

SBE 16 Singapore MITIGATING CLIMATE CHANGE FROM ASEAN'S PERSPECTIVE

Mr Selvam Valliappan
Building and Construction Authority



Organisers:



International Co-owners:



Sustainable Buildings
and Climate Initiative
Promoting Policies and Practices for Sustainability



Outline

Summary about SBE 16 - Singapore

National Targets

Green Building Research Focus



Organisers:



International Co-owners:



Details

5 – 6 September 2016

BCA Academy, Singapore

115 Delegates

10 countries
(29 overseas, 86 local)

44 Speakers

9 countries

Supporting Partners



SAMWOH

Innovate

Sustainable

greenology
The art & science of greening



WDA singapore
workforce
development
agency



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Global Alliance
for Buildings and
Construction



Biodiversity



Costal Protection

**Breakout
Tracks**

**Human Behaviour /
Social Policies**

**Waste Management &
Sustainable Construction**



Organisers:



International Co-owners:



Biodiversity

Biophilia by serendipity

Tan Tai Soon, Director, Hospital Planning, Jurong Health Services, Singapore



- Patient-centric planning and design of hospitals to create biophilic hospitals at Ng Teng Fong General Hospital



Organisers:



International Co-owners:



Waste Management & Sustainable Construction

MagorTherm High Energy Performance Building Envelope Test Bedding in Tropical Climate



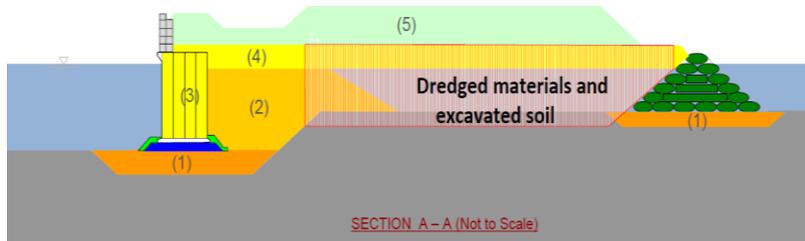
- **Technology:** used as standard concrete by panel technology or laying into forms
- **Heat insulator:** 36 cm is equal to 1,2 m thick brickwall and achieves requirement for passive house
- **Sound isolator:** 10 cm wall reduce value of sound permeability about 39 – 41 dB
- **Fire proof:** 8cm of our material holds fire of 1200 C for more than 120min
- **Water resistant:** as an outside facade insulation it resist rainfall and water with fine plaster (ideal for flood areas)
- **Air permeable:** enable to breathe the buildings

Coastal Protection

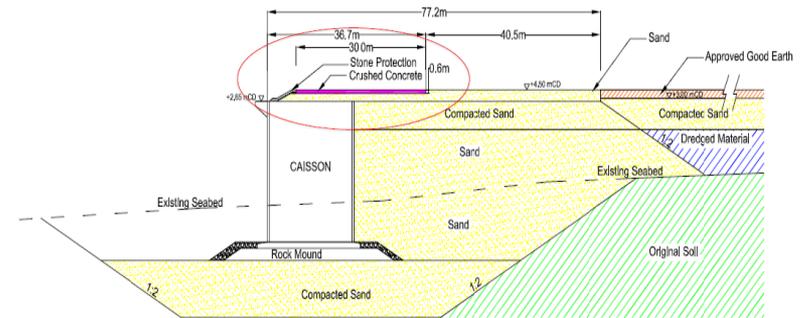
Sustainable Construction (3 Rs Approach) of Mega Container Port Terminal Close to Nature Reserve, Singapore

Tan Lee Lian and Loh Chih Kang, Surbana Jurong Consultants Pte Ltd, Singapore

Loh Chee Kit and Koh Weijie, Maritime and Port Authority, Singapore



Critical Areas (Yellow) where Sand is Used



Reduce use of Sand,
Reuse Dredged
Materials/Excavated Soil

Recycle of Crushed
Concrete

Human Behaviour & Social Policies

Towards the most-energy efficient (and most comfortable?) office in Singapore - First results and latest research developments of the 3for2@UWCSEA project

Dr. Adam Rysanek, Senior Researcher and Manager of the 3for2 Project, ETH Zurich and the Singapore-ETH Centre, Singapore



- Decentralized ventilation and chilled ceiling air-conditioning system
- Over 1,000 sensing and control points for data analytics and trend visualization
- EUI: 71 kWh/m²/year – optimization in progress to achieve 43 kWh/m²/year



