Thailand: Country Update

The Association of Siamese Architects under Royal Patronage

10 September 2018
Compiled by Dr. Acharawan Chutarat

Goals

Driving through collaboration with local chapters, organizations and universities

Educating and Supporting for Skills of the Future:

In collaboration with local chapters, organizations and universities

- ASA Yearly exhibition (400,000+ people) + International Forum (May 2018)
- Design Awards → Green Asi Arch 2018
- BIM
- Design for Green
- Materials
- Lighting
- Design for Disaster workshop, competition
- Energy Labeling Program (DEDE)
- Green Exhibition: Glenn Murcutt
- ACGSA roundtable in BKK, Jaipur, Semarang
- Smart Cities

Adapted from: Dr.Atch S.

New Building Energy Code (BEC)

Building Energy Code (BEC)	Energy Conservation Promotion Acts (1992, 2009) Royal Decree on designated buildings (1995) > **2000 m2: 5 majors: OTTV-RTTV, Lighting, A/C, hot water, whole building compliance and Renewable energy**
Energy Efficiency Labeling	Mandatory of Labeling for appliances, buildings and vehicles, Environmental Impact Assessment (EIA)-for >4000m2 residential, >10,000m2 commercial project Electric Generating Authority of Thailand (EGAT)'s **House labeling NEW!!!** National Housing Authority(NHA)'s **Eco Village NEW!!!** Thai Green Building Institute labeling (TGBI) **Revised NEW!!!**

New License And System

The New Required GB Expert License System (End of 2018)

