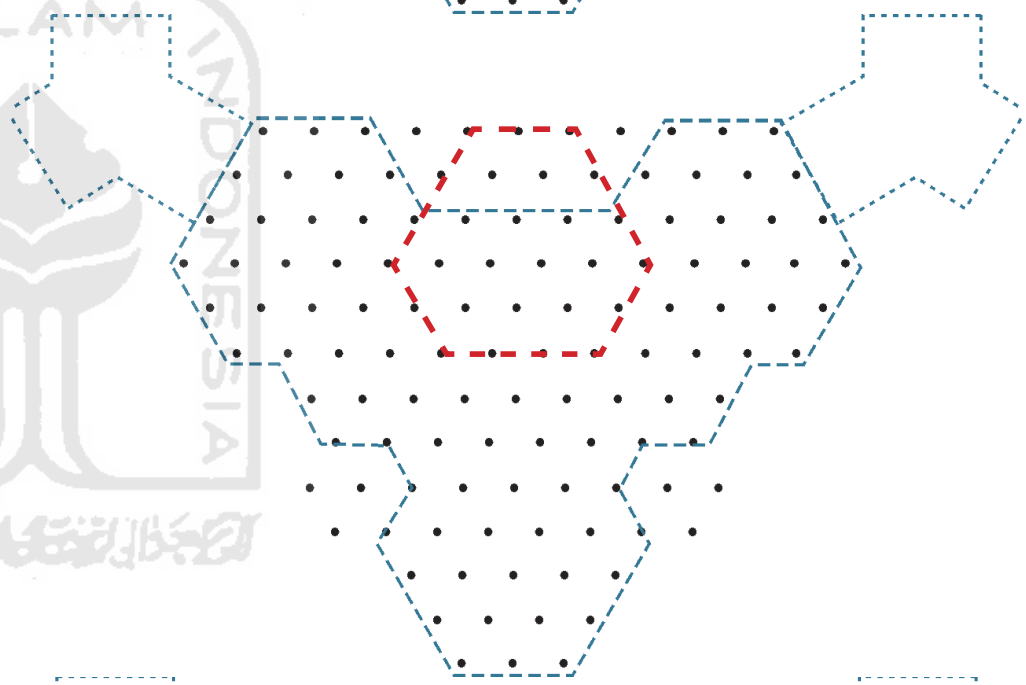
Possible adaptations to existing buildings are in building structures. However, not all of the structure in this building will be maintained. The structure that is maintained also presents the shape of the old building which is in the form of a hexagon. The function of the old building will changed from the main building to the main hall or lobby area of the port terminal later.

1 triangular grid structure

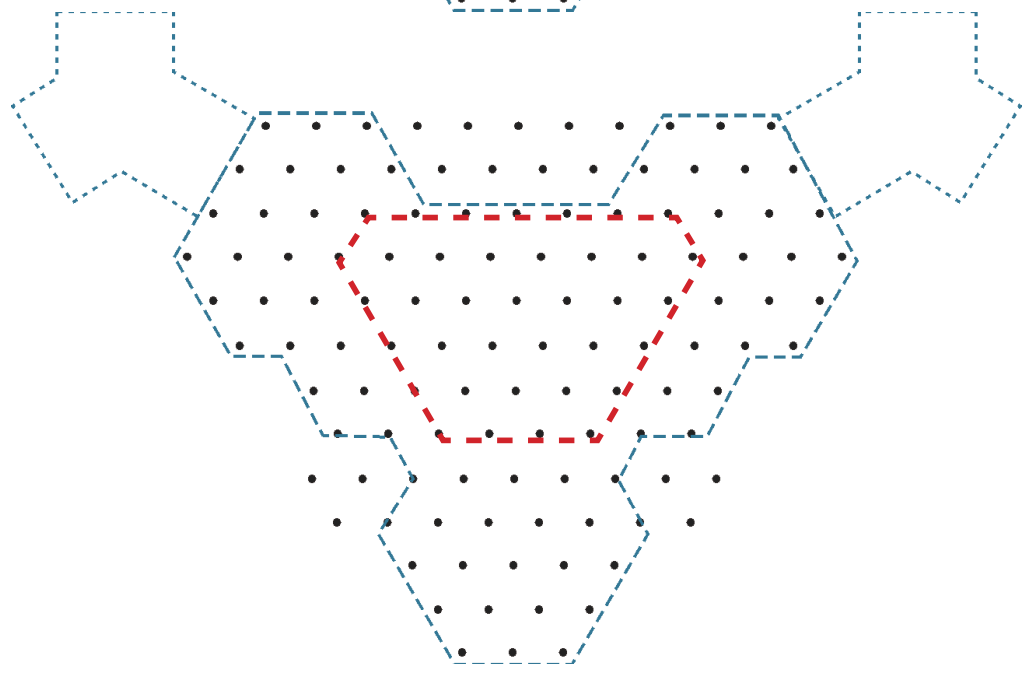
In the first option, the structure is maintained quite a lot, this results in a building with a large enough space. It is possible to be used as the main lobby and hall.



The second option forms a more unique form similar to the old building shape. However, the structure of the old building has been maintained very little, and the resulting space is not too large. This allows this area to function as a transitional or connecting area

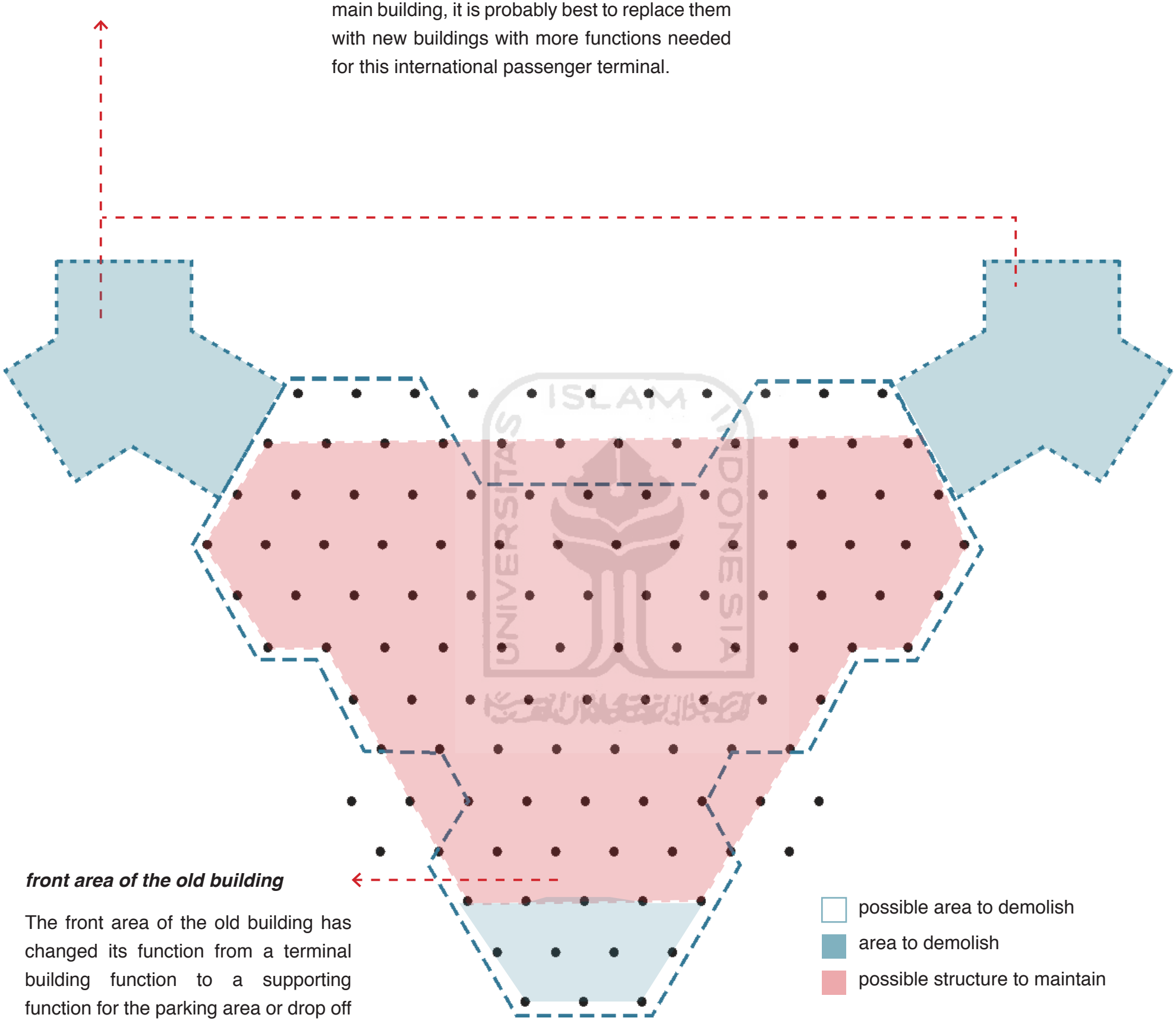


The third option by maintaining the majority of the inner room structure. This allows this area to accommodate more functions such as the main lobby, information center, transition area, and even be used as a public space.



buidling extension

Additional buildings to the right and left of the main building, it is probably best to replace them with new buildings with more functions needed for this international passenger terminal.



front area of the old building

The front area of the old building has changed its function from a terminal building function to a supporting function for the parking area or drop off for the new terminal building design

2 circulation

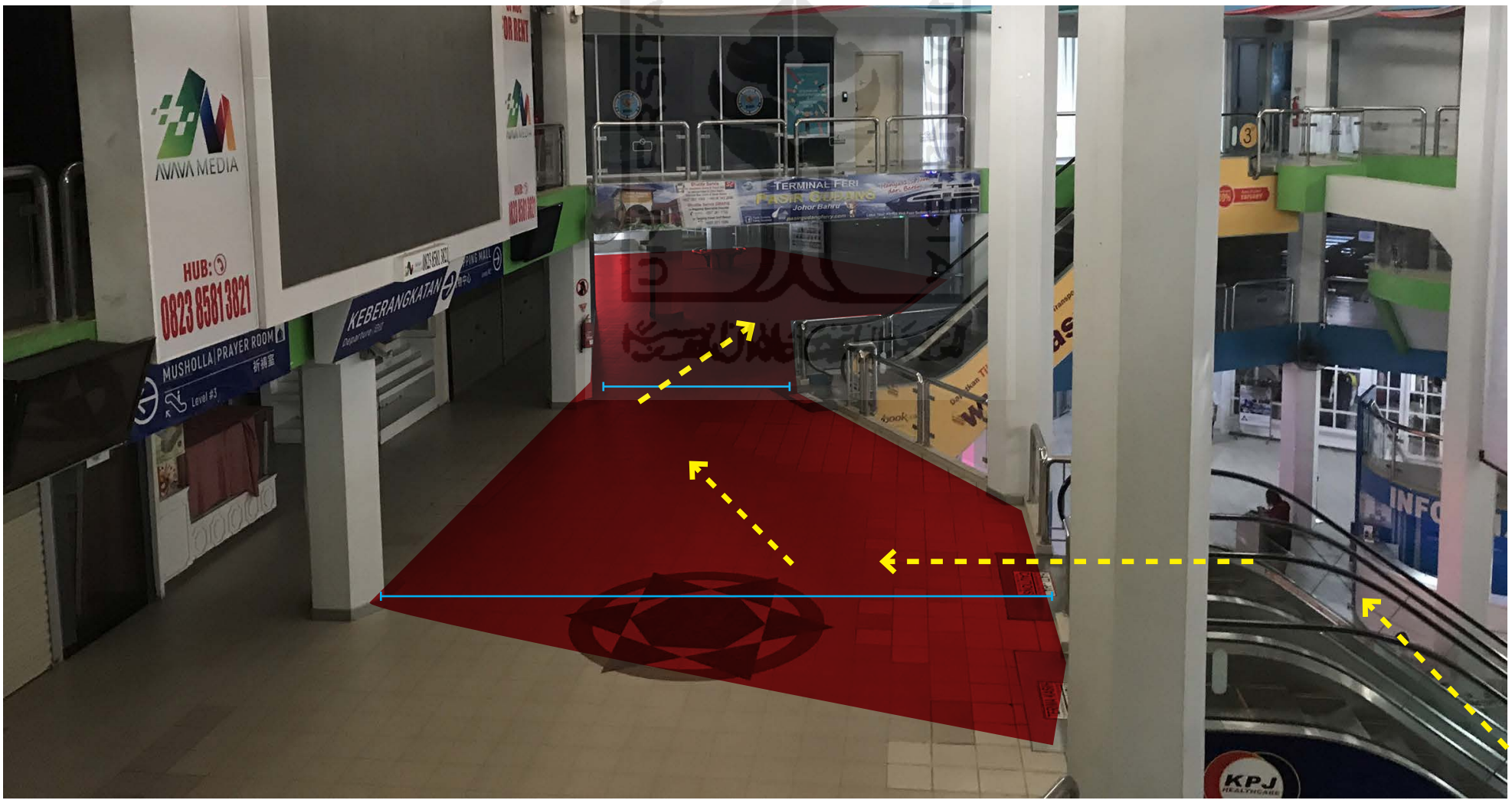
The circulation situation of the existing buildings which is not user-friendly is the focus of the second adaptation concept in terms of circulation. Existing circulation makes it difficult for users to reach space. This can be seen from the circulation of passenger departures with different elevations on each floor. The ticket and check-in area are on the ground floor, then passengers are required to go up to the 1st floor to check immigration and excise documents. After that, the passengers are directed back down to the waiting room which then goes to the dock area for ship departure. The concept of circulation is made simpler and can be clearly understood by port users. At the same time minimizing the user's travel time and distance



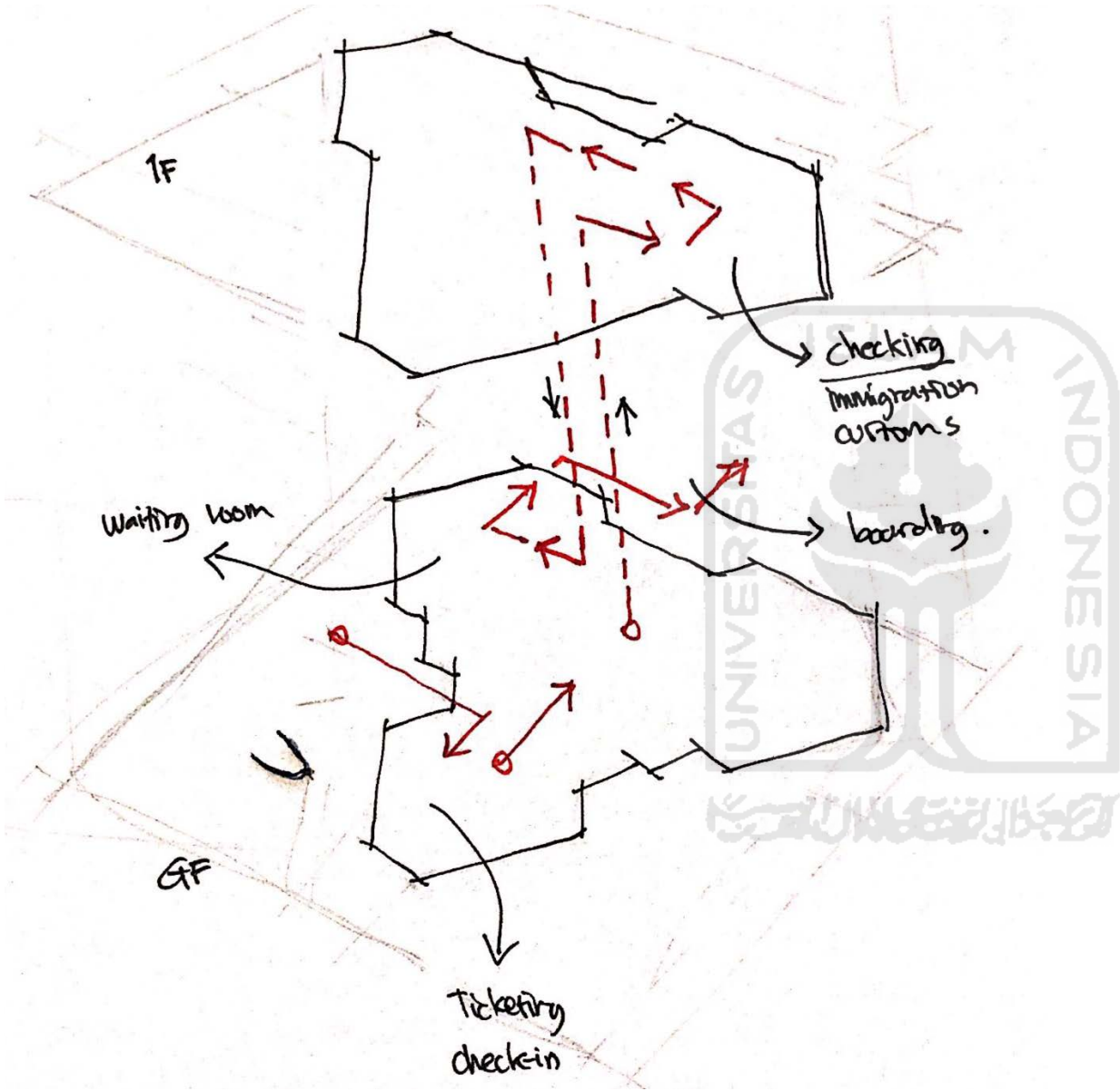
Batam Centre Ferry Pier Circulation Condition
Source: https://www.enjoybatam.com/, 2017

Ease of acees on circulation are very important in the ferry terminal. This circulation need to be *clear and seamless* on approaching every ferry terminal ficilities phase. From entering the building until approaching the vessel and the circulation must be in order that won't confuse the passenger

While looking back to the current circulation condition, the flow are a bit confusing the passenger. in some phase, the passenger should sweep around to get in to the first checking zone. It also located in the different floor and distract the other user that are not going to the checking zone.



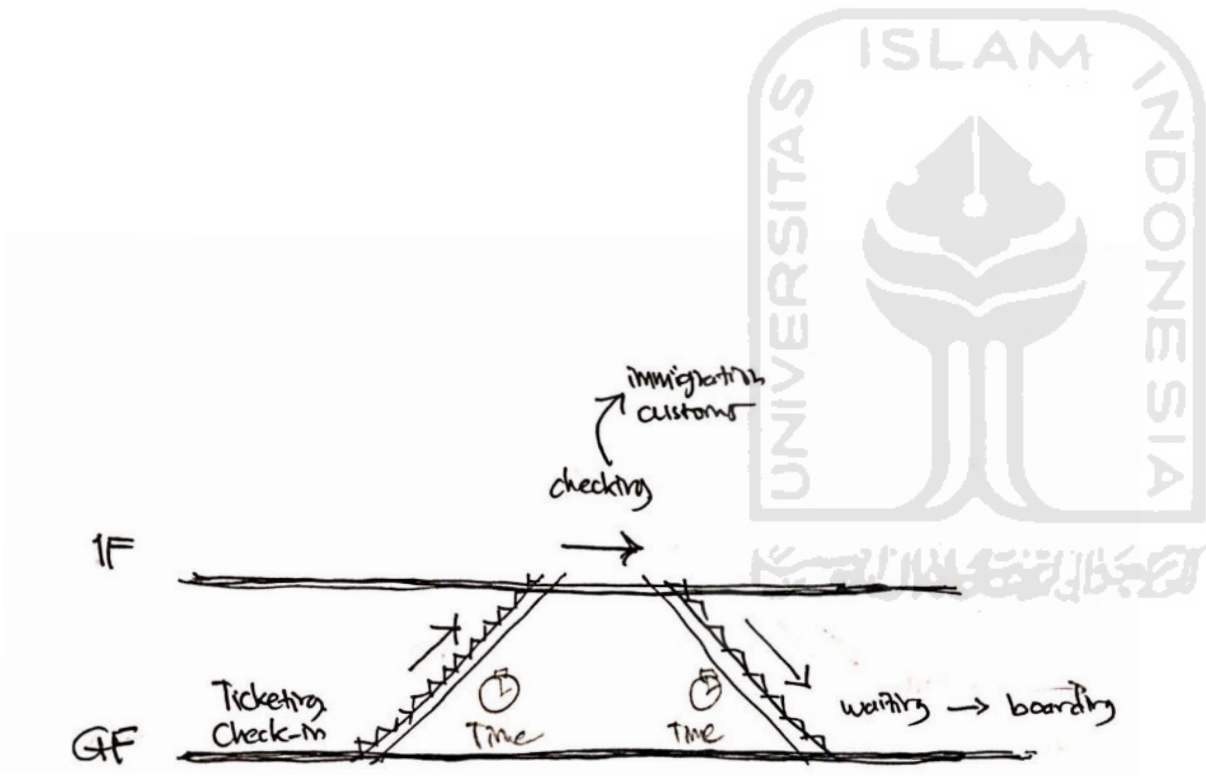
Batam Centre Ferry Pier Circulation Condition
Source: Author Documentation, 2021



to approach activities it makes the user in diffuculties, this can be seen from the up and down circulation path. This vertical circulation is very crucial in this case.

simplifying circulation by reducing vertical circulation in buildings can reduce distances and facilitate access for building users. Later it will also affect the travel time for each activity.

The approaching circulation on the current condition are using *spiral approach*, which the user need to go around to some area. This condition give the passenger more time and distance that make the circulation a bit longer.

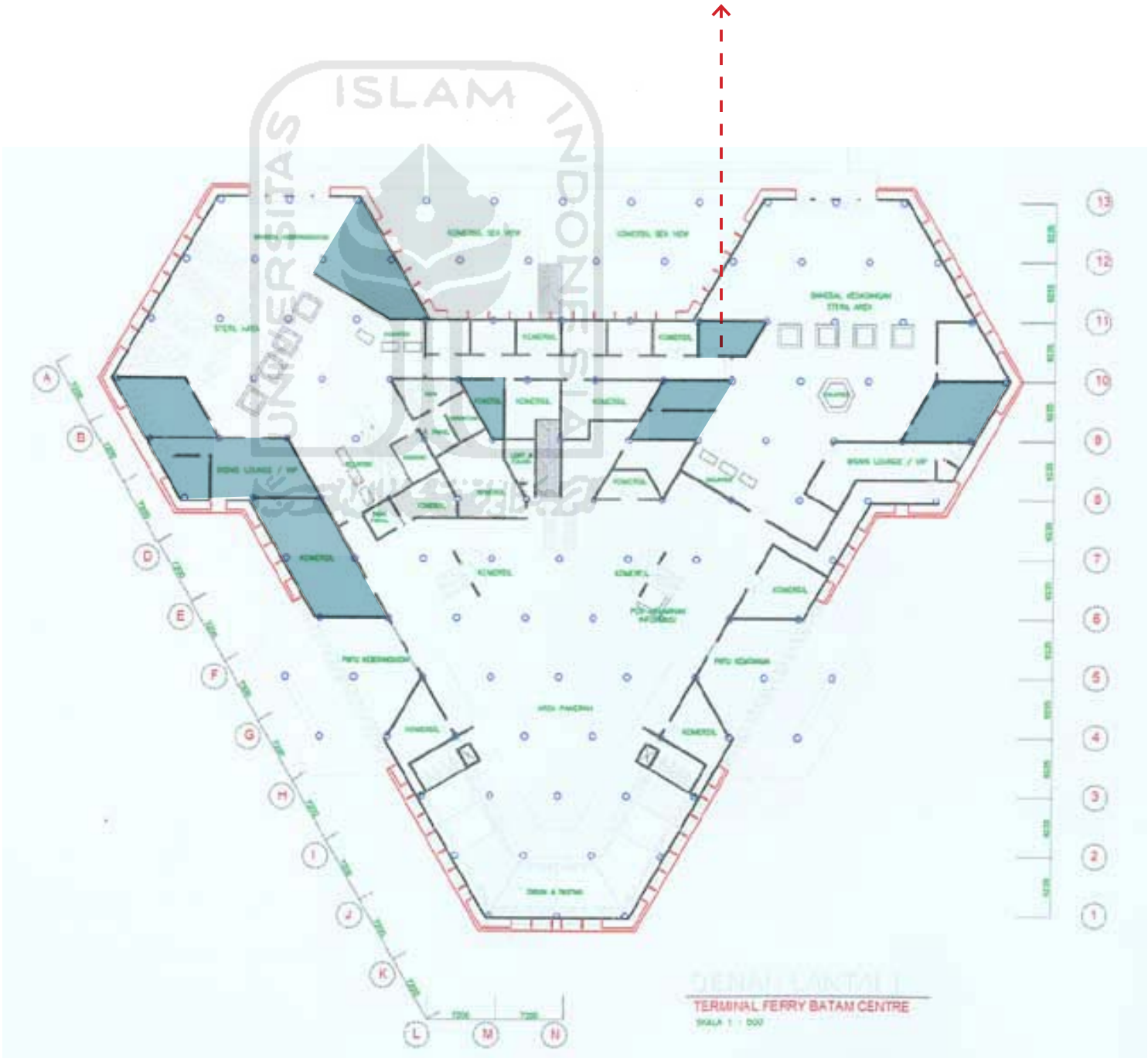


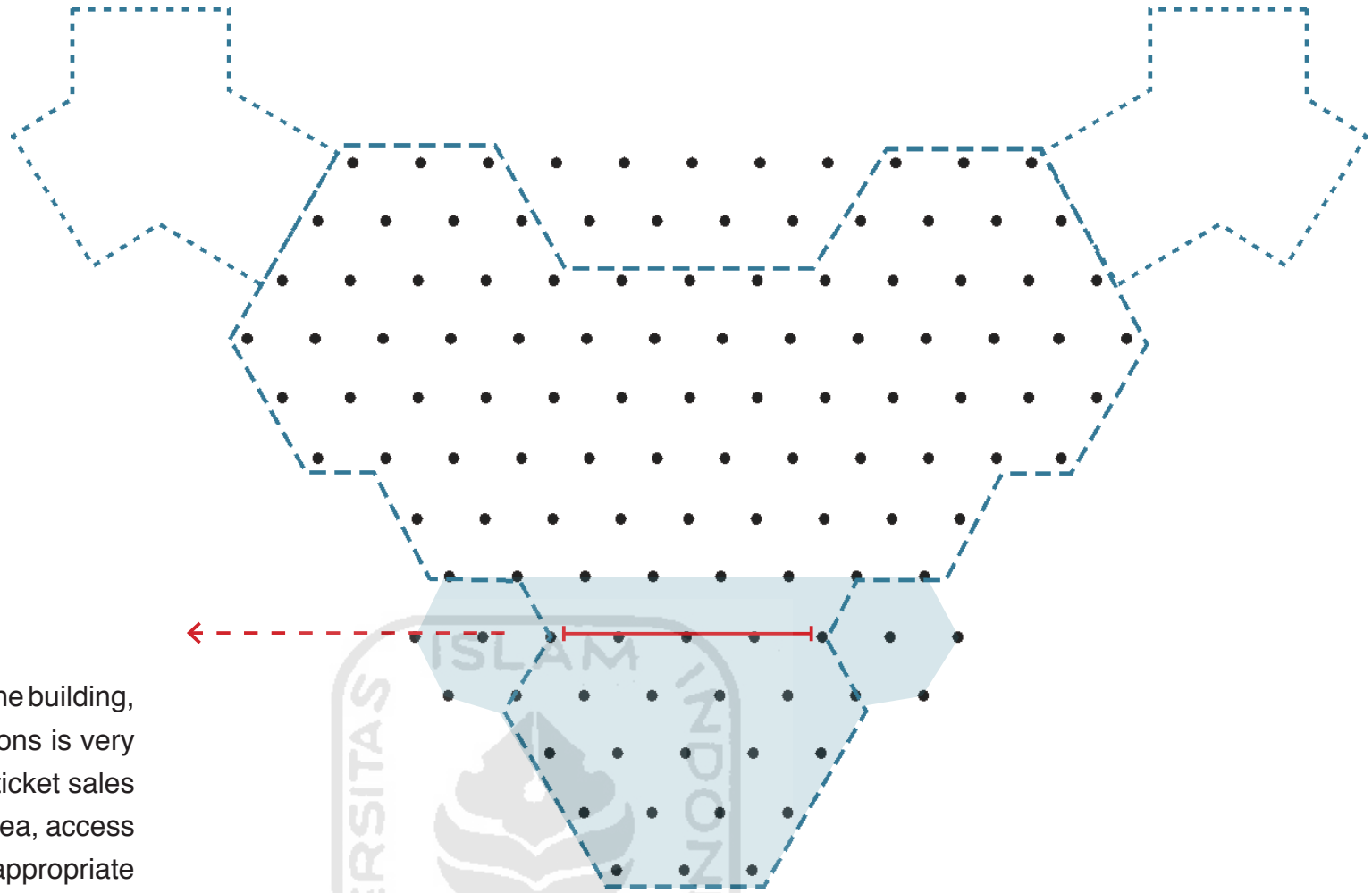
the distances between each activities, this affecting the time to travel all of the activities, especially while the circulation are not clear and passing other function and facilities at the terminal building.

3 building form and layout

Tthe building form looks unique, but the consequences for the room layout are not maximal. From the existing plan, rooms that support the function of the building have a lot of negative spaces that are difficult to use for activities. This also makes the circulation space winding, making it difficult for users to easily understand the correct flow.

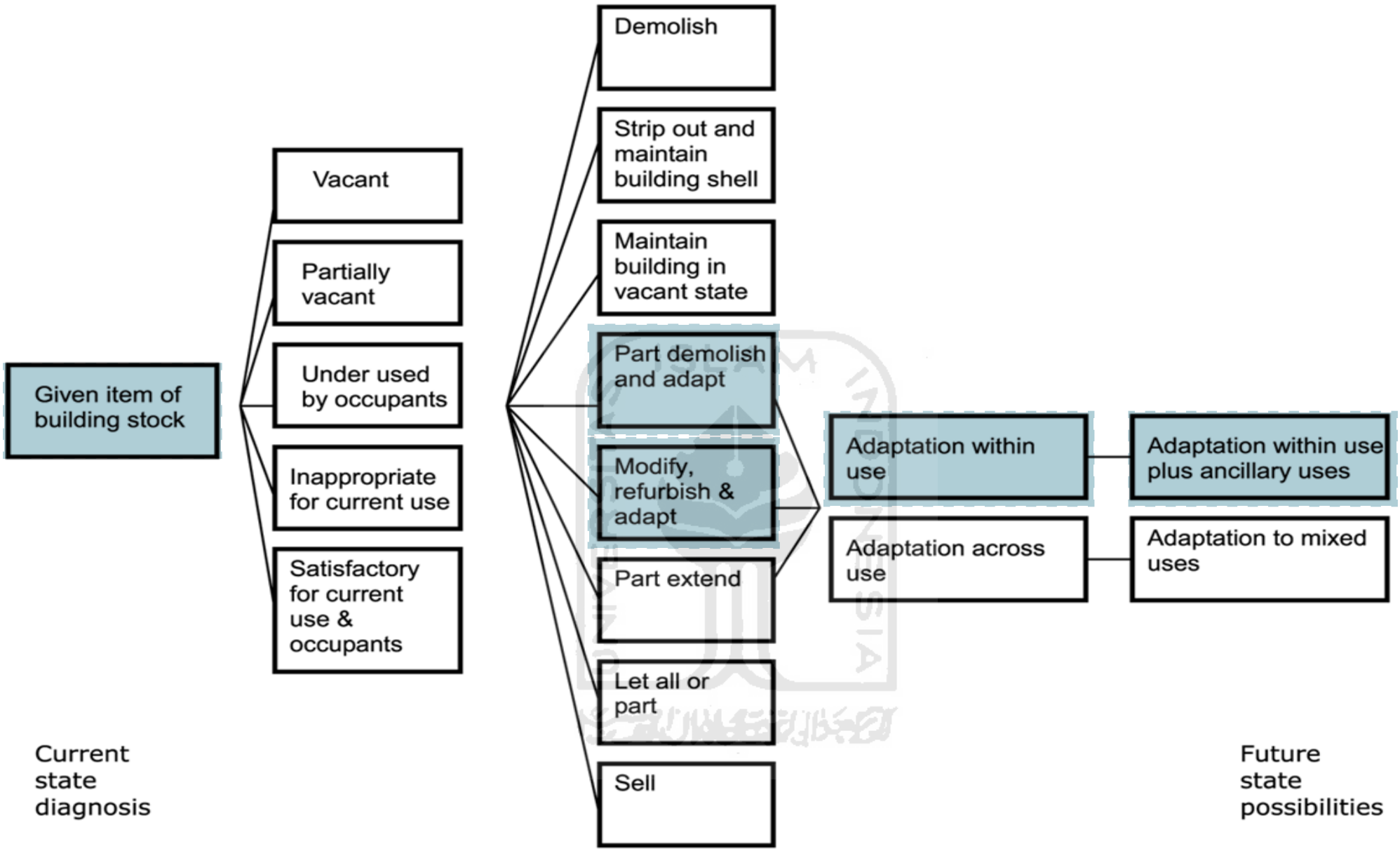
the shape of the space is not optimal so that it reduces the area that can be used for activities.





access on ticketing area

Due to the unusual layout of the building, access to some room functions is very limited. For example, in the ticket sales area. With a large enough area, access to this area should have the appropriate dimensions so that the entry and exit of users becomes easier. However, this limited access makes the ticket sales area look cramped and cramped. Also, due to the presence of a column in the middle of the room, circulation and access are disturbed and the user does not have a clear view of the circulation.



Analysis of adaptive reuse method will be done to the building based on the current condition
Source: Kincaid, 2002 p:12 with Author Changes

Based on the anaysis of the existing building condition. The appropriate development strategy on option for physical change is medium high change with the development strategy of selective demolition and extension of facilities

	MAINTAIN EXTERNAL FABRIC	REPLACE EXTERNAL FABRIC
MODIFICATION : INTERNAL SPACE only	Low change	Low–medium change
RECONFIGURATION : SPACE & STRUCTURE	Medium–high change	High change

Analysis of types of physical change for building adaptation
Source: Kincaid, 2002 p:53 with Author Changes

Medium-High Change

maintain the external fabric, reconfigure the internal space, with some modification of the building's structure.

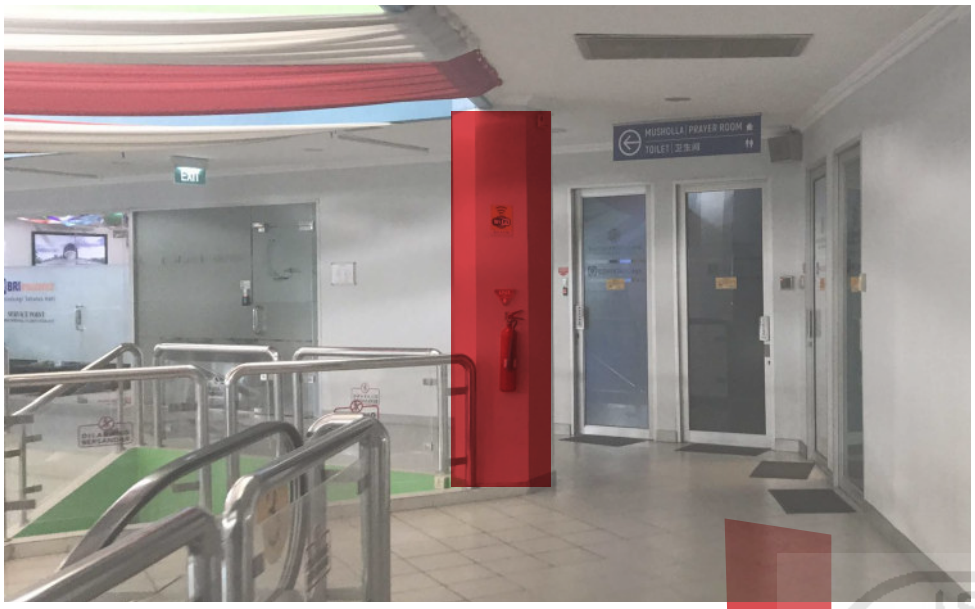
Change of use adaptation with selective demolition

Selective demolition will adapt to some structure that still appropriate with the current situation of the development. Eliminate the structure that are not suitable for the future developmnet of the building. While the rest of the structure are maintained and use for the part of the development.

Change of use adaptation with extension of facility

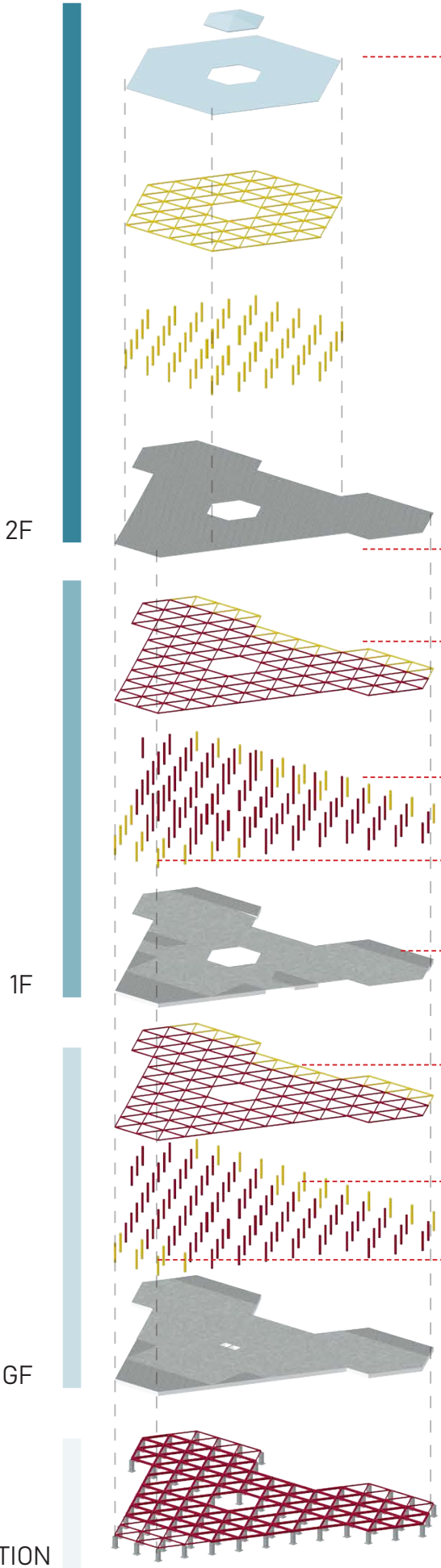
This development focus on the extension of the building that adapt to the existing building condition. It is also maintaining the existing structure and maybe some of thebuilding element. In the term of layout, it will be change based on the new development of the building.

selective demolition



The existing structures are still able to be used. But in some place, the structure are not match with the design target to extend the terminal facilities. This is what makes the writer maintain a centre area for adaptation. Other structures located at the front and back wil be demolish and the new structures will be added to be the extension of the terminal facilities.





The 2nd floor Will be demolished baecause its too small to be an office area and

The back side of 1st floor will be demolish to give extra view for the hall at the 1st floor

The front structure will be demolish as the extension on the parking and circulation area on the ground floor

Reducing the back area for the boarding zone at the ground floor and create a void for better experience on the gorund floor

The front structure will be demolish as the extension on the parking and circulation area on the ground floor

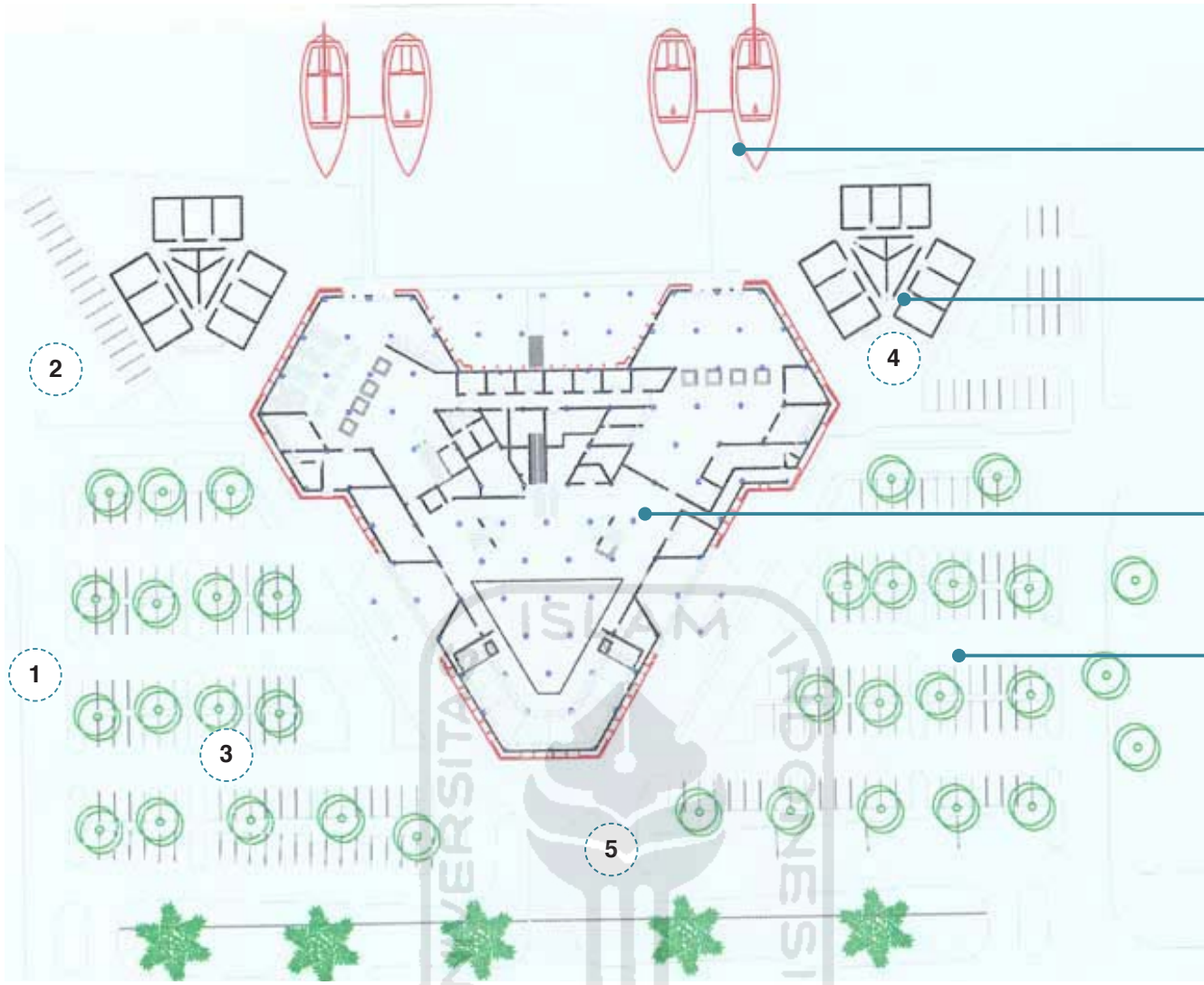
maintained column and beam
demolished column and beam
maintained slab
demolished slab
demolished roof

minimize the site change for the ferry terminal development

Current site condition of the ferry terminal are vin a a good shape in general. The parking area also already had a great placement and has a good dimension, from the carport until the vehicle circulation zone that had *enough space for manouvering* the vehicle. On the layout of the siteplan itself, the zoning area very clear for the visitor to know where they should go while they area in the are of ferry terminal. But, in some area on the siteplan, are not in a good maintenance. This can be caused by the very isolated area on the site. Such as the very north east part on the site. it seem like it just an addition or a small area ramain on the site that aren't used and become the motorcycle park.







Siteplan
Source: https://www.bat-am-center.web.id/, 2021

1



Entrance circulation with pedestrian way on the side. The space for vehicle circulation are relatively wide and enough for car manouver

2



Separated building for the generator on the west side. This give extra safety and minimal disturbtion to the terminal user in the main building

3



Parking area has enough room for circulationa and manouver, also fulfilled with vegetation to shade the parking area also the comfort for user.

4



This whole area seem like an additional function to the building as the canteen and next to it are the motocycle parking with no shades and proper facilities.

5



Because of the addition of the direct bridge to the building, it's distracting the shape of the building and made this space not properly in use as the outdoor waiting area.

lack of regional character on building

The existing condition of the building are lack of regional character. Meanwhile, the vision of the Batam government as a Malay land is to give a touch of Malay nuances to the building elements. Especially with the condition of the location of the building which is close to government offices. The application of a regional character in the building should be implemented in this terminal design.

