ARCHITECTURE FINAL PROJECT LXIII PERIOD, SECOND SEMESTER OF 2012/2013 ACADEMIC YEAR

ARCHITECTURAL THEORY AND PROGRAMMING

THE AMPHIBIOUS HYBRID Resort

IN BALI

Design Theme

Combining Ecotourism with Hedonistic Lifestyle

Project Focus

Sustainable Coral Reef Ecotourism Resort

Thesis in Partial Fulfilment of the Requirement for the Degree of Architecture Bachelor

Submitted by:

Luke Theodorius Erick 09.11.0025

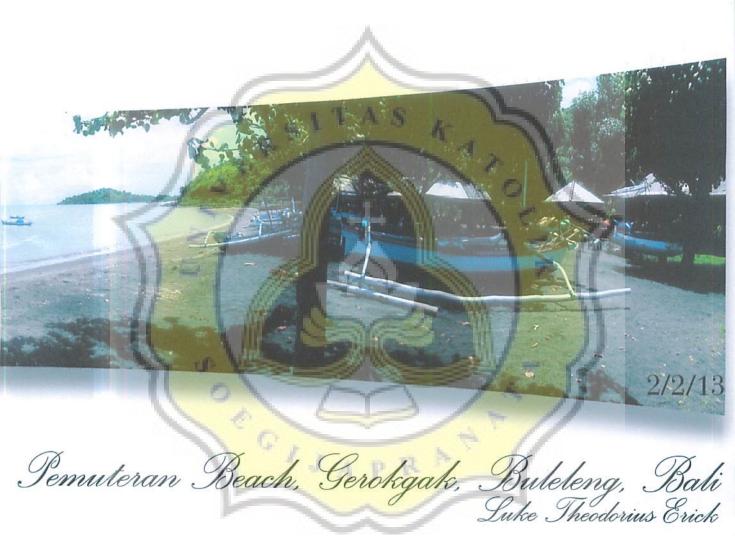
Supervisor:

Ir. BPR Gandhi, MSA



DEPARTMENT OF ARCHITECTURE
FACULTY OF ARCHITECTURE AND DESIGN
SOEGIJAPRANATA CATHOLIC UNIVERSITY
MARCH, 2013





APPROVAL SHEET

ARCHITECTURE FINAL PROJECT

LXIII PERIOD, SECOND SEMESTER OF 2012/2013 ACADEMIC YEAR SOEGIJAPRANATA CATHOLIC UNIVERSITY

Project Title

: The Amphibious Hybrid Resort in Bali

Design Theme

: Combining Ecotourism with Hedonistic Lifestyle

Project Focus

: Sustainable Coral Reef Ecotourism Resort

Student

: Luke Theodorius Erick - 09.11.0025

Supervisor

: BPR Gandhi, Ir. MSA

Examiners

: Etty E. Listiati, Ir. MT.

Moediartianto, ST, M.Sc

Robert Rianto W., Ir. MT.

Semarang, April 2013

Approved,

Dean

Head

Coordinator

Faculty of Architecture and Design

Department of Architecture

Architecture Final Project

IM Tri Hesti Mulyani, Ir. MT.

NPP. 058.1.1989.048

FX Bambang Soeskiyatno, Ir. MT.

NPP. 058.1.1992.124

Yulita Titik S., Ir. MT.

NPP. 058.1.1988.034

APPROVAL SHEET

ARCHITECTURE FINAL PROJECT

LXIII PERIOD, SECOND SEMESTER OF 2012/2013 ACADEMIC YEAR SOEGIJAPRANATA CATHOLIC UNIVERSITY

Project Title : The Amphibious Hybrid Resort in Bali

Design Theme : Combining Ecotourism with Hedonistic Lifestyle

Project Focus : Sustainable Coral Reef Ecotourism Resort

Student : Luke Theodorius Erick - 09.11.0025

Supervisor : BPR Gandhi, Ir. MSA

Examiners : Etty E. Listiati, Ir. MT.

Moediartianto, ST, M.Sc

Robert Rianto W., Ir. MT.

Semarang, April 2013

Approved,

BPR, Gandhi, Ir, MSA

NPP. 058.1.1986.015

Examiner Examiner

Examiner

Etty E. Listiati, Ir. MT.

NPP. 058.1.1984.007

Moediartianto, ST, M,Sc

NPP. 058.1.2000.235

Robert Rianto W., Ir. MT.