Design Team Certification
Signed by expert from ACT/ECT

Building Operation Certification
Signed by expert from ACT/ECT

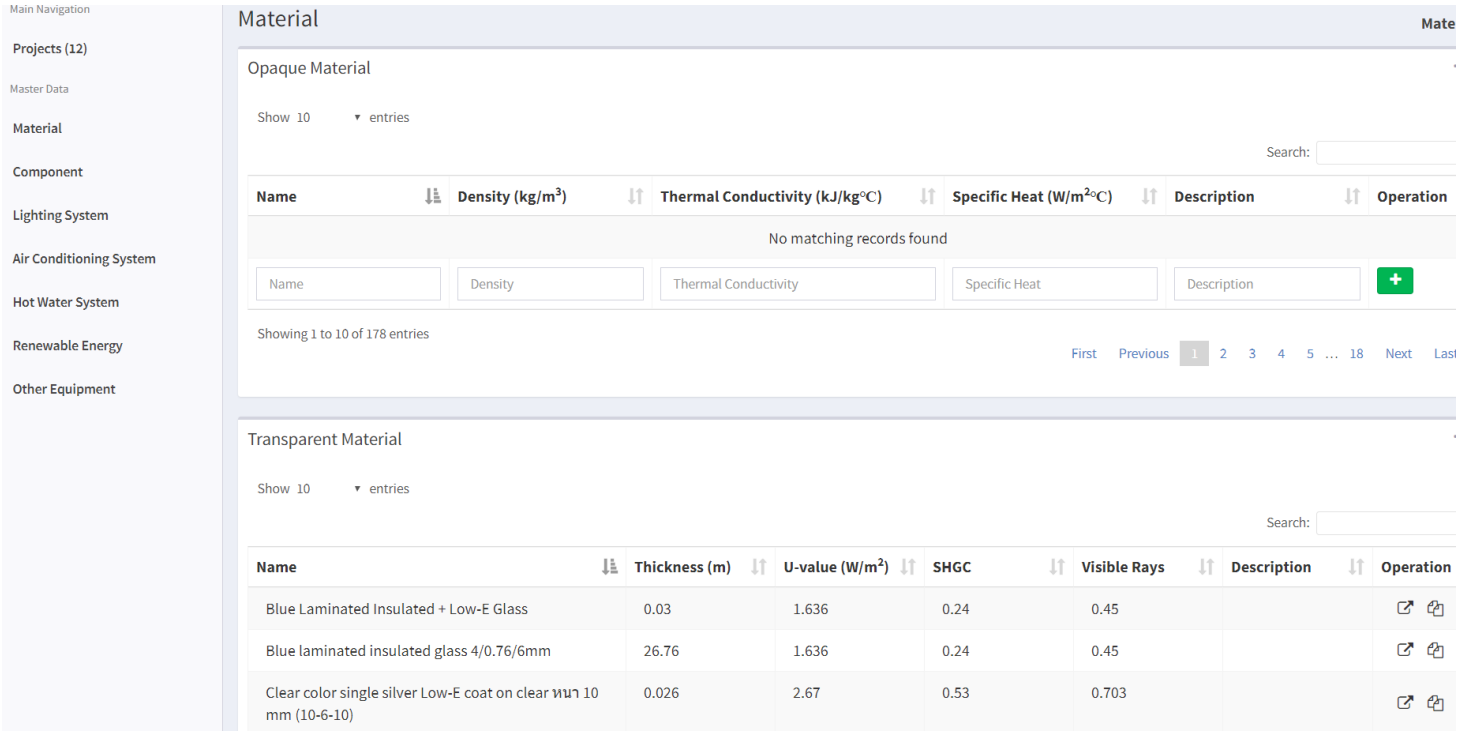
Building Operation Certificate

The New Building Energy Code (BEC) + Web-based tool

		Existing BEC		New BEC (2018)
Max. RTTV (Roof Thermal Transfer Value) For building type A,B,C*		15, 12, 10 W/m^2	→	**10, 8, 6 W/m^2**
Max. OTTV (Overall Thermal Transfer Value) For building type A,B,C*		50, 40, 30 W/m^2	→	**50, 40, 30 W/m^2**
Max. LPD (Lighting Power Density) For building type A,B,C*		14, 18, 12 W/m^2	→	**10, 11, 12 W/m^2**
A/C	Split type	COP > 3.22 ( )	→	**COP > 3.22-4.39 ( )**
	Air-cooled chiller	kW/ton < 1.31-1.33	→	**kW/ton < 1.12**
	Reciprocating	kW/ton < 1.24		**kW/ton < 0.88**
	Rotary /Screw and Scroll	kW/ton < 0.78-0.89		**kW/ton < 0.70**
	Centrifugal	kW/ton < 0.62-0.76		**kW/ton < 0.61-0.67**
Renewable Energy		Only PV energy is considered.	→	**PV energy, Heat to electrical energy, and Other renewable energy are considered.**

* Type A = Office, School
Type B = Commercial and public buildings
Type C = Hotel, Heatlhcare, Apartment

BEC's New Web-based tool



http://bec.everyresearch.com/site/#/project/

กรมพัฒนาพลังงานทดแทนและอนุรักษ์พลังงาน
กระทรวงพลังงาน

รายงานค่าการอนุรักษ์พลังงาน โดยใช้โปรแกรม BEC Web-based

Building Information

Project Name :	DAD New Office Building (Automatic Shading revised)
Building Type :	สำนักงาน
Location :	กรุงเทพมหานครฯ

เกณฑ์ในการออกแบบ			
ทางเลือก 1 ผ่านเกณฑ์ทุกระบบ			ทางเลือก 2 ใช้ประเมินค่าพลังงานรวม
1. ระบบกรอบอาคาร	*OTTV:*	passed	พลังงานของอาคารที่ออกแบบ < พลังงานของอาคารที่อ้างอิง
	RTTV:	passed	
2. ระบบแสงสว่าง		unset	passed
3. ระบบปรับอากาศ		passed	
4. ระบบผลิตน้ำร้อน		unset	

สรุปรายงานผลการวิเคราะห์ passed

Building Energy Consumption

Building Energy consumption :	0.000 kWh/Year
Energy from PV System :	0.000 kWh/Year
Net Energy consumption (Evaluated Building) :	0.000 kWh/Year
Net Energy consumption (Reference Building) :	79120.080 kWh/Year
Building Energy Code Compliance :	passed

Building Envelope System

OTTV (All Zone) :	16.608 W/m²
OTTV (A/C Zone) :	16.608 W/m²
Code OTTV :	50.000 W/m²
Building OTTV Status :	passed
RTTV (A/C Zone) :	5.132 W/m²
Code RTTV :	15.000 W/m²
Building RTTV Status :	passed

Thailand Green Building Institute

Established By ASA + EIT

Thai's Rating of Energy and Environmental Sustainability (TREES)

Released:

1.TREES – **NC** *V1.1* for New Construction and Major Renovation

2.TREES – **PRE NC** (for FAR Bonus) for Preparation of New Construction and Major Renovation

3.TREES – **NC / CS** for New Construction and Major Renovation and Core and Shell Building

4.TREES – **EB** (Existing Building)

Developing:

TREES – NC *V1.2* → *Tentative change in light and daylight harvesting potential, Tentative to include MEP materials into consideration*