While we see on the facade of the building. We only can see some flat element of alumunium composite panel with the combination of horizontal windows in some places. Its not even trying to implement some of malay tradition.
In the other hand, thechoosen color is not reffering any malay color, such as yellow, red, or green.

modern form building facade

none of malay element

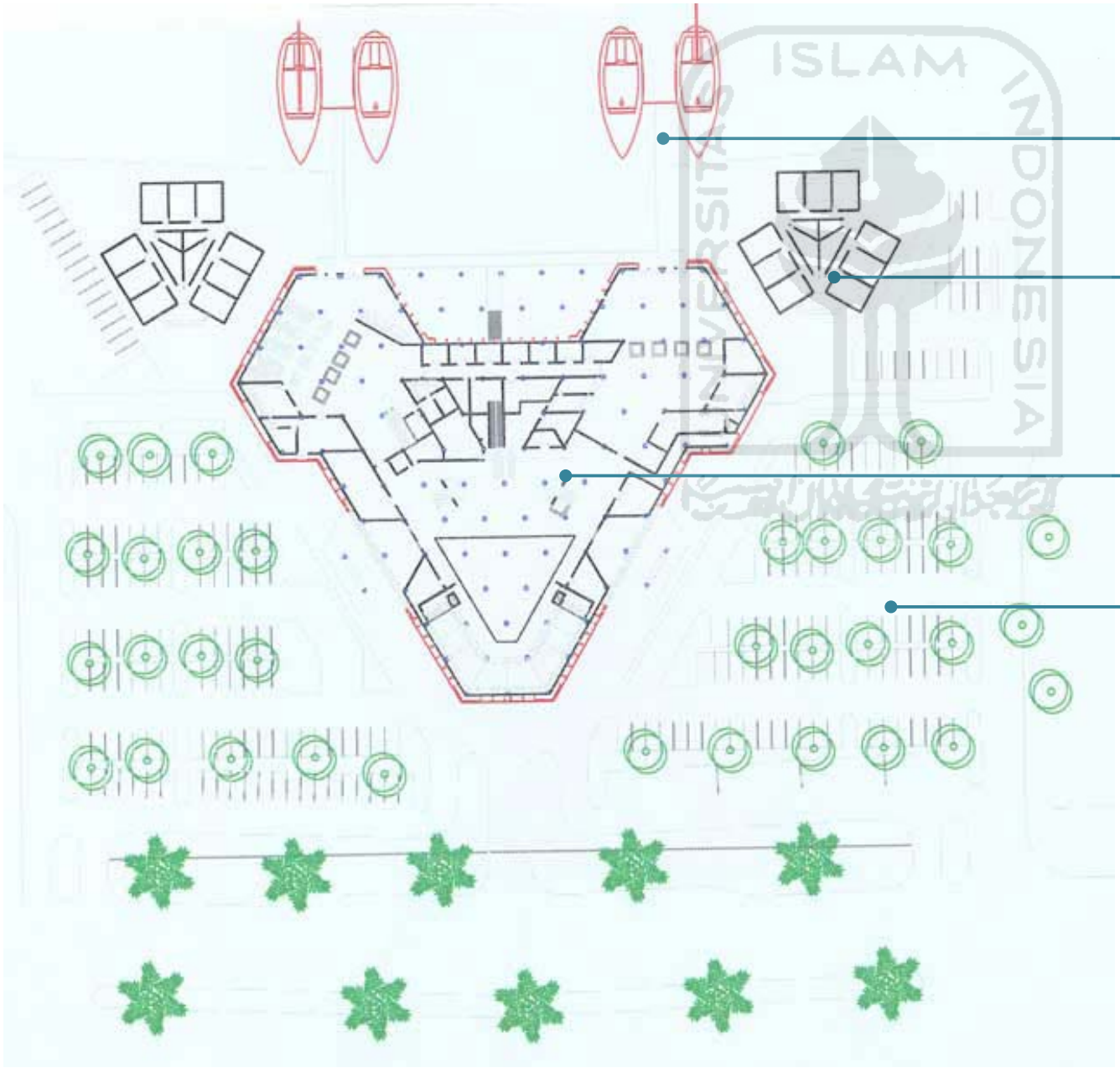
not giving any local uniqueness of Batam



Analysis of regional element on building condition
Source: Author analysis, 2021

Analysis on Existing Building

The terminal building has an area of 8,250 m2 consisting of three floors. Apart from being a passenger terminal, this port also has commercial facilities in it. This terminal has the main mass in the hexagon shape which is surrounded by a parking lot on the front side of the building. Two additional buildings are located on the waiting room side of the main building to the east and west. These two mass a is part of an extension to accommodate port capacity. Serves as a departure waiting room and service area



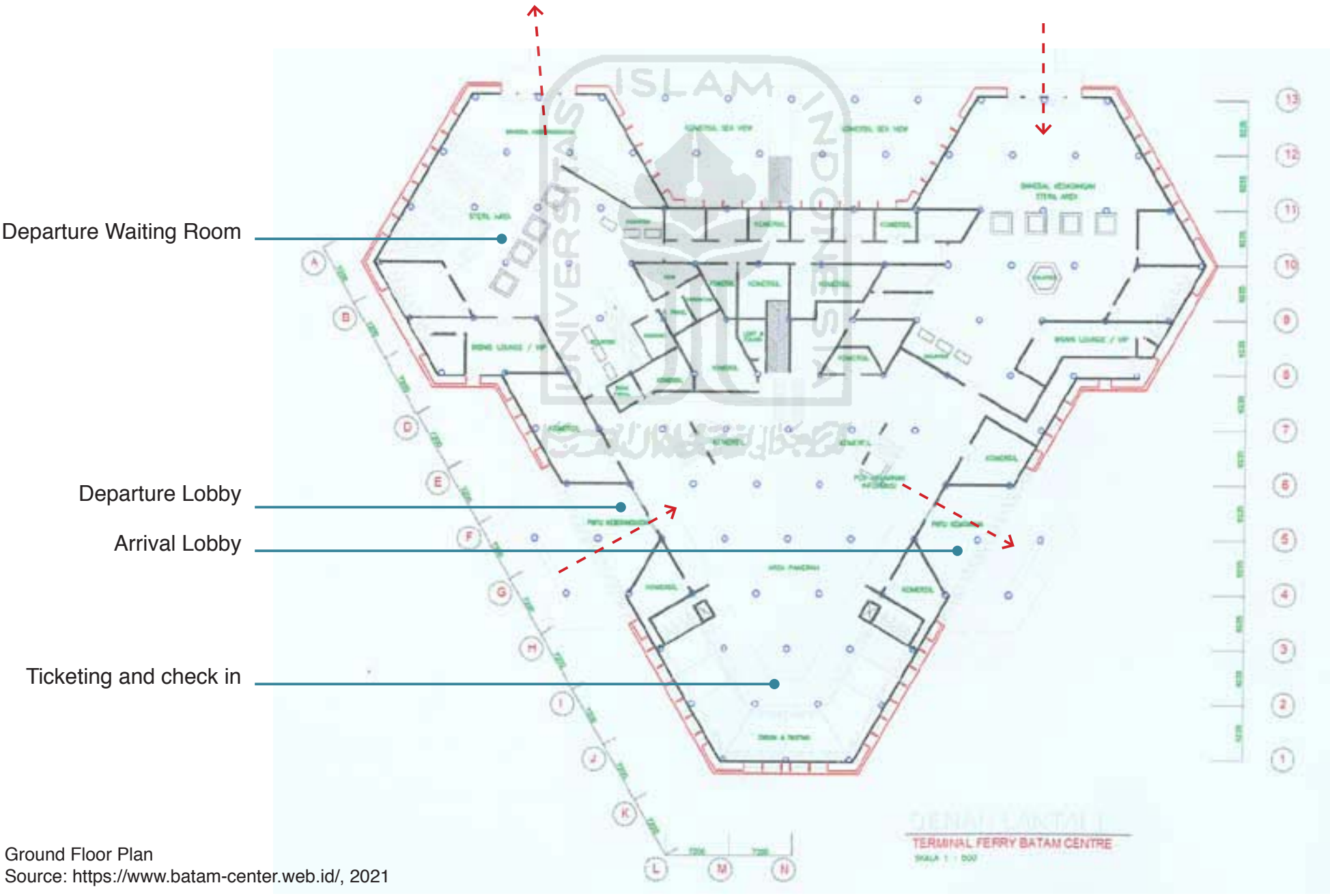
Site Plan
Source: https://www.batam-center.web.id/, 2021

Room Function

The ground floor serves as the arrival and departure lobby area with separate access. The departure lobby is on the west side and the arrival lobby is on the east side. The departure lounge is also on the ground floor

Circulation

The placement of the columns in this building looks very unique by forming a grid pattern that is triangular in shape. However, the consequence of using this grid is the impression of a narrow space and curved circulation. In terms of vertical circulation, there is an escalator in the middle of the hall and two stars



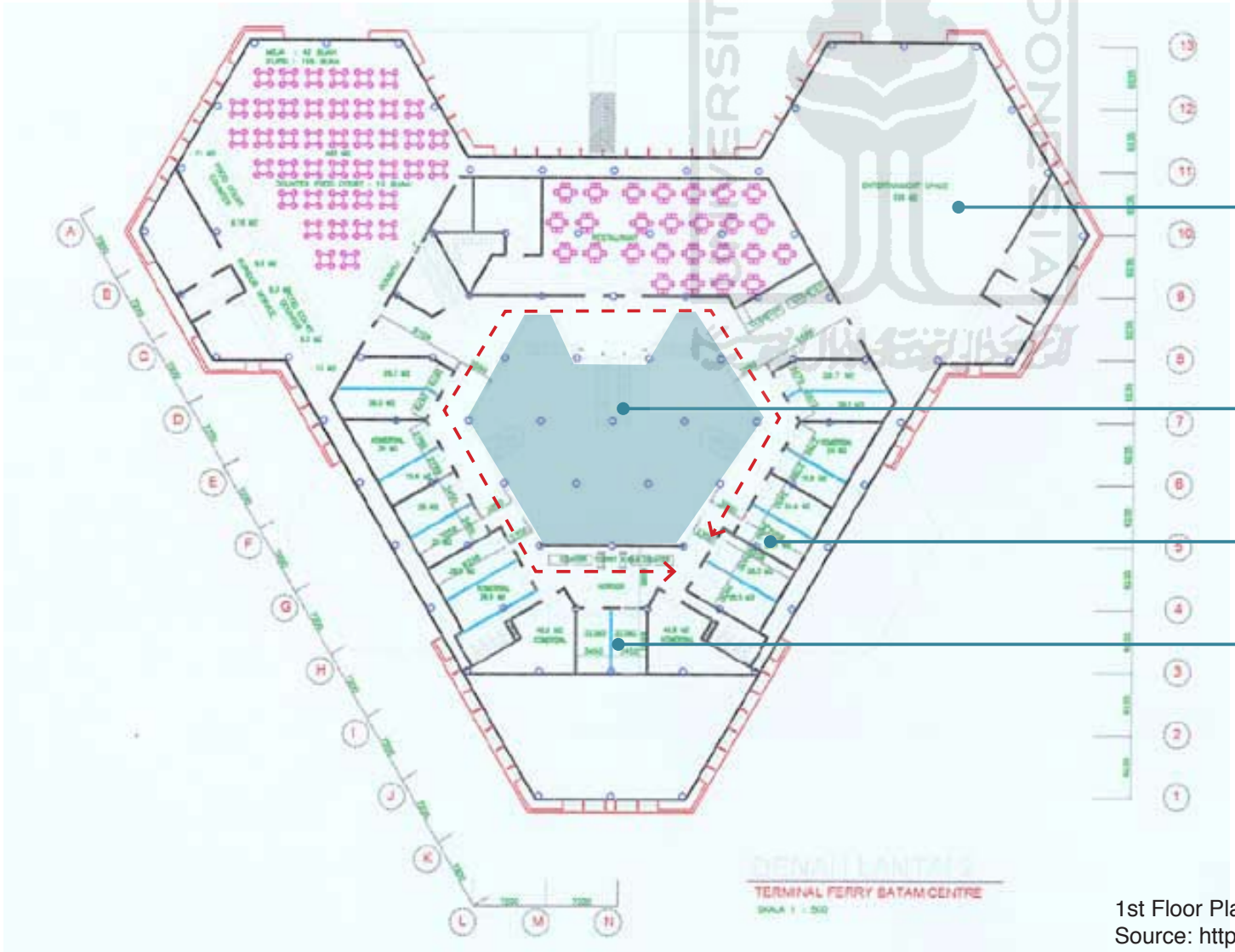
Ground Floor Plan
Source: https://www.batam-center.web.id/, 2021

Function

The second floor is mostly occupied by commercial facilities. In addition, the second floor is an area for immigration and excise inspection. On this floor there is also a bridge between the port and the mall opposite

Circulation

The passenger boarding area is on the 2nd floor east of the building. In the middle of the space is a void with a circulation circling the void. After the check-up area, passengers departing for the waiting room on the ground floor are connected by the escalator. After this waiting room, new passengers head to the dock where the ship rests



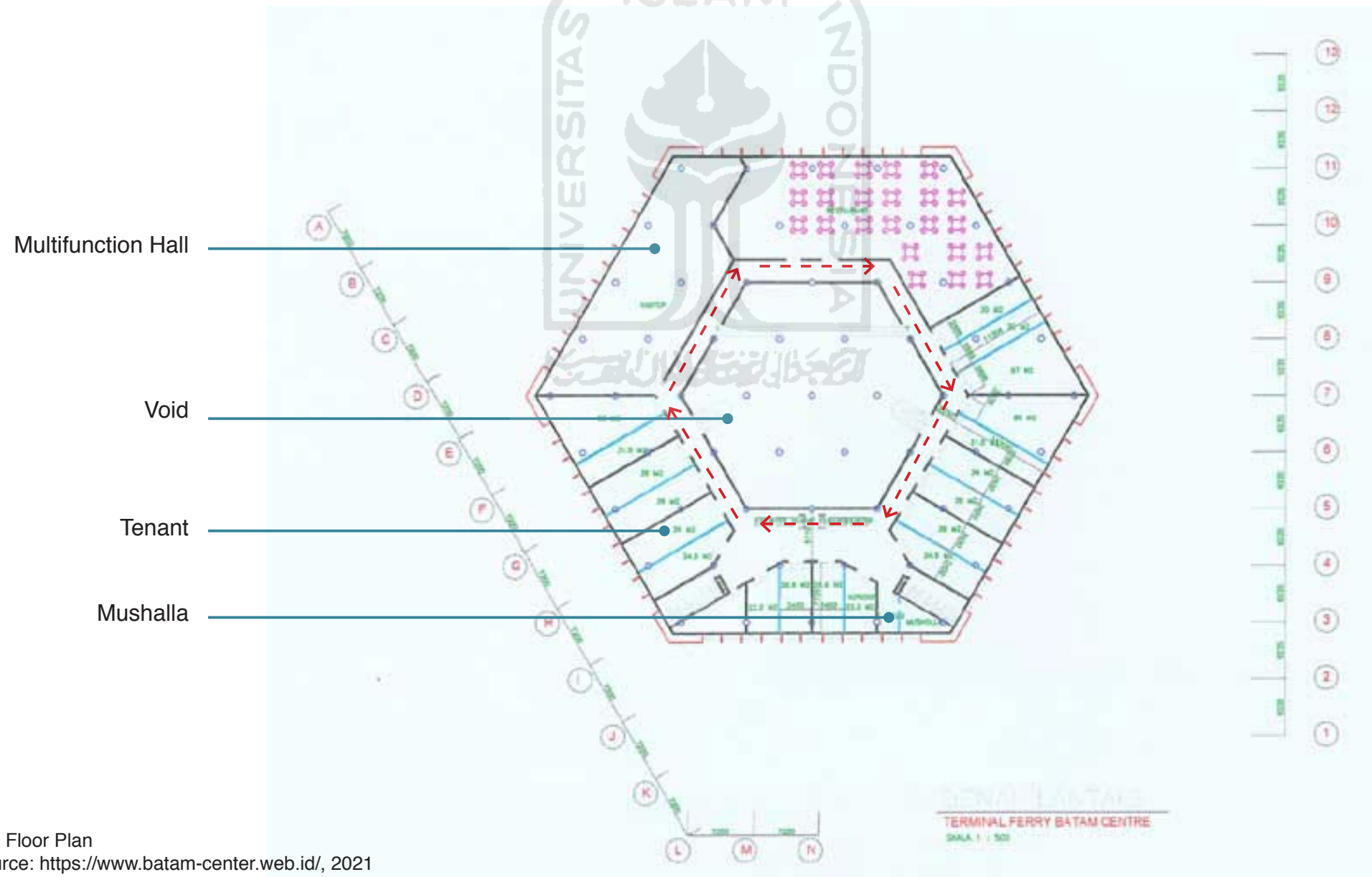
1st Floor Plan
Source: https://www.batam-center.web.id/, 2021

Function

On the third floor, the main function is as a tenant office and there is also a hall that is large enough to be used. The hall itself is usually used as a meeting and meeting room.

Circulation

Just like on the second floor, there is a void in the middle that has a circulation circling it. The vertical access on the third floor is accessed by escalators and stairs.



2nd Floor Plan
Source: https://www.batam-center.web.id/, 2021



Pier
Source: Badan Pengusahaan Batam website, 2020

Ferry Pier

There are three ferry pier to acommodate the vessels. Each of it can hold up to two ferry at the same time. Two of the ferry pier are located at the eastern side of the building and the other one located at the west dies of the main building.

The dockside area is made open without a roof which adds a natural impression with existing plant accents. Meanwhile, the pier that juts into the sea is covered with a curved roof which is also fenced off on the side of the pier for the saftey porposes. The end of the pier has a floating structure that can adjust the water level to make it easier for ships and passengers.

Building Form

The building has a basic hexagon shape consisting of three floors. If we look at the facade of the building, the facade is dominated by ACP material in silver to gray with horizontal window accents. The main door is not at the front of the building, but a little on the side to distinguish the departure and arrival routes.

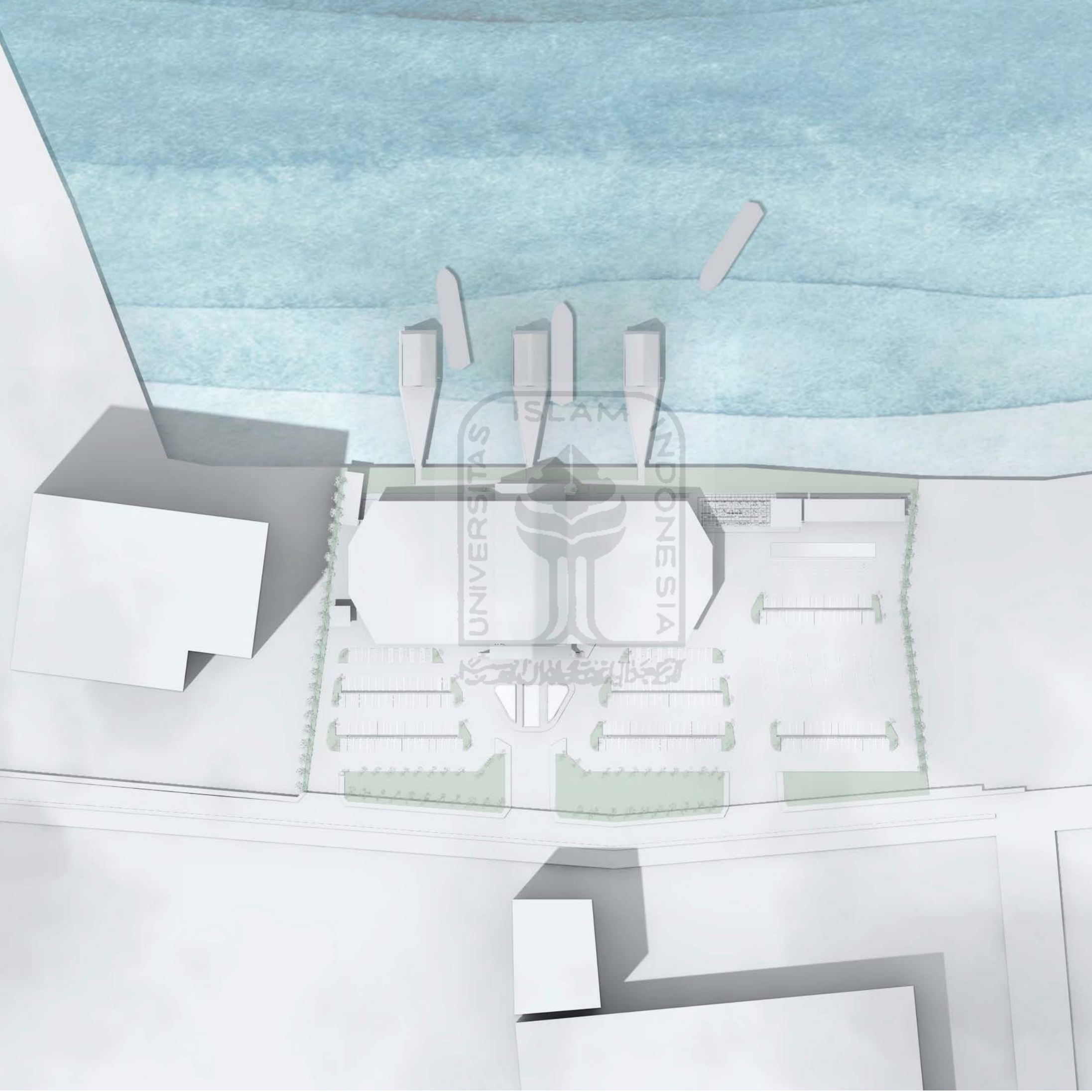
On the arrival side, the same shape is also seen, with the dominant facade using silver-colored APC meters with horizontal windows on the main building. In extension buildings, the building phase and shape are very ordinary.

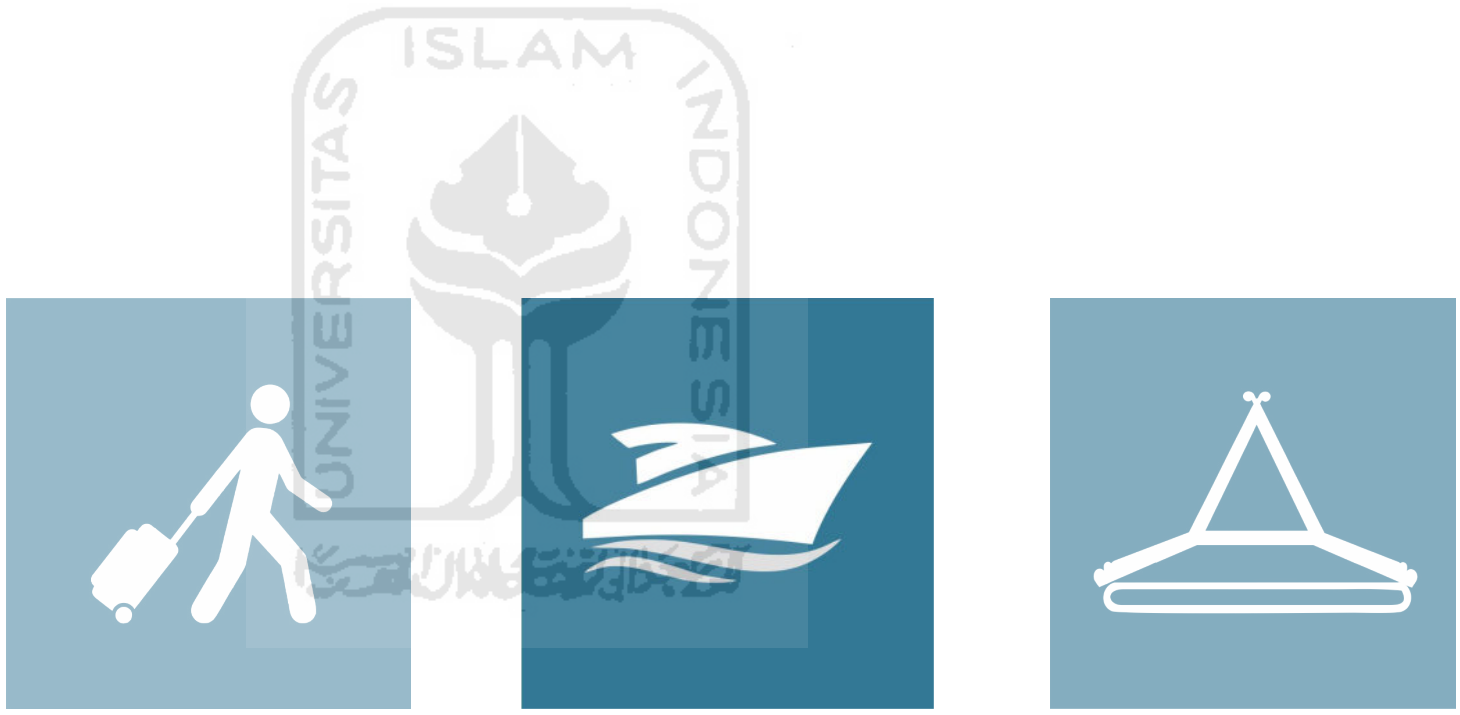


Front Facade
Source: author documentation, 2021

Afterr analyszing the exsitiing building condition, we can conclude that:

1. The grid is forming a triangular like form in the middle of the building main hall
2. The form in hexagonal shapes and has lot of negative space.
3. The building's facade looks like a pyramid that is turned upside down and overlapping.
4. The main door is not at the front with the aim of smooth circulation in the inner space. However, this seems contradictory because the space in the grid is a triangular column, making the user distracted in their circulation.
5. Passenger travel circulation also looks very difficult. Zones are not designed in line so that passengers need to go up and down the floor to go to the next zone.
6. If we see from the vision of the Batam government, the building does not show Malay nuances in terms of form, even though ornamentation.
7. The bridge between the port and the mall also seems to have been poorly designed. So it looks like an addition to the building.





Design Concept Diagram
Source: Author, 2021

5.

design concept

design concept

Adaptive reuse, insertion and critical regionlism: Adaptation and preservation for future

selective demolition and extension to adapt the condition

transformation on critical regionlism

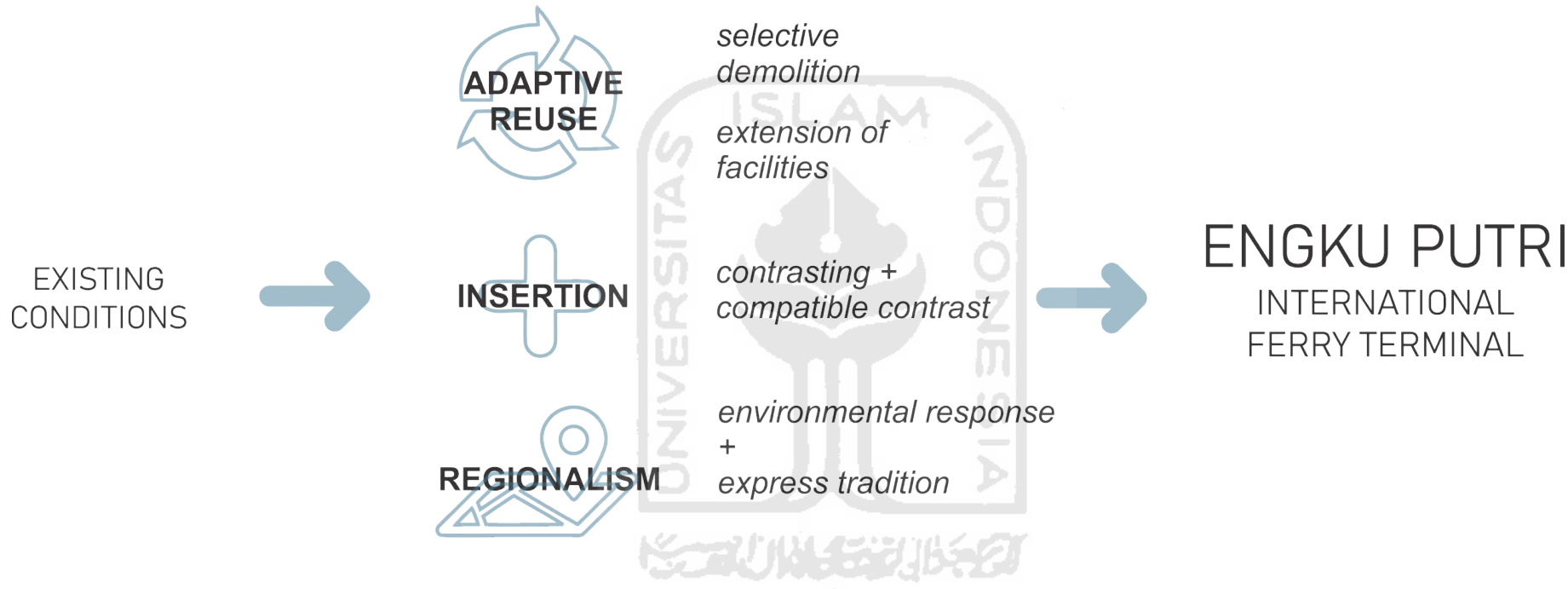
building insertion in order to regain area loss

ease of access for clea circulation

Adaptive reuse, insertion and critical regionlism: Adaptation and preservation for future

In recent years, architects have started to realize the importance of adapting buildings. This is because the needs of the community and the need for space and function are increasing and expanding over time. The application of adaptation as a consideration in building design, especially for existing buildings, will bring benefits both in terms of construction costs and technology that will continue to be in line with the times. *Adaptive reuse and building insertion are the way to adapt to the current condition and try to keep the building functioned as it is and keep up with the current needs and modernism*. This approach can extend the life of the building and can respond to issues and circumstances that occur so that in the future the building can still function properly.

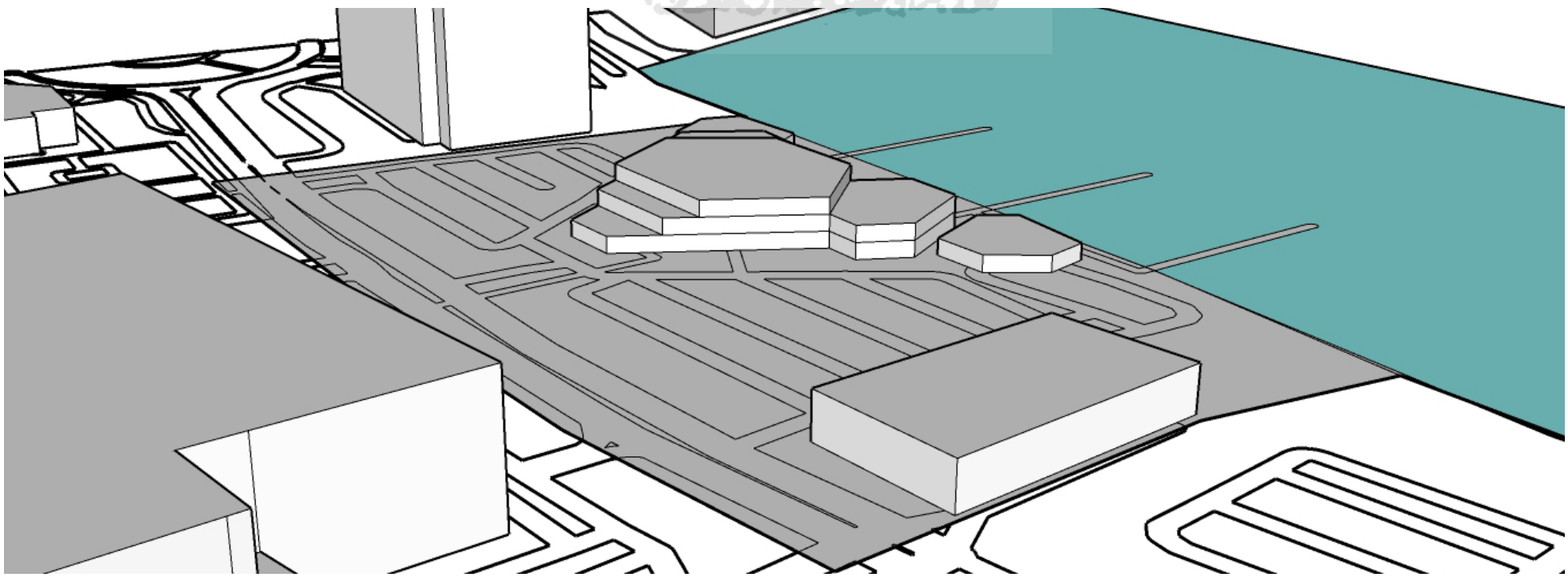
The principles of critical regionalism are applied to the design so that *local values are not lost and decreased by time and technology*. Therefore it is necessary to implement the principles of critical regionalism in building design so that in the future, the building indirectly tells the *history of the place* itself and makes it a *distinctive feature* in the building.



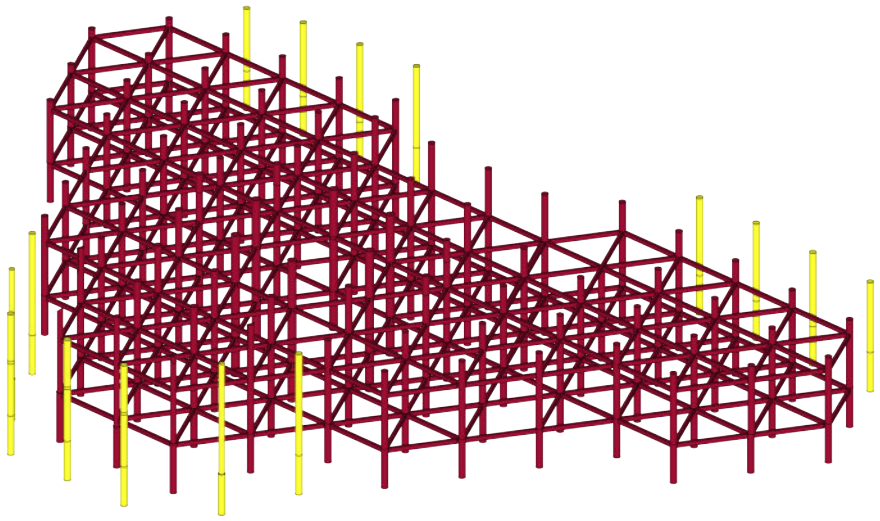
Figureative Concept Diagram
Source: Author Documentation, 2021

selective demolition and extension on building adaptation

Selective demolition and extension facilities are used in the design process. *Selective demolition* will adapt to some structures that still appropriate with the current situation of the development. Eliminate the structure that is not suitable for the future development of the building. While the rest of the structure is maintained and use for the part of the development. While the *extension of facilities* focuses on the extension of the building that adapts to the existing building conditions. It is also maintaining the existing structure and maybe some of the building elements. In the term of layout, it will be change based on the new development of the building. These two development strategies are the most appropriate steps for port development. When viewed from the existing building, the grid structure uses a triangular pattern which disturbs the circulation flow and user view. Therefore, it is necessary to select structures that are defended and destroyed in order to support the objectives of the design. Selective demolition was also carried out as a result of observing the condition of the building structure which was still proper and good, especially in the main structure of the building which was located in the middle area of the old building. Next, by making extensions to the building aimed at replacing the floor area that has been demolished in order to meet space requirements and adding port support facilities to be designed. The re-adaptation of old forms and structures aims to create a historical impression of the port building. Later the adaptation results from the old building will function as a connecting hallway to the entire port building which functions as a welcoming area and main hall at the port.

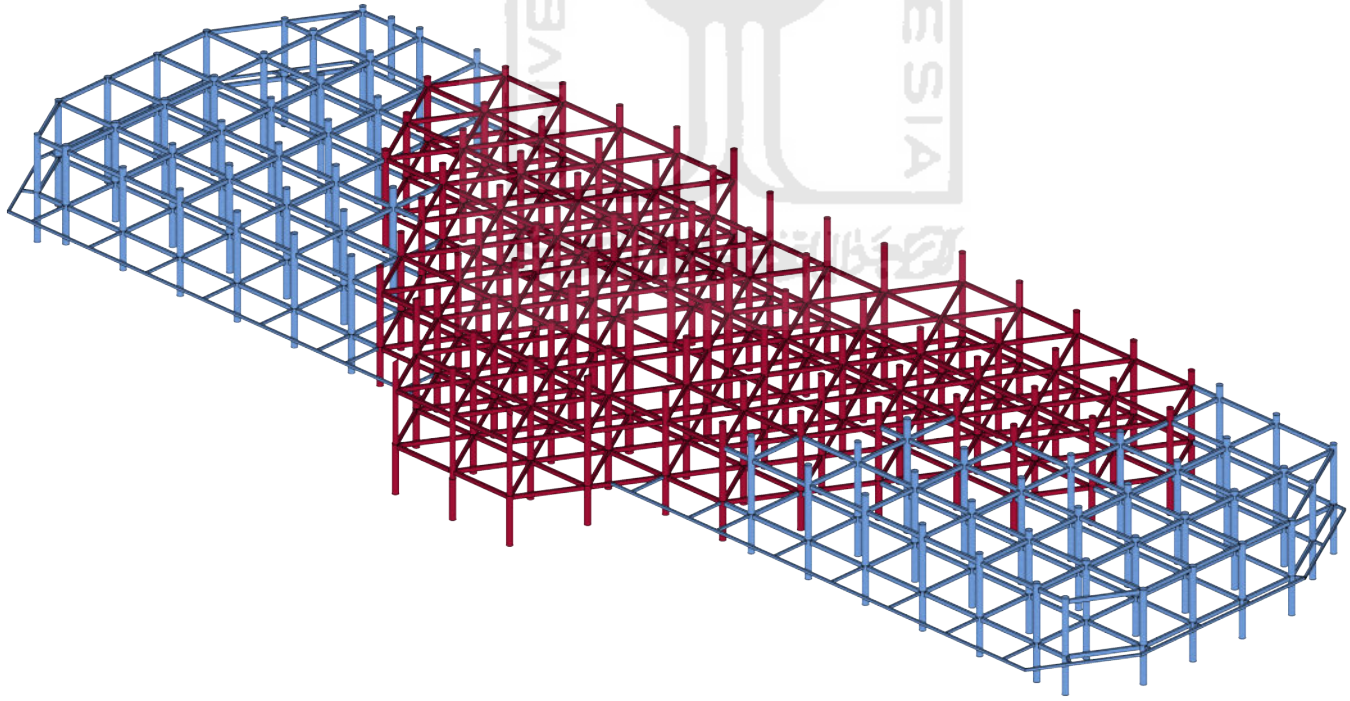


Change of use adaptation with selective demolition



demolish the building element that not
suitable to the development target

Change of use adaptation with extension of facility



extend to regain the space needs for the
terminal building.

adapted column and beam

new column and beam

demolished structure

transformation on regionalism

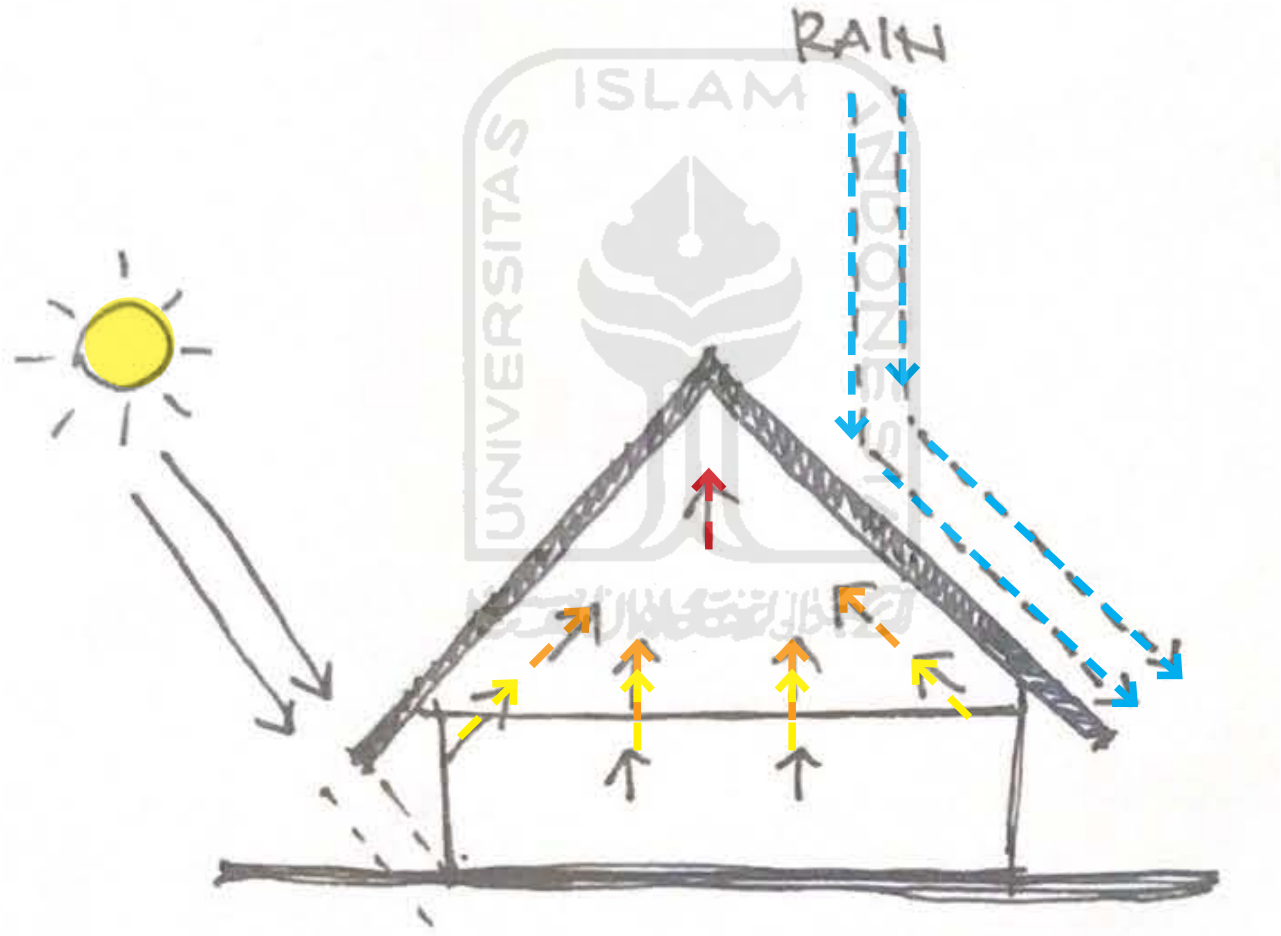
As a regionalism strategy, the writier will response and try to implement to the Malay culture and values in Batam as the Malay land. The application of critical regionalism will focus on **building an intensive relationship that responds to each other and merges with the social and physical environment** so that it is not considered an isolated object and separate from the surrounding environment. Another thing is to **express the ideas and traditions behind**. The design will implement in various aspect and element, such as building mass, building layout, facade, space arangement, and building elements.

Respond to Environment

Expressing the Tradition

Pitched roof due to the Batam as an Island

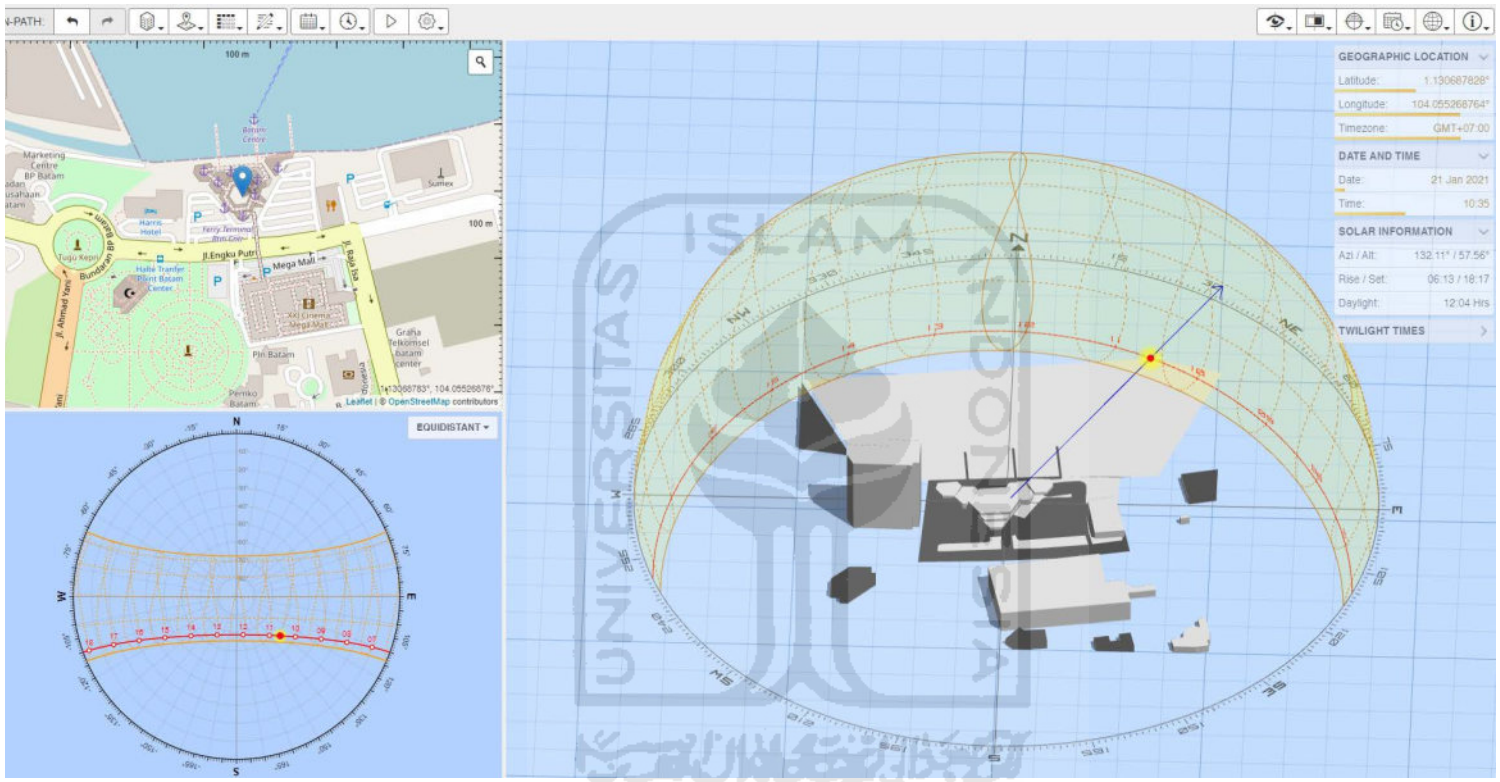
As an island, Batam has unpredicted rainy condition. To respond this condition the usage of pitched roof that commonly has 45° roof slope and has an overhang at the end of the roof. The use of this roof also prevent the water to giving more load to the building structures and also to prevent direct sunray to the building.

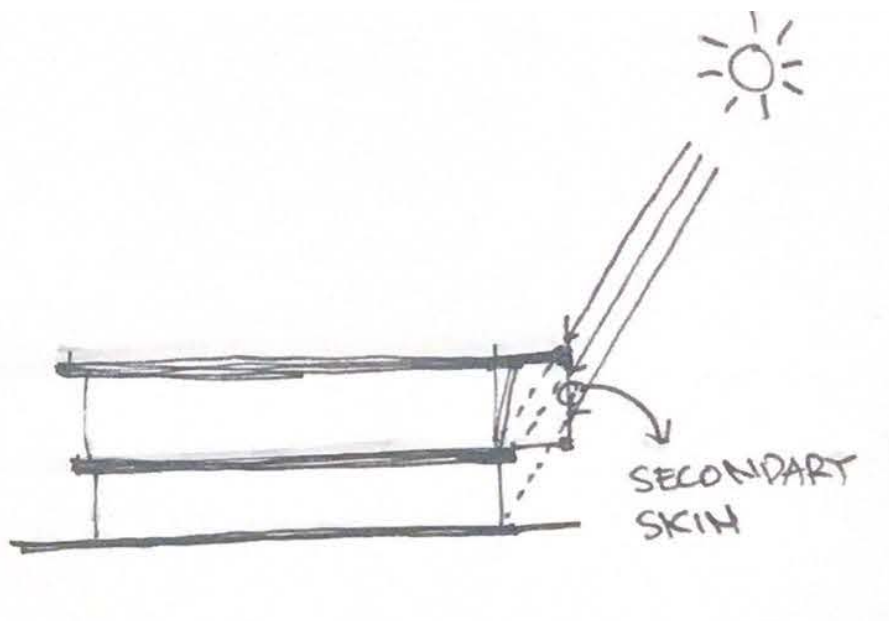


Pitched Roof Concept
Source: Author, 2021

Secondary skin as the geographical response

Site are located at 1.13° N, that the sun are slightly lean towards the south of the building. By the data also shown that, the average sun movement are leaning to the south.
To respond this condition, The design will implement the using of secondary skin to give shading to the south facade of the building. It allows the light comes in but reducing the direct sun radiation on the building.



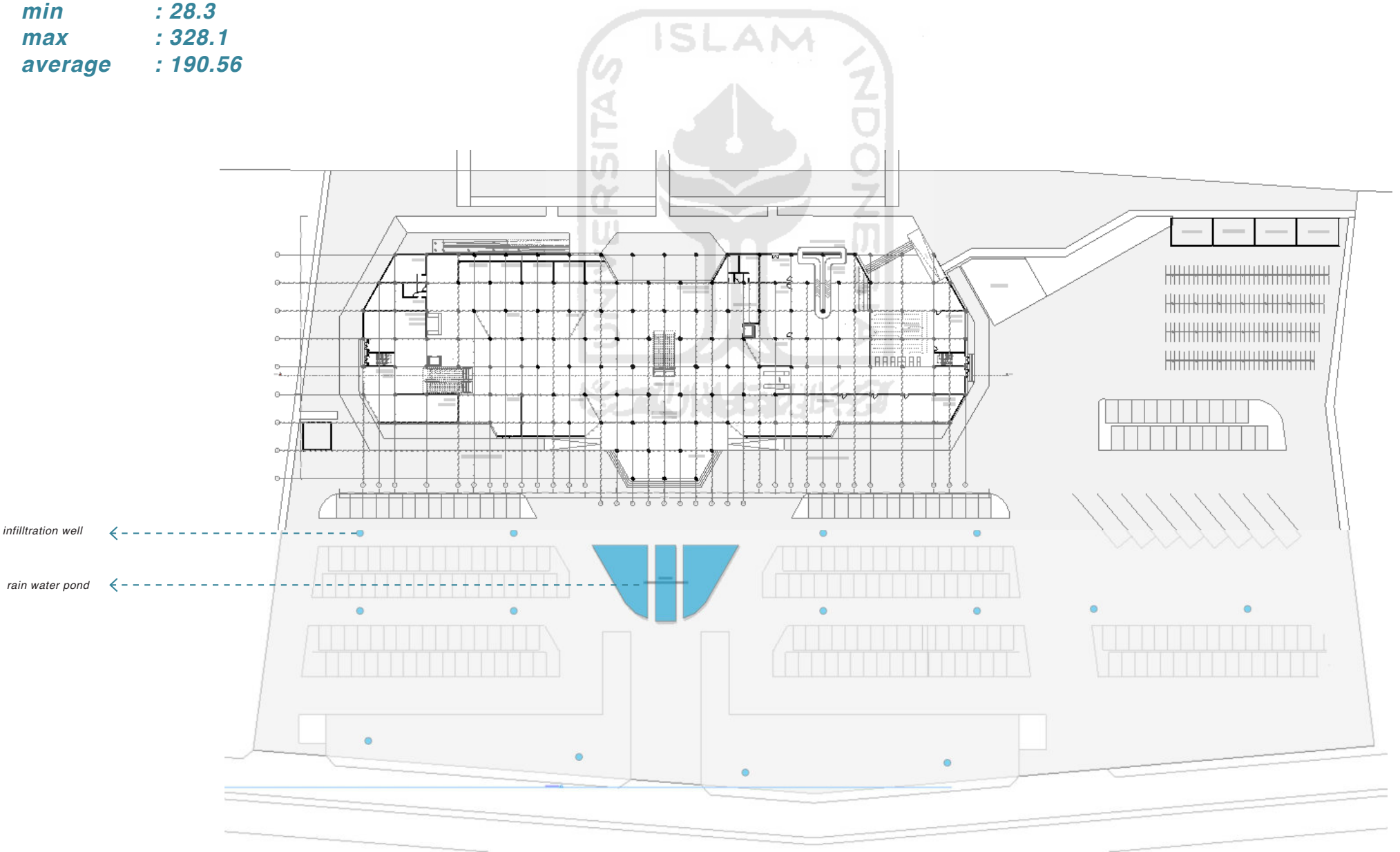


Collecting water as secondary source

Batam is an island, that doesn't has a specific season. So, the rain can come suddenly and also can't be predicted for how long it will stay. Batam also has a low porosity of soil, which hard to absorb and collect water from the ground. This condition can be maximized by using the rain water to become the secondary water source that used for watering the garden and flush water for sanitation. The idea is to have a pond for *collecting the rain water* and store it to the reservoar and be filtered and ready to be used in the buiding.