NPP. 058.1.1993.142

LEGACY STATEMENT LETTER

ARCHITECTURE FINAL PROJECT

LXIII PERIOD, SECOND SEMESTER OF 2012/2013 ACADEMIC YEAR SOEGIJAPRANATA CATHOLIC UNIVERSITY

I hereby:

NAME : Luke Theodorius Erick

I.D. : 09.11.0025

Has confirmed that this following essay:

Title : The Amphibious Hybrid Resort

Design theme: Combining Ecotourism with Hedonistic Lifestyle

Project Focus: Sustainable Coral Reef Ecotourism Resort

Supervisor : Ir. BPR Gandhi, MSA

NPP. : 058.1.1986.015

Later on in the future days there might be, a form of legacy matters.

The writer is responsible for any penalty.

GIJA

Semarang, June 17th 2013
Writer METI

100

Luke Theodorius Erick

ID 09.11.0025

257B52ABF41367483U

FOREWORD

"I believe luck is preparation meeting opportunity. If you hadn't been

repared when the opportunity came along, you wouldn't have been 'lucky'."

OprahWinfrey.

Some great gratitudes need to be delivered to some amazing figures, they play important role, during the making of this Architecture Theory and Programming, without their help there won't be anykind of idea to build (and design) something extraordinary yet stand out project; A project that combines the hedonistic living way with sustainable practice to support our mother nature through preserving natural underwater life but still endorsing premium class living and fun quality.

Firstly, The Bringer of The Light that enlightens me up every day with graceful ideas, and infinite thoughtful inspirations beyond human imagination.

My parents, and great family who I love, that always have faith with whatever things that their children come up to, because they believe their children can do their best to make it happen, yet they are very supportive when things get hard.

Some great mentors that teach me to be strong, not afraid of being "who you really are", embrace the past, but to live for now. The one who strongly believes a massive movement that change a lot of people by empowering them that they can, yes, we can keep running the world! A role model that teaches me to use the negativity to fuel the transformation into a better version of me.

My supervisor, Ir. BPR Gandhi MSA, who keeps me on right track during the process of report paper, and design progress. I am thankful for criticizing and giving a final touch up so that my final project may be worthed not only for personal use but also for inspiring other students.

At last but not least, my great colleagues who share their stories and jokes so that the sleepless days are easy to handle.

Spirit for inspiring and influencing people,

Luke Theodorius Erick

ROCK-ST&R-CHITECT

TABLE OF CONTENTS

Cover	***************************************	
Approval S	Sheet	i
	tement Letter	
Foreword.	•••••••••••••••••••••••••••••••••••••••	
Table of Co	ontents	V
List of Figu	ıres	i
List of Tab	les	xi
Abstract		1
Chapter 1.	PREFACE	1
1.1 Pro	oject Description	2
1.2 Pro	piect General Overvious	1.
1.3 Pro	pject Focus	5
1.4 Pro	pject Purpose	10
1.4.1	Background	
1.4.2	Bali As Potenttial Indonesia Tourism Object	
1.4.3	Scope Of Design Programming	
1.4.4	Problem Statement	17
1.5 Pro	ect Obj <mark>ectives And Benefit</mark>	17
1.5.1	Initial Idea	17
1.5.2	Reason And Motivation	
1.5.3		
1.5.4	Project Objectives	
1.5.5	Project Benefits And Target	
1.6 Me	thodology	
1.6.1	Data Collection Methods	
1.7 Pro	gramming Method	
Chapter 2.	REVIEW OF THE LITERATURE	