Smart City

Thailand Green Building Institute

Thai's Rating of Energy and Environmental Sustainability (TREES) for Smart City

Thailand Integrated Energy Blueprint (TIEB)

- PDP2015

แผนพัฒนากำลังผลิตไฟฟ้าของประเทศไทย
พ.ศ. 2558 - 2579 (PDP2015)
สำนักงานนโยบายและแผนพลังงาน กระทรวงพลังงาน
01

- EEP2015

02
แผนอนุรักษ์พลังงาน พ.ศ.2558–2579
(EEP2015)
สำนักงานนโยบายและแผนพลังงาน กระทรวงพลังงาน

- AEDP2015

แผนพัฒนาพลังงานทดแทนและพลังงานทางเลือก
พ.ศ. 2558 – 2579 (AEDP2015)
กรมพัฒนาพลังงานทดแทนและอนุรักษ์พลังงาน กระทรวงพลังงาน
03

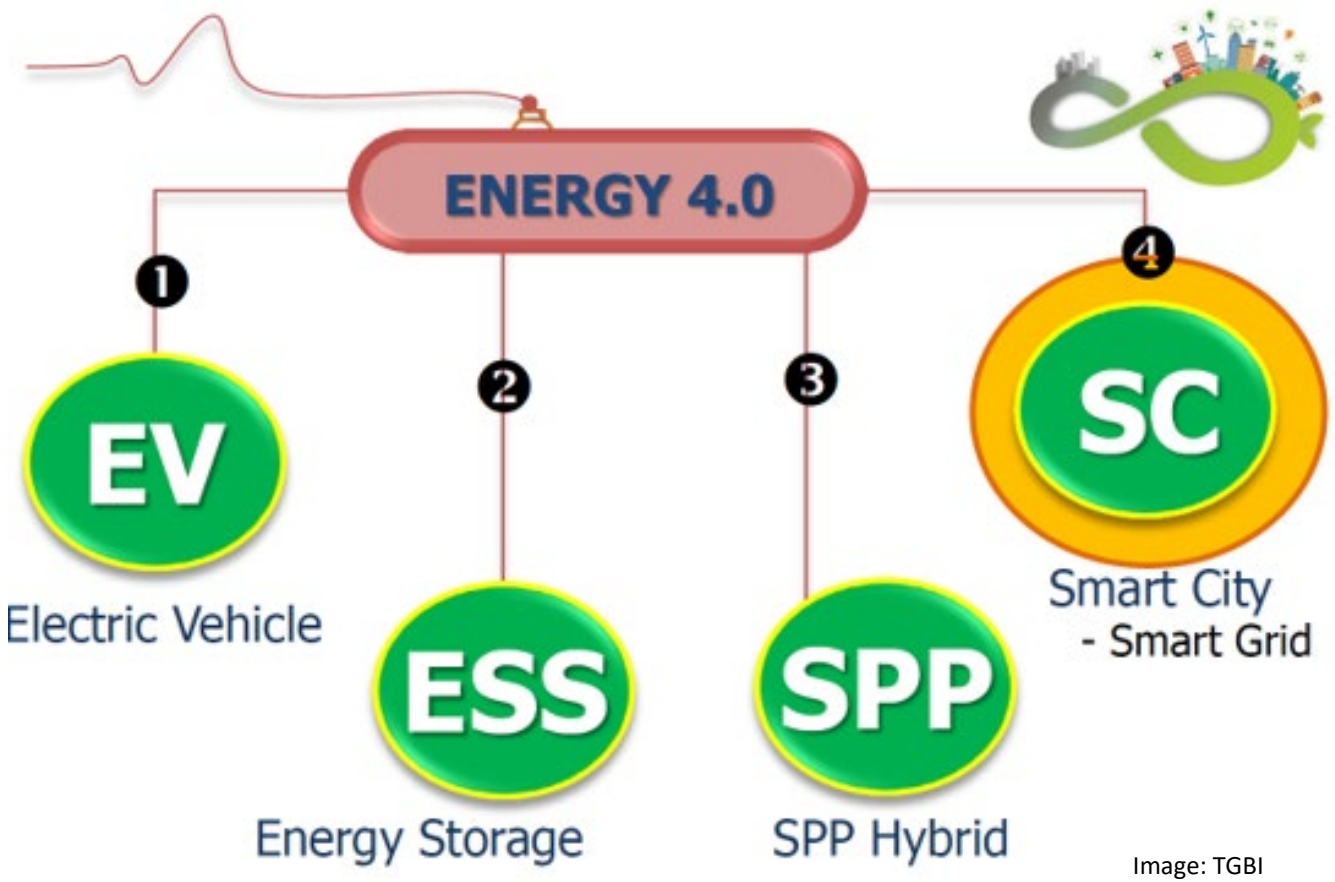


Image: TGBI

Smart City Criteria

- Joint organization of stake holders
- Land ownership
- Compliances with city planning regulation