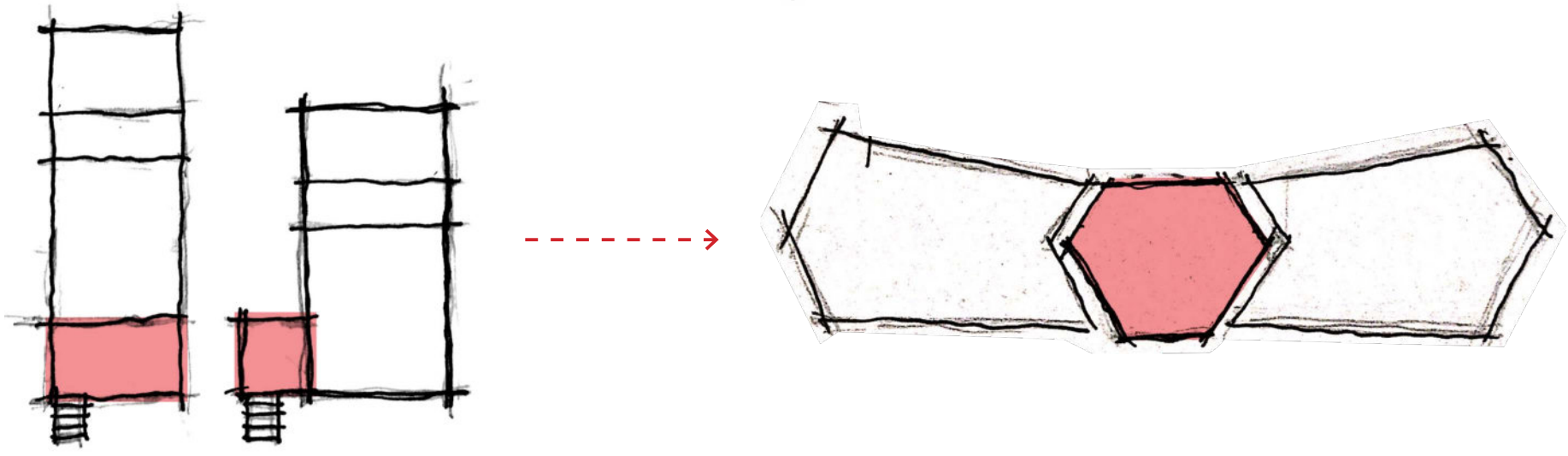
Stasiun - BMKG	Curah Hujan (milimeter)												
	2020												
	Januari	Februari	Maret	April	Mei	Juni	Juli	Agustus	September	Oktober	November	Desember	Tahunan
Hang Nadim - Batam	70,60	50,30	28,30	209,40	131,30	328,10	199,90	198,00	298,90	254,50	324,00	193,50	-

min : 28.3
max : 328.1
average : 190.56



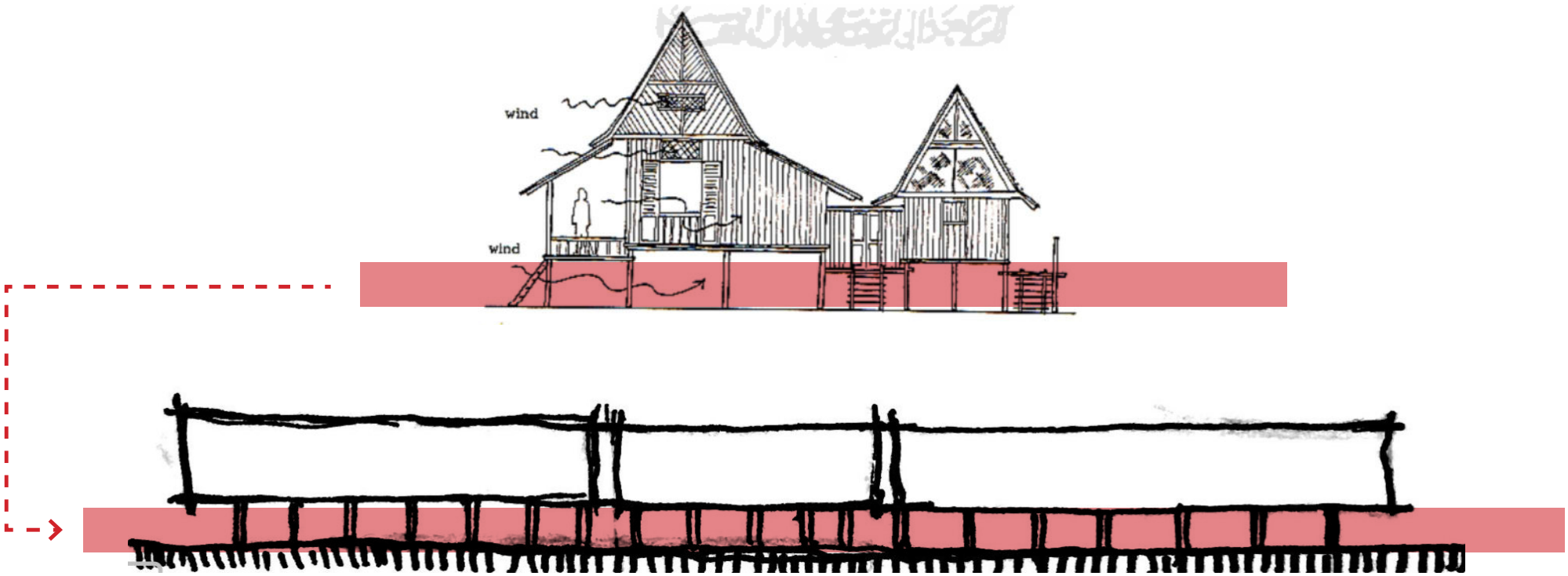
Selasar as a public area

Transforming the culture of receiving guests in the hallway of the house as a public area in a traditional Malay residence into the ferry terminal. The building will have a welcoming area that applies the principle of a traditional Malay house layout which has a *selasar* on the front which is the public area for the main building.



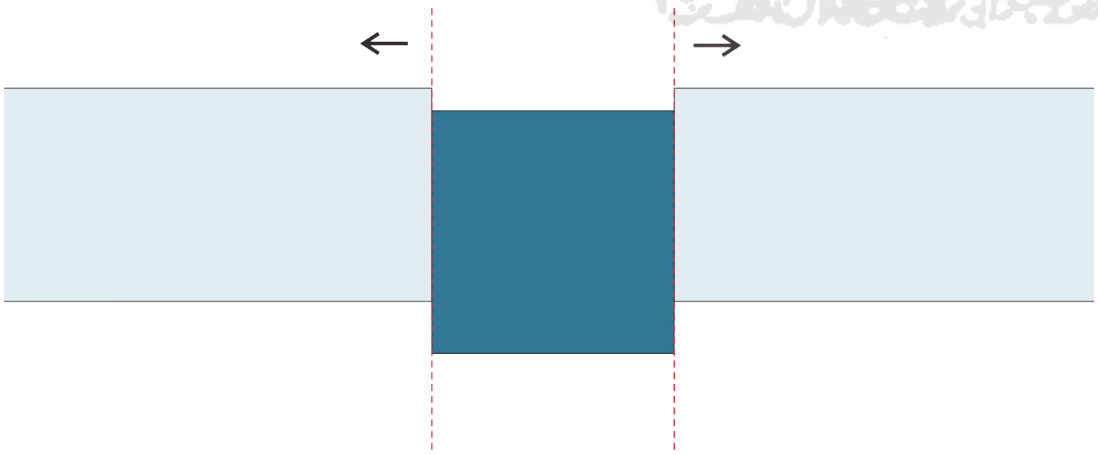
Floating mass

The building floor area in ground level will be different. It is try to recreate the look and function of *staged malay house* into the terminal building. In other hands. The ground floor will be an open air space in some areas that trying to maximize the air flow.



Inserting new building on existing side

The addition of new buildings is intended to replenish the areas that were lost when the selective demolition strategy was carried out. This step is also in line with the extension of facilities in the development strategy of building adaptation. The insertion of the existing building is done by the writer with side by side insertion which aims to give the impression of unity between the old and new buildings.



Insertion Scheme on existing Building
Source: Author analysis, 2021

Insertion is carried out on both the west and east sides of the existing building which has been adapted to selective demolition.

Contrast and compatible contrast in effort to reach the building aesthetic

Contrast and compatible contrast are choosen as the result of analysis on the existing building condition. One consideration is the current condition is not bring any malay features on the design. In the other hand, the existing condition is need the development strategy of selective demolition in order to achieve the appropriate function of ferry terminal.

Analysis on existing building to develop the concept of contrasting on the new building
Source: Author analysis, 2021



symetrical building form

building addition seem to be forced to exist

no variety of building facade materials

Keep the identitiy alive

After analysing the building's feature from the form until the structure, the conclutions is the main identity of the current building is it's unique *hexagonal form*. From the grid until the facade itslef, the building remain the hexagonal shape. The other hand, the important element is *the structure*. The structure in the middle are in tubular shape and strong enough to be used again as the structure. This centre part of the existing building *will be adapted* and the other part need to be demolished in order to reach the needs of space and redevelop the user circulation.



hexagonal shape will be retained to bring back the old sense to the new development

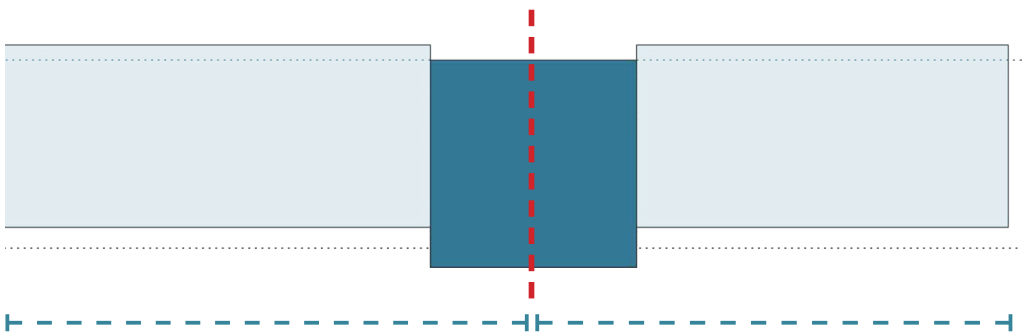
Hexagonal shape of the existing as the identity will be retained.
Source: Bayfront City waykambasdesign.com with Author analysis, 2021

Symetrical building form affect the figure ground of the new development

With the use of contrast and compatible contrast approach on building insertion. The form of the new building will be *symetrical form*. This will show the compatibility between the new and old building, but still showing a contrast between it.



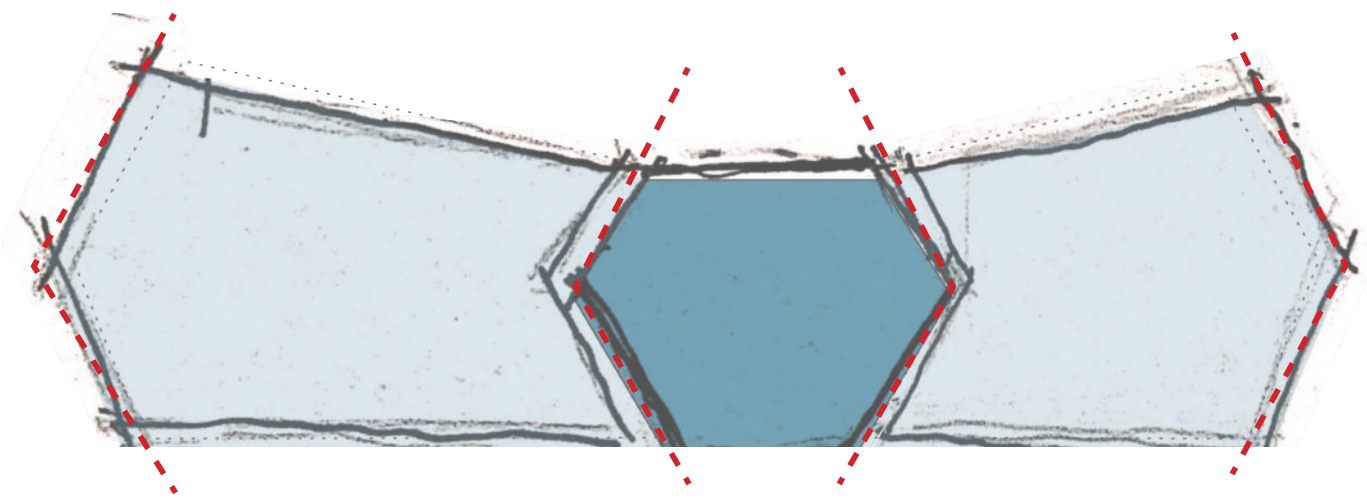
symmetric old building form



symmetric form to the new development to make the new development are compatible with the existing form

Identical figure ground

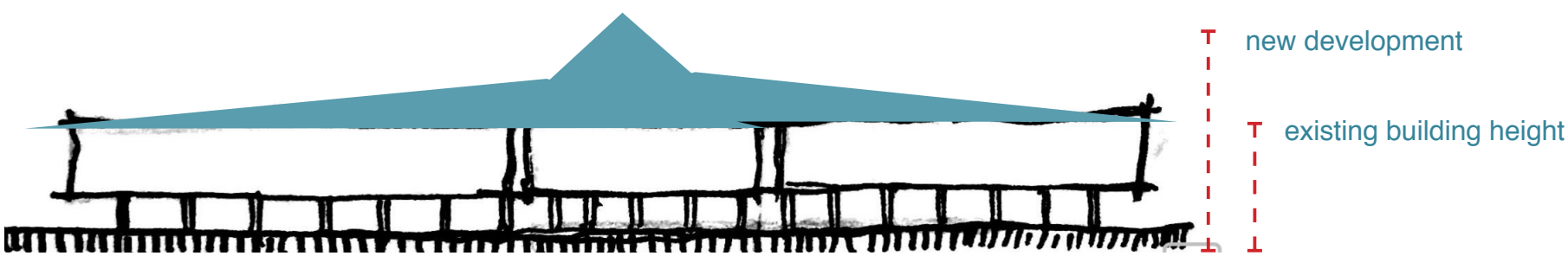
Implementation of compatible contrast approach will affect the figure ground of the new building. Untuk membuatnya sejalan dengan pendekatan compatible contrast, bentuk massa bangunan baru harus mirip dan identik dengan bentuk massa bangunan lama yang diadaptasi. Hal ini juga membantu untuk preservasi bentuk bangunan lama yang nantinya menunjukkan adanya pendekatan adaptasi bangunan terhadap bangunan baru yang akan dirancang.



identical building form to the insertion approach of new development

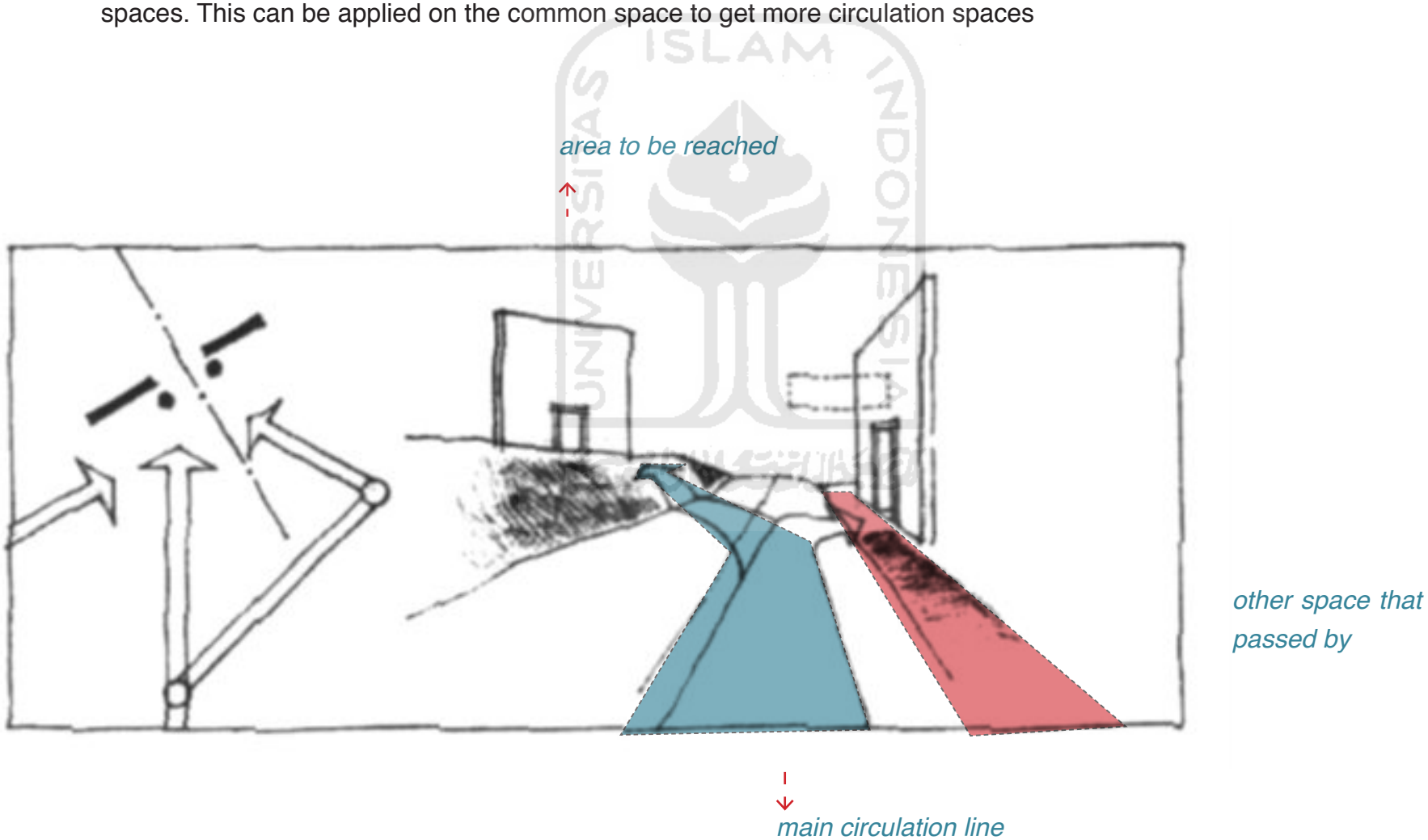
Proportion on building height

Contrast strategy on building proportion are the height betwwen the old and the new building. Usually the new building are 50%-75% higher or lower than the old building. So to keep the contrast between the old and new building, the new design will be around 50%-75% higher in the total mass to the existing building.



Oblique Approach: Attractive experience for bulding approach.

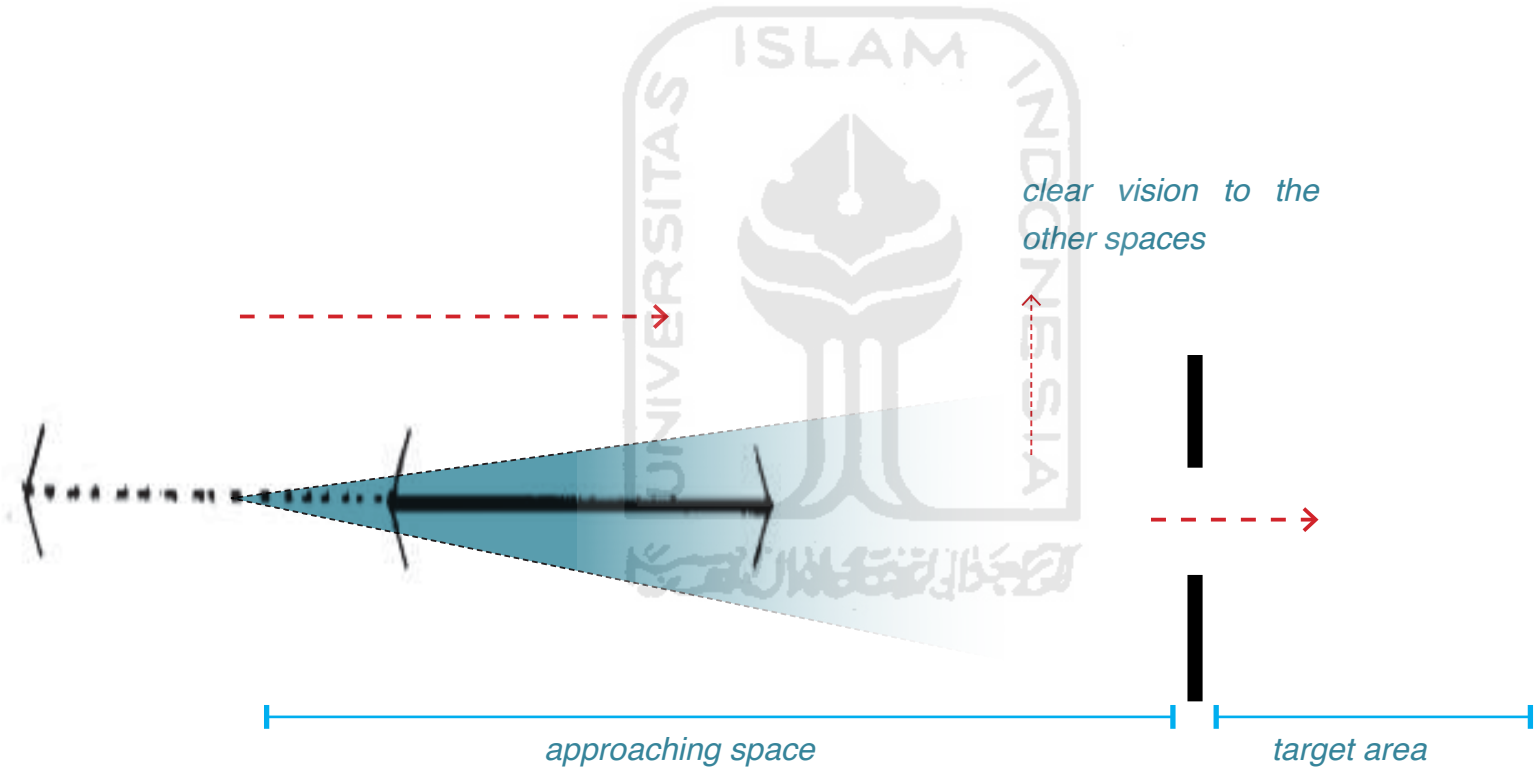
This approach to the desire space is very unique and give the user a different experience while approaching the spaces. The user force to slightly see their targeted area and force them to pass trough the other spaces. This can be applied on the common space to get more circulation spaces



Oblique approach on terminal for clear view
Source: Ching (1994) with Author analysis, 2021

Clear vision by a clear linear path circulation

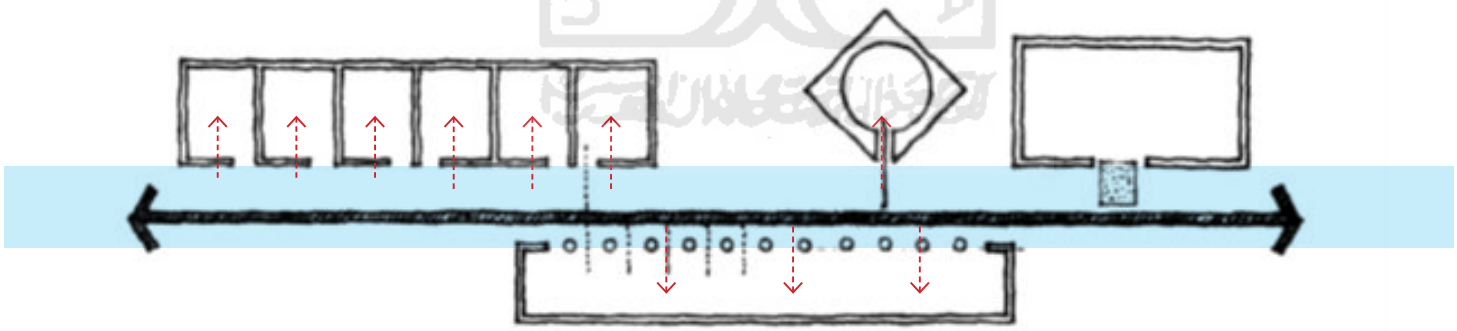
Liniear path configuration has a simple path that give the user a clear vision while accessing the circulation path. This also give an easy understanding to the user where they should go.



Linear path circulation for clear vision
Source: Ching (1994) with Author analysis, 2021

Pass by Spaces: Freedom in the approaching path

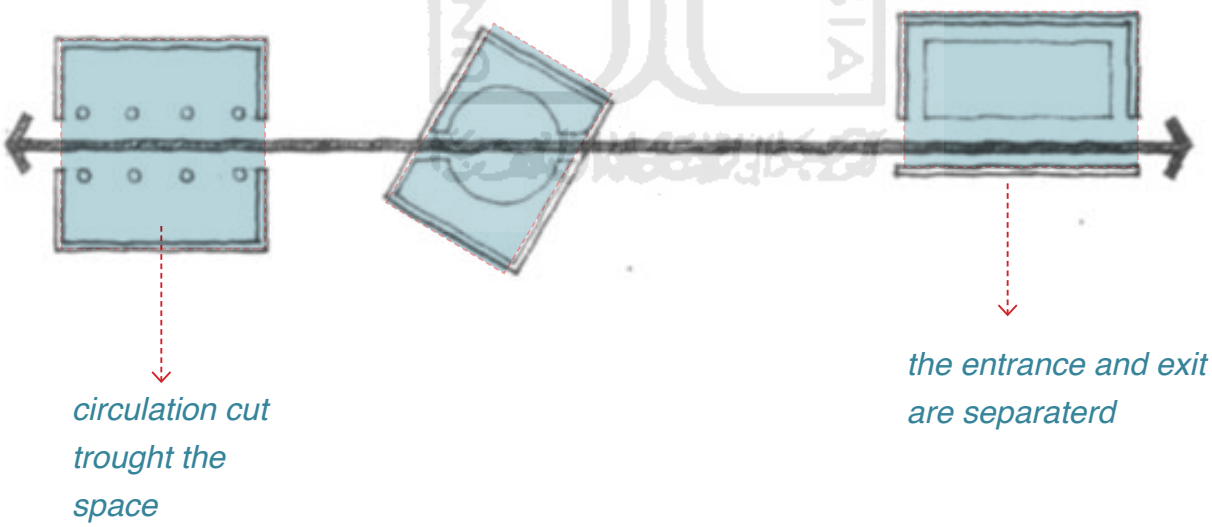
Relation between spaces will give the visitor a *lot of experiences* while passing all the circulation path. This space relationship, giving the user a clear situation and vision to what will they see or where will they go and what are infront of them. It, means there is a freedom to the user to make their choice. This space relation of circulation is suitable to be applied in the *common space* that have a lot of facilities around.



Concept of pass by space for the public facilities circulation.
Source: Ching (1994) with Author analysis, 2021

Pass trought Spaces: Securing the designated space

To raise up the *safety* in the international ferry terminal, this space relation is suitable to be applied in the specific space of terminal facilities. It gives a *sterilized condition* to the space that passes by the user. Also give an ease of control for every spaces. The experience also very different, because of the specific function on every spaces.



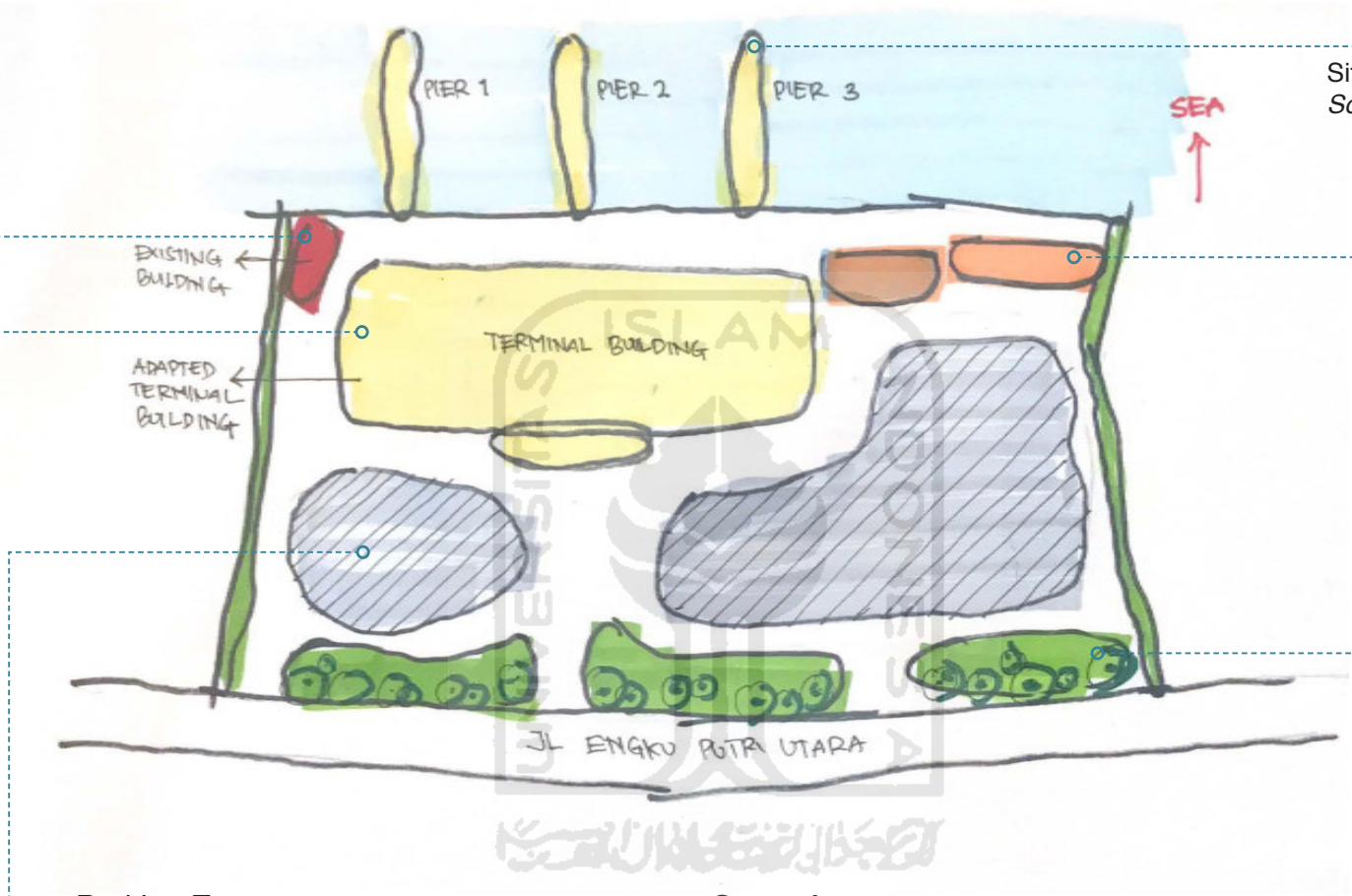
Pass trough space concept on Passenger Departure and Arrival Area
Source: Ching (1994) with Author analysis, 2021

adaptation concept on site development

The site concept is more directed to adaptation to the existing site conditions. The existing site itself already has good zoning between the scale of the building and the landscaped area. The building is located in the northern part of the site which is close to the sea. The terminal building itself will experience additions on the left and right which are part of the extension of facilities which is one of the approaches of this design.

Existing MEE Mass
The Exisitng MEE will be has functional change become the storage room close to the main building to support the terminal facilities.

Ferry Pier
Move the ferry pier to the middle of terminal building to give a better plament



Siteplan Zoning Concept
Source: Author, 2021

Parking Zone
To acommodate more capacity, the parking area are increased and also still keeping the existing condition that has a good placement and enough circulation space.

Green Area
Keeping the existing vegetation condition especially at the front area that already giving a lot of green coverage.

Terminal Building
This zone is dedicated for the primary function as the terminal facilities while also adapting the exisisting terminal building.

Service Area
New building mass added to separate the MEE area for not distracting the main terminal building. This allow the main building a better comfort to the user

1



Entrance Circulation Area

This area can be maintainde as it is and just need some small modification on the pedestrian way. On the outer side there area already enough vegetation as the border on the site border.

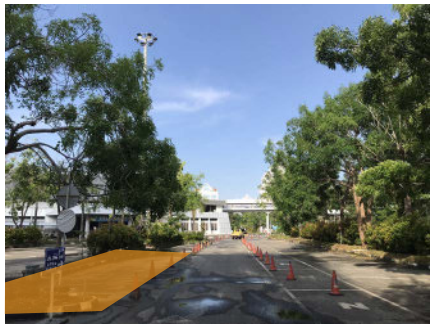
2



Electrical Building (Generator)

The Electrical Building will moved to the other side of the site to decrease the affect of the noise to the main terminal building.

3



Car Park Area

The parking for the car has enough space for circulation and manouver and already had enough shading by the vegetation. It will be keep as it is and will have some adjustment on the bus parking area on the east side of the building

4



Motorcycle Park Area

The condition are not well design in order to facilitate the motorcycle parking. It has no shading device such as trees or manmade shading device that give the area a bit uncomfort for the user. This area also seem like a waste area and just become the motorcycle parking. The idea is to change and redevelop the motorcycle parking to be a proper facilities

5



Connecting Ferry Terminal and Shopping Mall

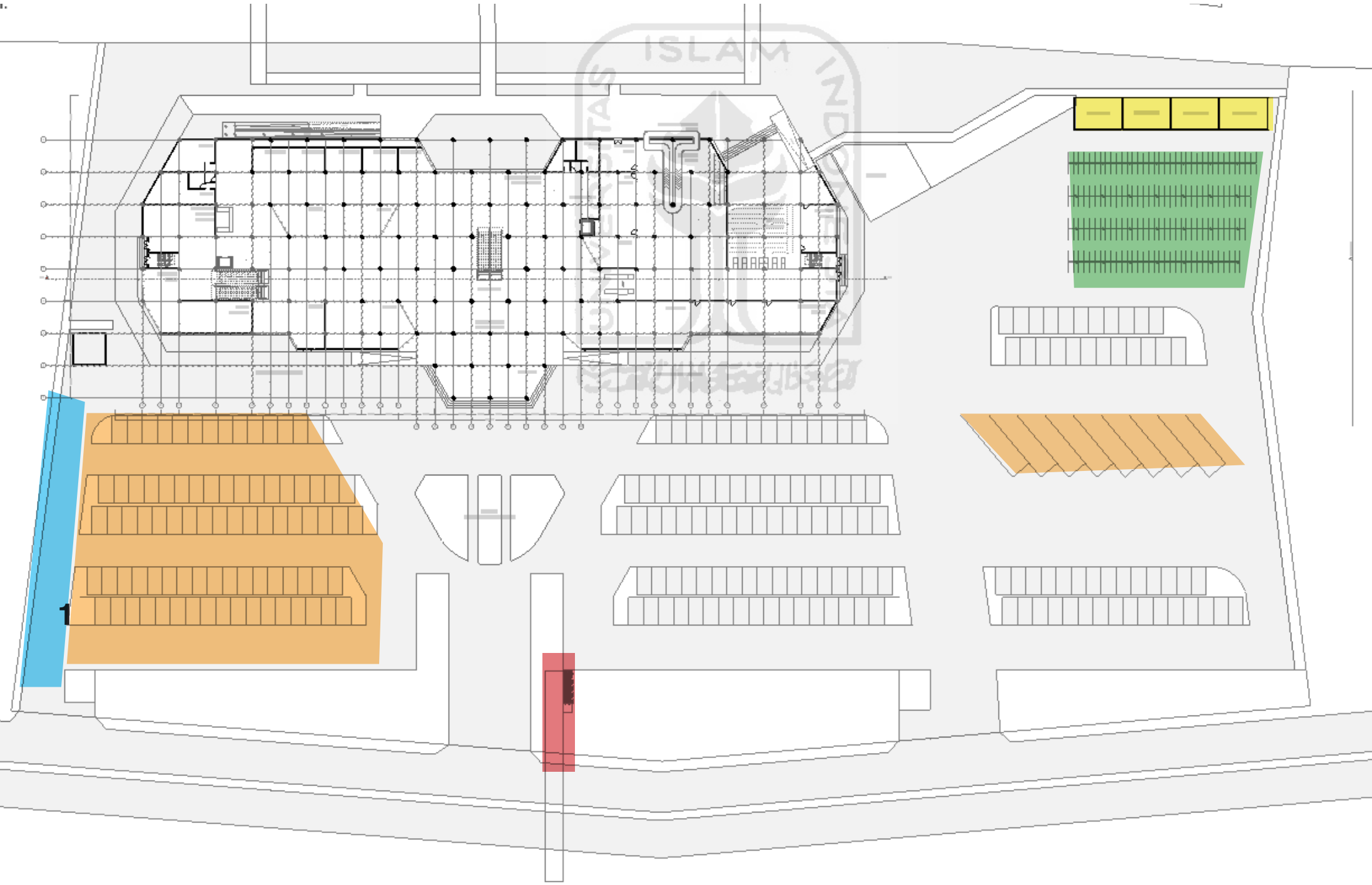
This bridge seem to be force exist and connect the two building. It also distracting the fornt facade of the terminal and affect the circulation inside. The best option to tear down the bridge and design a underground access to connect the ferry terminal and the mall infront.

6 ***Ferry Pier***

The Ferry Pier area in a good condition but not in the center are to the main terminal building. So it will be rebuild at the centre of the main teminal building. There will be three ferry pier that can collect up to 6 Ferry.

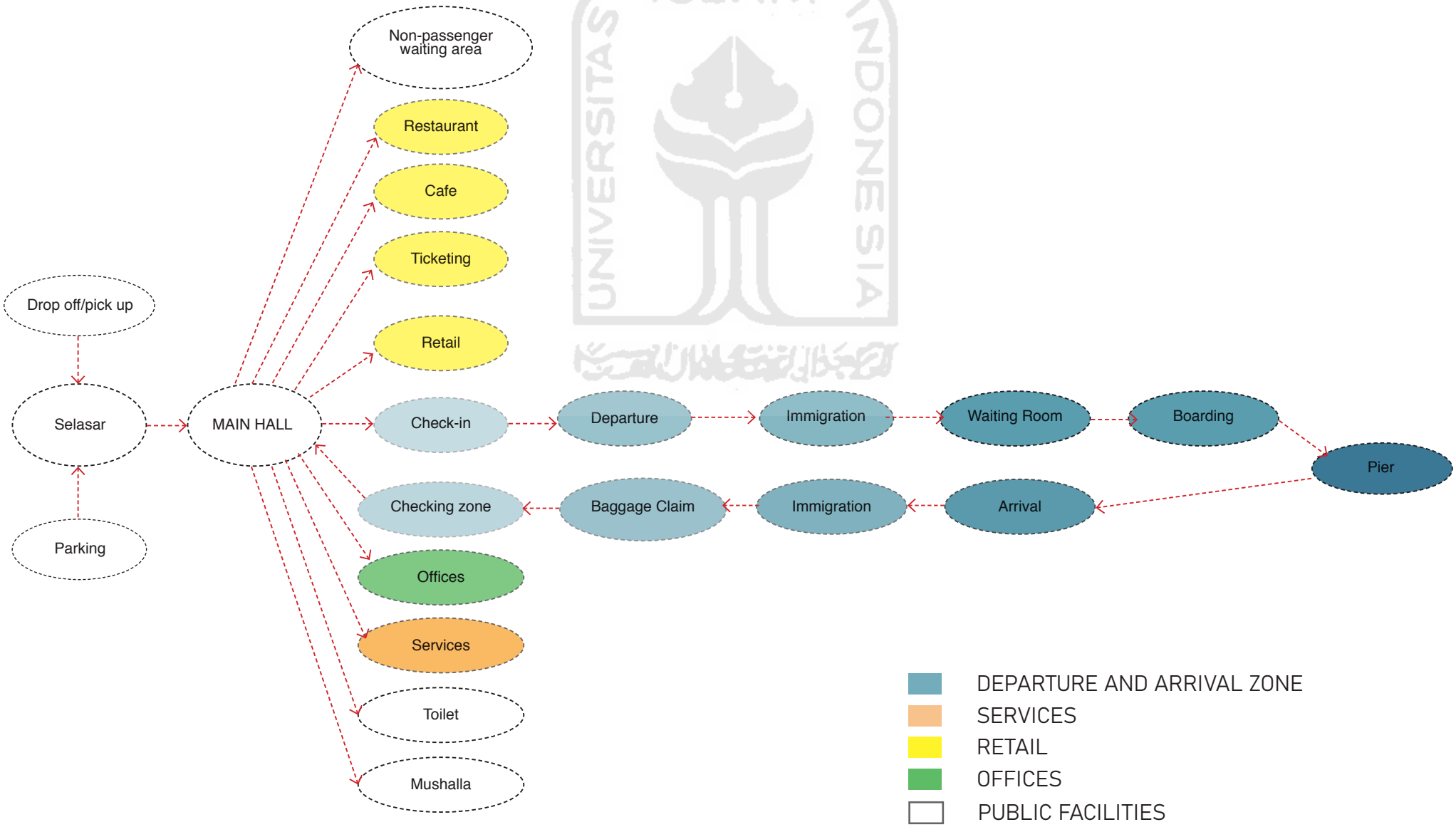
7 ***Pond as Water Collector***

To collect the rain water as long as responding the soil condition that has low porosity which hard to absorb water.

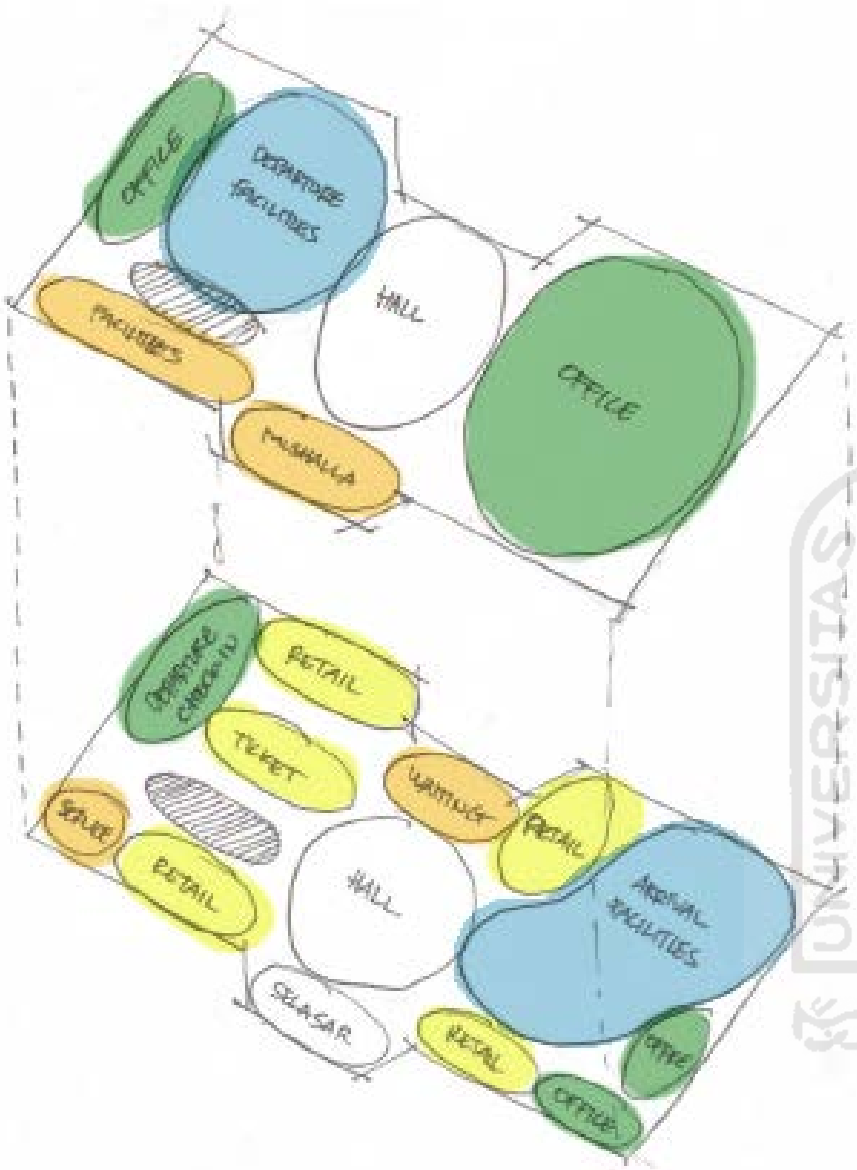


zoning concept as terminal primary and secondary function

The zoning concept is based on the function of the terminal as a transportation facility and a supporting facilities function for the terminal. Zoning is divided into three, namely public zones, semi-private zones, and private zones. The public zone itself consists of areas that can be easily accessed by the public, namely terminal users. Semi-private zone, devoted to terminal managers. As for the private and limited zone, it is devoted to the terminal manager for the security section, considering that the function of the building itself is an international terminal

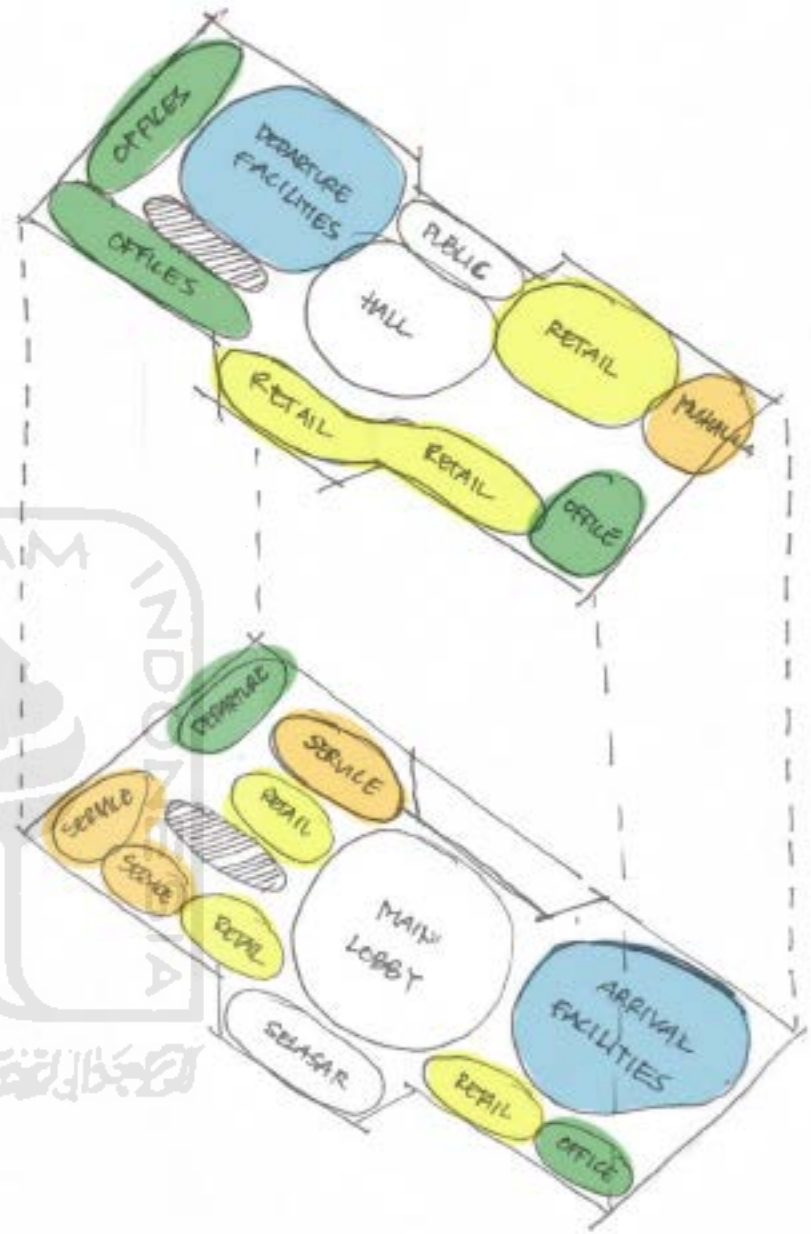


Alternative 1 Zoning Concept and Space Organization



In the first alternative, the zoning concept is based on public, semi-private, and private areas in the terminal. The GF area is focused on the public area and the arrival area which is a private area. Meanwhile, the 1F floor is a semi-private area for managers and a few public functions, namely the prayer room and non-passenger waiting area, as well as the passenger departure hall which is a private and limited area.

