SBE 16 Singapore
MITIGATING CLIMATE CHANGE FROM ASEAN’S PERSPECTIVE

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Building and Construction Authority
Outline

Summary about SBE 16 - Singapore

National Targets

Green Building Research Focus
Details

5 – 6 September 2016
BCA Academy, Singapore

115 Delegates
10 countries
(29 overseas, 86 local)

44 Speakers
9 countries

Supporting Partners

SAMWOH

3M

WDA
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
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 reduces value of sound permeability about 39 – 41 dB
- Fire proof: 8 cm of our material holds fire of 1200 C for more than 120min
- Water resistant: as an outside facade insulation it resists rainfall and water with fine plaster (ideal for flood areas)
- Air permeable: enable to breathe the buildings

Bricks, Concrete, Mineral wool, Polystyrene, Fireproof boards

One material replacing majority of currently used construction materials...

...with better economic, technical, ecologic and health characteristics.
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

**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
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

**National Green Building Target**
Green 80% of Building Stock

**National Emissions Reduction Commitment**
Peaking to 36% Emissions Intensity Reduction

**Achieve 350 MWp of Solar Installation by 2020**

**Smart Nation Program**

**National Green Building Target**
Green 80% of Building Stock

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By 2020

By 2030

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National Targets

- 33% of total GFA greened
- >3,000 Green Building Projects
- >89 Mil m² of total GFA greened by 2030
Green Building Research Focused Areas

- Integrated Design (ID)
- Building Envelope and Façade System (BEFS)
- Building Management and Information System (BMIS)
- Air Conditioning and Mechanical Ventilation (ACMV)
- Policy & Behavioral Studies
BCA SkyLab

Launched

20 July ’16

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

Integrated Test

Chilled Beams
Electro-Chromic Facade
Automated shades
LED lights with DALI control

On-going Experiments FY 17
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
ZEB PLUS

4 Key Features

- Hybrid Cooling System
- High Performance glazing with Heat reflective film
- User Interface space settings
- Monitoring and Switching Plugloads

Net surplus energy: >40%
EEI Improvement: >20%
Occupants’ satisfaction rate: >95%
Thank you