



**2. INNOVATIVE /  
PERFORMANCE ENHANCEMENT  
TECHNOLOGIES  
APPROVED FOR PREVIOUS  
EB, BI & ND PROJECTS  
(*EB BI ND Jul 22*)**

# Introduction

- (1) These slides contain innovative / performance enhancement technologies that have been approved in previous BEAM Plus EB, BI and ND projects.
- (2) The approval years are given in brackets.
- (3) Users are reminded that technologies approved as IA/IV points for a past project do not necessarily mean that they would attain the same IA/IV scores for other projects. Project assessment will take into account individual circumstances.

# Existing Buildings (EB)

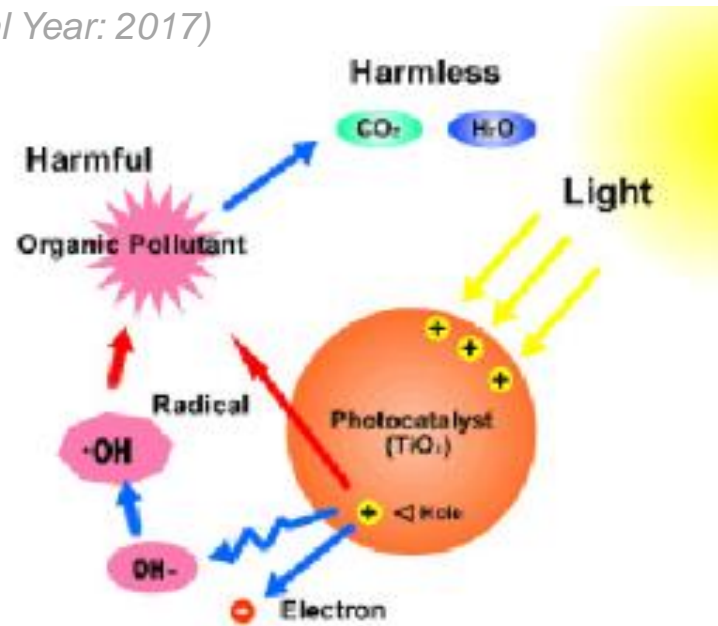


## IA 1 - Innovation Techniques

### Nano-technology treatment to lifts

Degradation of VOCs over visible-light-active nanostructured materials applied to elevators: Excellent class for TVOC in IAQ Certification.

*(Approval Year: 2017)*



## IA2 - Performance Enhancement

### IAQ Certificates

- Excellent Class  
(exceeds Good class in IEQ8)

*(Approval Year: 2017)*



### Automatic Fill Cleaning

Applied to plastic fills of cooling tower

*(Approval Year: 2017)*





## BI IV1- Innovative Techniques

Listed innovations mentioned in **Appendix 9.4**

### 1. Partition System

System partitions at the conference room and pantry areas; flexibility in use of space for occupants

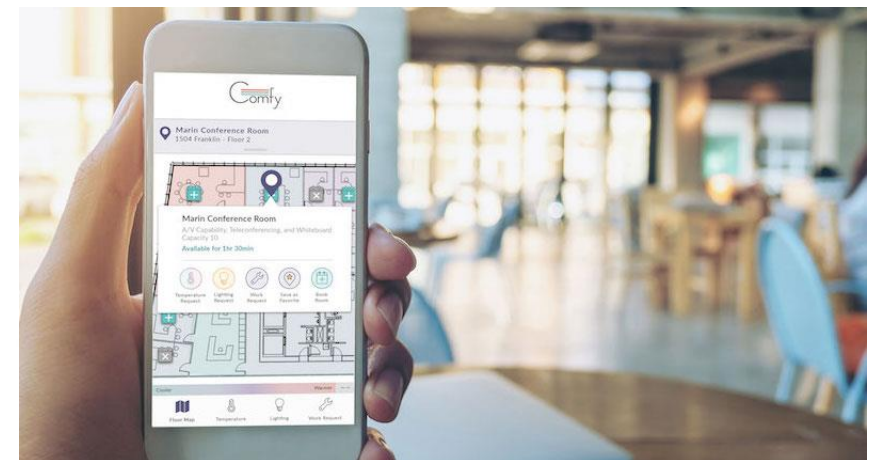
*(Approval Year: 2016)*



### 2. AI Thermal Comfort Control

AI “Comfy” Thermal Control System is installed to allow user to determine, set and control the space temperature directly through the Services App