Alternative 2 Zoning Concept and Space Organization

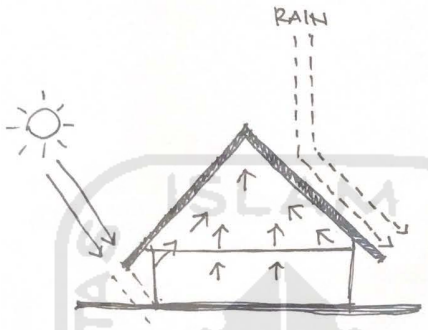


The second alternative has a more flexible spatial relationship between public, semi-private, and private areas but still pays attention to the limitations of these functions. The GF floor is more or less the same as the public function and arrival area, while on the 1F floor, public functions are added, such as retail, cafe, restaurant, prayer room, and a non-passenger waiting room that can be easily accessed by terminal users.

building facade concept

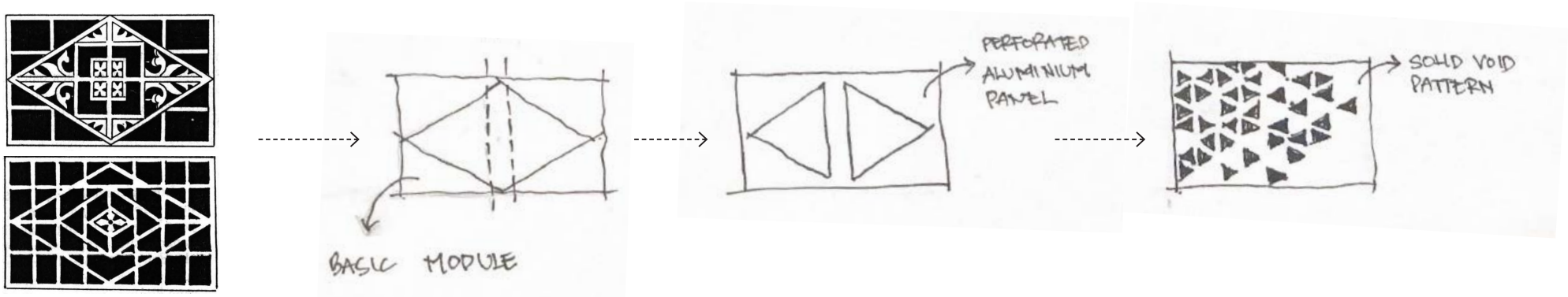
The concept of building envelope in this design is emphasized in the response to the location of Batam which is a tropical island as the application of critical regionalism to environmental responses and the transformation of traditional Malay values and elements as an expression of tradition in Batam.

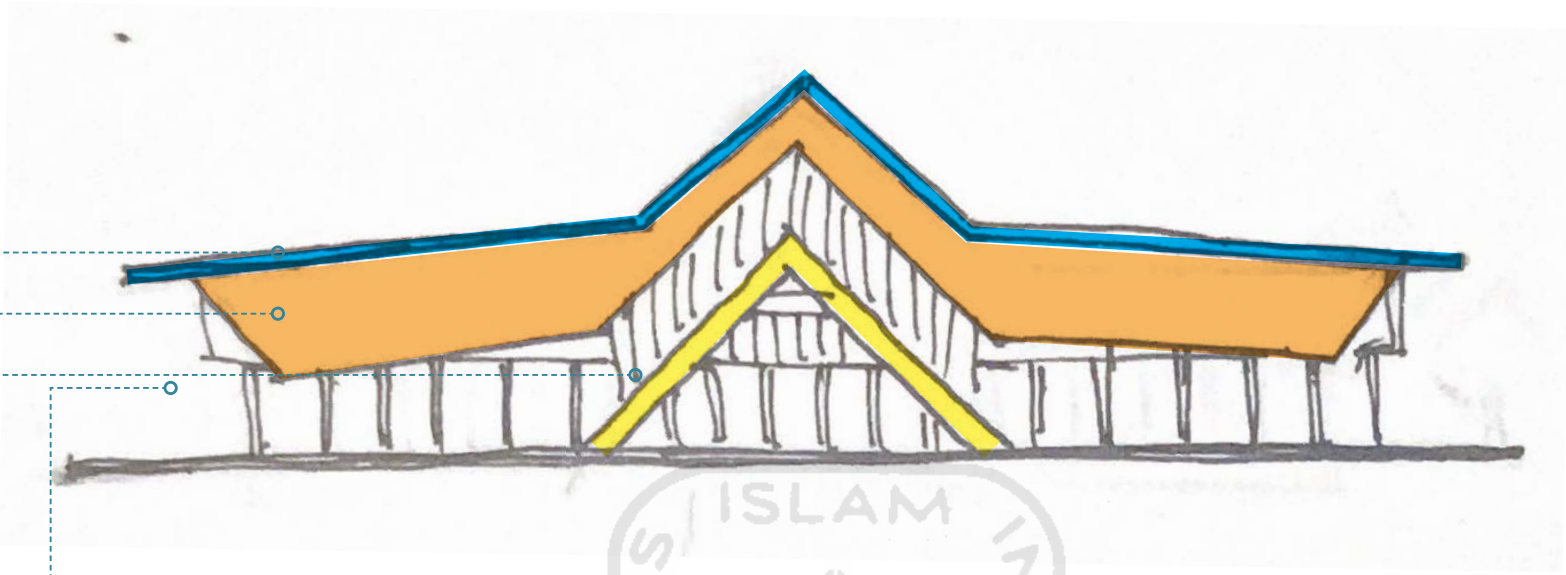
Pitched roof due to the Batam as an Island



Rumah perabung melintang as Facade orientation

Malay Air Vent as transformation on secondary skin





Floating mass represent the stage house of malay.

Highlighting the welcoming area that represent selasar in malay house layout by exposing the triangulang structure while also bring the lisplang element of malay house

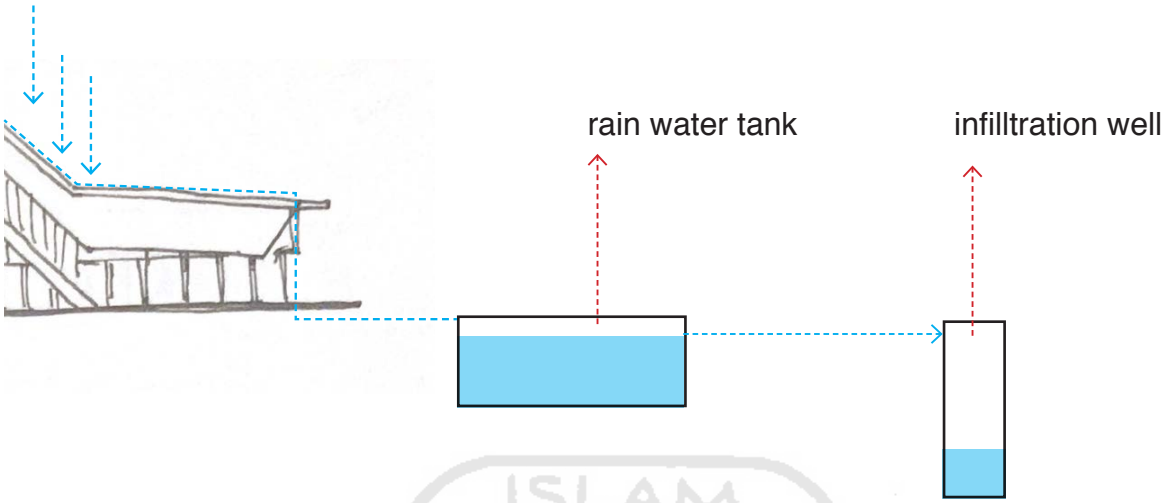
Secondary Skin as respond to sunpath and represent lisplang in common malay building in Batam with combined the tranformation of “lobang angin” in malay house element

Pitched roof are suitable for tropical place and implement the “rumah perabung melintang” as orientation while presenting the silhuette of “rumah atap layar” on malay house

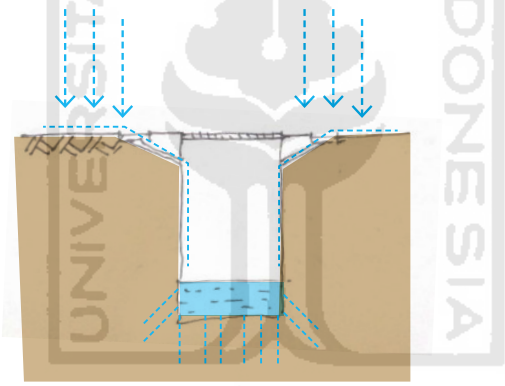
collecting rainwater as water source and respond to climate condition

This design incorporates the concept of a rainwater collector as a secondary water source in the building. This is because the rain that can occur at any time on the island of Batam makes it an opportunity to get secondary water sources other than PDAM. Batam's soil conditions also have a low level of porosity, infiltration wells as a means of infiltrating water into the soil and water ponds as a way to reduce air temperature from the sun's heat on the landscape.

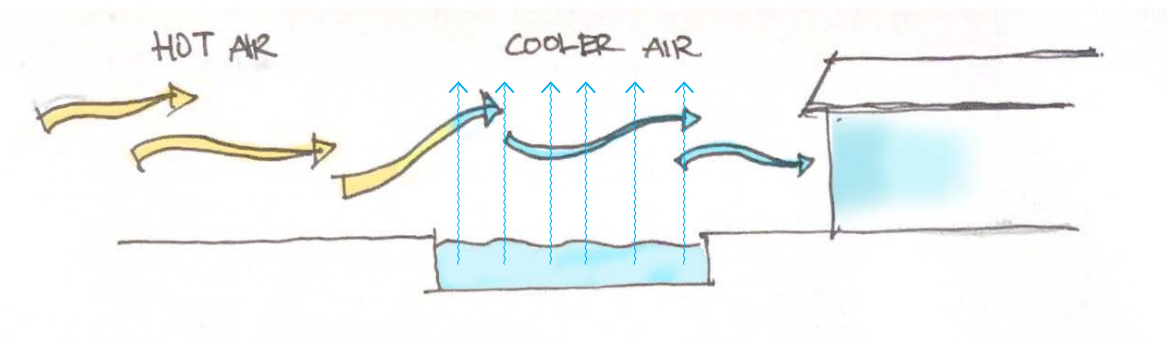
Rain water collector as secondary source

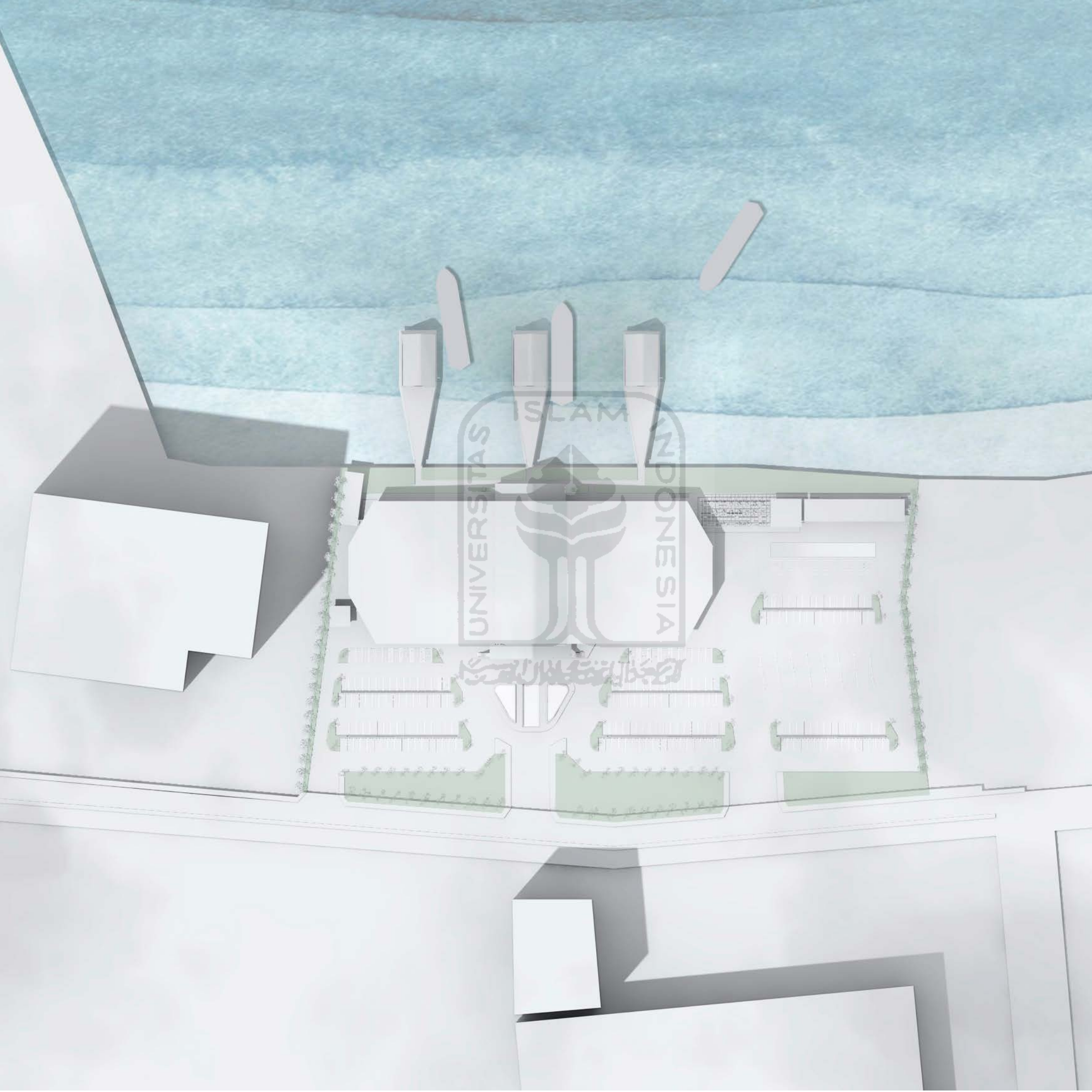


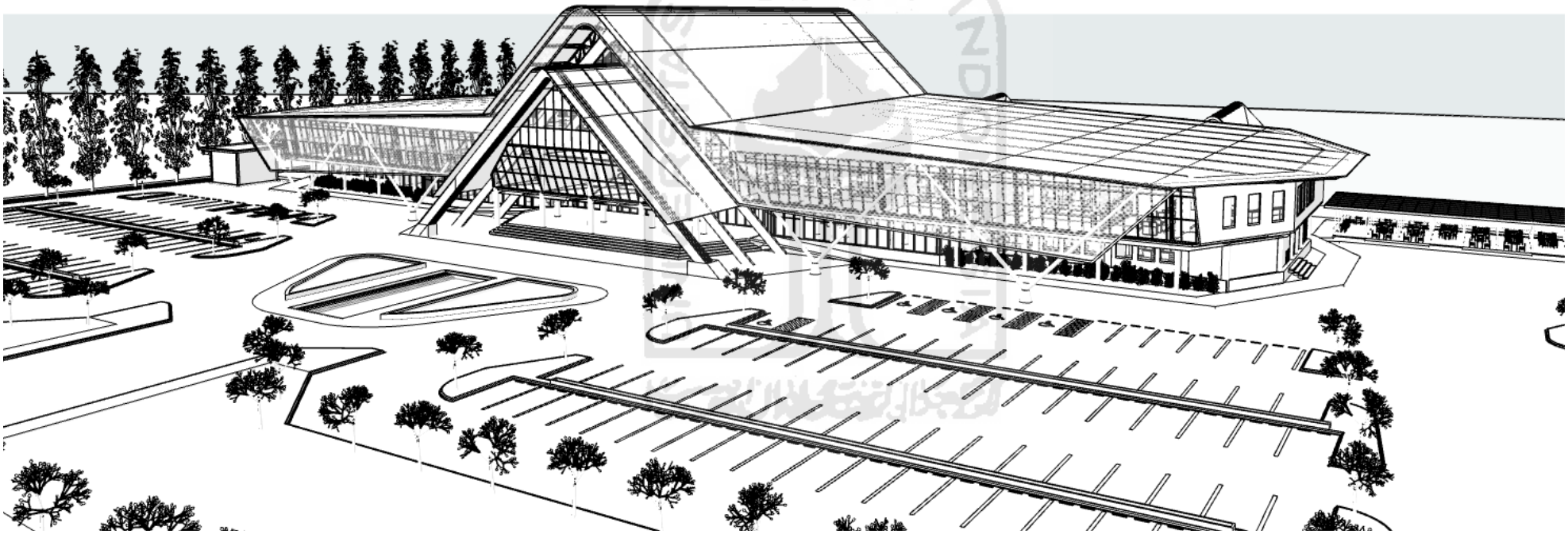
Infilltration well as the way to absorb water



Water pond as evaporative cooling on the site







Schematic on Front Perspective
Source: Author, 2021

6

schematic design

schematic design

adaptation, insertion and massing in siteplan

zoning on building plan

circulation on building plan

environmental respond & expressing tradition on building facade

schematic building extrior

schematic building interior

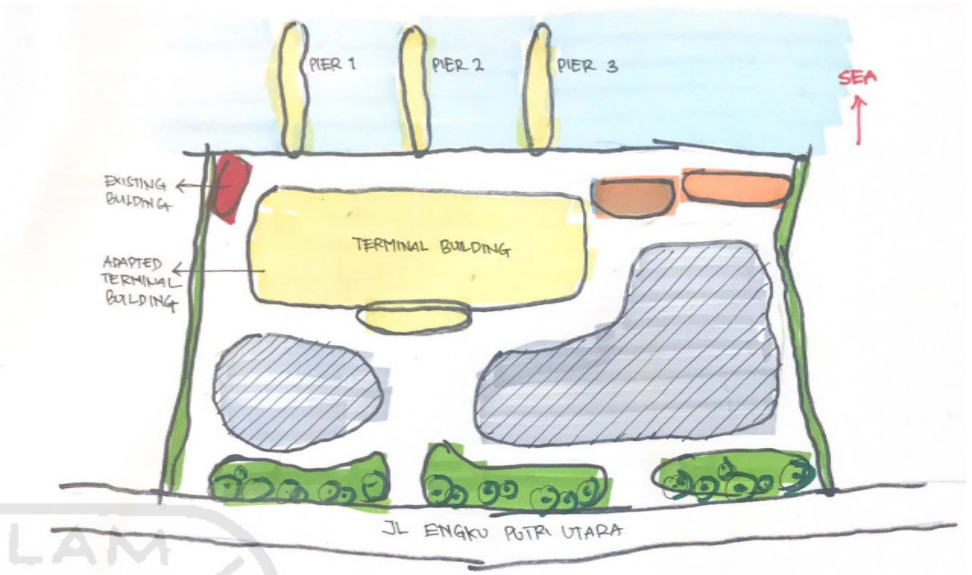
adaptation to structural system

plumbing and electrical system

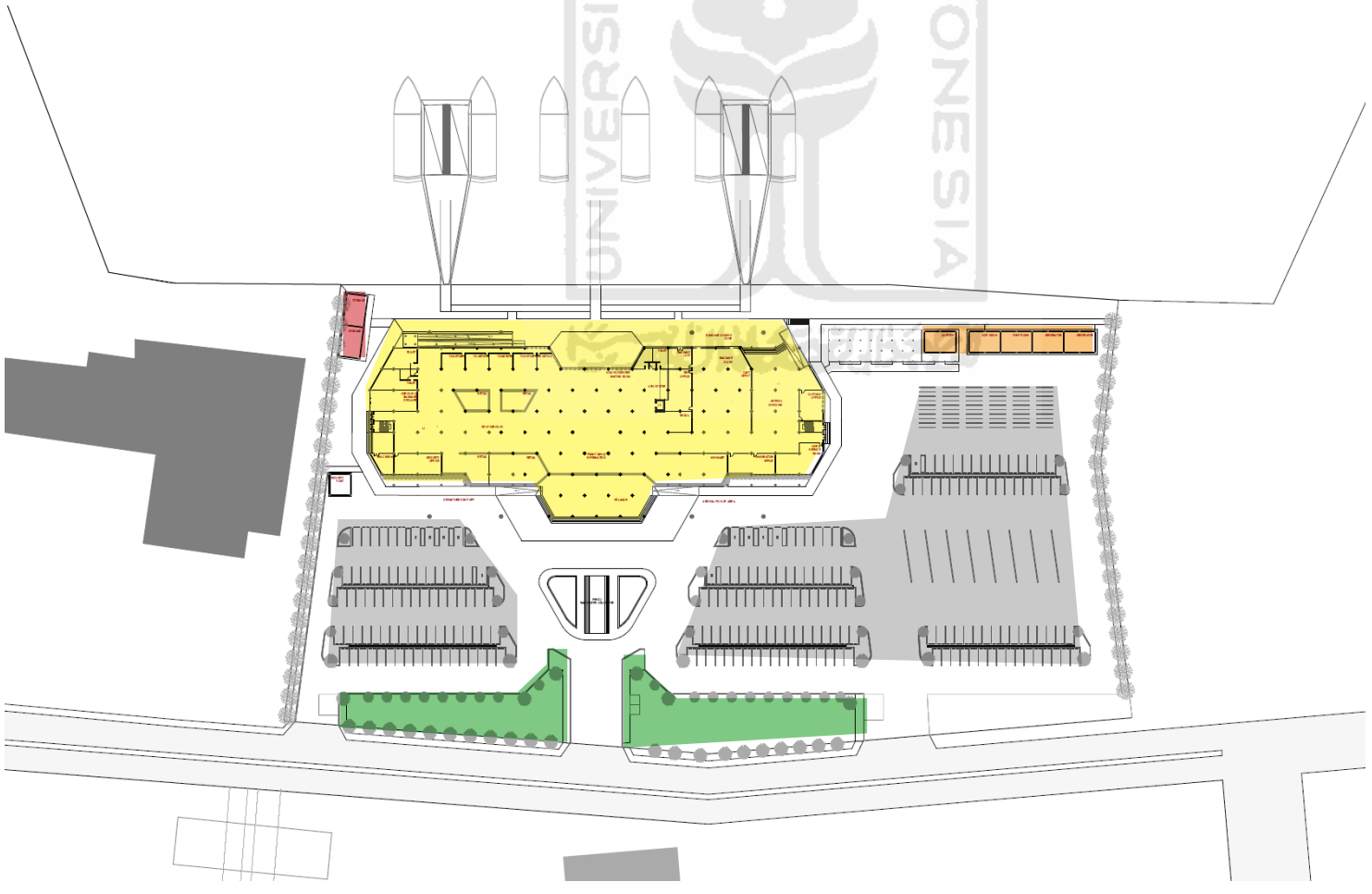
safety and barrief free design

Zoning Concept on the Siteplan

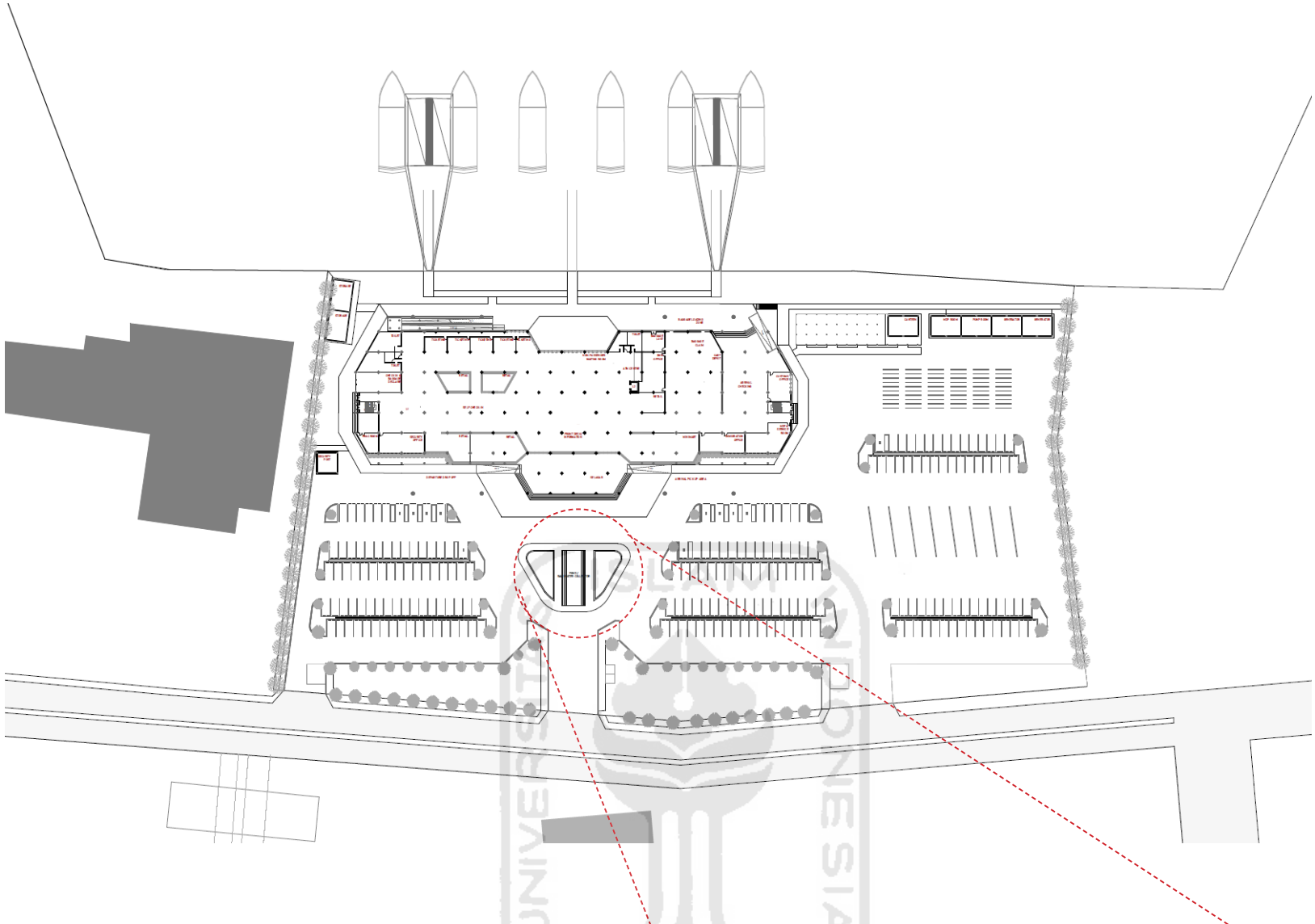
Siteplan development concept are based on adaptation to the old buildings by applying selective demolition and extension of facilities. Siteplan development also considering the function of the passenger terminal and supporting facilities on the site such as main terminal building, services area, parking, and water pond as the micro climate control.



Siteplan zoning concept
Source: Author, 2021



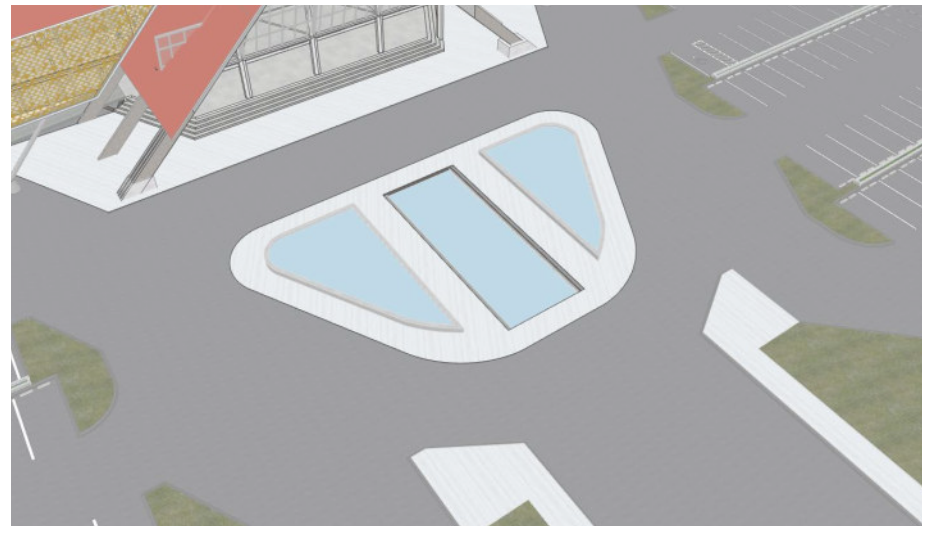
Siteplan zoning concept
Source: Author, 2021



Siteplan schematic concept
Source: Author, 2021

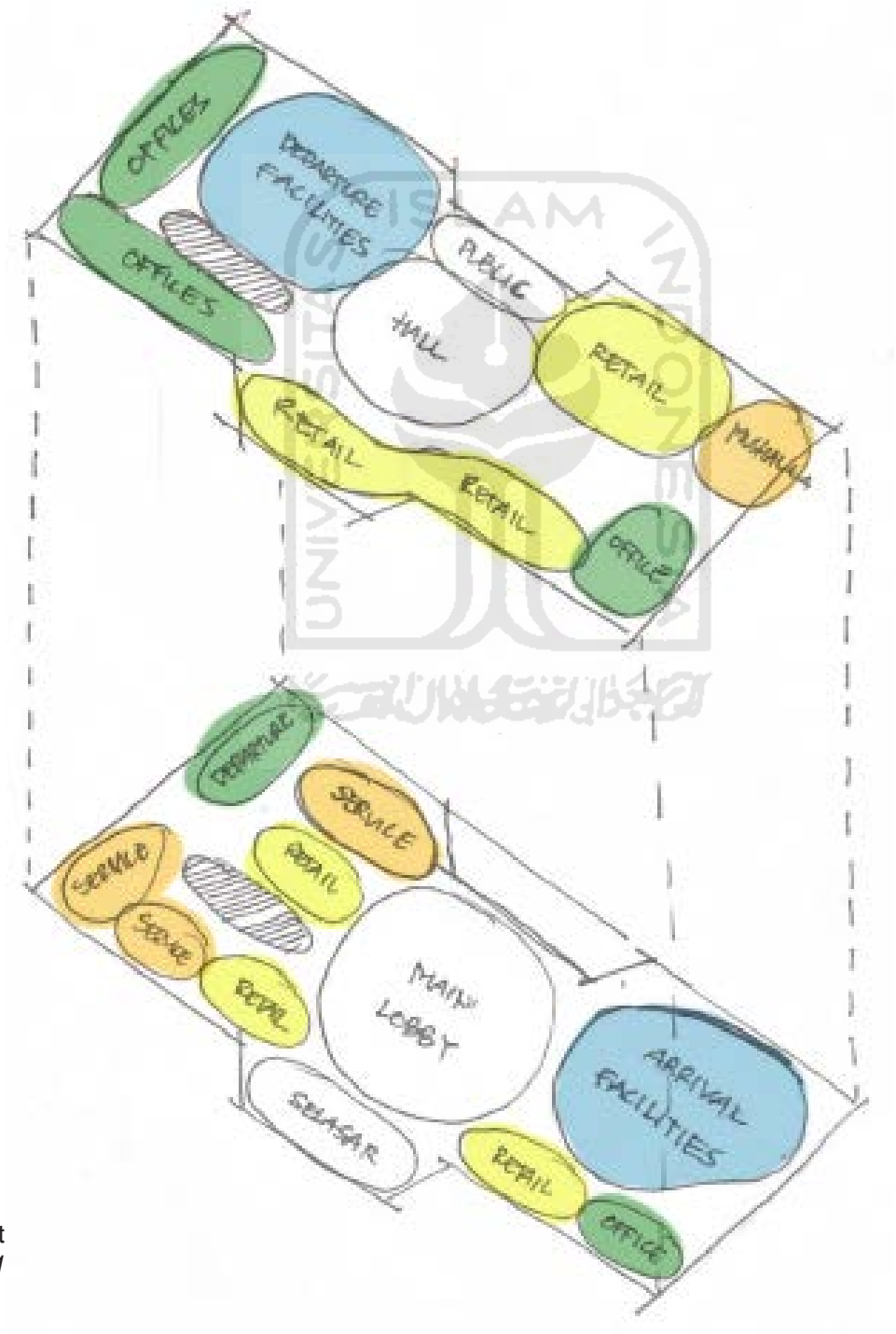
Utility Concept on Siteplan

Utilization of the water element in the site plan functions as a microclimate controller in the site area. In addition, the use of rainwater as an alternative water source can help reduce the use of water from PDAM where Batam's condition as an island can experience erratic rains. The application of infiltration wells can also help Batam soil which tends to be low in porosity to absorb water better.



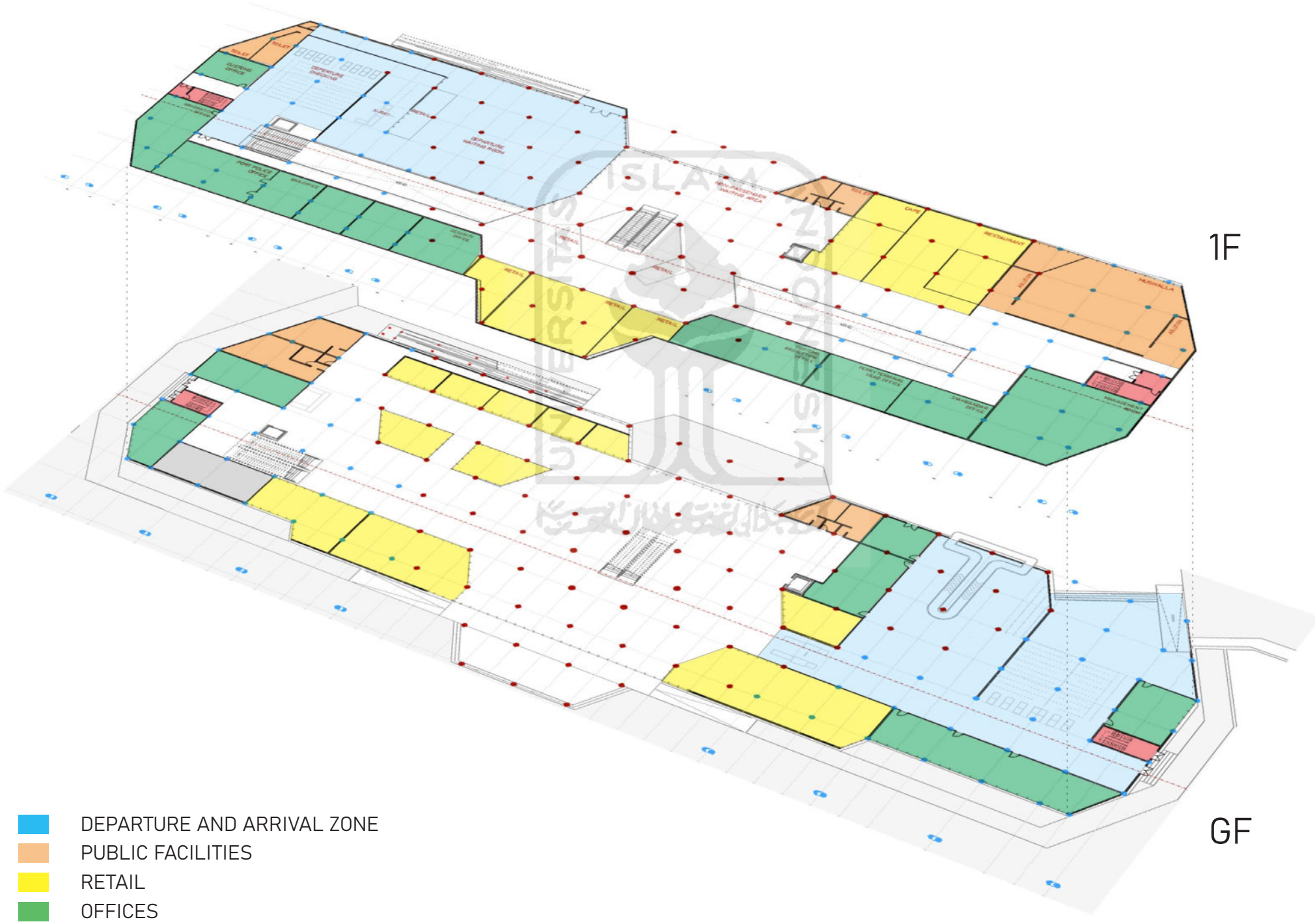
Zoning Concept on Building Plan

In the schematic plan, the concept used is the concept of zoning and spatial relations. This concept is based on the analysis of user activities in the design building. The analysis of activities will affect the space requirements and characteristics.



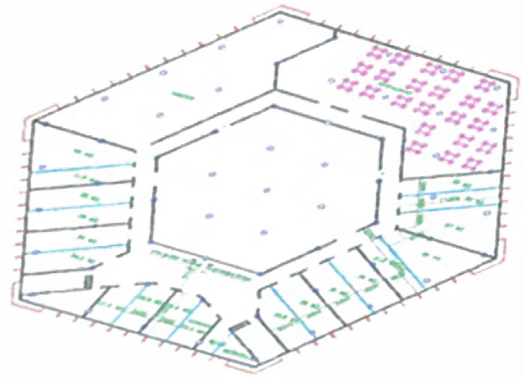
Building plan zoning concept
Source: Author, 2021

Terminal building zones are based on the primary function and secondary function as the passenger facilites and supporting facilities for acommodating the needs of passenger. The zones devided into departure and arrival zone, public facilities, retails, offices for the management, and public area for the visitors



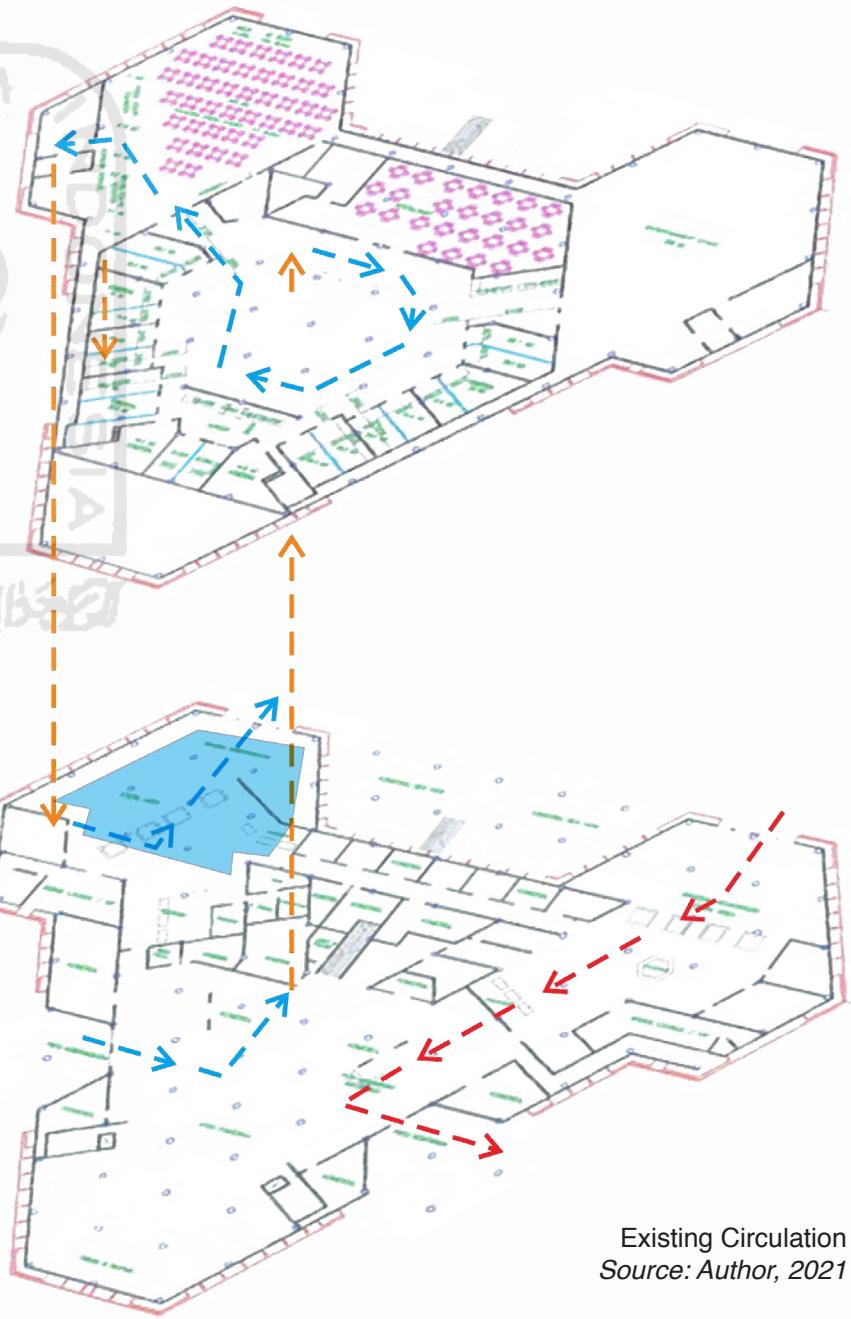
Building Plan Schematic
Source: Author, 2021

Implementation of oblique circulation, linear circulation path, pass by space, and pass trough space giving the different circulation experience based on the user activities. Oblique circulation with linear path give a clear view for the user for approaching every facilities. Pass by space give a freedom to the user and to reach some place but still have a celar view on it, while the pass trough space give a clear direction to the user where is the next area to go to especially on the departure and arrival function.

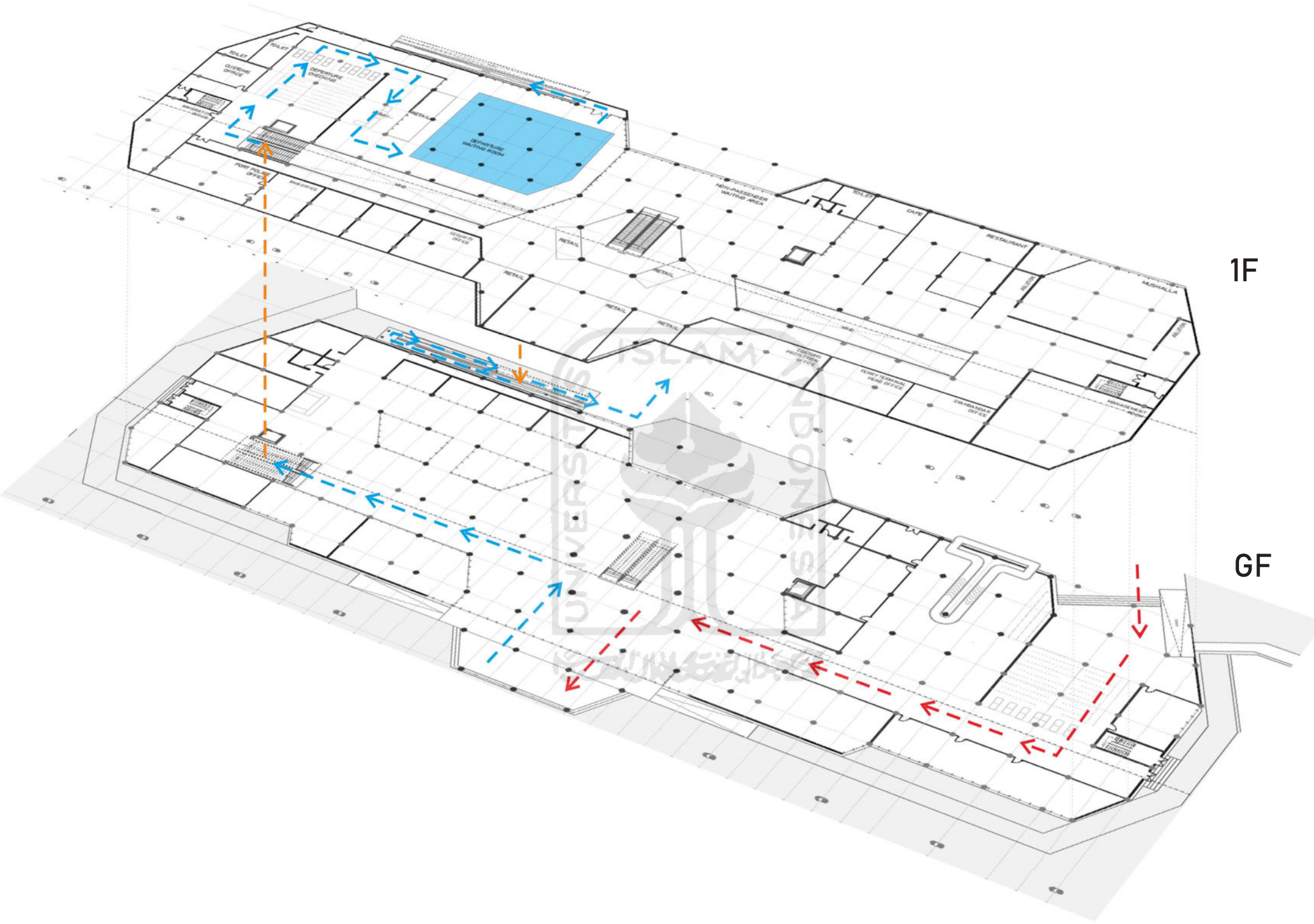


Circulation comparison on existing with the new design

From the distance, start from the queue area until boarding area the existing circulation has 162.05 m of circulation path, while the new circulation path has only 116.4 m. This shows that the new circulation has 29% shorter path than the previous circulation path.



Existing Circulation
Source: Author, 2021

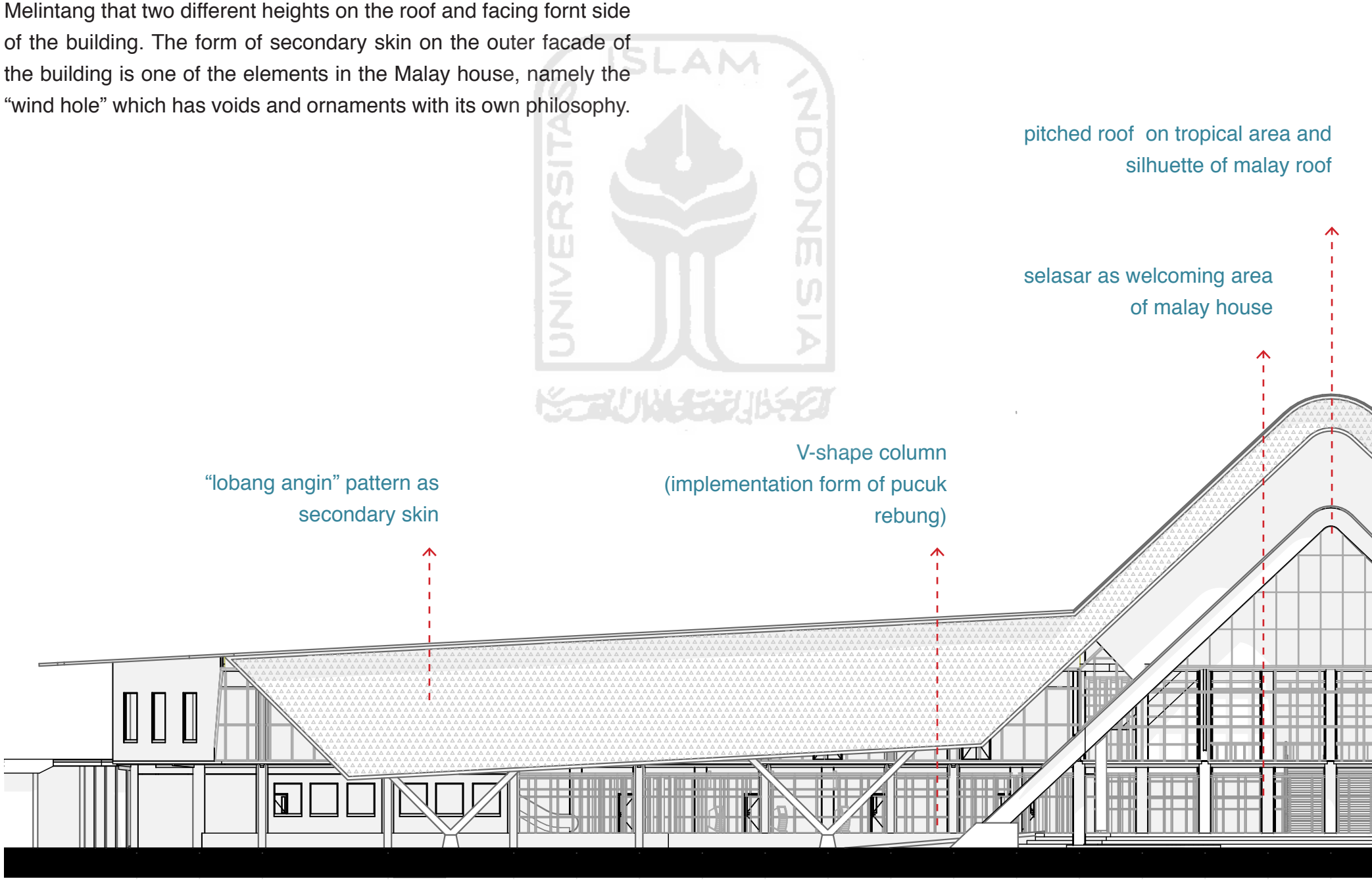


Circulation Schematic Plan on Departure and Arrival Function
Source: Author, 2021

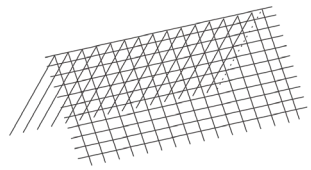
environmental respond & expressing tradition on building facade

The concept of the building envelope in this design is based on the transformation of environmental responses and expressions of traditions on malay strutcural system on the roof.