Requirement	City
Usable area	> 500,000 m^2
Demand (BAU)	> 8 MW
Population	> 10,000

Smart City Criteria

Smart City	Score
Smart Energy*	20
Smart Mobility*	20
Smart Community	10
Smart Environment*	15
Smart Economy*	10
Smart Building*	15
Smart Governance	10
Smart Innovation	20
Total	120

Platinum	**Greater than 80**
Gold	**60-79**
Silver	**50-59**
Certified	**40-49**

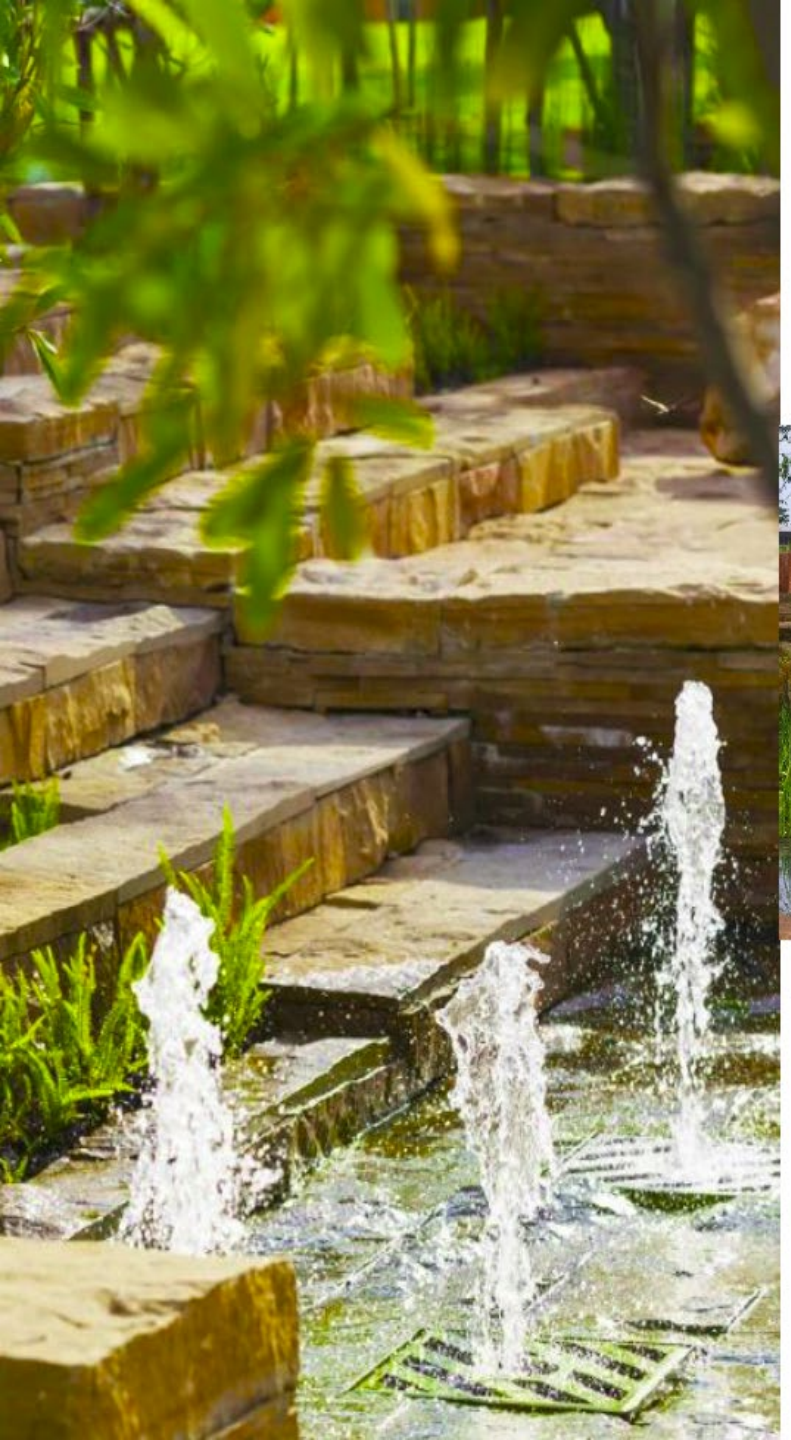
* Must pass

Green AsiArch 2018

Chulalongkorn University Centenary Park

Project Location	Wang Mai, Pathum Wan,Bangkok, Thailand
Architect	N7A Architects Co.Ltd.
Landscape Architect	LANDPROCESS Co.Ltd.
Construction Area	15,559 sq.m.
Construction Cost	300 million baht