	2.1	Theory Of Resort	23
	2.1.	1 Precedent Case Study Of Resort	25
	2.2	Theory Of Tourism	30
	2.2.	1 Hedonistic Tourism	30
	2.2.	2 Sustainable Tourism	37
	2.3	The Floating Structure - Very Large Floating Structures (VLFS)	42
	2.4	Sustainable Energy – Hybrid Zero Carbon Technology	47
	2.4.	1 Possible Implementation Of Design	49
C	haptei	r 3. ANALYSIS OF ARCHITECTURAL APPROACHES	50
	3.1	Architectural Analysis And Rooms System	
	3.1.		50
	3.2	Site Analysis Approach	56
	3.2.		
	3.2.	2 Site Proposal #1: Pemuteran Beach, Singaraja, North Bali	59
	3.2.	3 Site Proposal #2: J <mark>im</mark> baran Beach, Ba <mark>d</mark> ung, South B <mark>ali</mark>	61
	3.3	Utility Analysis	64
	3.3.	1 Sustainable Utility System	64
	3.3.	2 Alternative Optional Hybrid Sustainable Electricity System	72
	3.3.	3 Alternative Optional Structure	84
C	hapter	4. ARCHITECTURE PROGRAMMING	97
	4.1	Scenario Of Design Accentuation	97
	4.1.	Form - Bio Mimicry, Appreciation For The Nature	97
	4.2	Scenario Of Area Planning	. 101
	4.2.	l Macro Scenario	. 101
	4.2.2	2 Micro Scenario	. 102
	4.2.3	B Diagram of Scenario Area Planning	. 103
	4.3	Scenario Of Room Area	. 104
	4.3.1	Floating Resort Room Inquiry Space	104
	4.3.2	2 Land Area Inquiry Space	107
	4.3.3		
	4.3.4	Special Room Study and Transportation Specification	110
	4.3.5		

4.4	Sce	enario Of Energy Alternative Issue	117
4.4	1.1	Breaking Down The Electricity Needed For Daily Usage	117
4.4	1.2	Annual Outcome From Electricity Bill:	125
4.5	Sce	enario Of Structure And Utility Analysis	126
4.5	5.1	Utility System	126
4.5	5.2	Floating Structural System	127
Chapte	er 5.	RESUME	
5.1	Pro	ject General Information	128
5.2	Pro	ject Specific	129
BIBLIC		APHY	
5)		7

LIST OF FIGURES

Figure 1.3-1 Underwater Hotel Rendering	7
Figure 1.3-2: Disc Structure for Underwater Hotel	7
Figure 1.3-3: Interior - Exterior Sequence	8
Figure 1.3-4: PHYSALIA Floating Building Rendering	8
Figure 1.3-5: Diagram of Building Skin	9
Figure 1.4-1: Indonesia map, with Bali Administration Regency inset	12
Figure 1.4-2: Bali has become attractive spot for Vacationers since several	
decades ago	. 15
Figure 2.1-1: Sequence Exterior of Bama Eco Resort	. 25
Figure 2.1-2: Covered with a green roof comprised of a series of earthen disc-	
skylights, daylight and artificial light emit different colors from th	e
"native habitat garden" through skylights into the floors below	. 26
Figure 2.1-3: Entrance to Mud Bath in I Resort	. 27
Figure 2.1-4: Traditional Vietnam Roof Axonometric	.27
Figure 2.1 <mark>-5: Interc</mark> ontinen <mark>tal San</mark> ya Resort China sh <mark>ows it</mark> s elegan <mark>cy when</mark> the	
evening comes	. 28
Figure 2.1-6: Ground Floor Plan of Intercontinental Sanya Resort shows that th	e
room disperse has the same sea view	. 29
Figure 2.2-1 The Concept of Luxury in Tourism	.31
Figure 2.2-2 T <mark>raditional also Lu</mark> xurious ambience arou <mark>nd the Ayana Resort</mark> and	l
Spa	. 33
SpaFigure 2.2-3 View from Private Pool.	. 34
Figure 2.2-4 Some Interior Sequences	. 34
Figure 2.2-5 The Front View from Lobby	. 35
Figure 2.2-6 Interior Restaurant	. 36
Figure 2.2-7 Lounge Interior promotes free air condition	
Figure 2.2-8 Exterior Dining set presenting Private Beach	
Figure 2.3-1: Very Large Floating Structures (VLFSs)	
Figure 2.3-2: Components of a Mega Float	
Figure 2.3-3: Semi Submersible Structure Offshore Wind Turbine, using Colum	ın
Tubes to stable the water buoyancy force	45