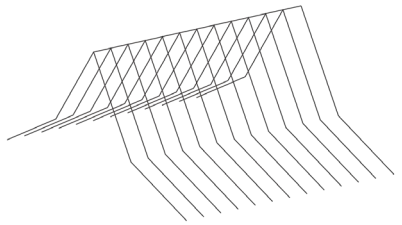
The facade of the building responds to Batam's location on a tropical island which tends to have an uncertain climate and unpredictable rain, making the facade adopt the roofing principle of tropical buildings. In addition, the shape of the facade is also based on one of the roof typologies and the orientation of the Rumah Perabung Melintang that two different heights on the roof and facing fornt side of the building. The form of secondary skin on the outer facade of the building is one of the elements in the Malay house, namely the "wind hole" which has voids and ornaments with its own philosophy.



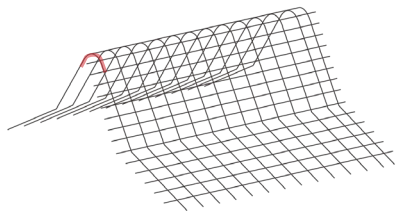
Basic form of 45° pithced roof structure on tropical building responding to the geographical and climate condition



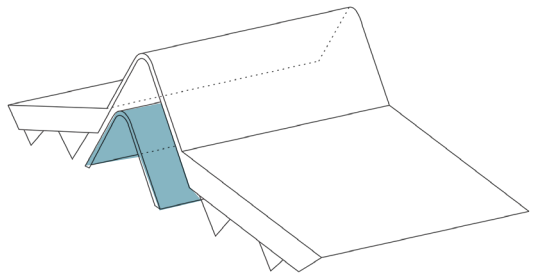
Atap Layar structure form in one of malay house roof typology



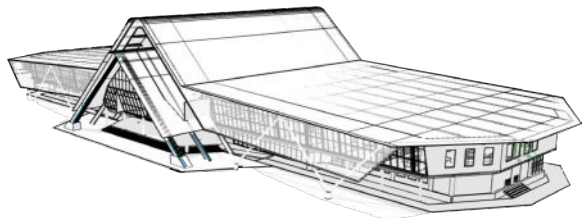
Rounded tip top of the roof to reduce the contact angle on the top point of teh strcuture for delevering seamless strctural load



Highlighting the ”Selasar” as welcoming area with different roof height and extend the lisplang for secondary skin to respond the sunpath on the site



Exposing structure at selasar and represent malay lisplang on the roof.



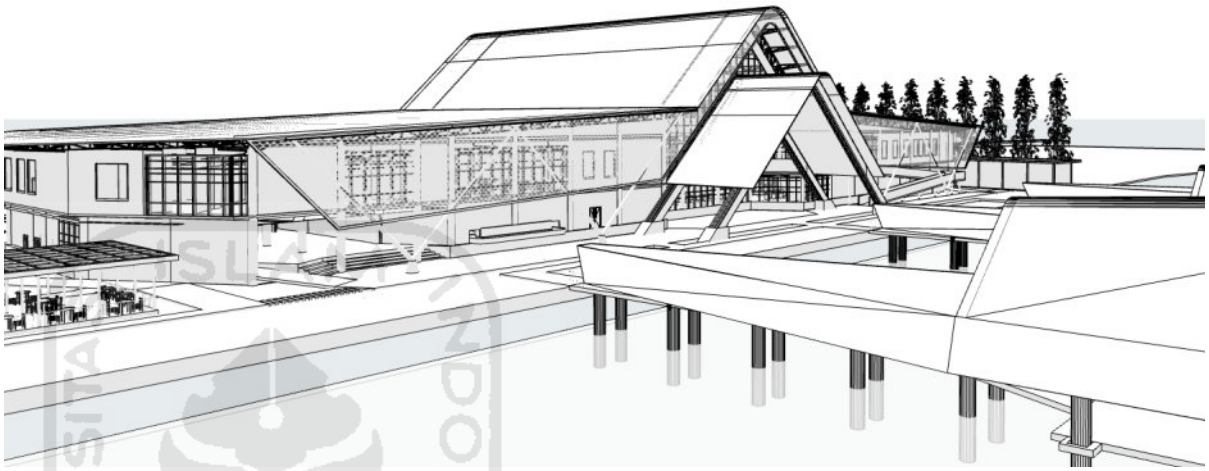
Schematic Building Facade
Source: Author, 2021

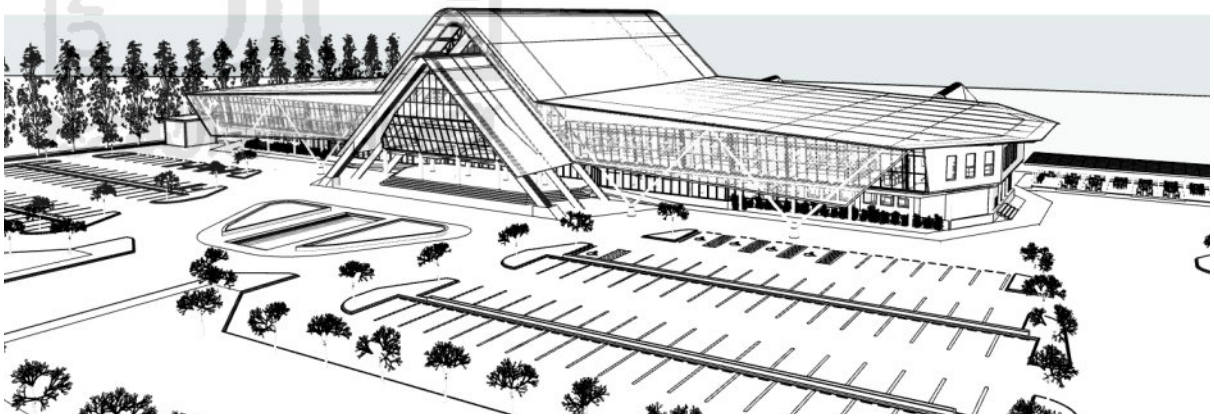
schematic building exterior

Building facade tries to implement the insertion concept, namely contrast and compatible contrast. The *proportion of the new building's height is higher and the mass of the new building is bigger, which shows the difference between old and new buildings.* In addition, some elements of the old building are still being displayed, which give a similar but different impression to the new building.

The application of the concept of critical regionalism in the building itself tries to apply the philosophy of the *"selasar"* to the Malay house building which functions as a *welcoming area and public space*. This can be seen from the old building which is slightly infront and has changed its function into a public space and the Main Hall at this terminal.

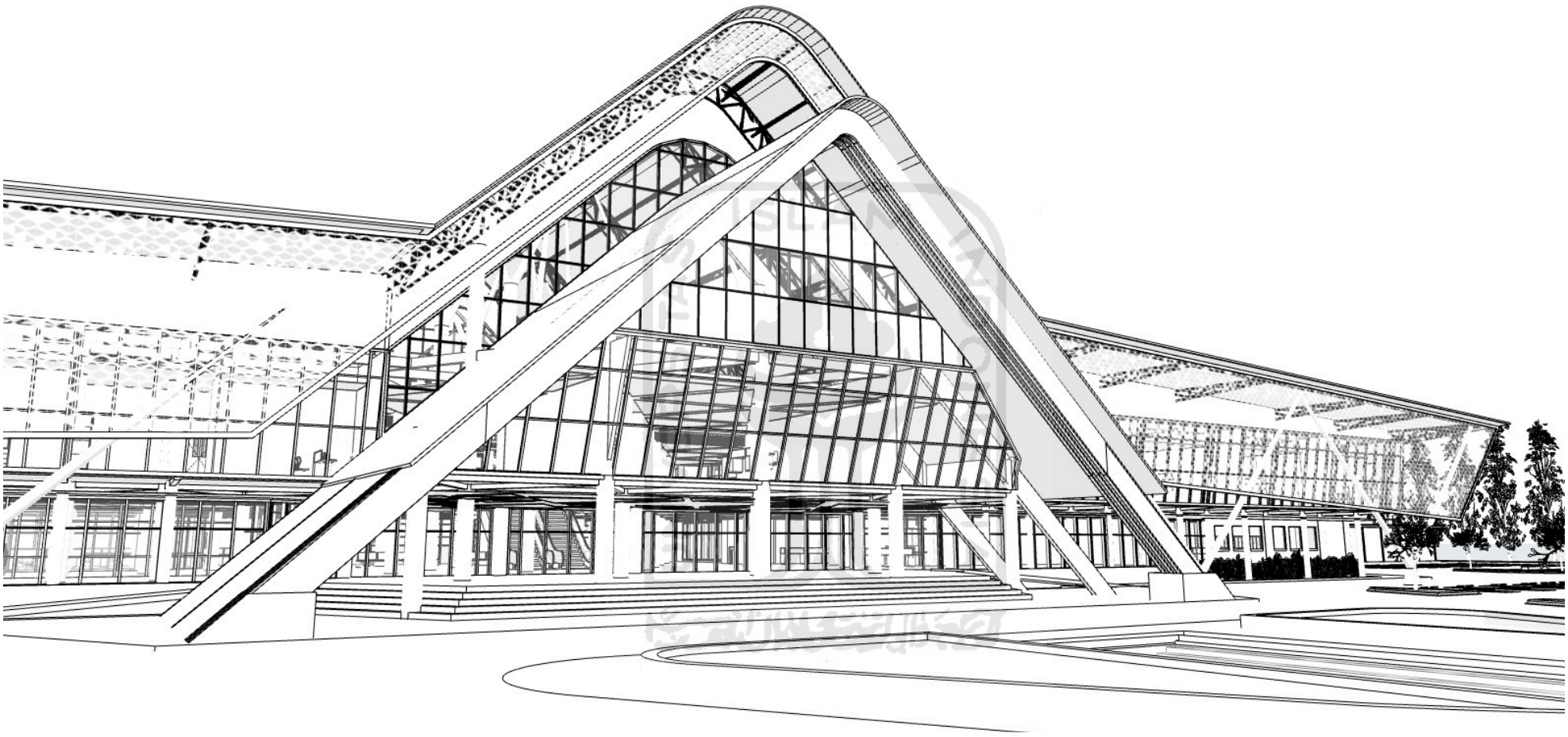
The front facade implement the concept of roof shape and lisplang of the house act as a secondary skin for the facade. hilghlighted the middle part of the mass to implement a "selasar" as welcoming and public area in traditional malay house.

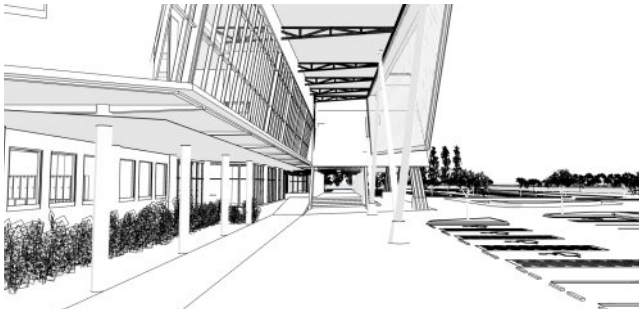




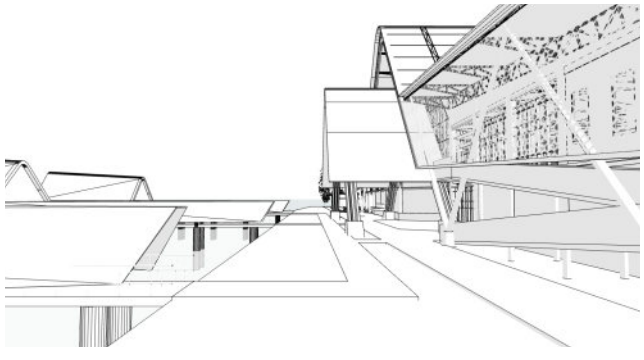
Schematic Building Exterior
Source: Author, 2021

Front lobby are the first place of the user can go before entering the Ferry Terminal. Separating the vehicular circulation, passenger circulation and also completed with diffable access at the front are very important to get the *clear view* and an *ease of access* for everyone.





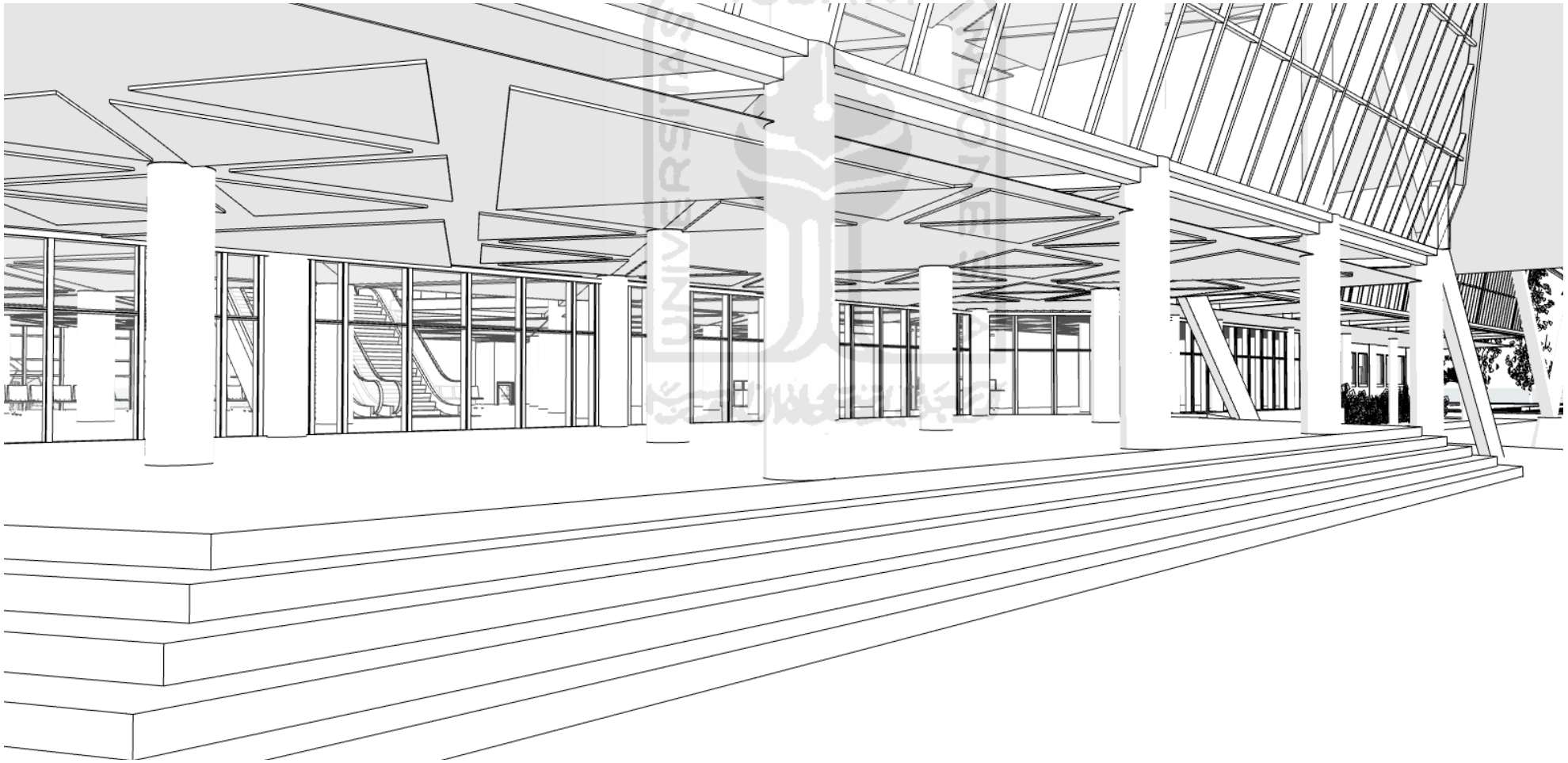




Schematic Building Exterior
Source: Author, 2021

Selasar as Welcoming Area

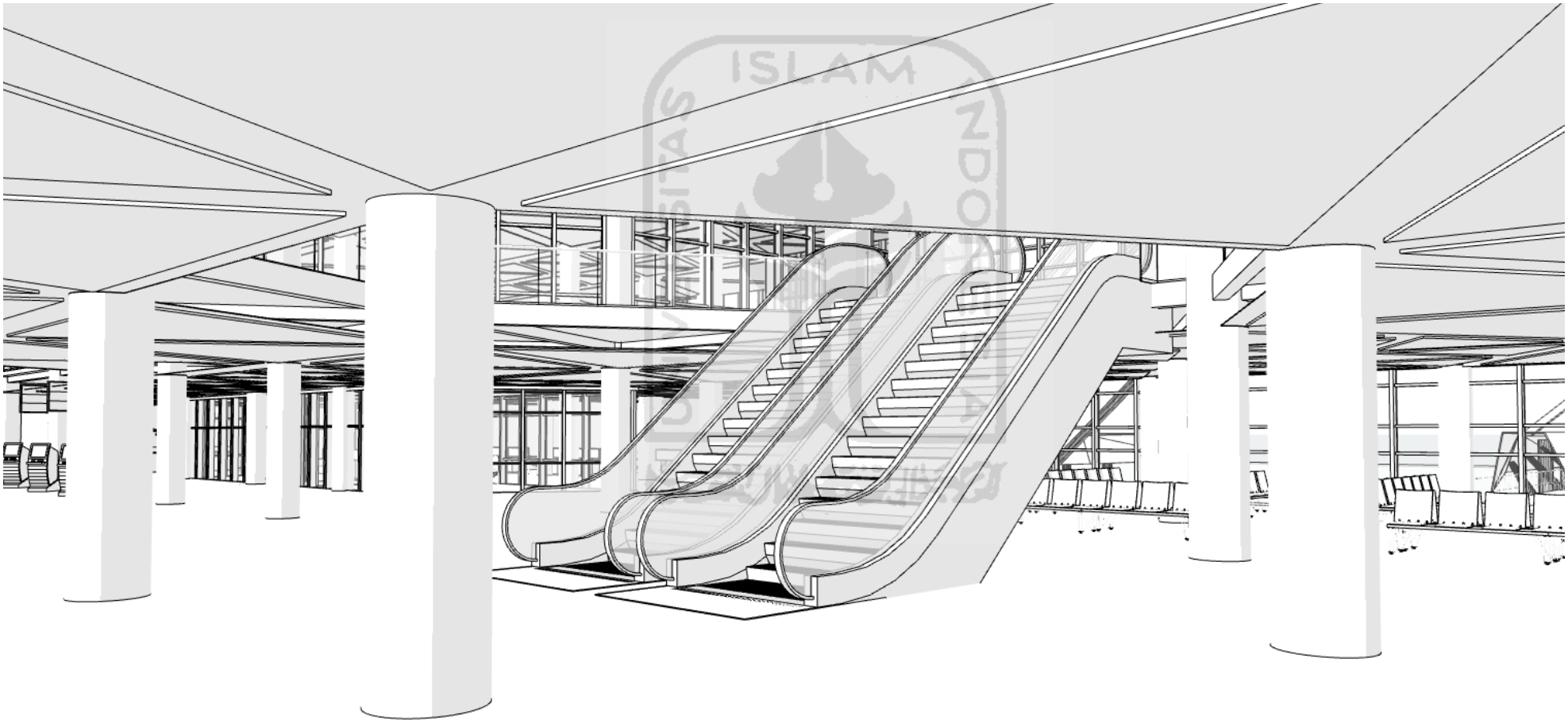
Front lobby is the welcoming area of this terminal. In this building implement the concept of selasar in malay house that act as welcoming area. Here also the area that become the first impression to the visitor while coming to the terminal building. The different mass highlightened by separated roof and slightly pushed outside from the main building.



Schematic Interior of Selasar
Source: Author, 2021

Main Hall as public space

The main hall act as public space that have several function from retails, ATM centre, and also waiting area for the non-passenger. This area also act as information centre in the middle of the main hall. Main hall are maintened as well as the existing condition with some adjustment on the ceiling to retain the triangular pattern on the building grid.

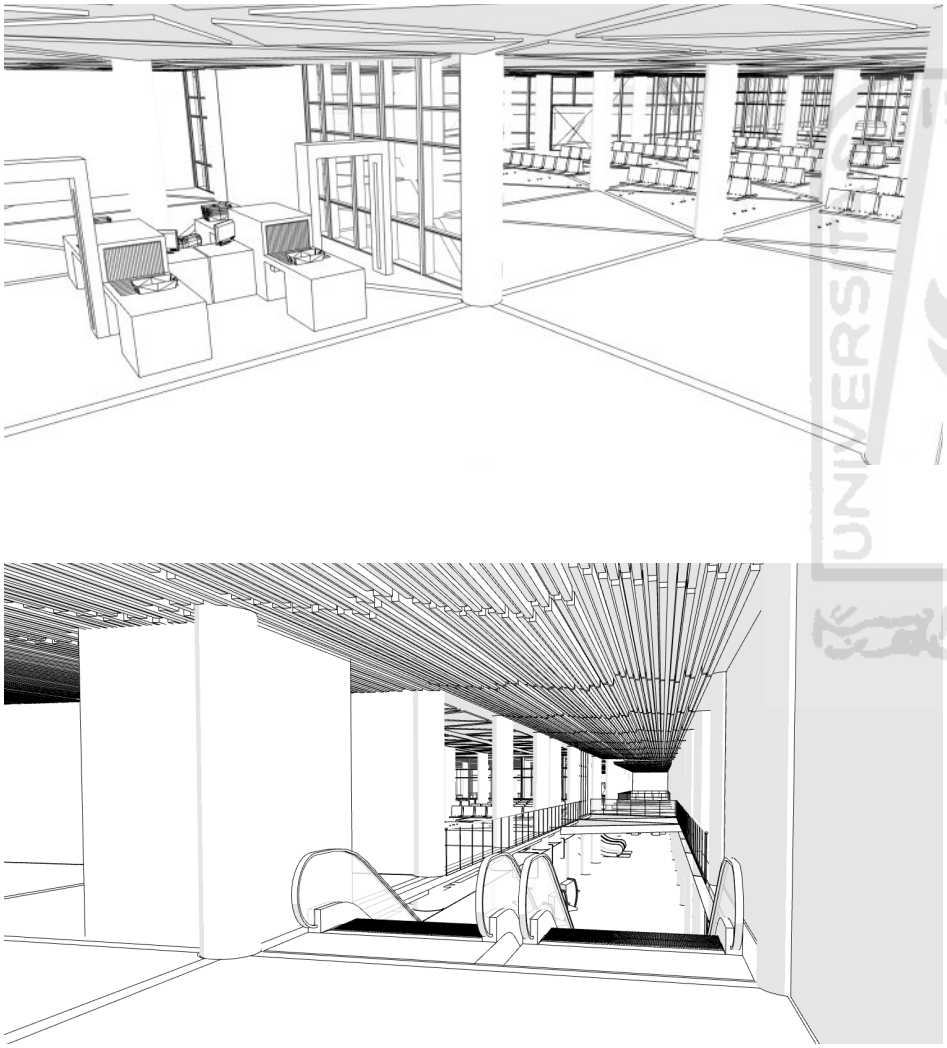


The approach to the desire space is very unique and give the user a different experience while approaching the spaces. The user force to slightly see their targeted area and force them to pass trough the other spaces. This can be applied on the common space to get more circulation spaces

Schematic Interior of Main Lobby
Source: Author, 2021

Clear vision on Departure and Arrival Facilities

Departure waiting area are the place for passenger to wait their ferry to board. This area need a lot of space for acommodating the amount of user. To support and enhace the comfort and feelings, this area need to be spacious while still can hold a lot of passenger at the same time.



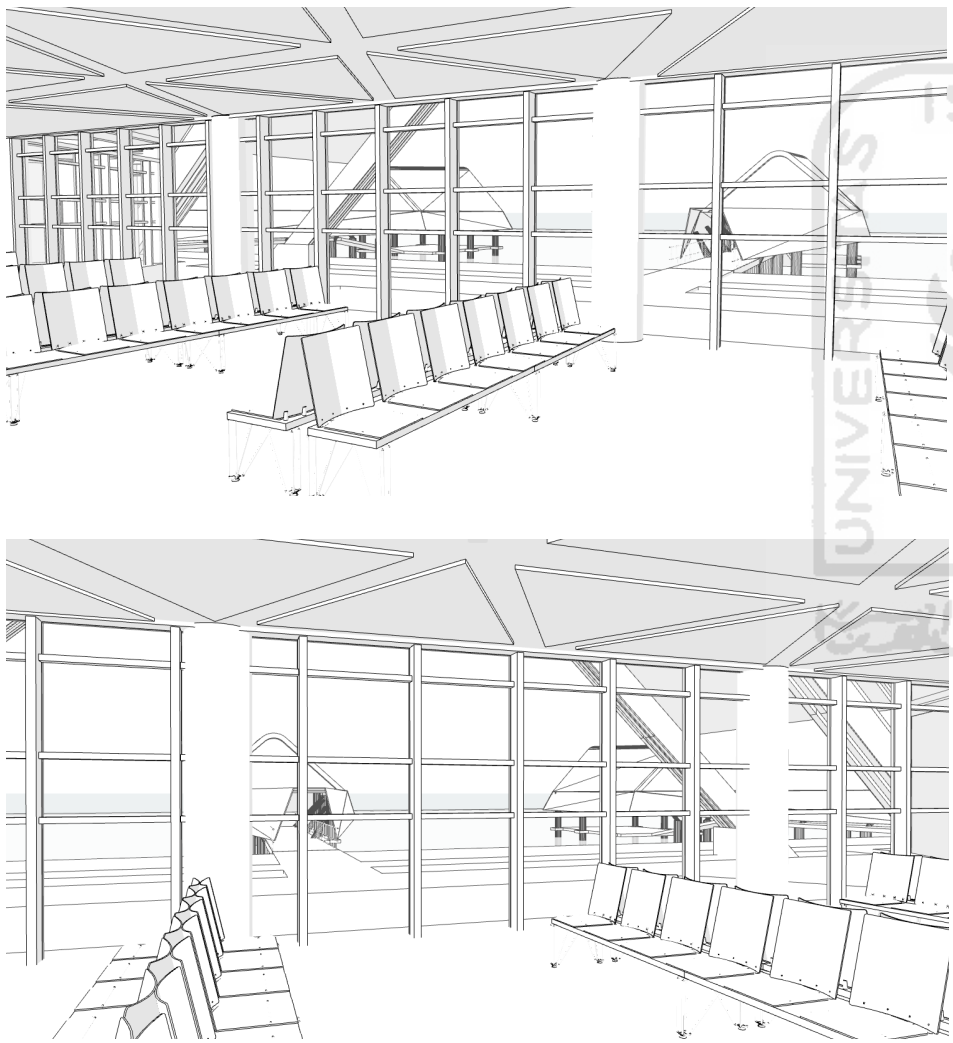
Schematic Interior of Departure Waiting Area
Source: Author, 2021



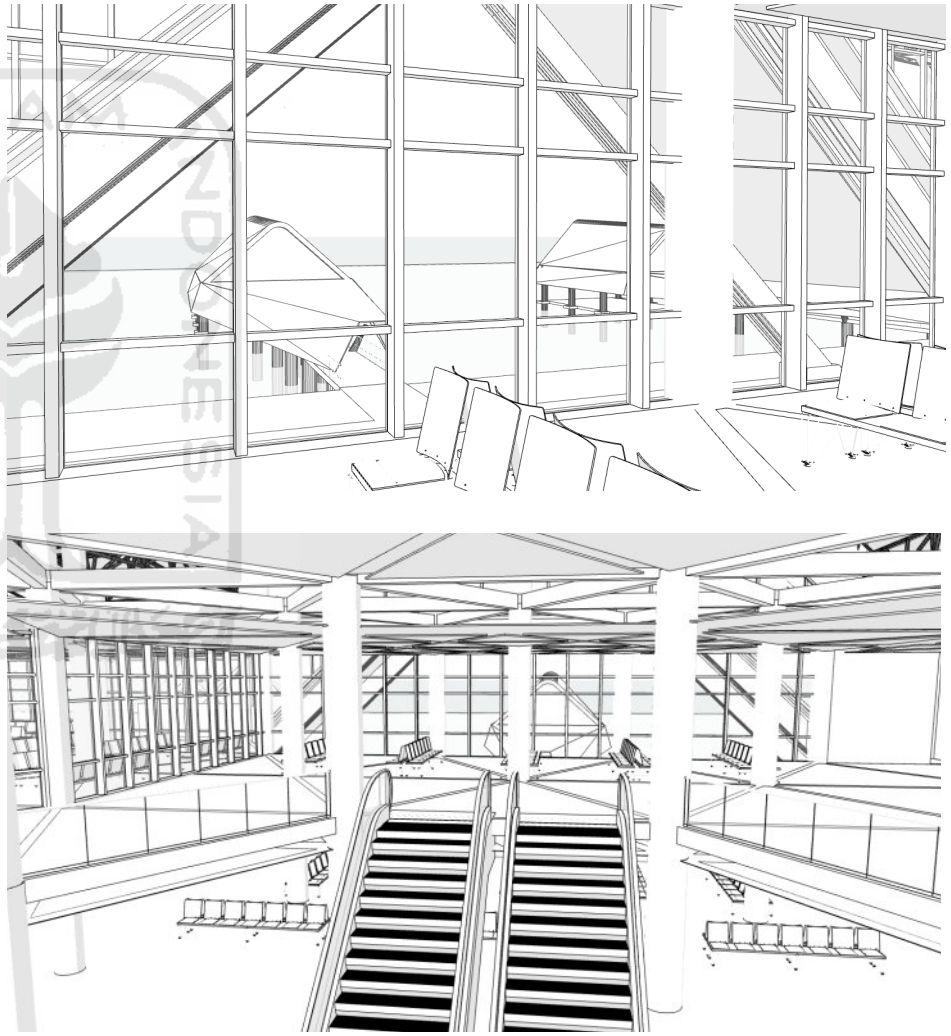
Schematic Interior of Arrival Area
Source: Author, 2021

Sightseeing Place for non-passenger users

A place for seeing the ferry activities at the north side of ground floor and also 1st floor. This waiting area also act as sightseeing area for the user while waiting thier friend or family arrive or depart.



Non-passenger waiting area at GF
Source: Author, 2021



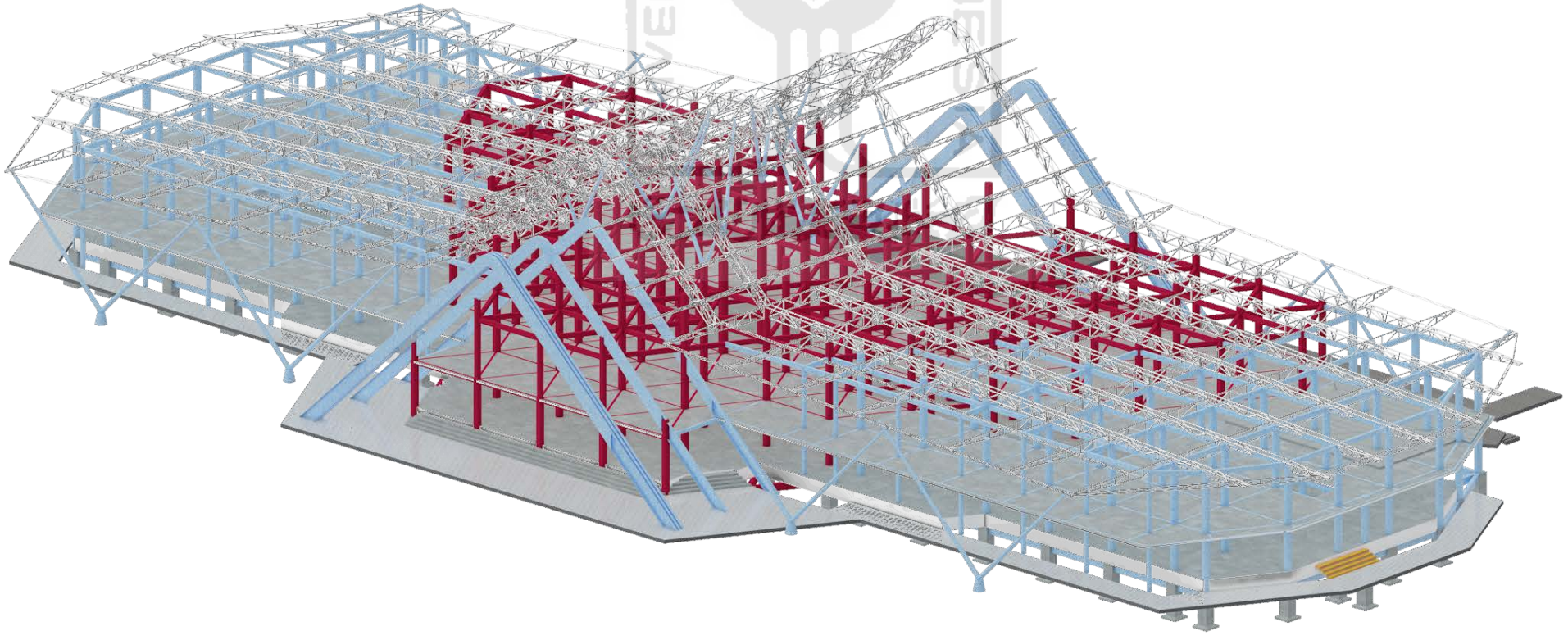
Non-passenger waiting area at 1F
Source: Author, 2021

schematic structural system based on building adaptation

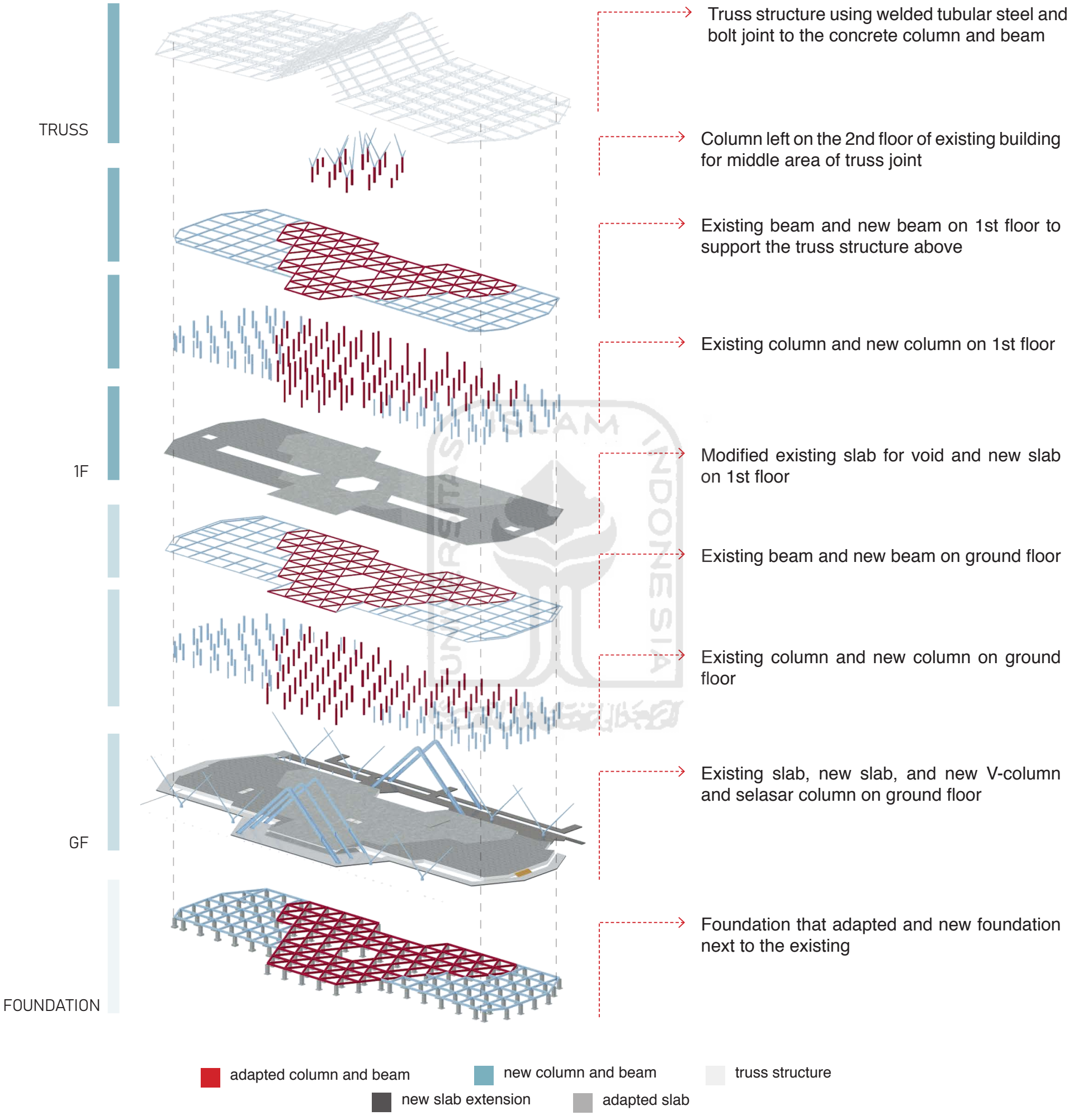
Structural system in this building are based on the selective demolition adaptation to the buiilding structure and extension of facilities which need to be done to regain the area loss. The old structure (red) are mainteaned as well as the current condition. In the other hand, the new structural system are side-by-side to the existing structure. Truss system will use steel structure using tubular steel.

As the result, the adaptaion on structural and floor area of existing building are up to 70% are maintained and will be the part of the new terminal.

In the other hand, the terminal floor area on the building also increased from 8250 sqm to around 10.480 sqm. By this, also increasing the ferry capacity.

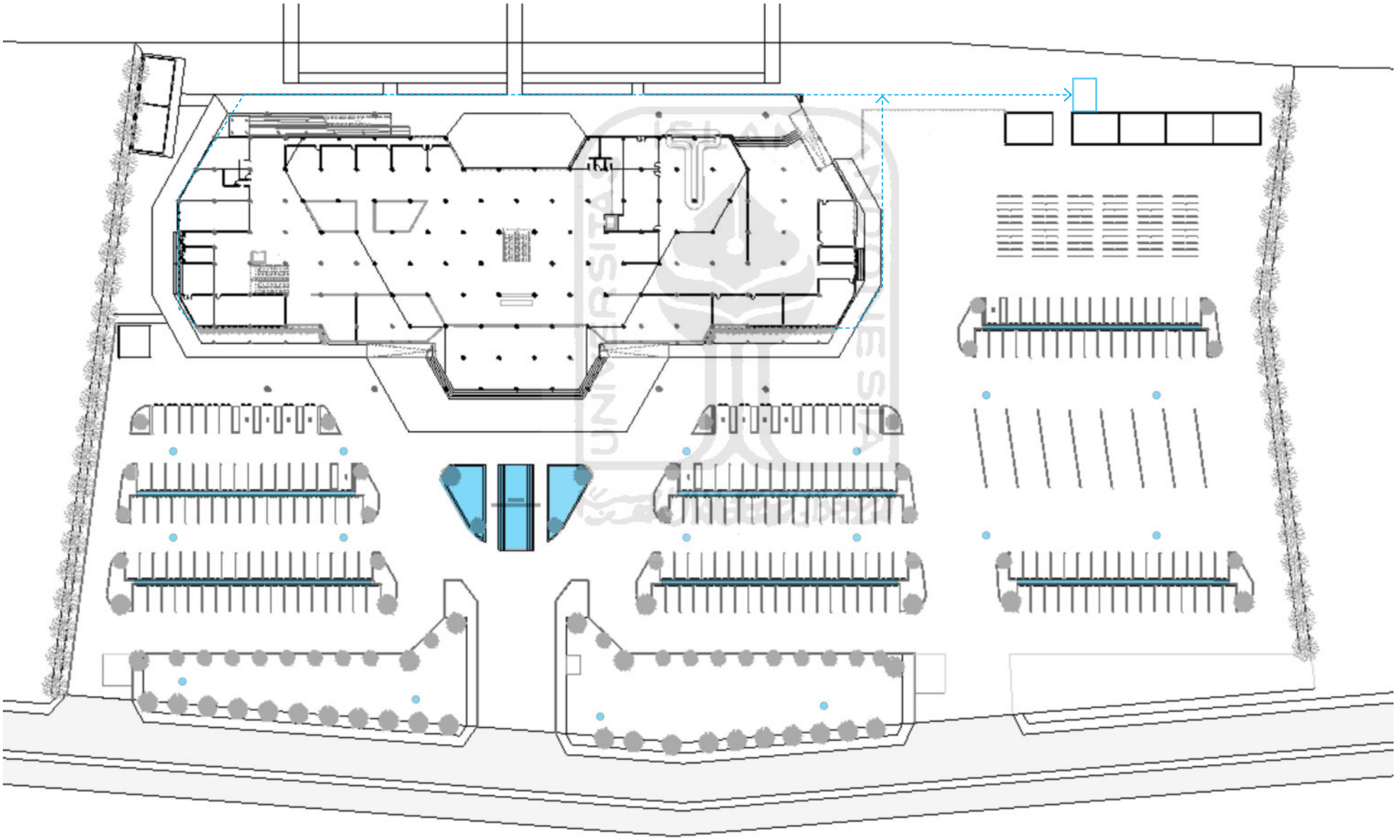


Schematic Structural System
Source: Author, 2021

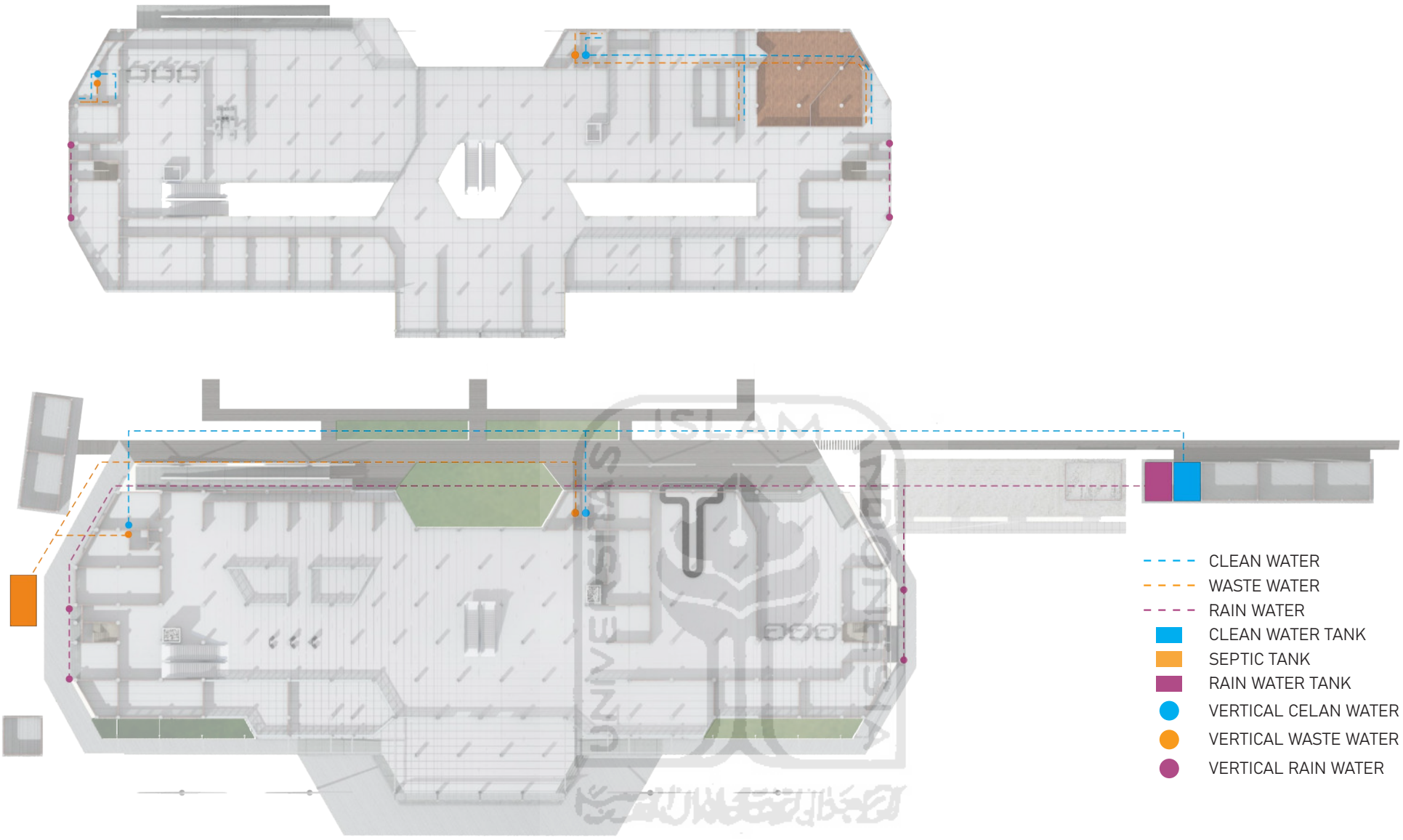

TRUSS
1F
GF
FOUNDATION
Truss structure using welded tubular steel and bolt joint to the concrete column and beam
Column left on the 2nd floor of existing building for middle area of truss joint
Existing beam and new beam on 1st floor to support the truss structure above
Existing column and new column on 1st floor
Modified existing slab for void and new slab on 1st floor
Existing beam and new beam on ground floor
Existing column and new column on ground floor
Existing slab, new slab, and new V-column and selasar column on ground floor
Foundation that adapted and new foundation next to the existing
adapted column and beam
new column and beam
truss structure
new slab extension
adapted slab

collecting water as secondary source

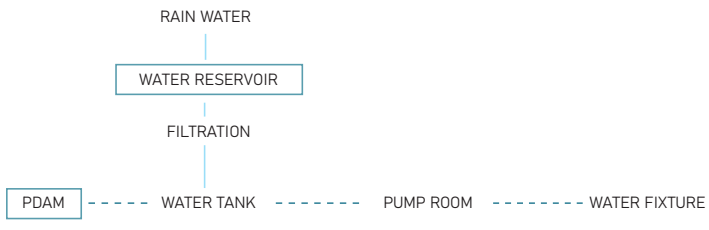
Batam is an island, that doesn't has a specific season. So, the rain can come suddenly and also can't be predicted for how long it will stay. Batam also has a low porosity of soil, which hard to absorb and collect water from the ground. This condition can be maximized by using the rain water to become the secondary water source that used for watering the garden and flush water for sanitation. The idea is to have a pond for *collecting the rain water* and store it to the reservoir and be filtered and ready to be used in the buiding.