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Feedback



- Wide coverage of topics
- Good support and participation from UNEP
- Enjoyed the tour of the National Orchid Gardens
- Tree planting was meaningful
- Appreciation of the booth space and the complimentary passes given to HKGBC members

National Targets



Achieve 350 MWp of Solar Installation by 2020

By 2020

National Emissions Reduction Commitment

Peaking to 36% Emissions Intensity Reduction

Smart Nation Program

National Green Building Target
Green 80% of Building Stock

By 2030



Organisers:



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National Targets

Target: **80%**
of total GFA
greened by
2030



33%
of total
GFA
greened

>3,000
Green Building
Projects

>89 Mil m²
of total GFA greened



International Co-owners:



Green Building Research Focused Areas



BCA SkyLab



Launched
20 July '16

The Straits Times – “Singapore opens world’s first rotatable lab for tropics”



Organisers:

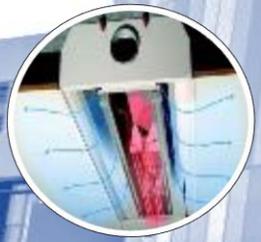


International Co-owners:

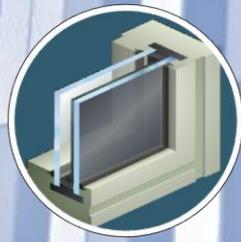


BCA SkyLab

Integrated Test



Chilled Beams



Electro-Chromic Facade



Automated shades



LED lights with DALI control

On-going Experiments FY 17

BCA SkyLab



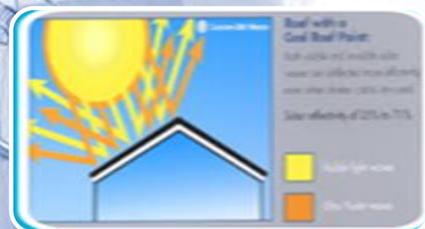
EETV



ClearVue



Daylighting Study



Cool Singapore Study

Upcoming Experiments **FY 18**

ZEB@BCAA

Generating more energy than it consumes today!



Top 50 Engineering Feats @

IES Engineering Feats Awards

Zero Energy Building
@ BCA ACADEMY

7 years of Net Zero Energy Performance



Organisers:

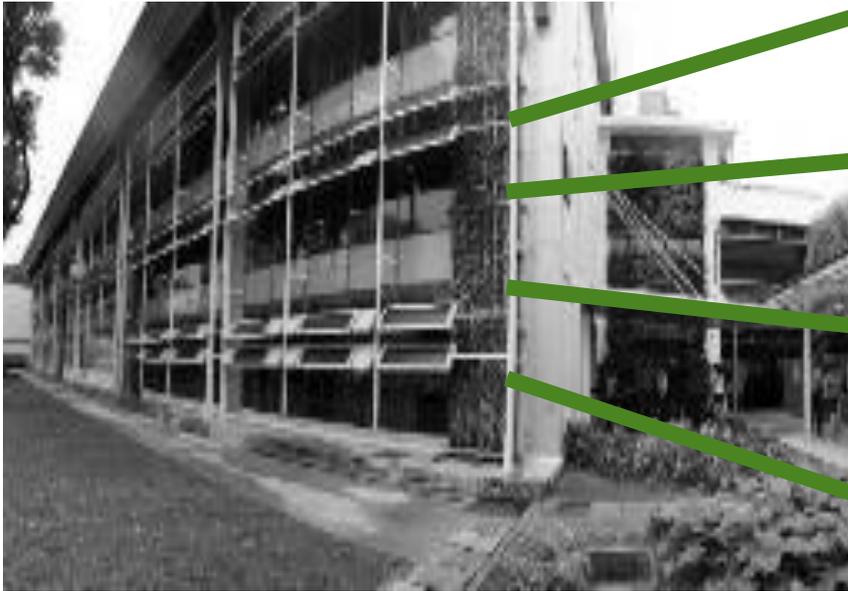


International Co-owners:



ZEB PLUS

4 Key Features



Hybrid Cooling System



High Performance glazing with Heat reflective film



User Interface space settings



Monitoring and Switching Plugloads

>40%

Net surplus energy

>20%

EEl Improvement

>95%

Occupants' satisfaction rate



International Co-owners:



Thank you



Organisers:



International Co-owners:



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