Figure 2.3-4: Semi Submersible Structure usually being used as Oil Rig Offshore
Building45
Figure 2.3-5: Floating Airport Landing with Pontoon Floating Structure46
Figure 2.3-6: A Floating Pontoon breakdown image
Figure 3.2-1 Topography of Bali consists of sea and mountain
Figure 3.2-2 Line Map of Proposed site
Figure 3.2-3 Pemuteran Site
Figure 3.2-4 Jimbaran Beach
Figure 3.3-1 Reuse, Reduce, Recycle program 64
Figure 3.3-2 Ground Water boring process
Figure 3.3-3 Reverse Osmosis
Figure 3.3-4 Rainwater harvesting sample gathered from annual amount, and then
distributed to be processed for further usage
Figure 3.3-5 The Eco - Lagoon processing grey water
Figure 3.3-6 Wind turbine Works
Figure 3.3-7 How The Wind Turbine Works
Figure 3.3-8 Horizontal-Axis Wind turbine
Figure 3.3-9 Typical Vortex Induced Vibration (VIV)80
Figure 3.3-11 Vortex Induced Vibration can cause swaying movement to floating
water, this semi submersible structure one
Figure 3.3-10 Vortex created, view from top 81
Figure 3.3-12 Water current flows the cylinder, so that the kinetics force the
machine to convert the kinetics into electrical flow
Figure 3.3-13 Illustration of Push and Pull force structure
Figure 3.3-14 Drilled Piers Foundation types
Figure 3.3-16 Combining with Pile Cap and anchor Joint
Figure 3.3-15 The Process during the making of Underwater drill piers
Figure 3.3-17 Sample of Middle Structure: Anchoring Part and Pontoon Part 88
Figure 3.3-18 Typical mega float 3D structure
Figure 3.3-19 Application of Floating Structure for Airport in Japan
Figure 3.3-20 Very Large Floating Structure Airport

LIST OF TABLE

Table 1.4-1: The Pie Table shows the demand on Natural-based Tourism is
increasing each decades10
Table 1.4-2: Increasing Number of Tourism demand in Indonesia from Dec 2011
– 2012 1
Table 1.4-3: Percentage of Vacationers that Visiting Bali from 2006 - 2010 13
Table 1.4-4: Number of Vacationers in 2012
Table 2.2-1: Sustainable Tourism Important Role Act
Table 3.2-1 Site Criteria57
Table 3.2-2 Pemuteran Beach Scoring 63
Table 3.2-3 Jimbaran Beach Scoring63
Table 3.3-1: Water Demand for Resort
Table 3.3-2 Pemuteran Climate Data 201168
Table 3. <mark>3-3 Rainwate</mark> r Acidity E <mark>le</mark> ment
Table 3.3 <mark>-4 Advant</mark> ages and Di <mark>sad</mark> vantages of usi <mark>ng W</mark> ind Turbin <mark>e</mark> 72
Table 3.3 <mark>-5 The A</mark> dvantag <mark>es and Disadv</mark> antages of using HAWT wind turbines. 76
Table 3. <mark>3-6 The Ad</mark> vant <mark>ages and Dis</mark> advantages of using VA WT wind turbine76
Table 3. <mark>3-7 Wind T</mark> urb <mark>ine size classification77</mark>
Table 3.3-8 PV Efficiency based on width space needed78
Table 3.3- <mark>9 Comparison T</mark> able From Crystalline Silicon and <mark>Thin Film ty</mark> pe PV 78
Table 3.3-10 Energy Loss compared from Crystalline Silicon and Thin film PV 80
Table 3.3-11 Optional Upper for Aesthetic consideration94
Table 4.3-1 Room and Facilities Area
Table 4.3-2 Visitor Occupancy Annual Projection
Table 4.4-1 Breakdown Electricity needed for rooms and Air Handling Unit 117

Abstract

The sustainable way of life, nowadays, becomes a new way of movement to preserve the earth condition. On the contrary hedonistic lifestyle becomes a trend for high incomers. Eco - sustainable concept resort becomes trend, but nothing to combine the hedonistic with sustainable lifestyle. In particular, the concept of hedonistics and sustainable is quite different. Introducing The Amphibious Hybrid Resort as the first luxurious floating island resort located in Bali with sustainable approach, that the vacationers sense the sensation of living in the water world; the spectacular view of underwater is the main attraction in this project. The concept of this resort besides for Coral Reef Restoration Project (Karang Lestari) is to bring back the concept of natural serenity for high class people to enjoy overnight stay in a nature friendly floating resort with sophisticated design resort with Balinese ambience. The floating resort will use several kinds of sustainable technologies to support its operation (hybrid technologies) by applying number of technologies without hindering the existing coral (solar, wind, tidal, biofuel), it is envisioned that the project would be able produce its own energy. And to fulfill the desire for high class people to spend their money in funding the underwater nature life to support eco-tourism, the resort will give ordinary sense for staying in Deep Ocean with underwater view, that psychologically helps the guests to enjoy the comfort and balancing their emotional state.

Keywords: Ecotourism, Bali, Sustainable Resort