water distribution for building infrastructure



CLEAN WATER



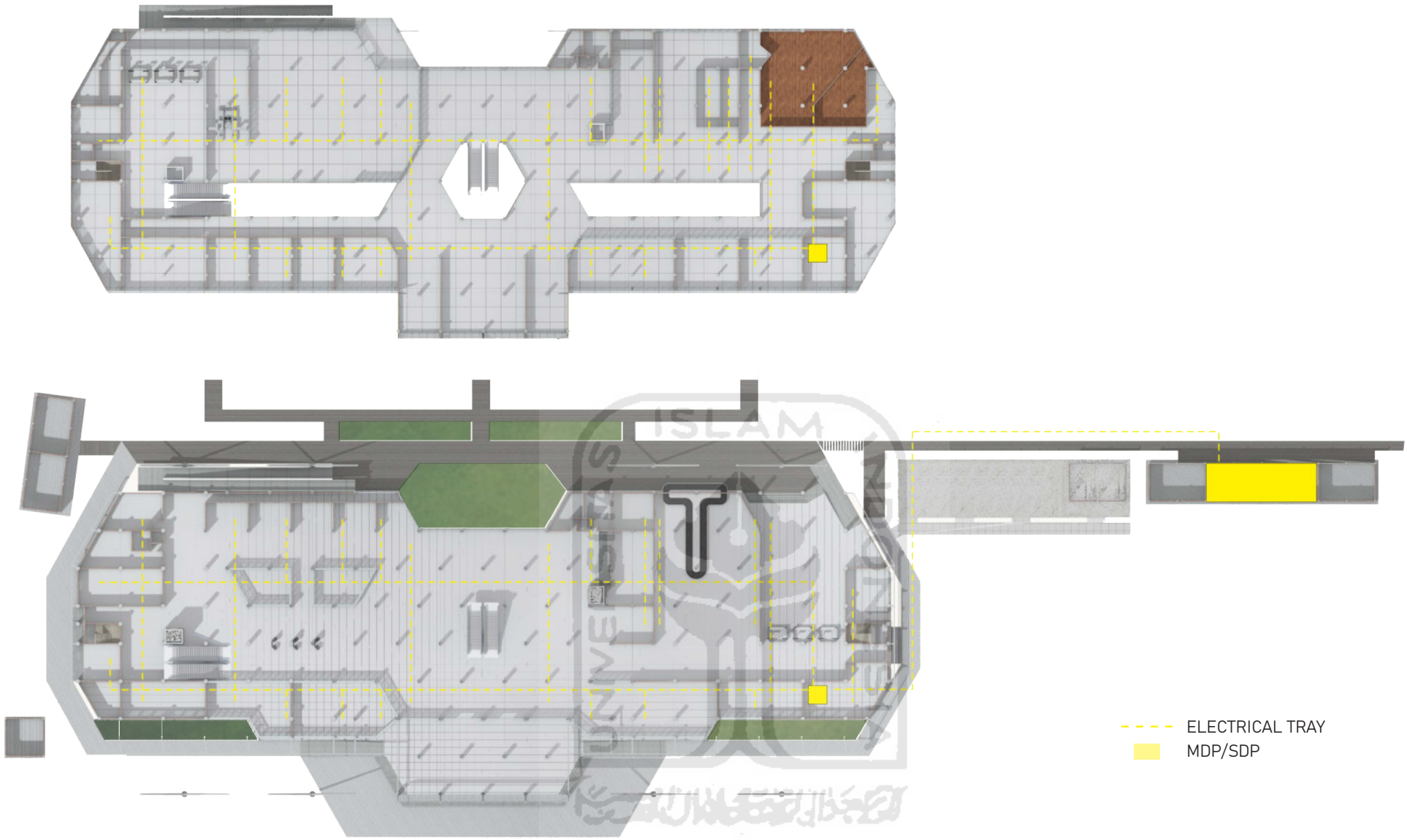
WASTE WATER



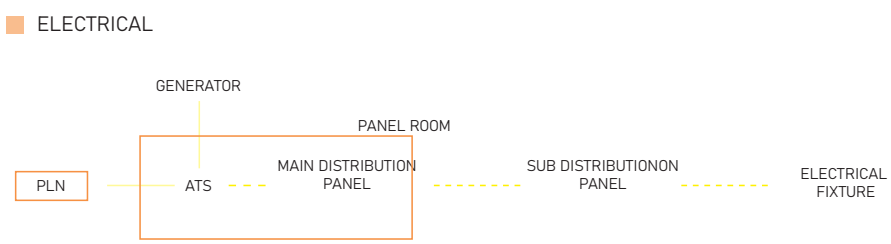
WATER RESOURCE

The source of clean water for buildings is obtained from 2 sources. The main source comes from *PDAM*, while the secondary water source comes from *rainwater*. Rainfall water will be useful. In Batam it ranges from 16 mm to 392 mm with an annual average of 298 mm. Also considering the Batam's soil conditions, which are difficult to absorb and store water, make the use of second-hand water sources a consideration. This will also affect the arrangement of the site plan later in order to support the reservoir for secondary water sources from rain.

electrical schematic as building electricity needs

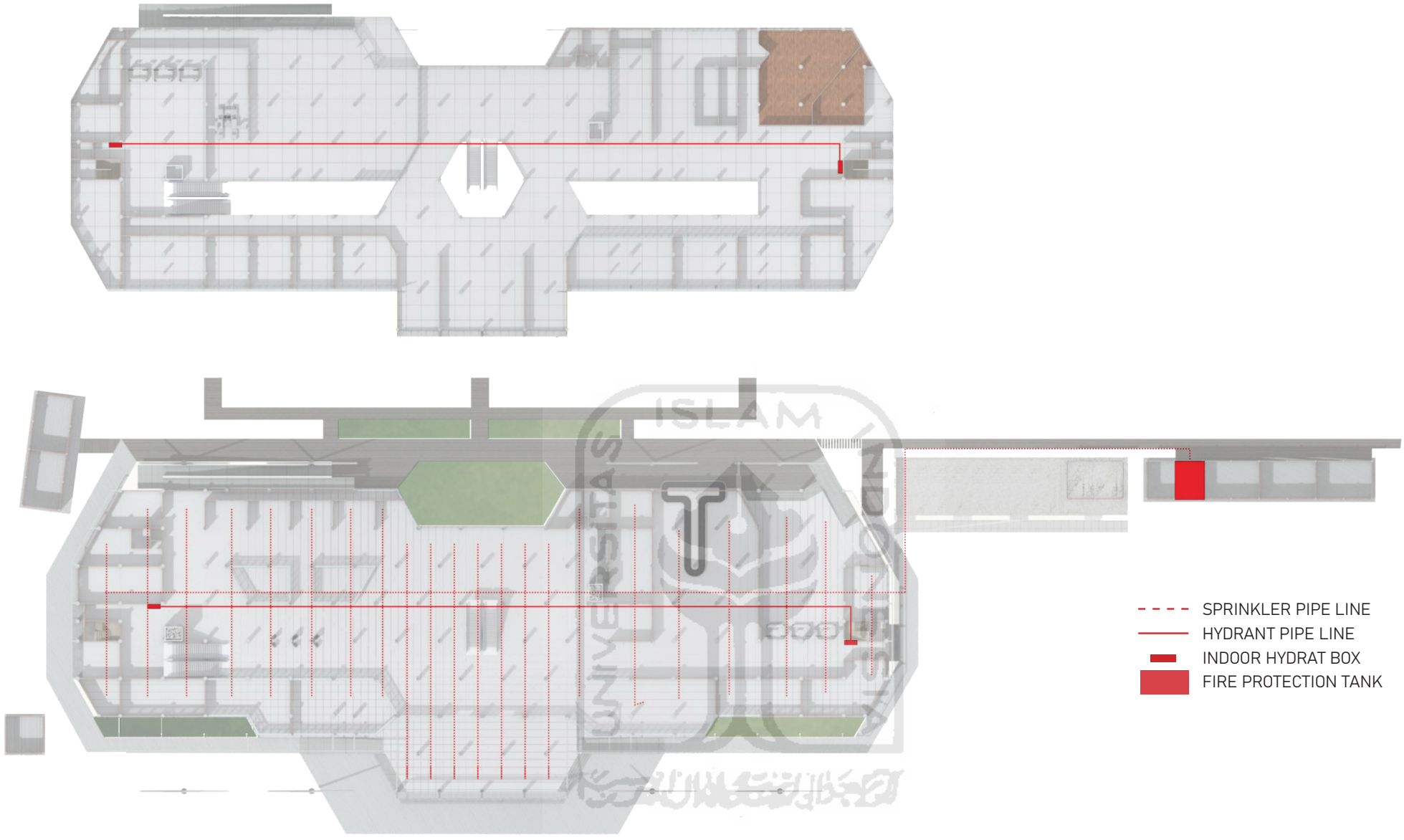


ELECTRICAL TRAY
MDP/SDP



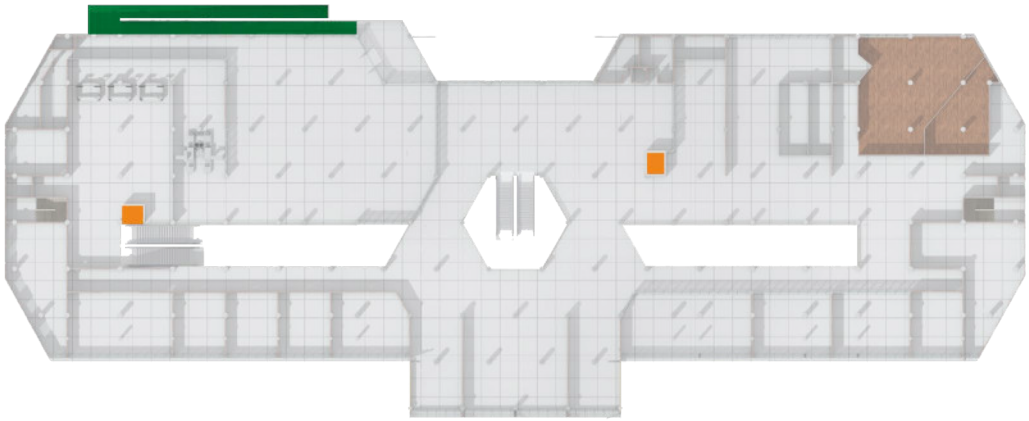
ELECTRICAL RESOURCES

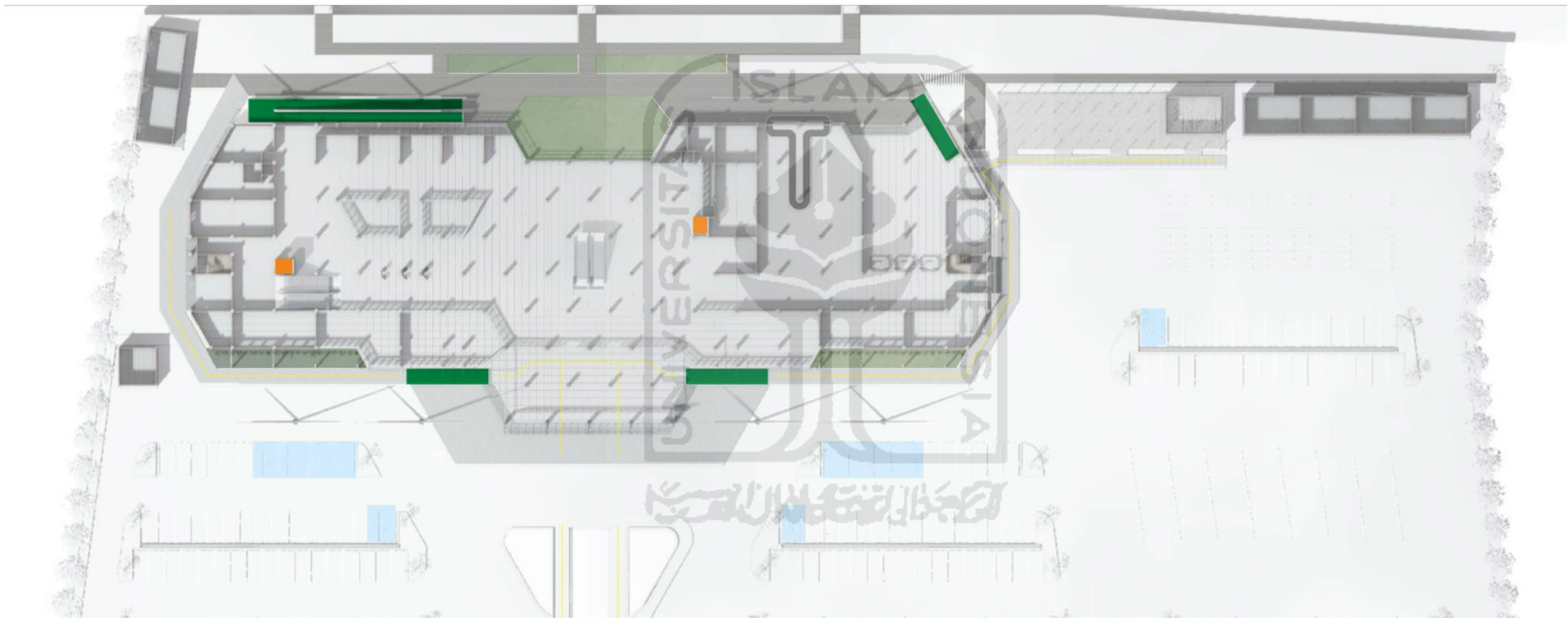
The main source of electricity in buildings comes from PLN. The addition of another source of generator is intended to prevent a power shuted off from PLN, so that the building can operate normally.



FIRE PROTECTION

fire protection system on the building are using springkler and indoor hydrant box. The sprinkler are installed over the ceiling facing down to spray automatically while the fire happened. Indoor hydrant box (IHB) are located at both side of the building which acommodate the half of the building for each IHB.





GUIDING BLOCK

RAMP

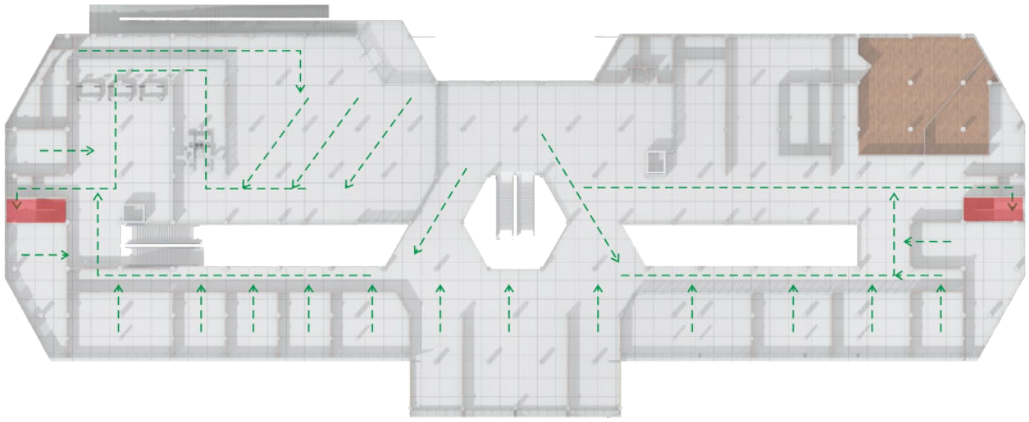
DIFFABLE PARKING LOT

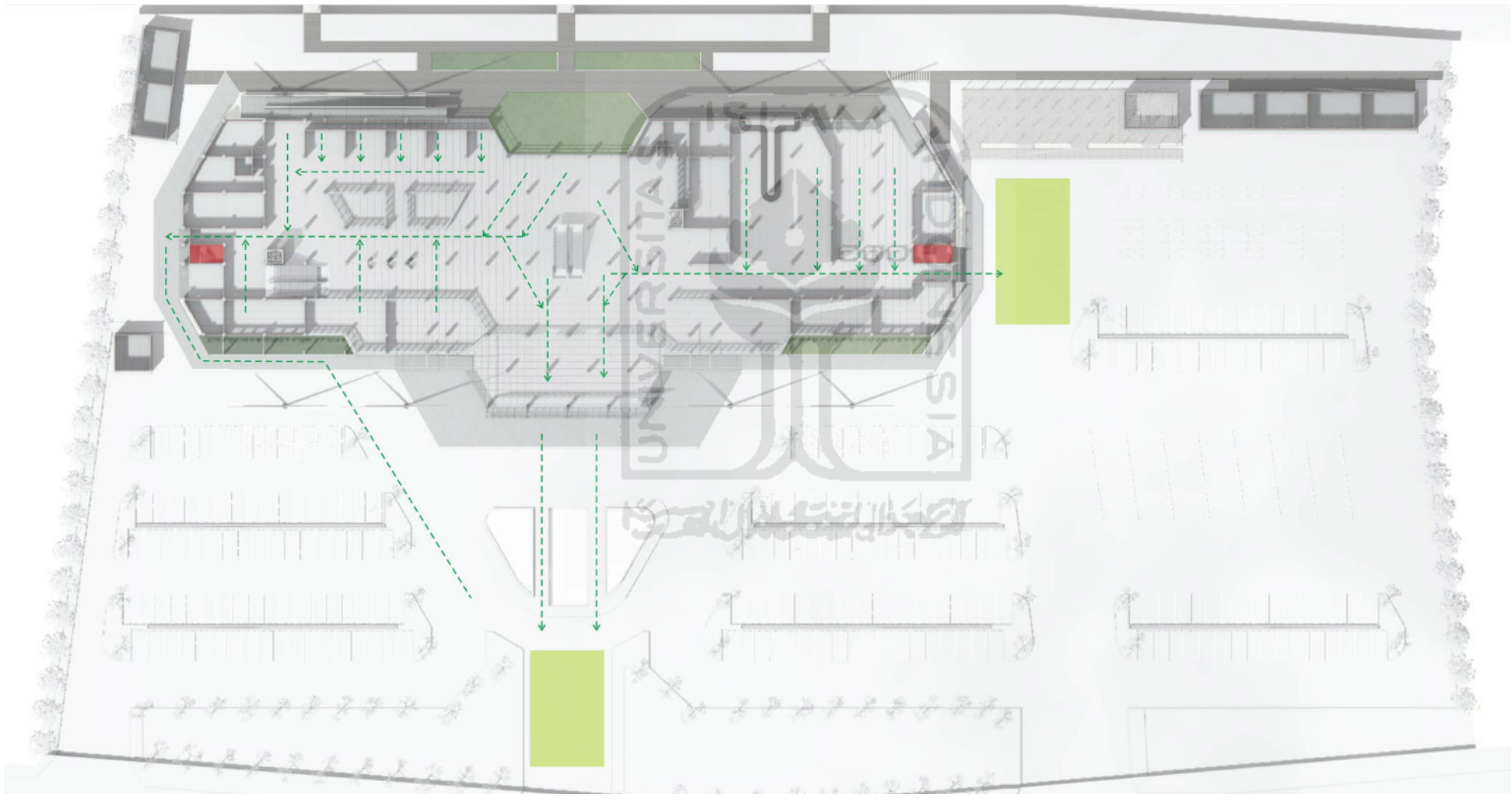
ELEVATOR

BARRIER FREE DESIGN

For universal access, the building provide various access for difable. The guiding block are installed on the fornt area and outer pathway infront. Ramp also placed on crusial area for accessing the “selasar”, departure boarding area and arrival hall.For vertical transportation, the use of lift are needed to help the diffable reach upper floor. Few diffable parking lot also privided close to the terminal building.

evacuation safety plan



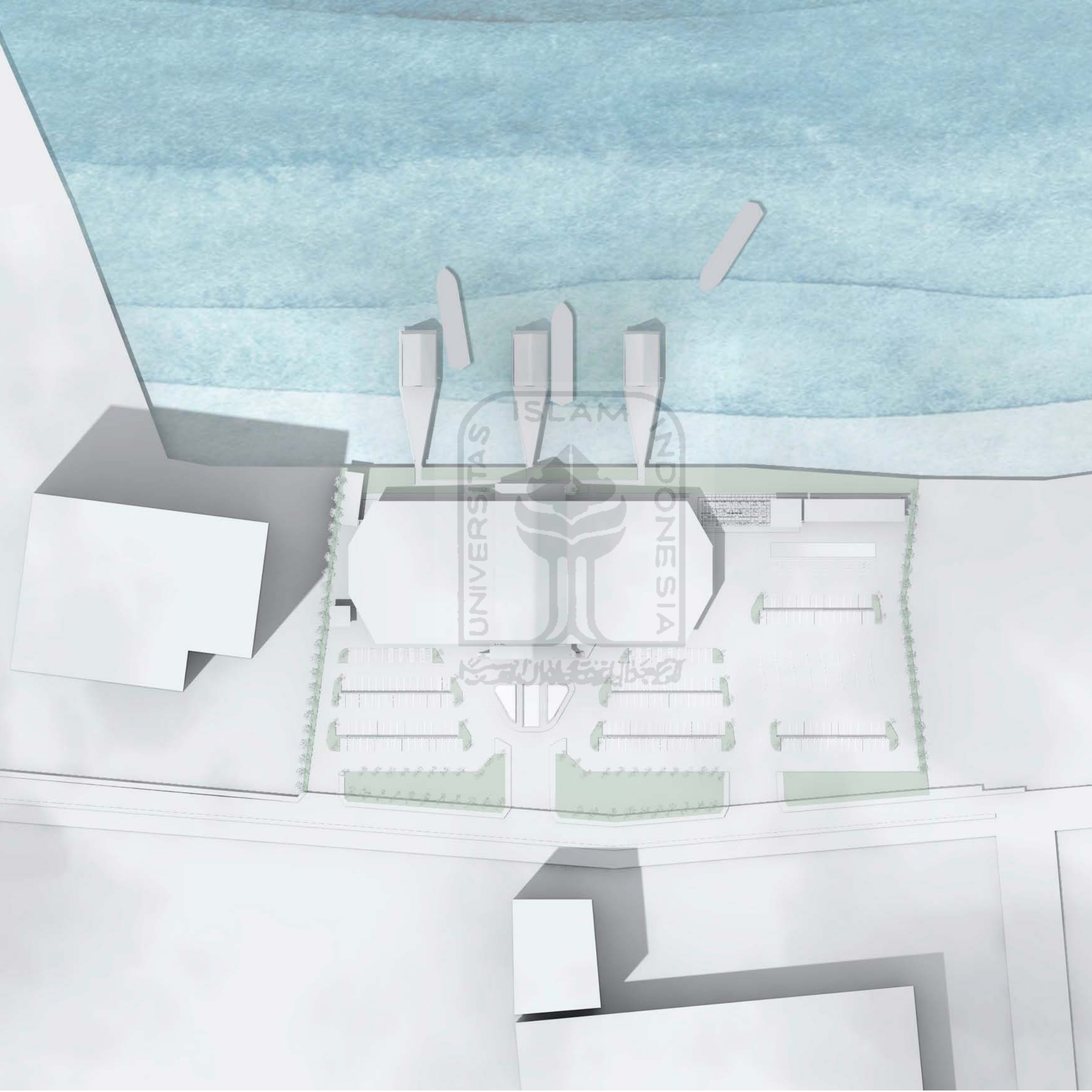


EVACUATION ROUTE

EMERGENCY STAIRS

ASSEMBLY POINT

The evacuation route in the building is made very wide, making it easier for users to circulate in an emergency. In addition, the achievement of the exit can also be seen clearly. This is due to the use of the oblique circulation concept which makes it easier for users to see the direction they are going.





Final Design Front View
Source: Author, 2021

7.

design development

design development

project description

property size

room programming on terminal facilities

situation of ferry terminal

siteplan development

building plan

building facade on elevation

building section

structural system

structural integration system

building facade scenario

interior design by function

building infrastructure

universal design for diffable friendly ferry terminal

safety and fire protection

building exterior

building interior

ENGKU PUTRI INTERNATIONAL FERRY TERMINAL

PROJECT DESCRIPTION



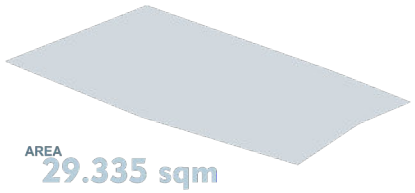
Design Result
Source: Author, 2021

Designing an international ferry terminal that responding the existing condition and preserving the regional by using adaptive reuse and critical reginalism approach. Dealing the current condition and try to redevelop the problems on the existing building. The design increasing the area from 8250 sqm to 12.444 sqm. This increase the terminal area up to 50.8% from the previous area that will affect the terminal capacity. This design also implement the concept application of adaptation as a consideration in building design, especially for existing buildings, will bring benefits both in terms of construction costs and technology that will continue to be in line with the times.

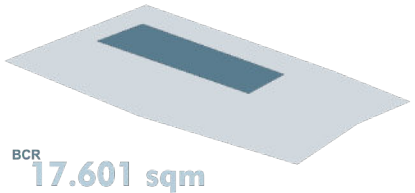


Adaptive reuse and building insertion are the way to adapt to the current condition and try to keep the building functioned as it is and keep up with the current needs and modernism. This approach can extend the life of the building and can respond to issues and circumstances that occur so that in the future the building can still function properly. The principles of critical regionalism are applied to the design so that *local values are not lost and decreased by time and technology*. Therefore it is necessary to implement the principles of critical regionalism in building design so that in the future, the building indirectly tells the *history of the place* itself and makes it a *distinctive feature* in the building.

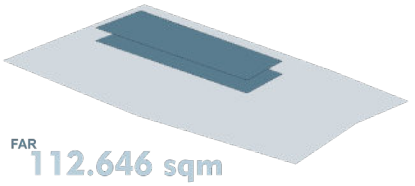
property size



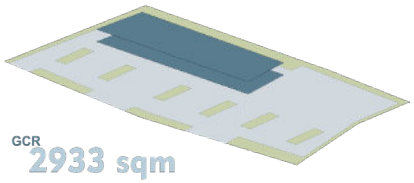
AREA
29.335 sqm



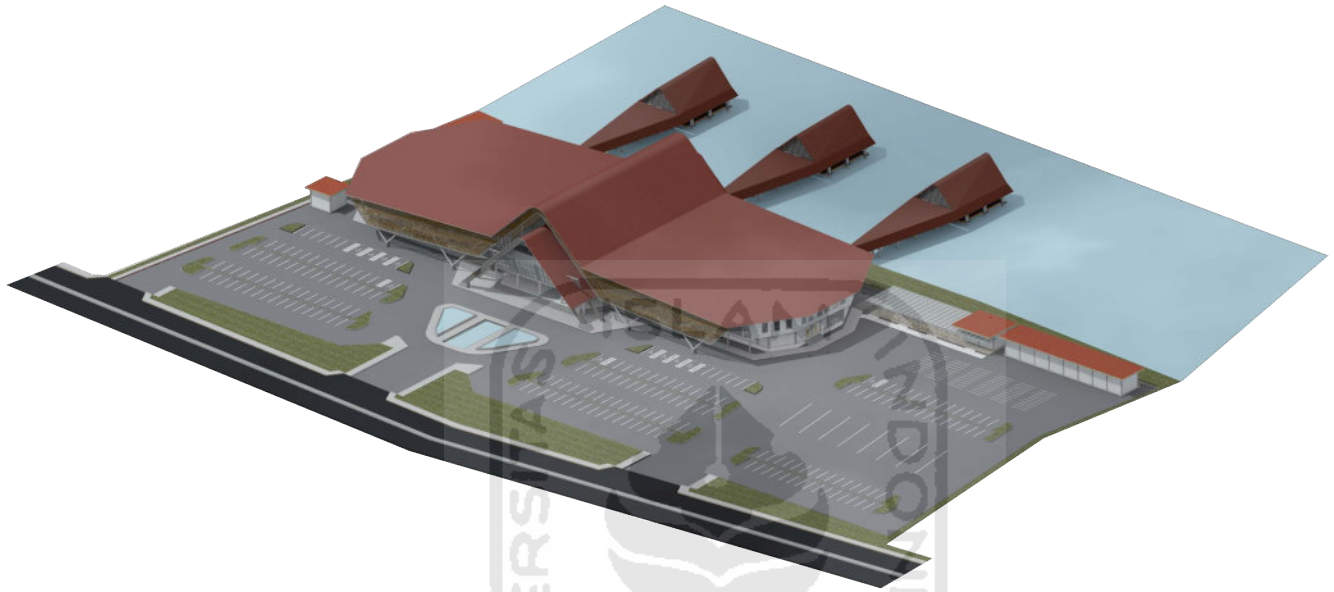
BCR
17.601 sqm



FAR
112.646 sqm



GCR
2933 sqm



SITE AREA
29.335 sqm

BASE BUILDING AREA
12.444 sqm

TOTAL FLOOR AREA
10.840 sqm

TOTAL GREEN AREA
4.931 sqm

FERY PIER AREA
1.008 sqm

Ground Floor

Selasar	*852 sqm*
Main Hall	*1051,3 sqm*
Retail	*586,9 sqm*
Ticketing	*193,8 sqm*
Check-in	*154,6 sqm*
Service	*266,4 sqm*
Canteen	*346,6 sqm*
ATM Centre	*19,25 sqm*
Arrival Hall	*521,5 sqm*
Baggage Claim	*398,5 sqm*
Offices	*386,3 sqm*
Boarding Area	*677,1 sqm*
Ferry Pier	*1.008 sqm*
Toilet	*173,6 sqm*
Storage	*108 sqm*

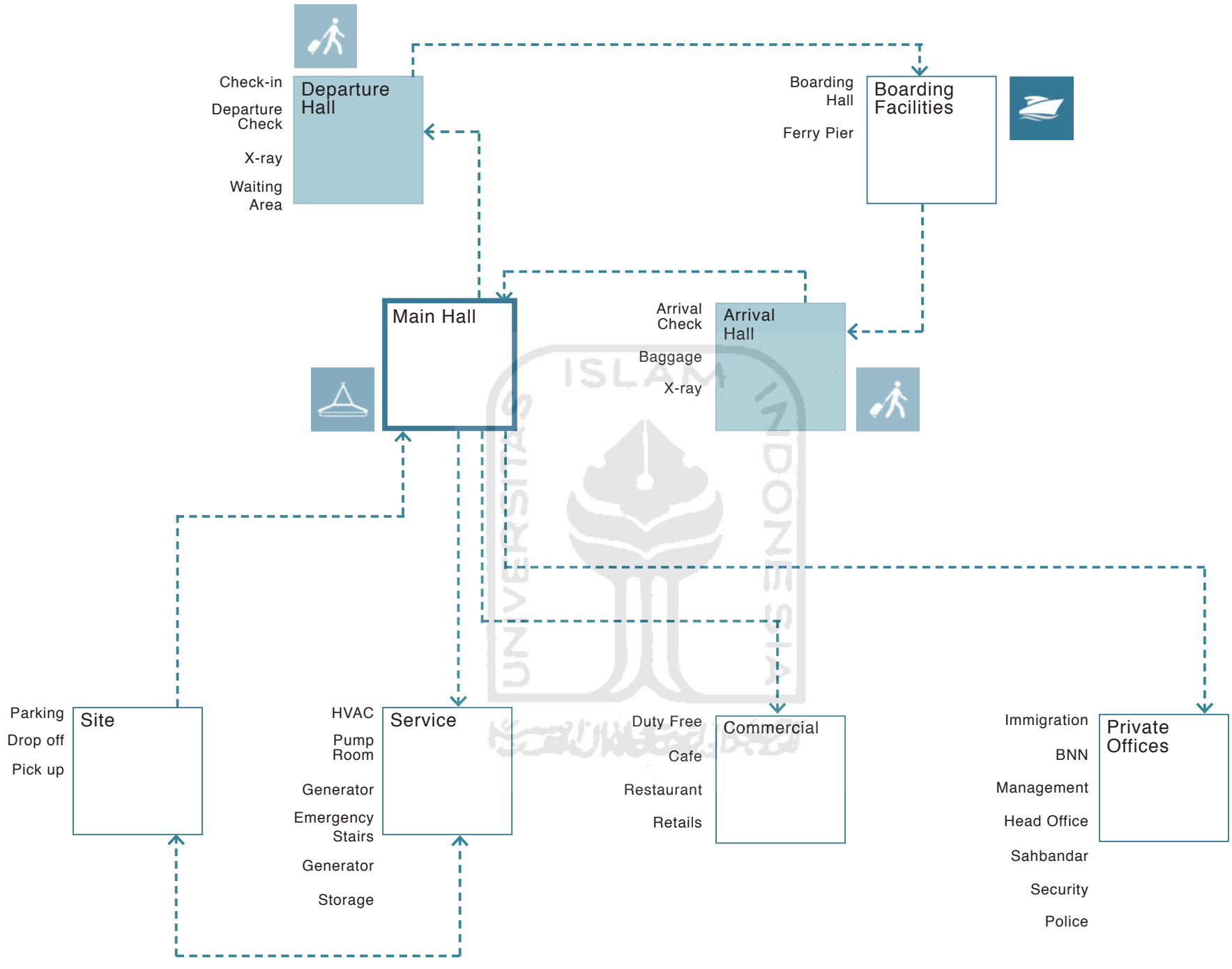
1st Floor

Departure Hall	*1.077,6 sqm*
Hall	*730,24 sqm*
Offices	*697,8 sqm*
Retail	*655,8 sqm*
Mushalla	*411,4 sqm*
Service	*145,2 sqm*
Toilet	*113,62 sqm*

Total Floor Area

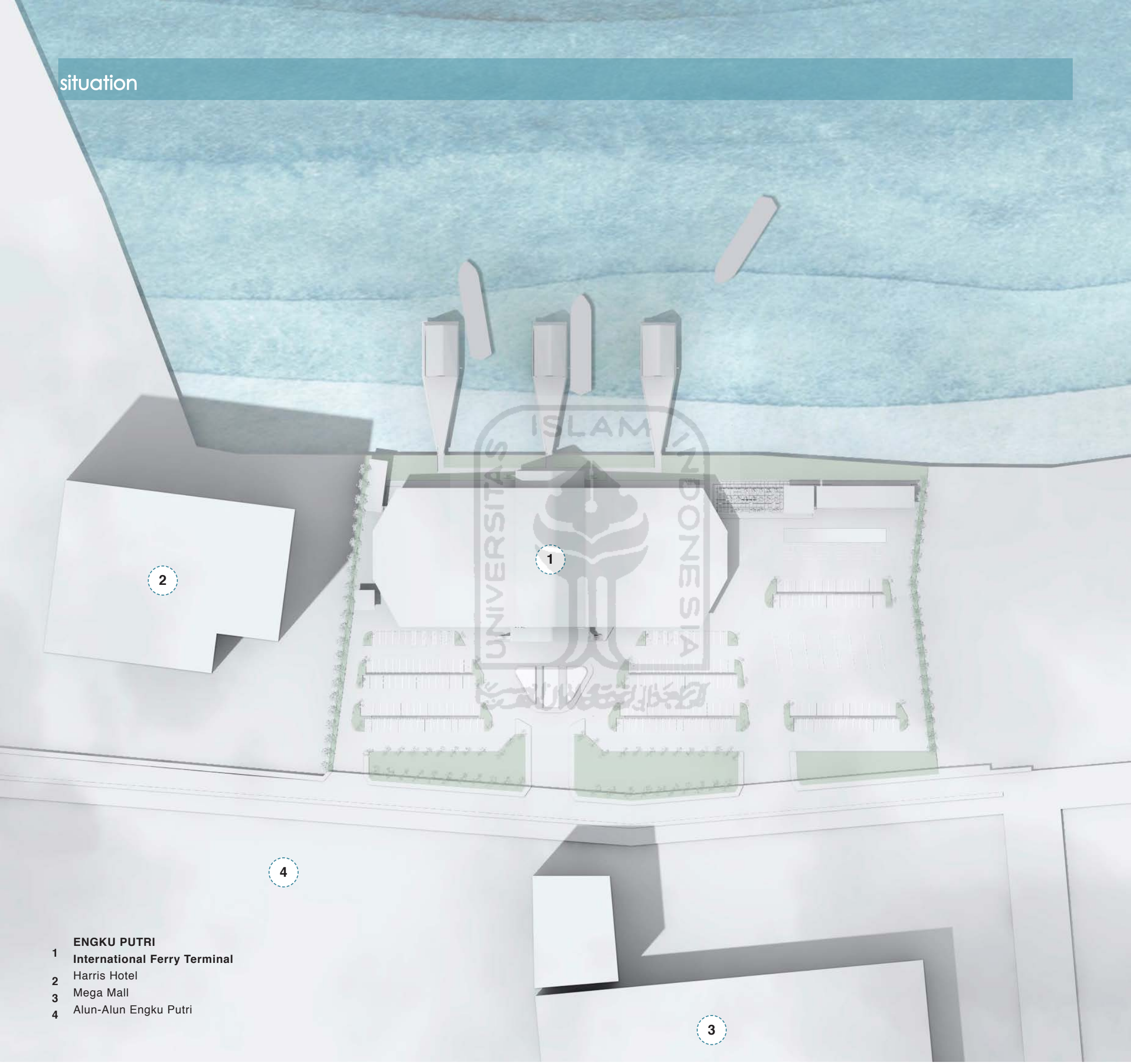
Ground Floor	*7.932 sqm*
1st Floor	*4.512 sqm*

12.444 sqm



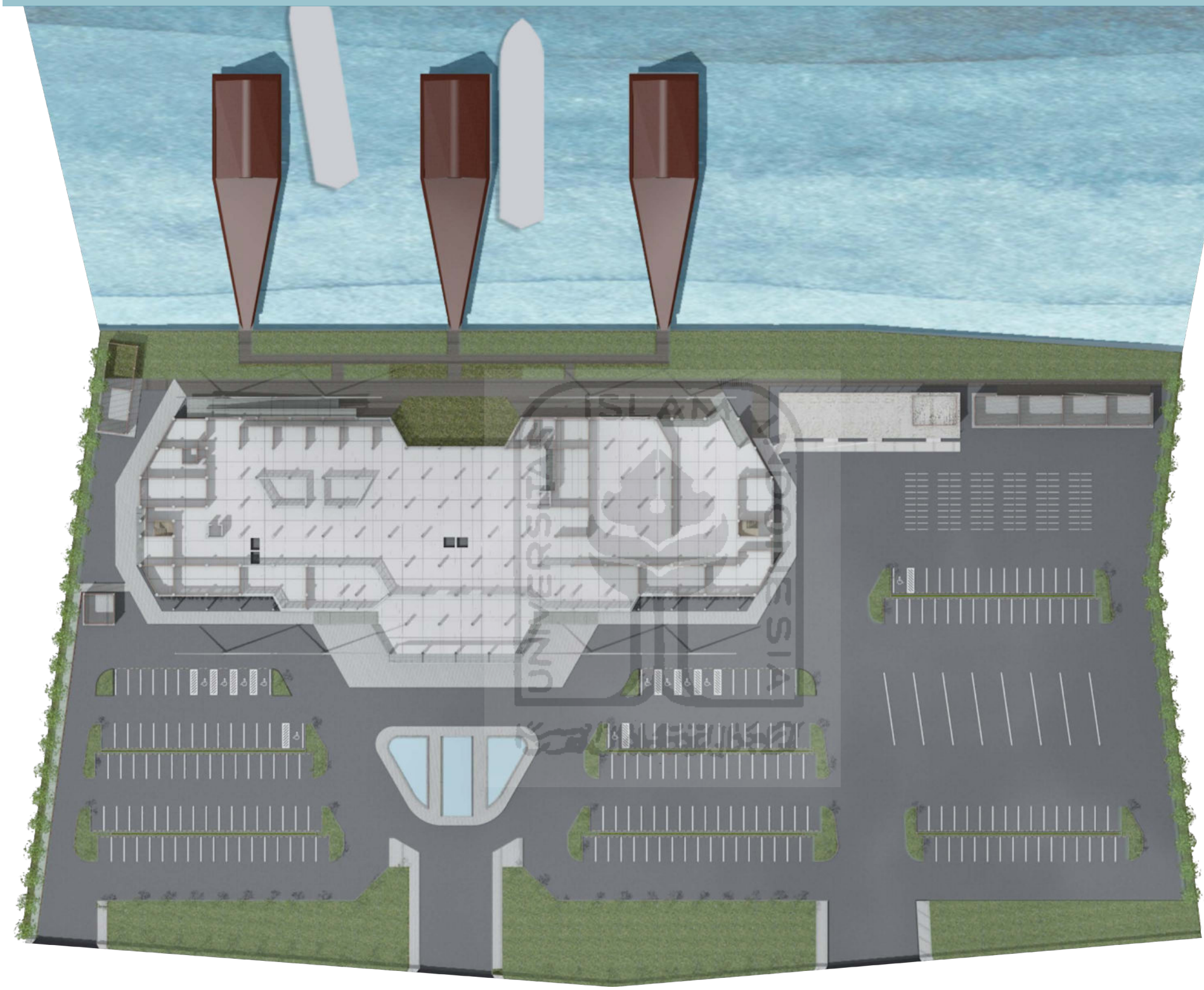
Room programming are developed by analysis on the room needs and zoning to the function to meet the mass and circulation. To answer the problem on distance and separating different terminal function for clear direction onthe circulation.

situation



1 **ENGKU PUTRI**
International Ferry Terminal
2 Harris Hotel
3 Mega Mall
4 Alun-Alun Engku Putri

siteplan



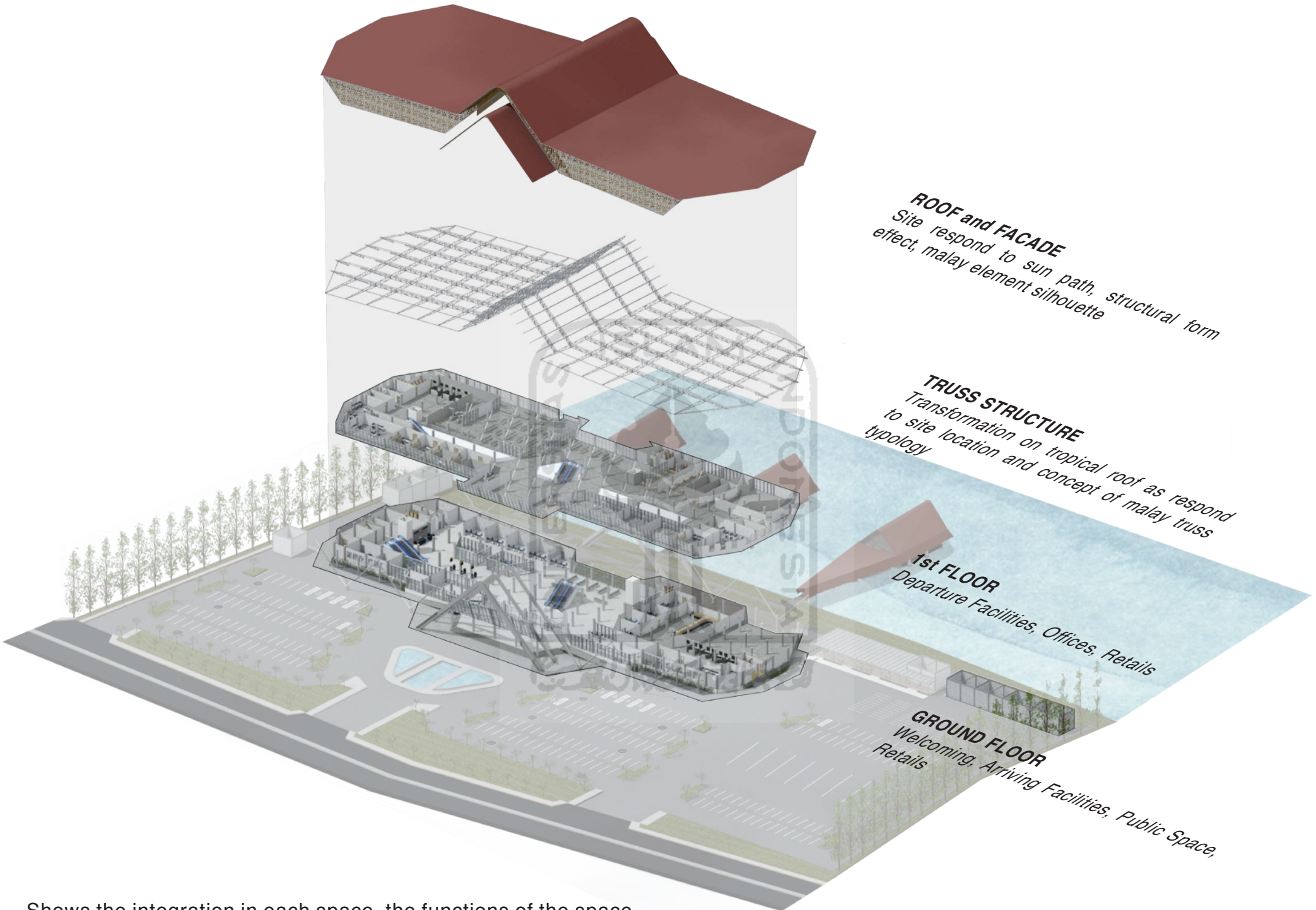
Sea

Greenery

Pavement Parking

Water Pond

Site development are based on the exisitng landscape which form a good zoning that separates the function of ferry terminal. Changing few of site element such as adding the water pond in order to respond the climate condition while also providing more circulation area on the parking. Redesign the Pier and move toward the main building for ease off acces to the passenger ferry terminal



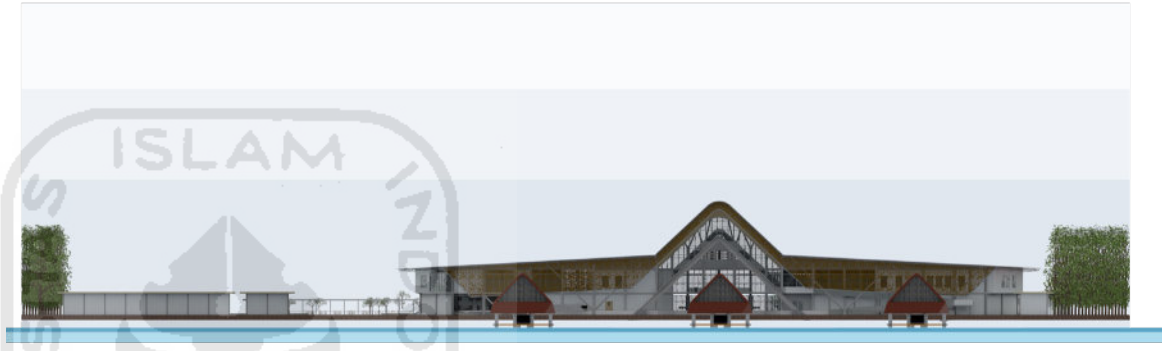
Shows the integration in each space, the functions of the space that are related horizontally and vertically, the components that create the space according to the security and function of the space. Vertical zoning and integration of the surrounding site conditions. Access that connects the design with the sea and pier area.

buidling facade on elevation

It appears with a horizontal character to respond to the surrounding context by applying a tropical roof typology as well as the application of the roof structure of a Malay house with the typology of “atap layar” character on a Malay house which is applied to the design of an international ferry terminal building. The facade represents the regional architecture, both in terms of traditional architecture and typological architecture.