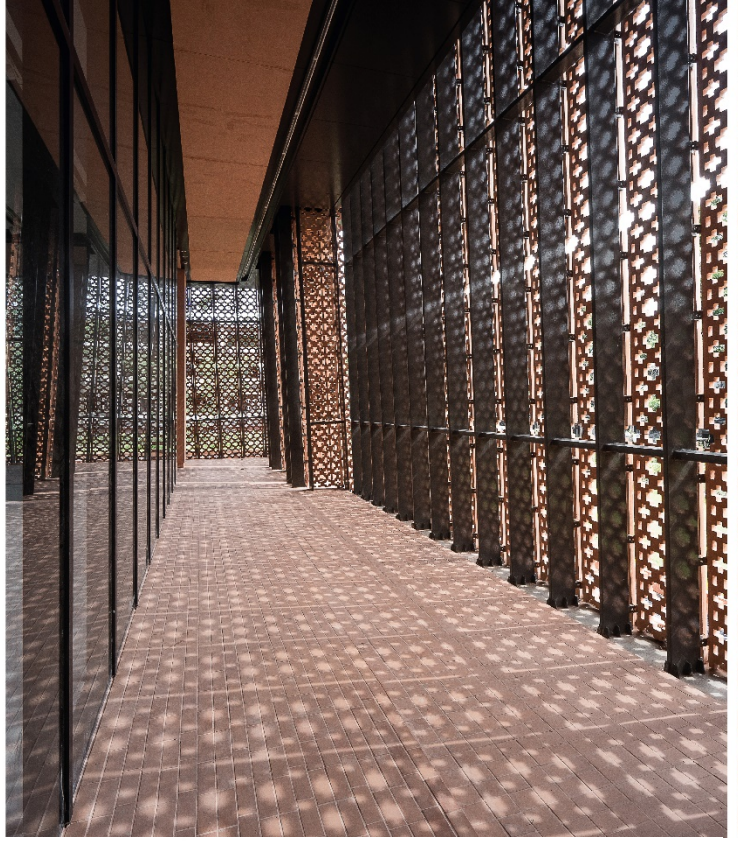
ASA ARCHITECTURAL DESIGN AWARDS 2018 –Silver