South
Elevation



North
Elevation



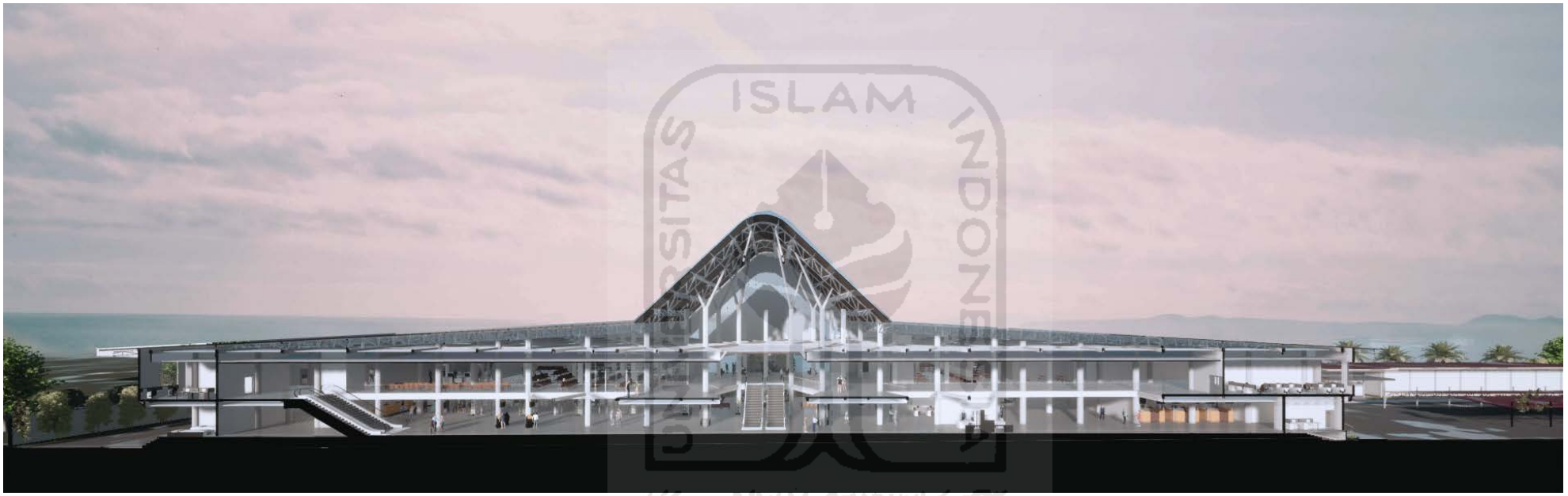
East
Elevation



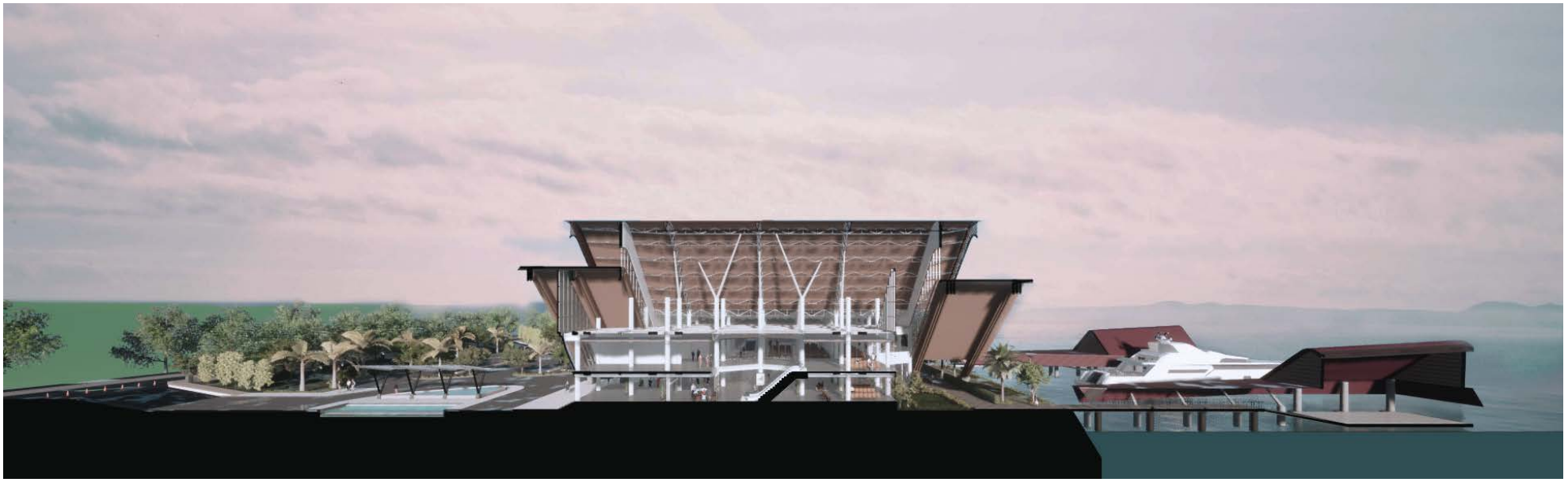
West
Elevation

building section

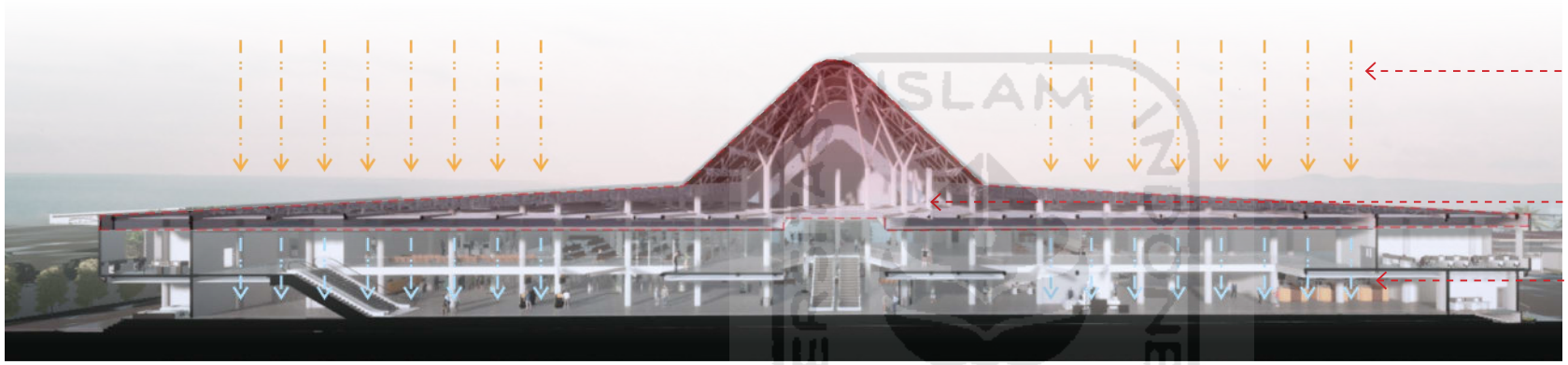
Shows integration regarding the interaction between the main function and support function in the design. The main function is a passenger terminal and supporting functions to enhance the user comfort. The function of the passenger terminal itself is divided into 2 different vertical zones. The departure area is on the 1st floor and the arrival area is on the ground floor. Shows integration related to the process of arrival until departure of passengers. This section also explains how the components of the design interact from the adapted structural systems, roof structures that response to the location of the island of Batam as a tropical island and represent critical regionalism, and the tectonic design of traditional architectural typologies as the implementation of visual meaning.



Longitudinal
Section

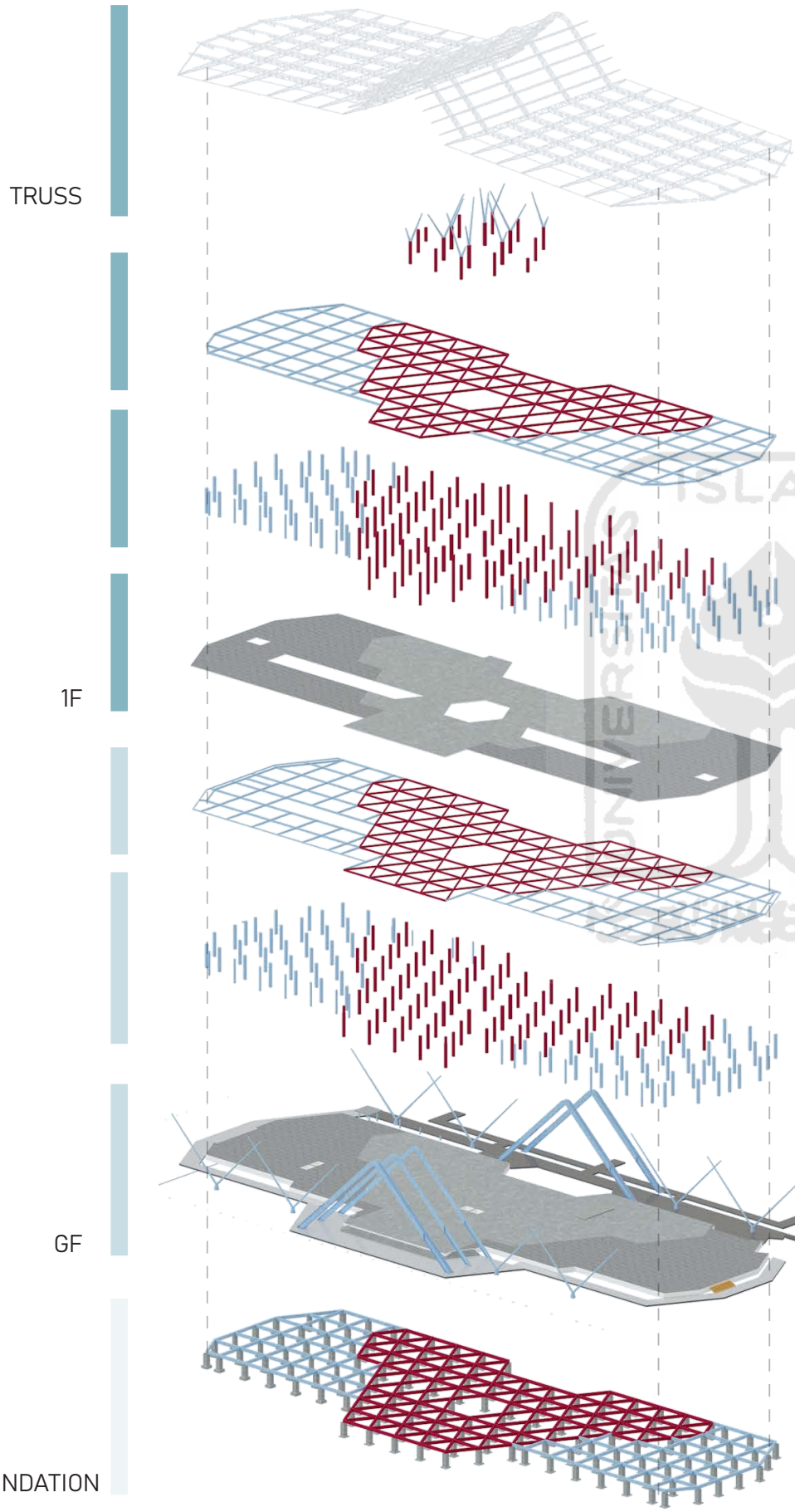


Cross Section
Section



To respond to the wide and large roof surface.The need of air cavity under the roof are needed. Its used to hold the hot air caused by the sun radiation o the roof surface. The hot air are trapped on the large air cavity to prevent the hot air direcltu penetrate into the building interior. This help the active cooling system to not overload on the energy consumption.

structural system



Truss structure using welded tubular steel and bolt joint to the concrete column and beam

Column left on the 2nd floor of existing building for middle area of truss joint

Existing beam and new beam on 1st floor to support the truss structure above

Existing column and new column on 1st floor

Modified existing slab for void and new slab on 1st floor

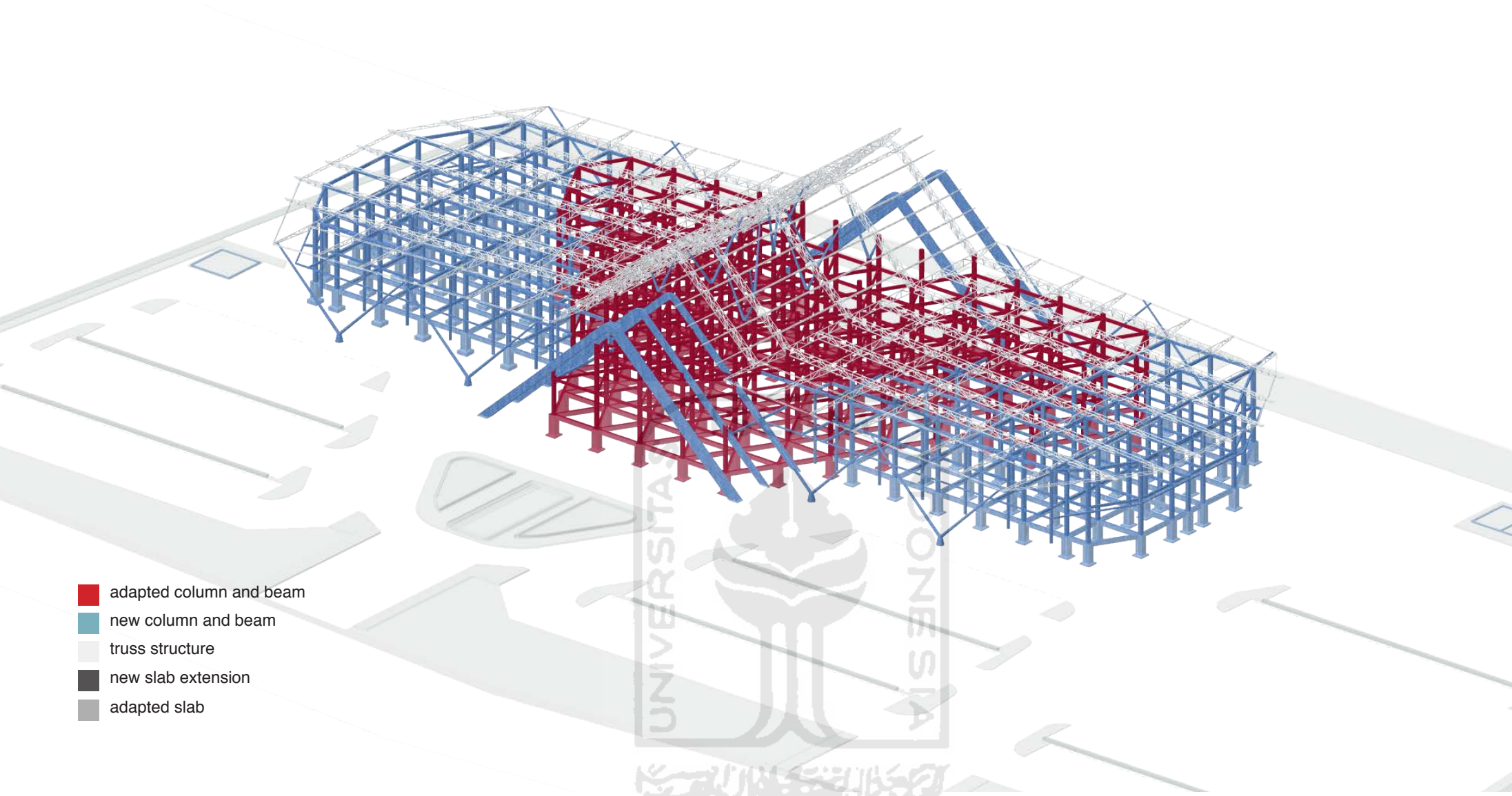
Existing beam and new beam on ground floor

Existing column and new column on ground floor

Existing slab, new slab, and new V-column and selasar column on ground floor

Foundation that adapted and new foundation next to the existing

structural system integration



Shows integration regarding the interaction between the main function and support function in the design. The main function is a passenger terminal and supporting functions to enhance the user comfort. The function of the passenger terminal itself is divided into 2 different vertical zones. The departure area is on the 1st floor and the arrival area is on the ground floor. Shows integration related to the process of arrival until departure of passengers. This section also explains how the components of the design interact from the adapted structural systems, roof structures that respond to the location of the island of Batam as a tropical island and represent critical regionalism, and the tectonic design of traditional architectural typologies as the implementation of visual meaning.

building facade scenario



Aluminium Composite Panel

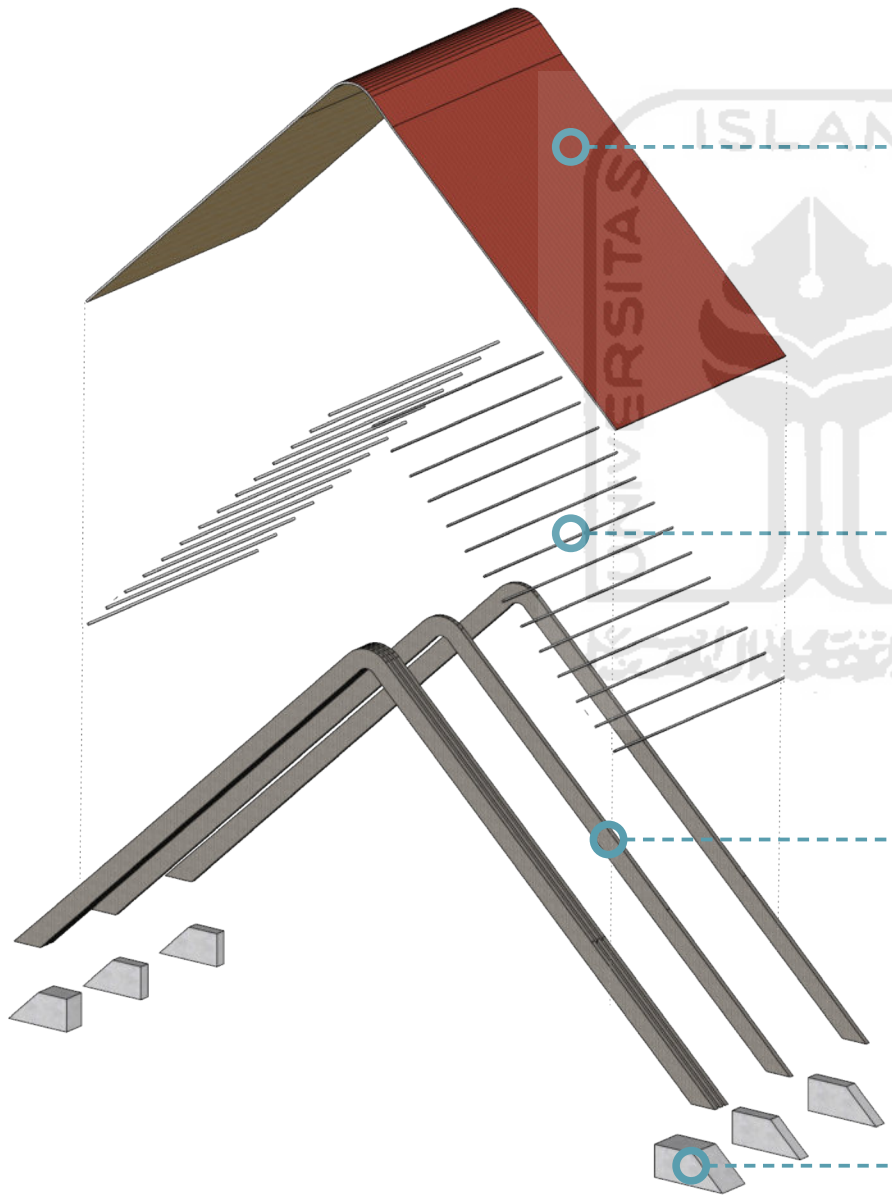
Curtain Wall

Perforated Aluminium Panel

Selasar as Welcoming Area

The development of the building facade concept is based on the results of the adaptation of the shape of the building structure which is taken from the typology of the atap layar structure in Malay houses. The shape of the facade is also representative of the silhouette of the local architectural roof which is also combined with the vent element in the application of secondary skin from perforated aluminum panels that function as filters for direct solar radiation on the building. Another thing to keep maximizing natural light, the use of curtain walls on the facade is an option as well as providing visuals to users inside.

To give a bold impression of the welcoming area in the lobby, elements made in contrast to the more outward part emphasize the overall shape of the building envelope. The repetition of the shape of the atap layar roof structure provides a minimalist form that provides a different focus on the building envelope. Transparent elements with the use of curtain walls at the corners or edges of the building envelope strengthen the character of the concept of integrating the forms of local buildings.



Bitumen Roof

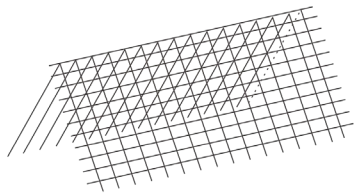
Steel Gording

Concrete Column
responding the Tropical location and malay atap layar structure

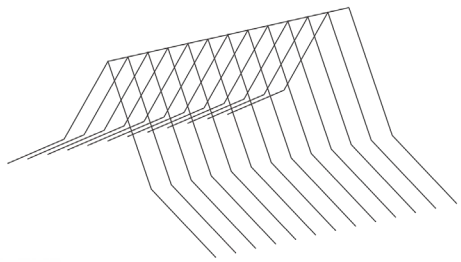
Base Plate
represent stage pole on malay housing typology

Structural Transformation on malay typologi roof and silhuette

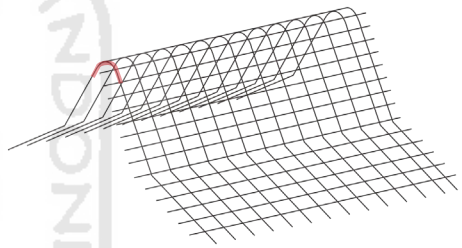
Basic form of 45° pithced roof structure on tropical building responding to the geographical and climate condition



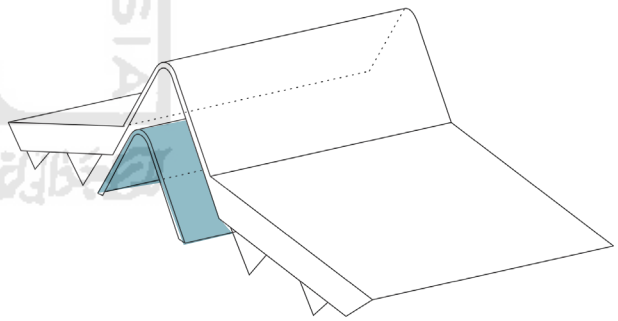
Atap Layar structure form in one of malay house roof typology



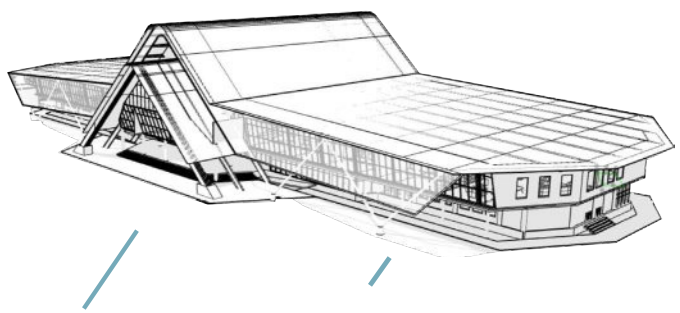
Rounded tip top of the roof to reduce the contact angle on the top point of teh strcuture for delevering seamless strctural load



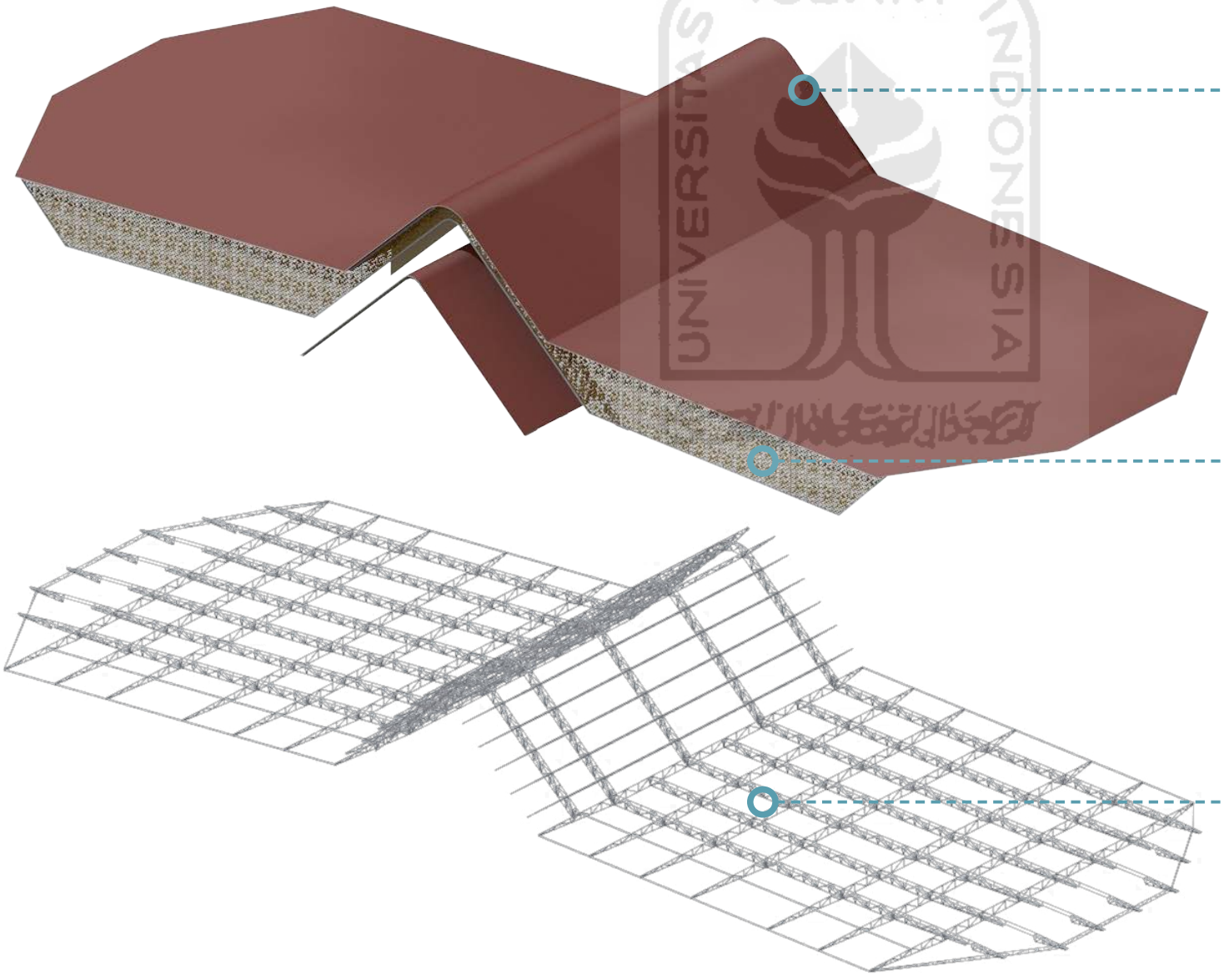
Highlighting the ”Selasar” as welcoming area with different roof height and extend the lisplang for secondary skin to respond the sunpath on the site



Exposing structure at selasar and represent malay lisplang on the roof.



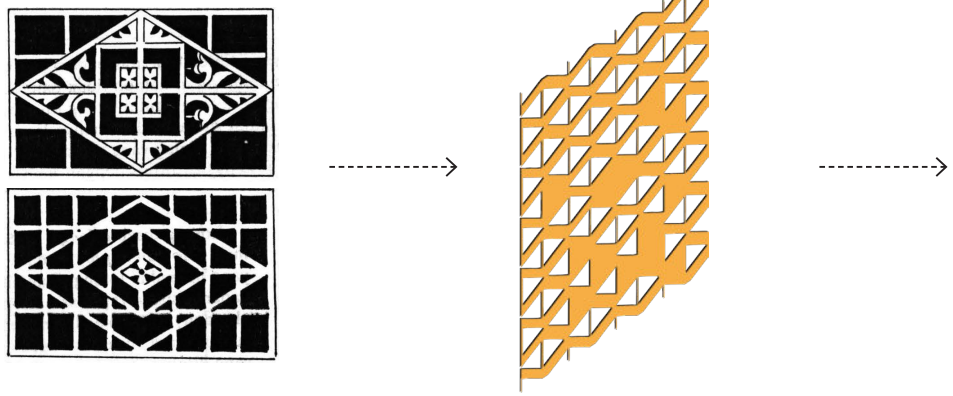
As the transformation result on the structure of malay roof typology and tropical ruuf respond due to the site location the form of outer building coverage are affected by the truss strutcure. It represent the sihuette of malay roof form and colored with soil color in Batam with its reddish bauksit color which also respond to the sun path on the site. While preventing the direct sun radiation, the use of secodary skin using perforated aluminium panel that transformed from malay vent ornament will also boost the malay feature on the building facade.



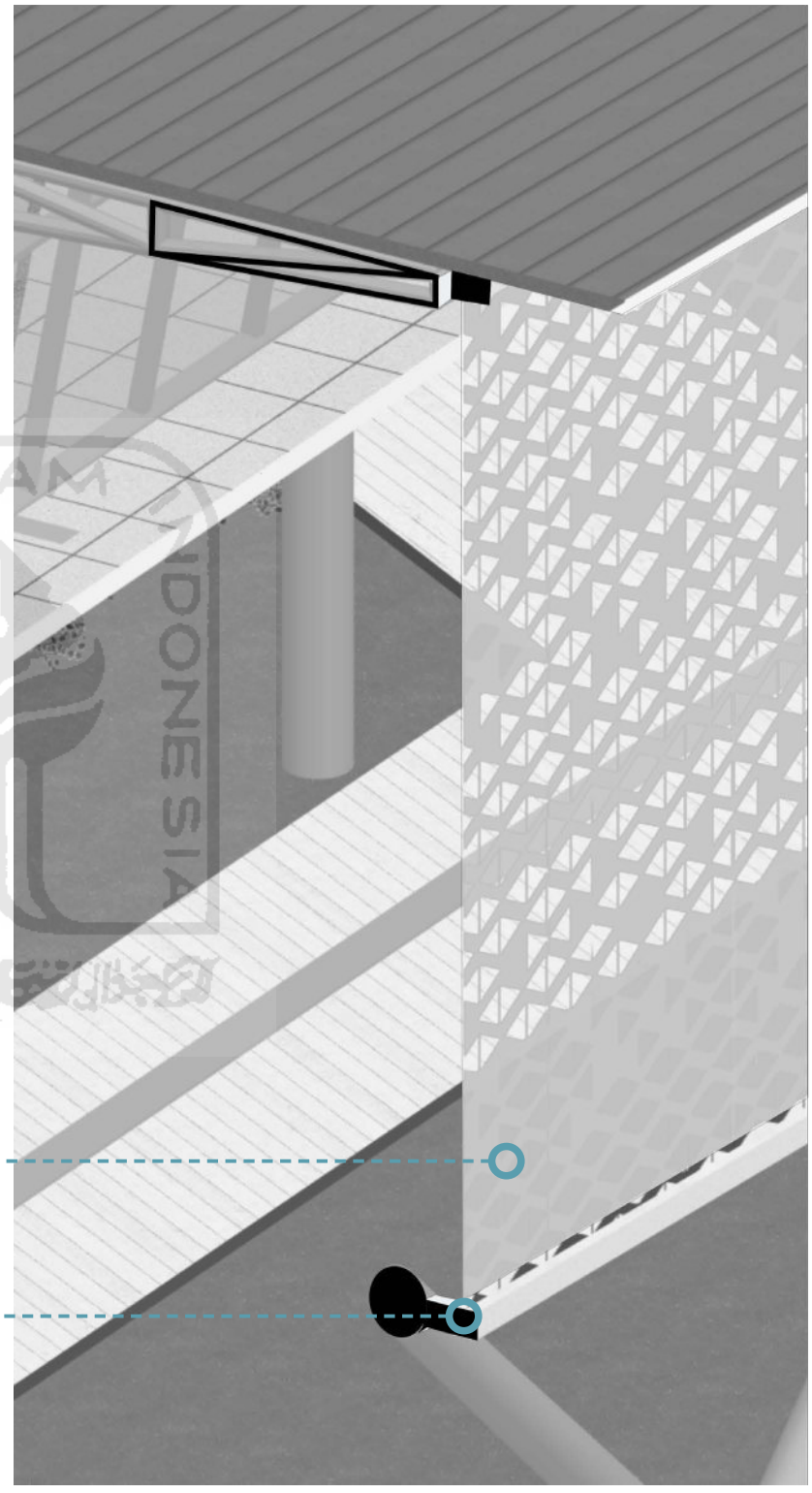
Roof
Colored in red that represent bauksit soil

Secondary Skin
Malay vent ornament and lisplang form

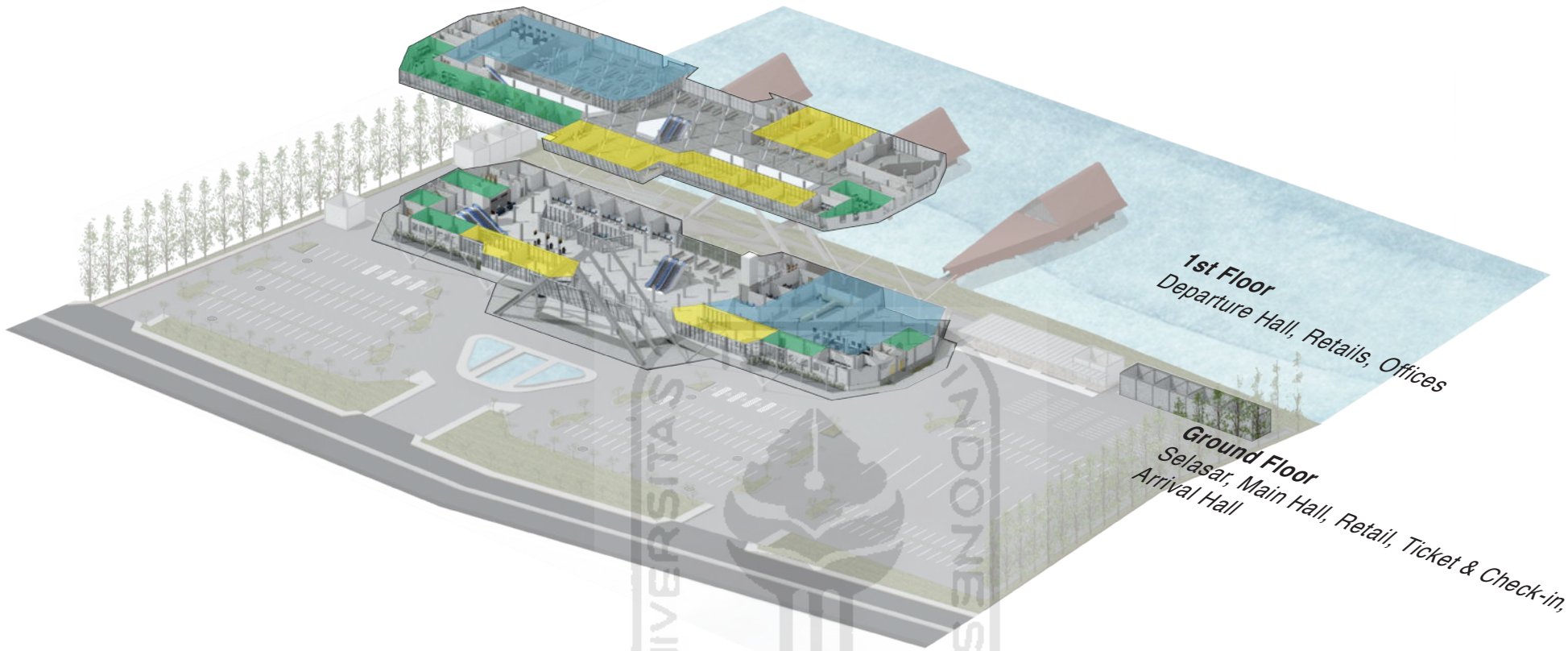
Truss
transformation on malay atap layar roof structure



The secondary skin form is a transformation of the shape of the vent element in a Malay house which is then transformed into a simple geometric shape that is arranged in an abstract so that the repetition is not monotonous so that the facade is more attractive.

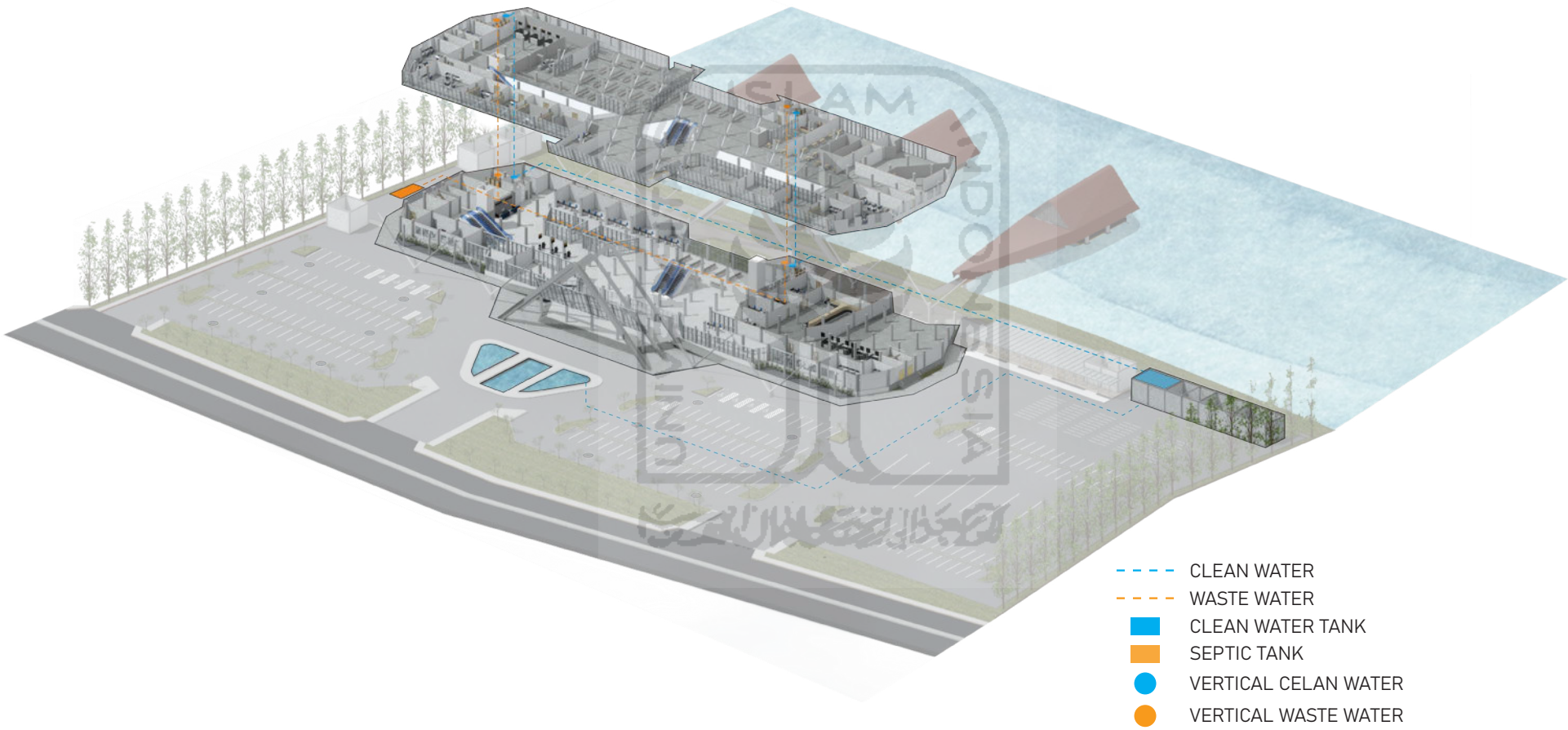


interior design by building function

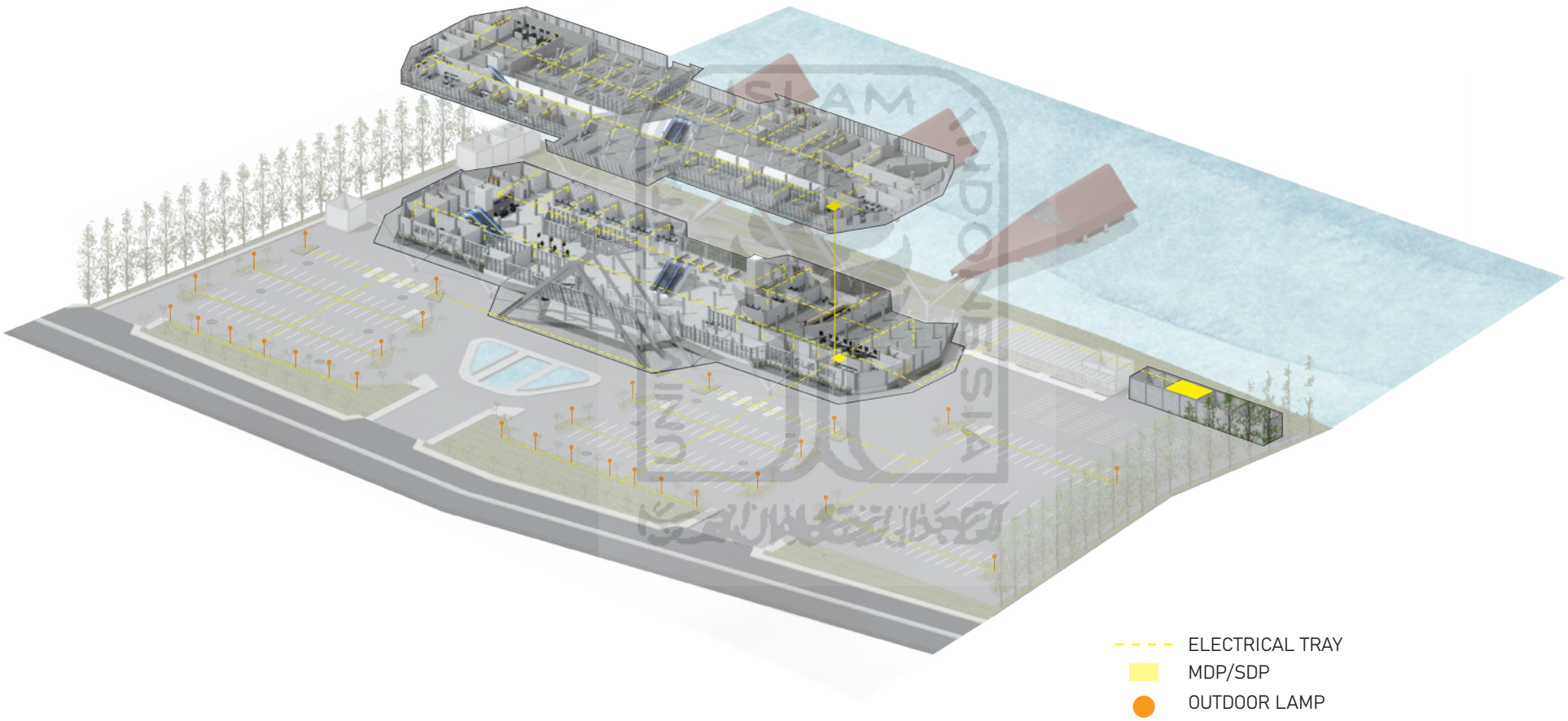


Interior design based on the space and zoning related to the functions in the terminal building. interior design also considering the distance and clear view to enhance a clear circulation that direct the passenger user to departing and arriving in th building.

plumbing


CLEAN WATER
WASTE WATER
CLEAN WATER TANK
SEPTIC TANK
VERTICAL CELAN WATER
VERTICAL WASTE WATER

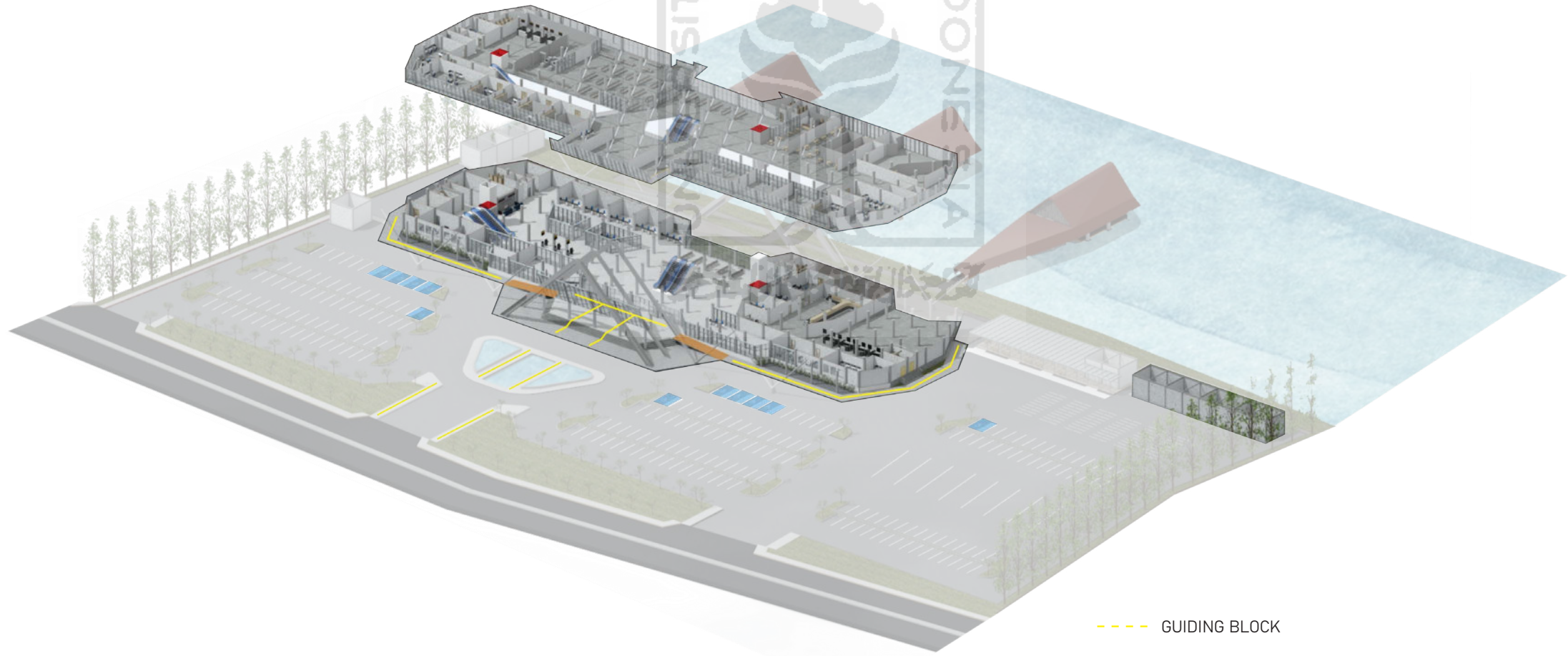
electrical



universal design for diffable friendly ferry terminal

Diffable Access on the building are based on the approach to the main terminal building, On the pedestrian, the design provide guiding block to help the diffable and ramp that has 1.2 m whide for the wheel chair users to help the vertical transport. The existence of elevator also help the diffable user to reach 1st floor to access the departure hall, retails and offices.

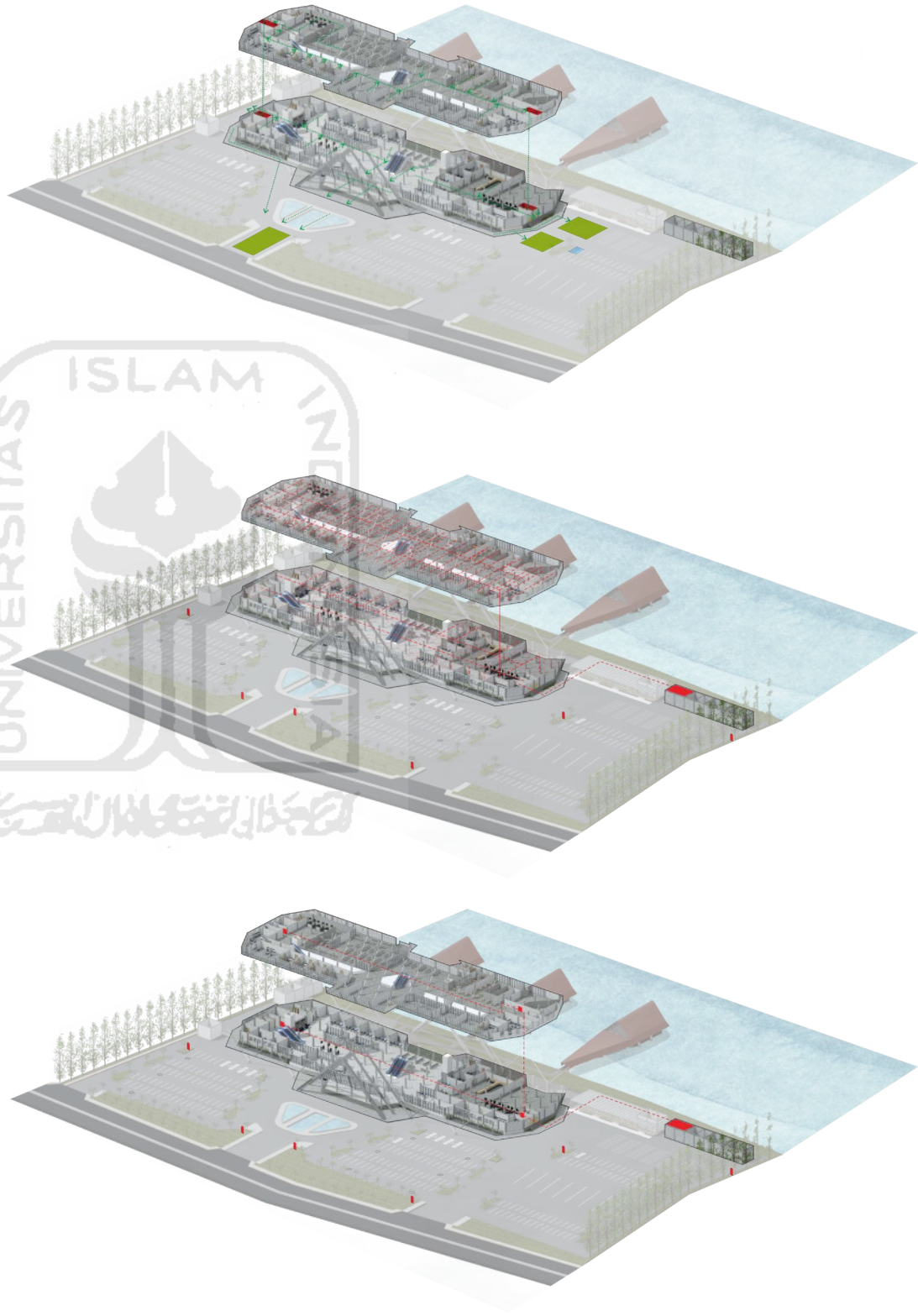




safety and fire protection

The use of outdoor hydrant box and indoor hydrant box ase needed in the ferry terminal. Providing the sprinkler as the passive fire protection that automaticaly operating also helps the building resist the fire condition.

Evcauation are aslo very important. The design has 2 emergency stair located in both side of the building that can spread the user flow evenly so that the evacuation can be done easily. Two assembly point also provided in the site to gather the user from the termnial building.



- EVACUATION ROUTE
- EMERGENCY STAIRS
- ASSEMBLY POINT
- SPRINKLER
- INDOOR HYDRANT BOX
- OUTDOOR HYDRANT BOX

building exterior

Building facade tries to implement the insertion concept, namely contrast and compatible contrast. The proportion of the new building's height is higher and the mass of the new building is bigger, which shows the difference between old and new buildings. In addition, some elements of the old building are still being displayed, which give a similar but different impression to the new building. The application of the concept of critical regionalism in the building itself tries to apply the philosophy of the "selasar" to the Malay house building which functions as a welcoming area and public space. This can be seen from the old building which is slightly infront and has changed its function into a public space and the Main Hall at this terminal.

The front facade implement the concept of roof shape and lisplang of the house act as a secondary skin for the facade. hilghlighted the middle part of the mass to implement a "selasar" as welcoming and public area in traditional malay house.



Exterior Design Intergration with site location





Parking improvement on capacity



Facade transformation for showing image of Batam



Remove the bridge and change to underground tunnel



extend the capacity on the canteen



Welcoming are as representative of “Selasar” in Malay house



Malay vent element transformation on secondary skin panel



Ferry Pier represent the fishing boat in Malay Finsherman Sea Complex



Departure Boarding Area



Arrival Hall



View from sea and pier



Exit gate view



Terminal, Boarding hall and Pier



Canteen view to fery pier

building interior

Interior design based on the space and zoning related to the functions in the terminal building. interior design also considering the distance and clear view to enhance a clear circulation that direct the passenger user to departing and arriving in th building.
Interior building are the way to improve the quality and space needed by the ferry terminal activites



Main Hall

Building interior that has clear vision for circulation

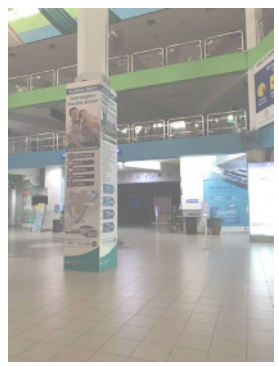




Change the intrior color for better visual



Remove all unnecessary element that distract the circulation view



Keep the existing column shape to show the adaptation

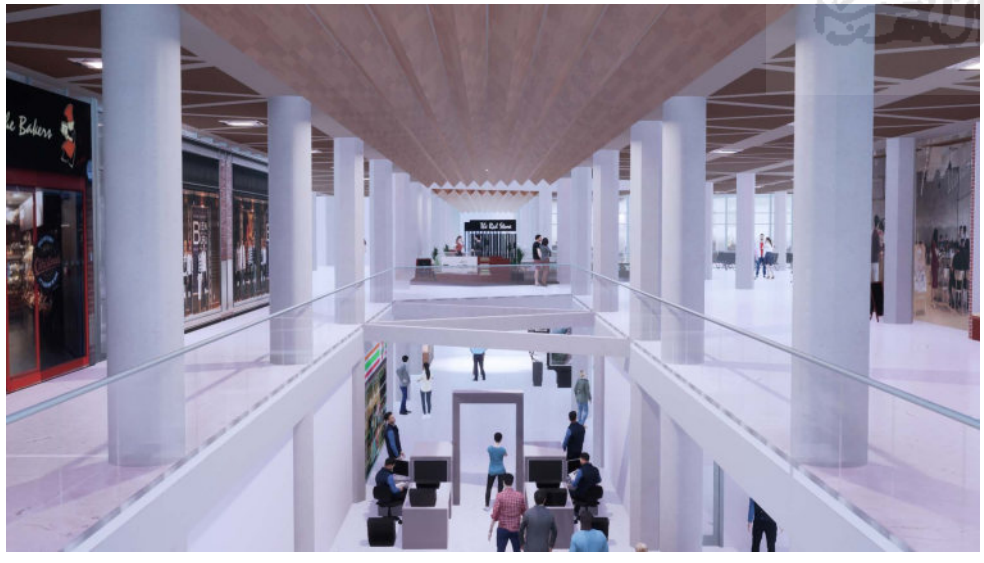


1st Floor Hall as public facilities and non-passenger waiting area



non passenger waiting area

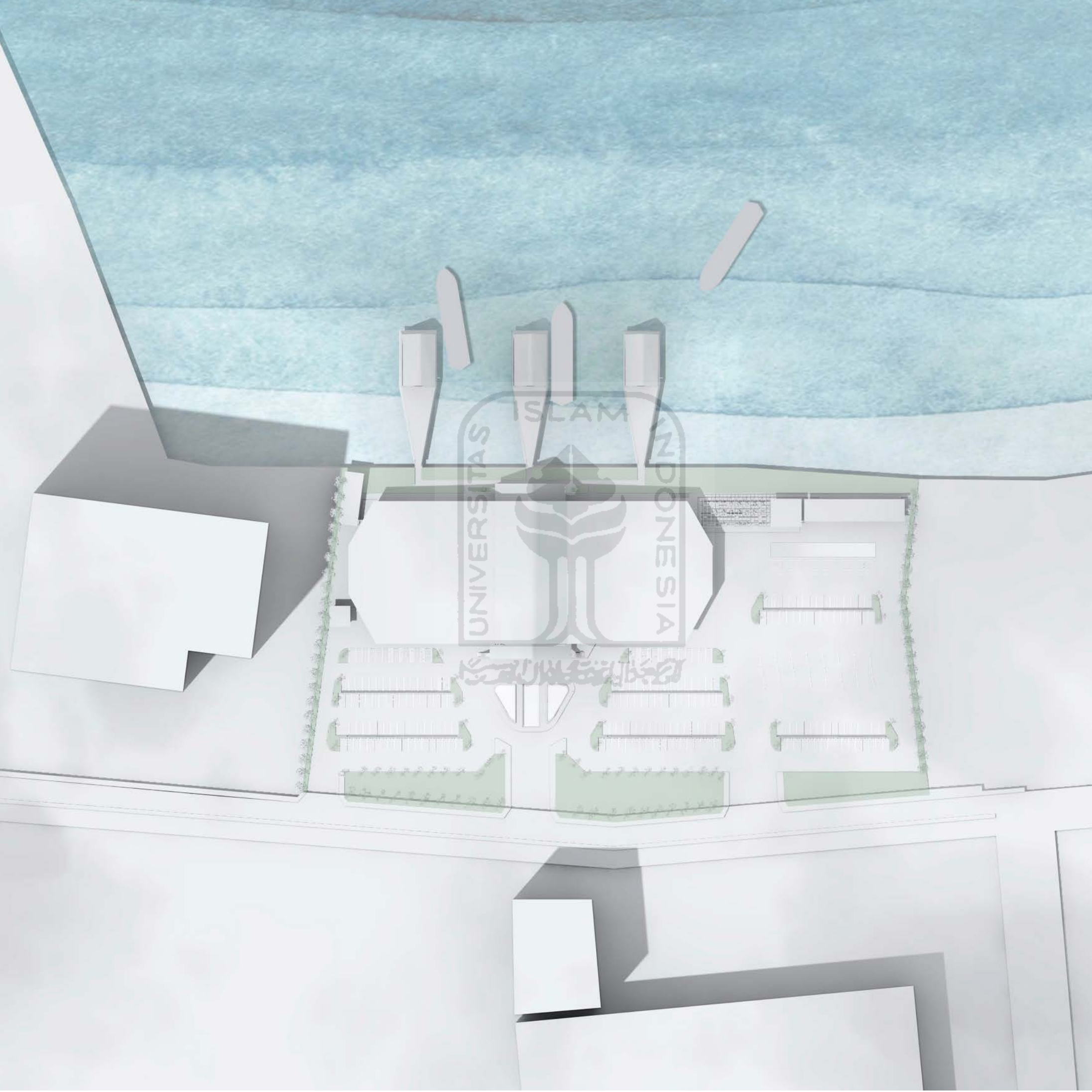
Departure Hall that with clear circulation view and directed linear path



Arrival Check Area from 1st Floor



Arrival Baggage Claim





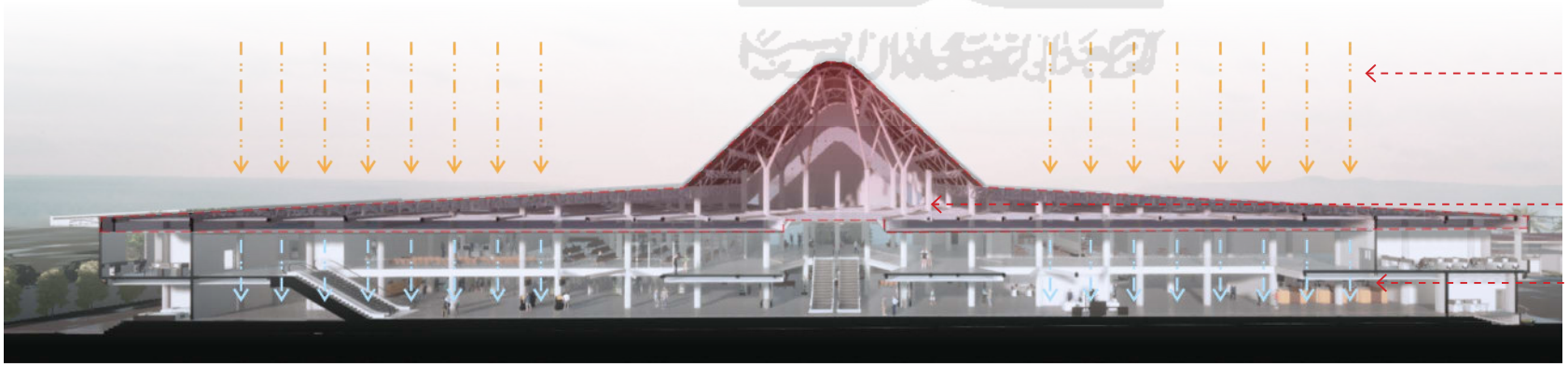
Final Design Front View
Source: Author, 2021

8

evaluation result

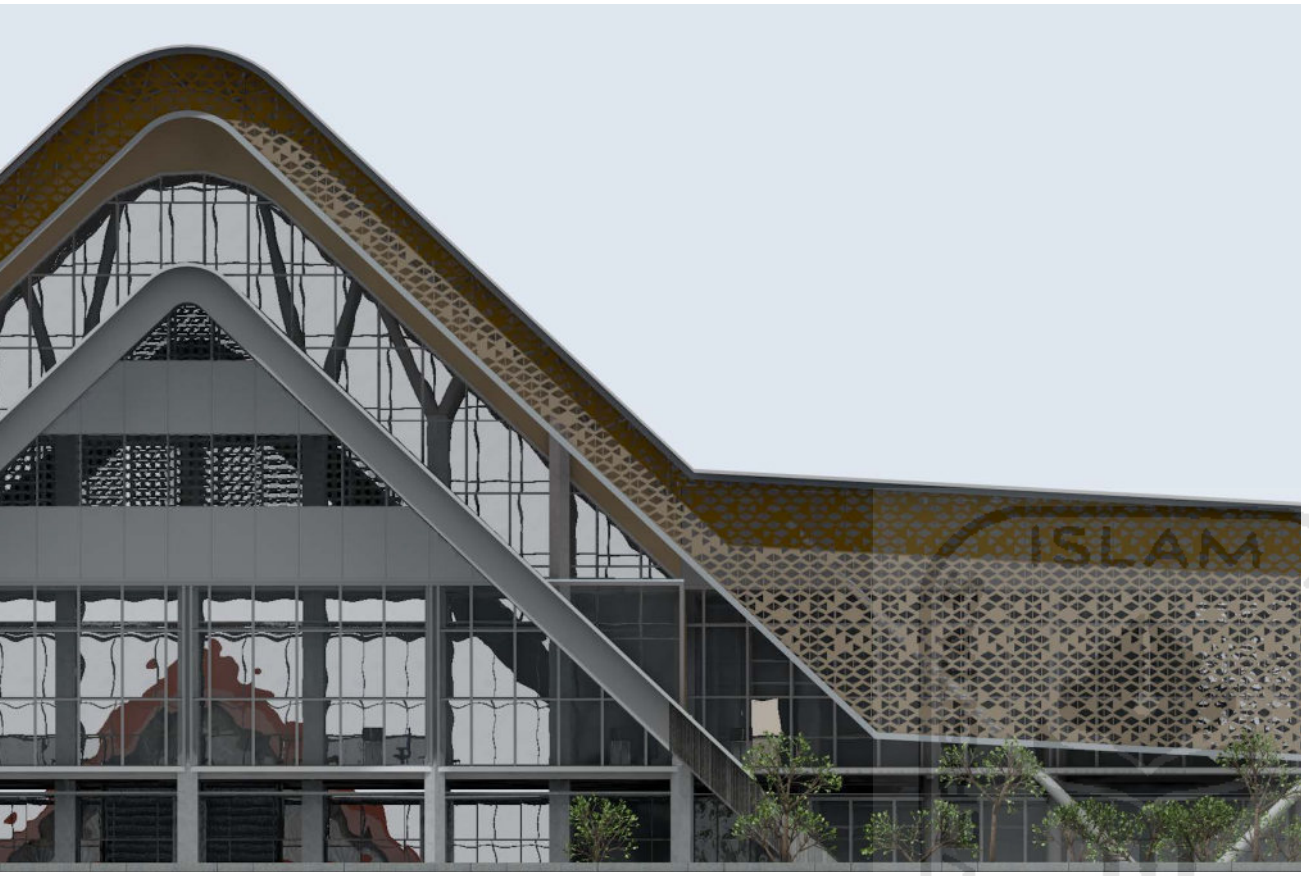
air cavity on roof ceiling





Giving more explanation on the air cavity area to explain how the haet cathed on the air cavity that affect the active cooling system in the building

front facade element to reduce heat transfer



Previous Design

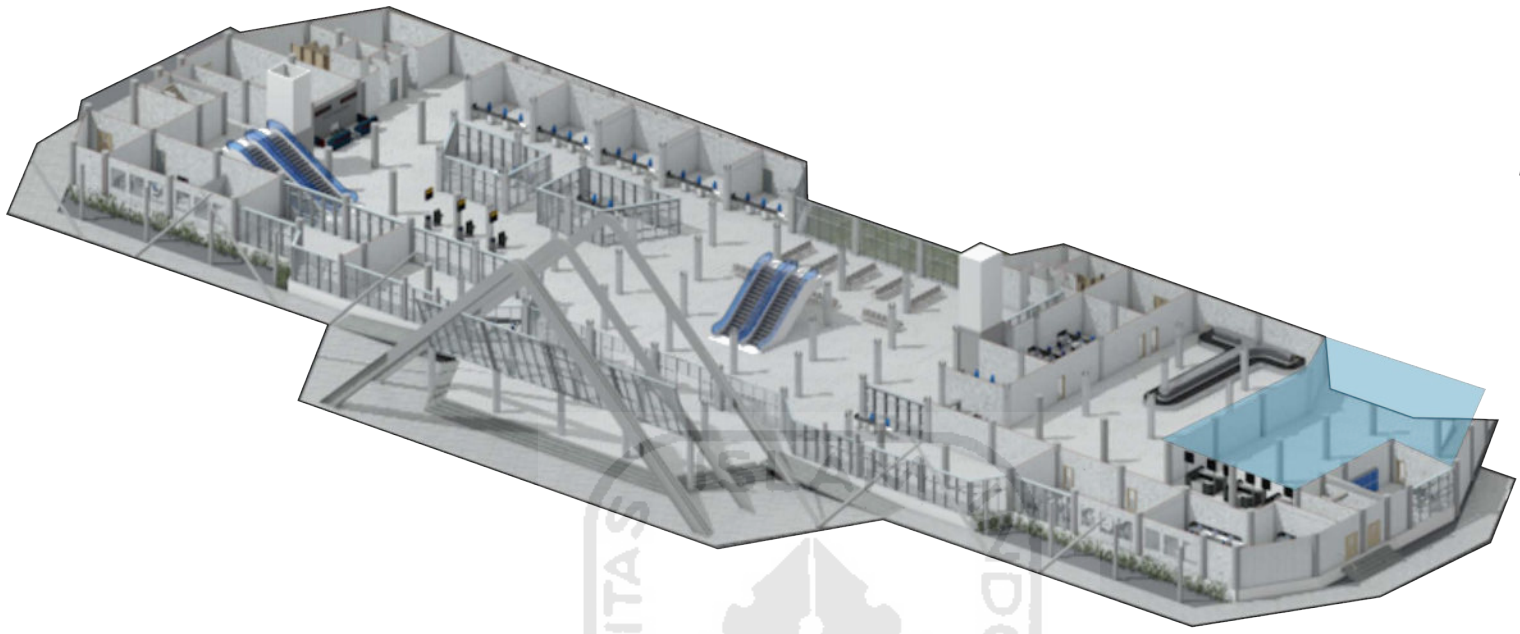


Revised Design

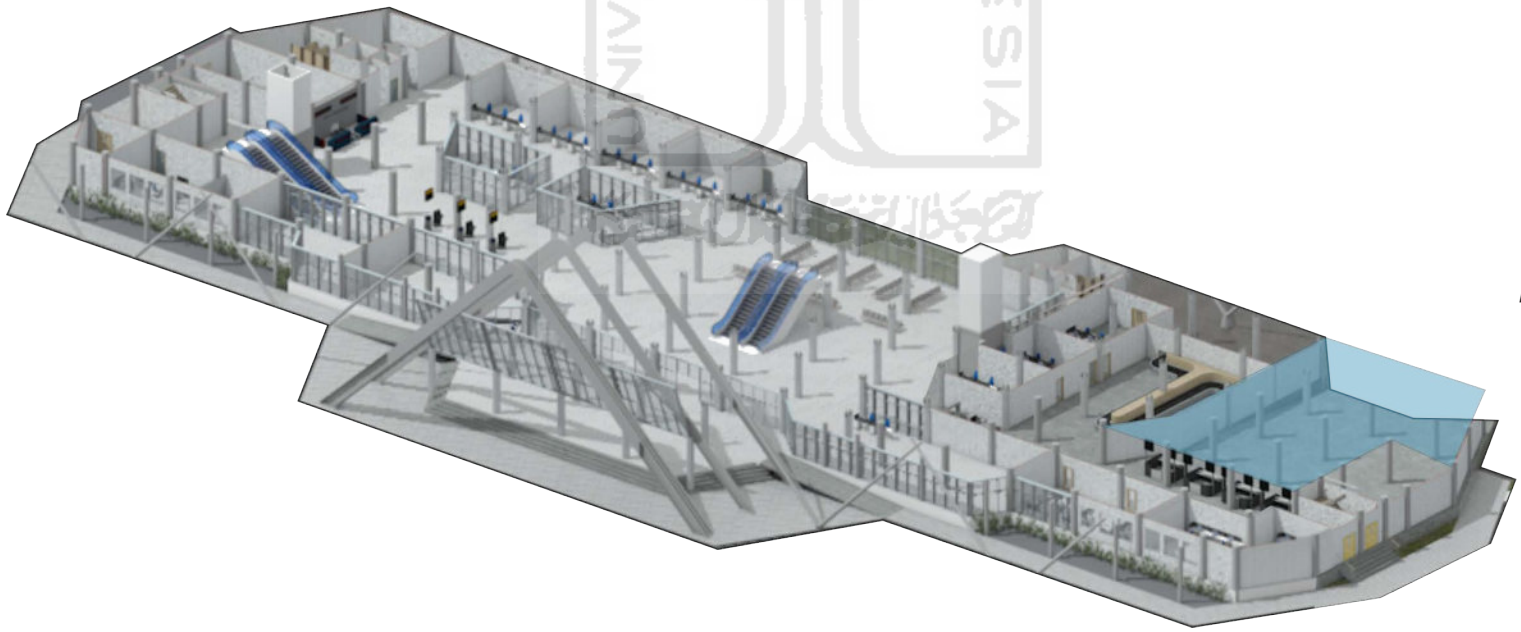
The previeous facade are mostly using lot of curtain wall that give more heat and glare to the inner space.

Changing the material to aluminium composite panel on the top and keep using the curtain wall for the commercial facilities on the 1st floor to give the view and sunlight

building plan on arrival hall



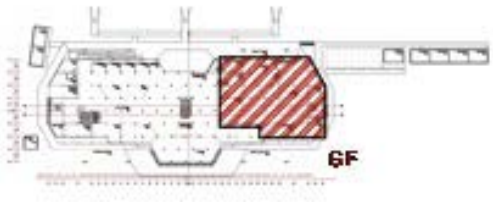
Previous Design



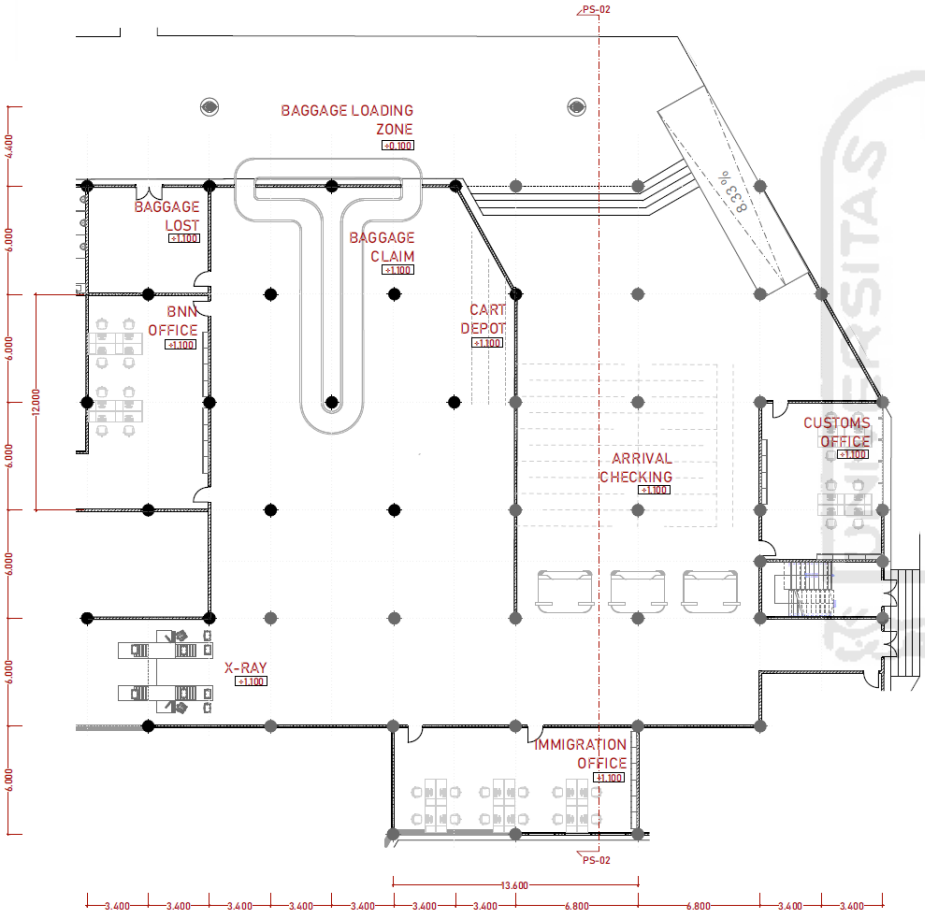
Revised Design

Increasing the arrival hall area to for larger capacity of passenger. The area can hold up to 260 passenger.

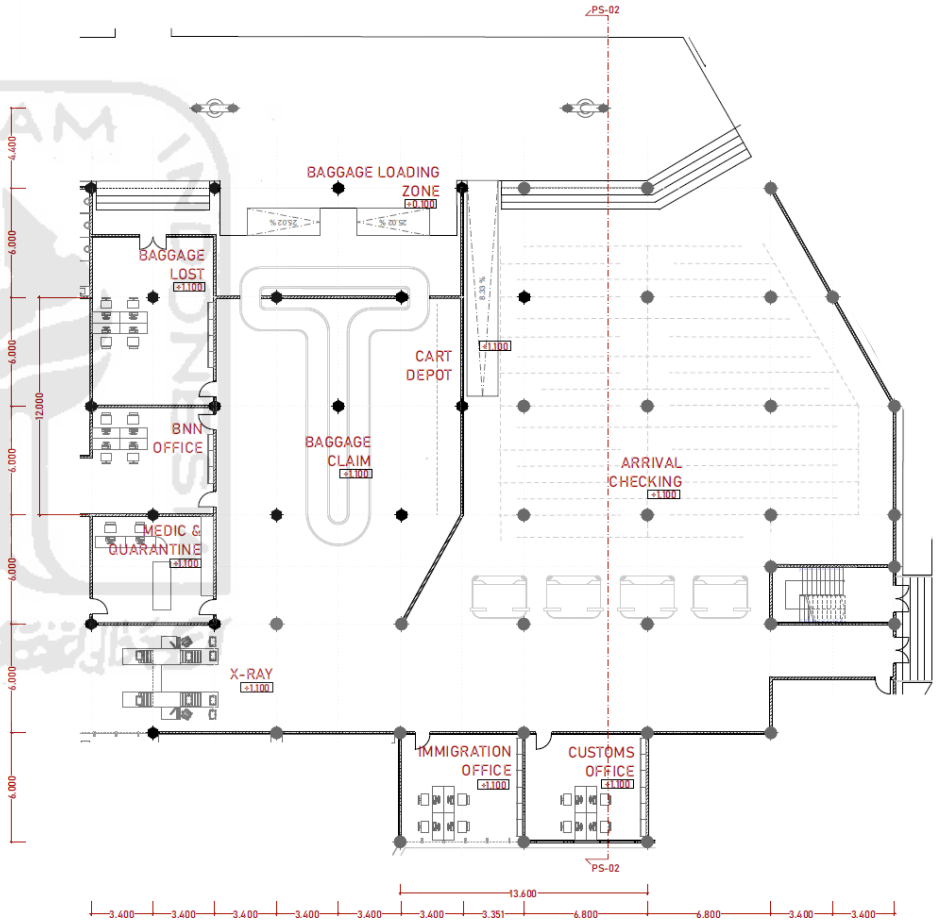
arrival partial p

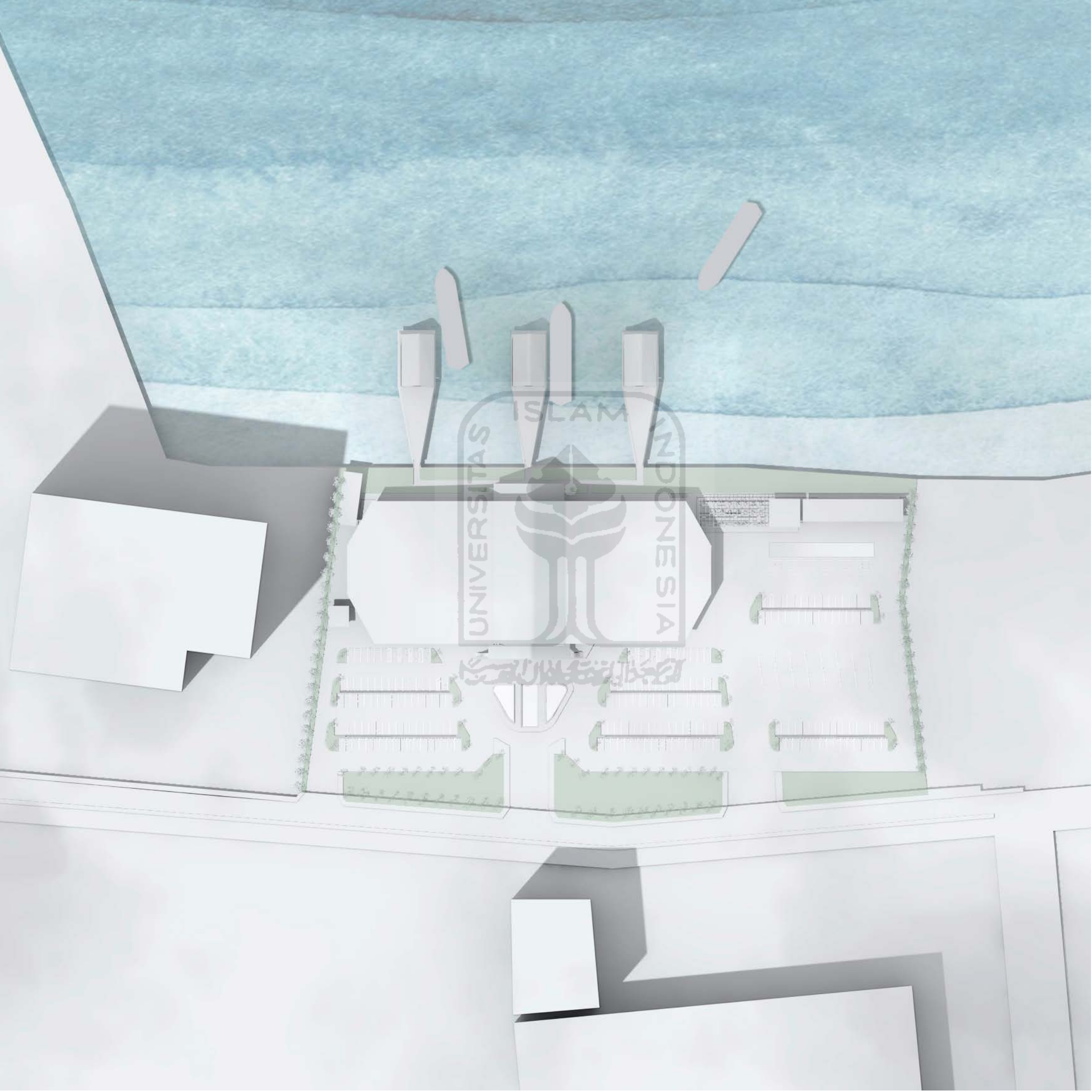


Previous Design



Revised Design







Final Design Front View
Source: Author, 2021

9. attachment

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F. (0274) 898444 psw.2091
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W. library.uii.ac.id

SURAT KETERANGAN HASIL CEK PLAGIASI

Nomor: 1611003205/Perpus./10/Dir.Perpus/VI/2021

Bismillaahirrahmaanirrahiim

Assalamualaikum Wr. Wb.

Dengan ini, menerangkan Bahwa:

Nama	: Qois Ridha Dhiyaulhaq
Nomor Mahasiswa	: 17512131
Pembimbing	: Dr-Ing Putu Ayu Pramanasari Agustiananda, S.T, M.A.
Fakultas / Prodi	: Teknik Sipil Dan Perencanaan/ Arsitektur
Judul Karya Ilmiah	: ENGKU PUTRI INTERNATIONAL FERRY TERMINAL by adaptive re-use and critical regionalism

Karya ilmiah yang bersangkutan di atas telah melalui proses cek plagiasi menggunakan **Turnitin** dengan hasil kemiripan (*similarity*) sebesar **2 (Dua) %.**

Demikian Surat Keterangan ini dibuat untuk dapat dipergunakan sebagaimana mestinya.

Wassalamualaikum Wr. Wb.

Yogyakarta, 23 Juni 2021
Direktur

UNIVERSITAS ISLAM INDONESIA
DIREKTORAT PERPUSTAKAAN
YOGYAKARTA

Joko S. Prianto, SIP., M.Hum

ENGKU PUTRI
INTERNATIONAL FERRY TERMINAL

with adaptive re-use and regionalism approaches



Jl. Engku Putri, Kel. Teluk Tering Kecamatan Batam Kota, Kota Batam, Kepulauan Indonesia

1.130003,104.0548037

Engku Putri International Ferry Terminal Batam Center is the development of adaptive reuse and regionalism approach in order to create an ease of circulation in an effort to enhance the ferry terminal as an international gateway via sea lanes from Singapore and Malaysia to Batam, as well as an icon and landmark that becomes the first impression when foreign tourists enter the city of Batam. In order to achieve an international ferry terminal that has the characteristics of a region where it was established and which considers the circulation to minimize the travel time of user, it is done by improving the physical area using a regionalism approach and good circulaton in room programming. It expected to create a new branding on the international ferry terminal that brings the values of Malay culture as well as minimizing the time movement of passenger in ferry terminal that while also expressing the tradition.

DESIGN CONCEPTS





ARCHITECTURE DEPARTMENT
FINAL ARCHITECTURAL DESIGN STUDIO

SUPERVISOR Dr-Ing Putu Ayu Pramanasari Agustiananda, S.T, M.A.

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background



Ports as International Gates

Role as an *entry point* for foreign countries to Indonesia.

Development of Tourism Areas

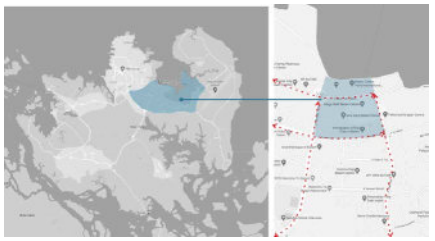
Second national contributor to foreign tourists, after Bali. So it's requires Batam to have good international terminal facilities as the *entrance point* for tourists.

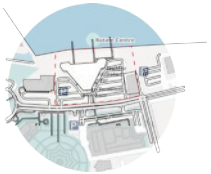
Batam as a Malay Land

Lack of malay nuances in most of buildinf in Batam. So the needs of implementation of malay nuances are necessary

site location

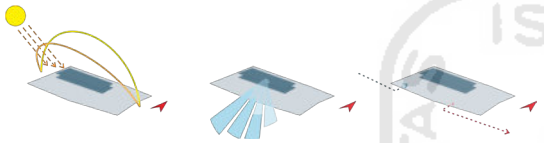
Jl. Engku Putri, Kel. Teluk Tering Kecamatan Batam Kota, Kota Batam, Kepulauan Riau, Indonesia
1.130003,104.0548037





The design boundaries include:

North	: Teluk Tering
South	: Jl. Engku Putri Utara
East	: Harris Hotel Batam Center
West	: Public Service Mall



Sun Wind Access

design frameworks

ENGKU PUTRI INTERNATIONAL FERRY TERMINAL
cultural legacy within modernism

object				
issues	transportaion and international terminal	vision of tourism of Batam	preservation of Malay culture	development on the existing ferry terminal
context	International Ferry Terminal	development tourist area	culture as the image of the city	adaptive reuse
general problem	How is the design of the International Port to show the image of Batam with the application of critical regionalism and adaptation to the existing building to minimize the time and distance of passenger movement			
specific problem	How to design an international port layout in order create an ease of access for passengers?	How to design a port building that is able to adapt the existing conditino and show the image of Batam?		
literature study	*port typology*	*critical regionalism*	*adaptive reuse*	*circulation*
	ship, passenger, building		form, sense, material, culture	
	room programming	circulation	structure	massing	building facade	landscape
synthesis	*architectural port design with implementing the critical regionlism while adapting to the existing building and create an ease of access for passengers while expressing the tradition*			

design concept

International Ferry terminal

- adaptive reuse
- critical regionalism
- circulation

room programming
structure
circulation
massing
building facade
landscape

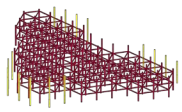
international port that create an ease of access for passengers

port building that able to adapt the existing conditino and show the image of Batam

architectural port design with implementing the critical regionlism while adapting to the existing building and create an ease of access for passengers while expressing tradition

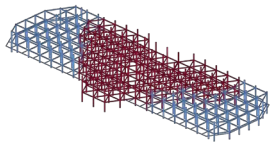
design strategIES

Change of use adaptation with selective demolition



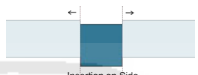
demolish the building element that not suitable to the development target

Change of use adaptation with extension of facility

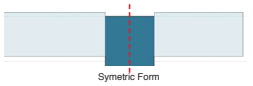


extend to regain the space needs for the terminal building.

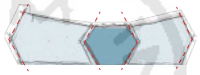
Building Insertion



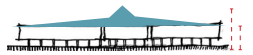
Insertion on Side



Symetric Form

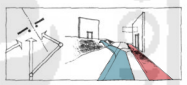


Identical Figure Ground

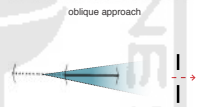


Contrass Building Height

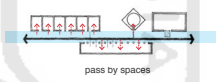
Ease of Access



oblique approach



linear path

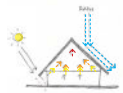


pass by spaces

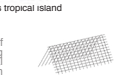


pass trough spaces

Regionalism



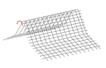
pitched roof as tropical island



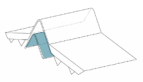
Basic form of 45° pitch ed roof structure on tropical building responding to the geographical and climate condition



Atap Layar structure form in one of malay house roof typology



Rounded tip top of the roof to reduce the contact angle on the top point of teh strcuture for delevering seamless strctural load



Highlighting the "Selasar" as welcoming area with different roof height and extend the lisplang for secondary skin to respond the sunpath on the site



Exposing structure at selasar and represent malay lisplang on the roof.

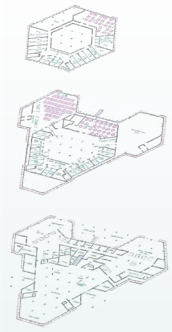


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existing condition



2rd Floor
tenant office
hall
circular circulation

1rd Floor
comemercials
departure hall
circular circulation

Ground Floor
departure and arrival
lobby
main hall
ticketing
commercials

1 structural grid

The grid is forming a triangular like form in the middle of the building main hall that creata an uncommon room layout

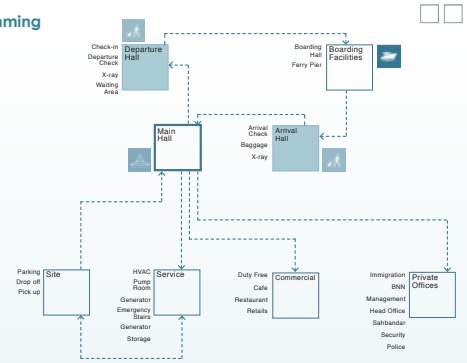
2 circulation

The circulation also looks very confusing. Zones are not designed in line so that passengers need to go up and down the floor to go to the next zone.

3 building form and layout

If we see from the vision of the Batam government, the building does not show Malay nuances in terms of form, even though ornamentation.

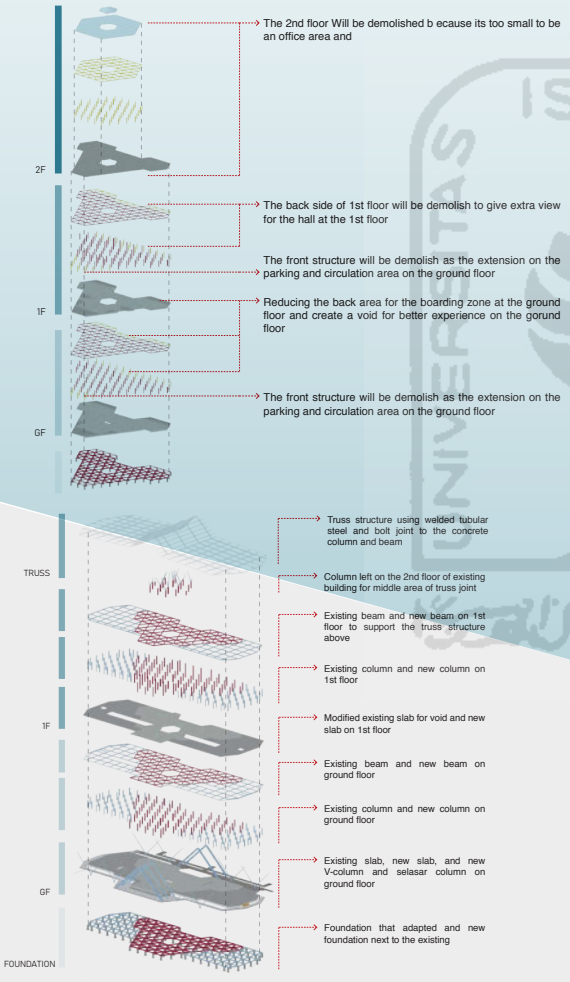
room programming



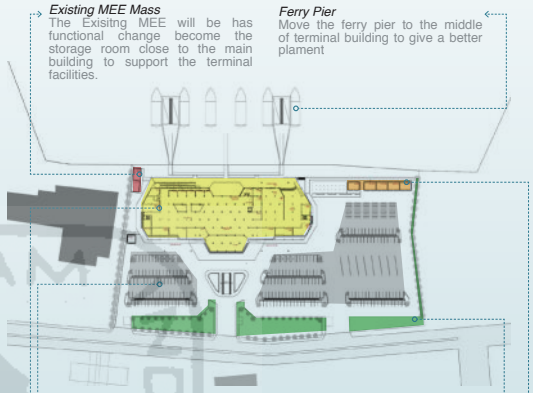
building codes



structural adaptation

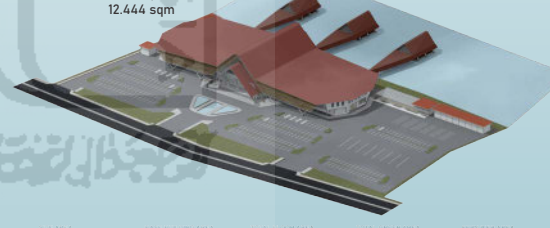


adaptation on site development



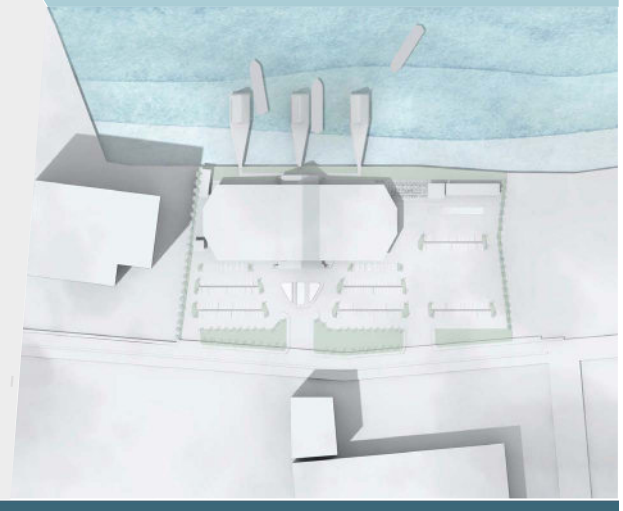
property size

Total Floor Area	
Ground Floor	*7.932 sqm*
1st Floor	*4.512 sqm*
	12.444 sqm



29.335 sqm | 12.444 sqm | 10.840 sqm | 4.931 sqm | 1.008 sqm

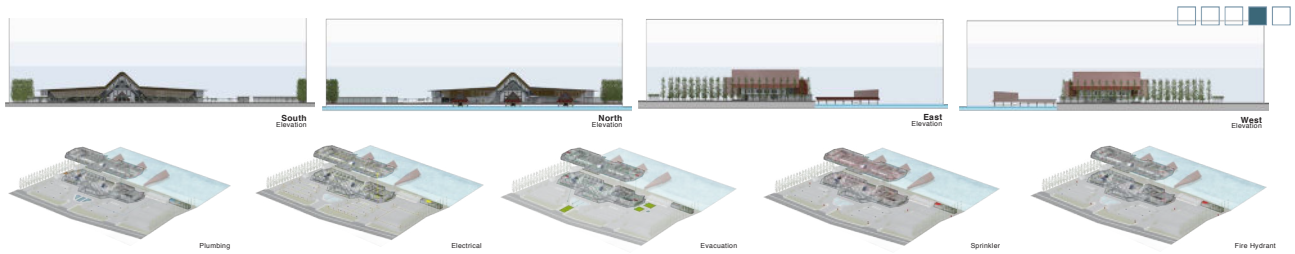
situation



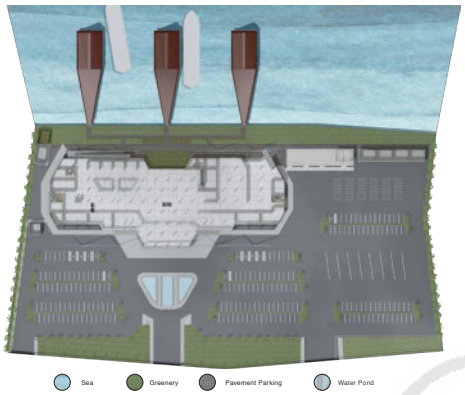
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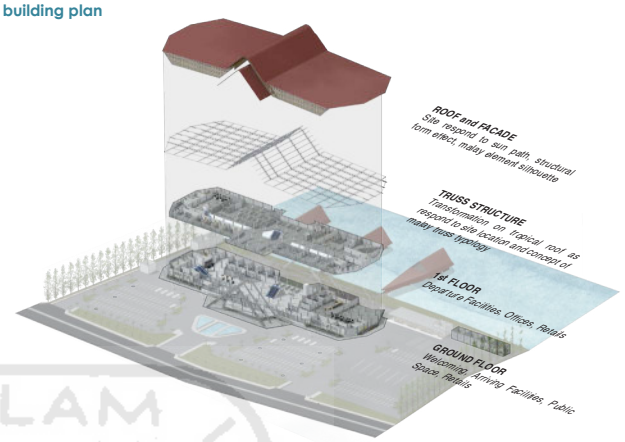
STUDENT Qois Ridha Dhiyaulhaq 17512131



siteplan

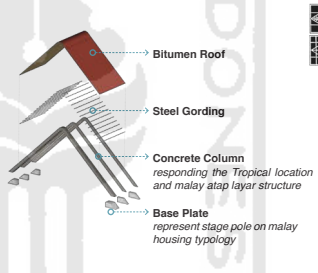


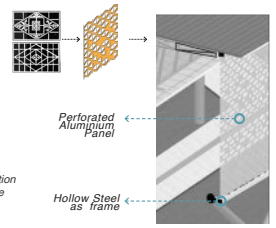
building plan



architectural detail







perspective and changes






Parking improvement on capacity


Facade transformation for showing image of Batam

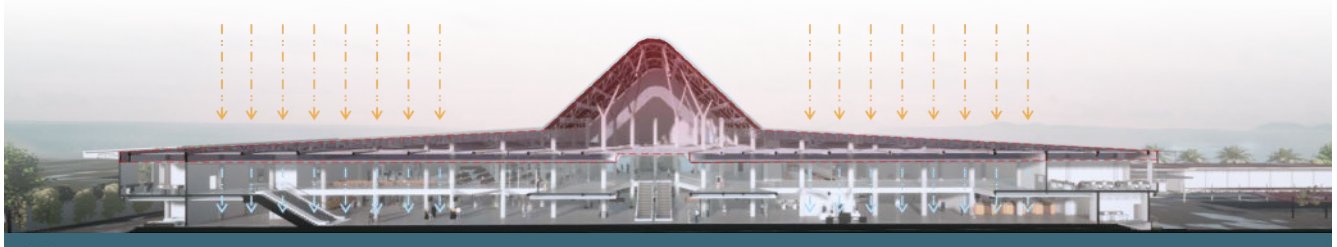

Remove the bridge and change to underground tunnel


extend the capacity on the canteen


Change the intrior color for better visual


Remove all unnecessary element that distract the circulation view


Keep the existing column shape to show the adaptation







Ferry Pier represent the fishing boat in Malay Fisherman Sea Complex


"Selasar"


Secondary Skin


Departure Boarding Area


Arrival Hall


Departure Hall that with clear view and linear path


Main Hall


obn passenger waiting area


Arrival Check


Arrival Baggage Claim


1st Floor Hall

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