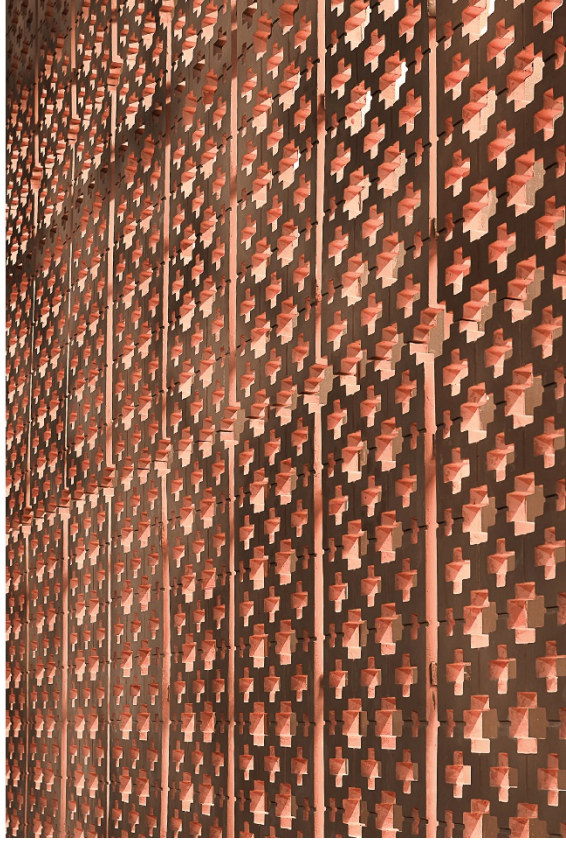


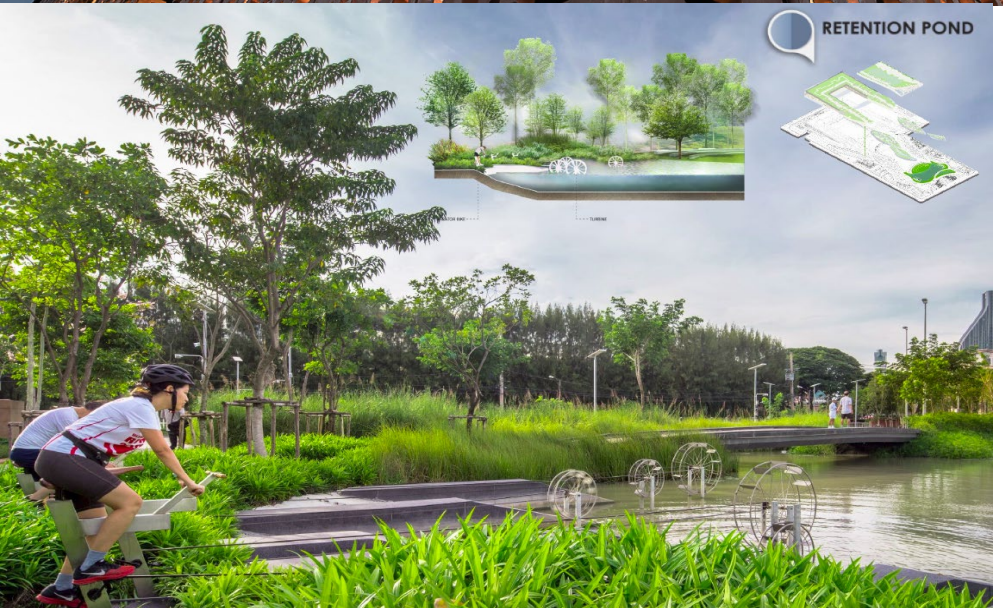

CONSTRUCTED WETLAND

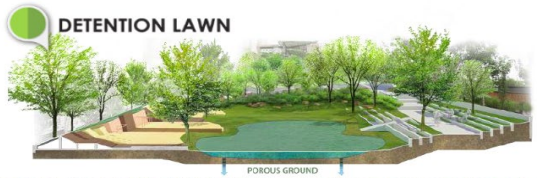

From Green Roof
Alpinia purpurata (Vieill.) Schum.
Neomarica longifolia (Link & Otto) Sprague
Thalia dealbata J.Fraser.
Cyperus alternifolius L.
Monochoria hastata (L.) Salms
Marsilea Crenata (C.) Pres
To Retention Pond

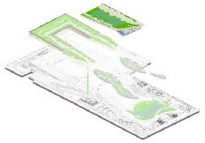

FACADE DIAGRAM

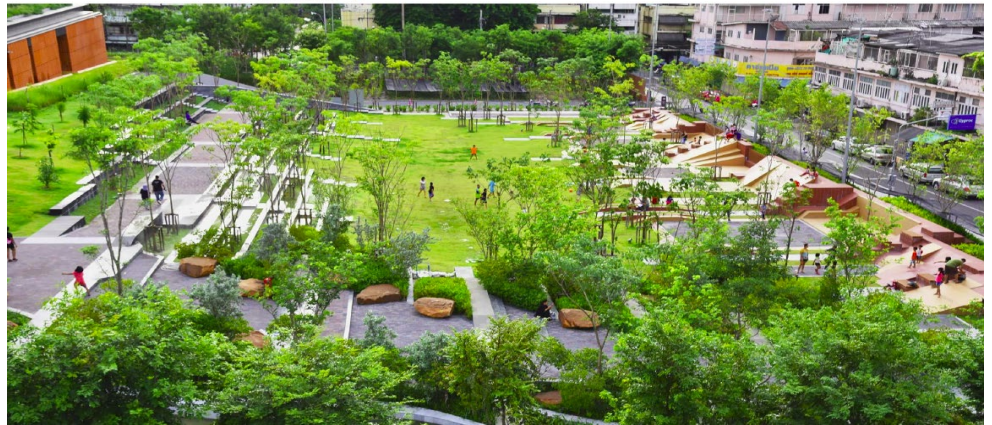





RETENTION POND


DETENTION LAWN
POROUS GROUND





Thank you