*(Approval Year: 2016)*





# BI IV1- Innovative Techniques

Listed innovations mentioned in **Appendix 9.4**

## 1. Real Time Energy Monitoring Display

Energy Usage in

- Lighting
- Office equipment
- Air conditioning systems
- Plug load
- Socket



Location for installation

- Entrance / Reception

*(Approval Year: 2015)*



## 2. Outstanding Energy Performance

### A. Lighting System:

LED Office Light Fittings to “Zhaga” standard

- “Zhaga” LED linear module type direct / indirect luminaire
- Reduce lighting load
- Allow interchangeability of products from different suppliers

### B. HVAC&R System:

#### Radiant Cooling

Use of radiant type chilled ceiling for air conditioning of the open office

- Reduced air side energy use
- No fans are used for the air conditioning air side system except for the primary air (treated fresh air) supply

#### Chilled Headboards

- Peltier Cooling Technology
- Cool surrounding air by 3°C and gently supply the cooled air to person in bed in a way that it won't create draught or discomfort to occupant

#### Exhale Bladeless Ceiling Fans

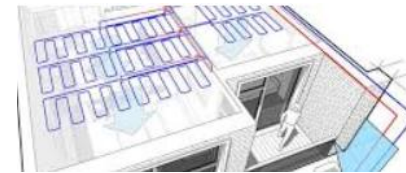
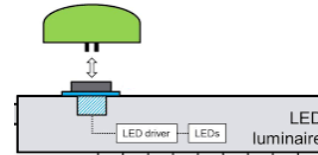
Ceiling fan with high efficiency magnetic DC motor

- Generates less than 43dB of noise and consumes less energy by using a magnetic DC motor (Save 49% of energy c.f. typical ceiling fan)

*(Approval Year: 2015)*

# Zhaga

Making LED light sources interchangeable.





## BI IV1- Innovative Techniques

Listed innovations mentioned in **Appendix 9.4**

### 4. Renewable Energy

Solar hot water / Offset carbon by buying Renewable Energy Certificates covering 2 years' operation

*(Approval Year: 2016)*



### 5. Temporary protection made from recycled materials

PalmEco Boards made from palm fibre waste:

- 100% recycled material (reusable and recyclable)
- Reduce associated waste related to temporary works/ protection from construction works

*(Approval Year: 2015)*



### 6. Waste Recycle Facilities for business specific materials

#### Kitchen Waste Dispenser Machine

Turn food waste into organic manure for agricultural use

#### Food donation to Charity organization

Certain amount of surplus food will be regularly donated to the Bo Charity Foundation via the "Food Angel" food recovery program

*(Approval Year: 2015)*





## BI - IV1 Innovative Techniques

### Other techniques

#### Energy Generating Exercising Machines

Piezo-electric dancing; energy generation bike  
(Approval Year: 2015)

#### Reused Bottles Wall

Bottles were reused for new partition wall decoration  
(Approval Year: 2015)

#### Temporary IAQ Improvement Guard

Temp panel installed on curtain wall window -  
Provide an exhaust air path rather than use the  
host building MVAC system during  
fitting-out works

(Approval Year: 2016)



#### Indoor Hydroponic Farming

Indoor farming technology  
- promotes sustainable lifestyle  
(Approval Year: 2015)



#### Education for Visitors

A special exhibit system designed to induce  
behavioural changes in visitors and increase visitors'  
awareness (Approval Year: 2018)

#### BIM model with O&M database

Employed a BIM consultant to complete full BIM  
modelling for the premises and all building services  
(BIM model incorporates building services equipment  
data with hyperlinks to facilitate operation and  
maintenance) (Approval Year: 2015)



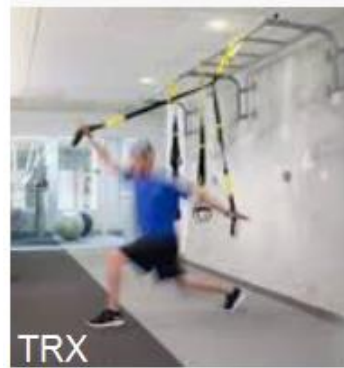
## BI IV1

### Other techniques

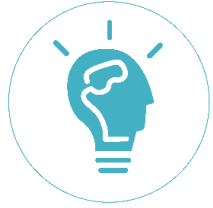
### Promote healthy and active living

- Stepper under desk
- Total Resistance Exercise (TRX) system
- Sit ball
- Yoga mat
- Yoga block

*(Approval Year: 2019)*







## BI IV1

### Other techniques



**Free industry-specific guides for adopting sustainable practices that meet both business and environmental needs**

*(Approval Year: 2019)*



**1** Eliminate plastic straws entirely (FIRST CHOICE!)



**2** Select a sustainable substitution for plastic straws that suits your budget



**3** Identify other single-use plastics that can be eliminated and substituted for more sustainable options



**4** Make a plan for implementing more sustainable practices throughout your business as a whole



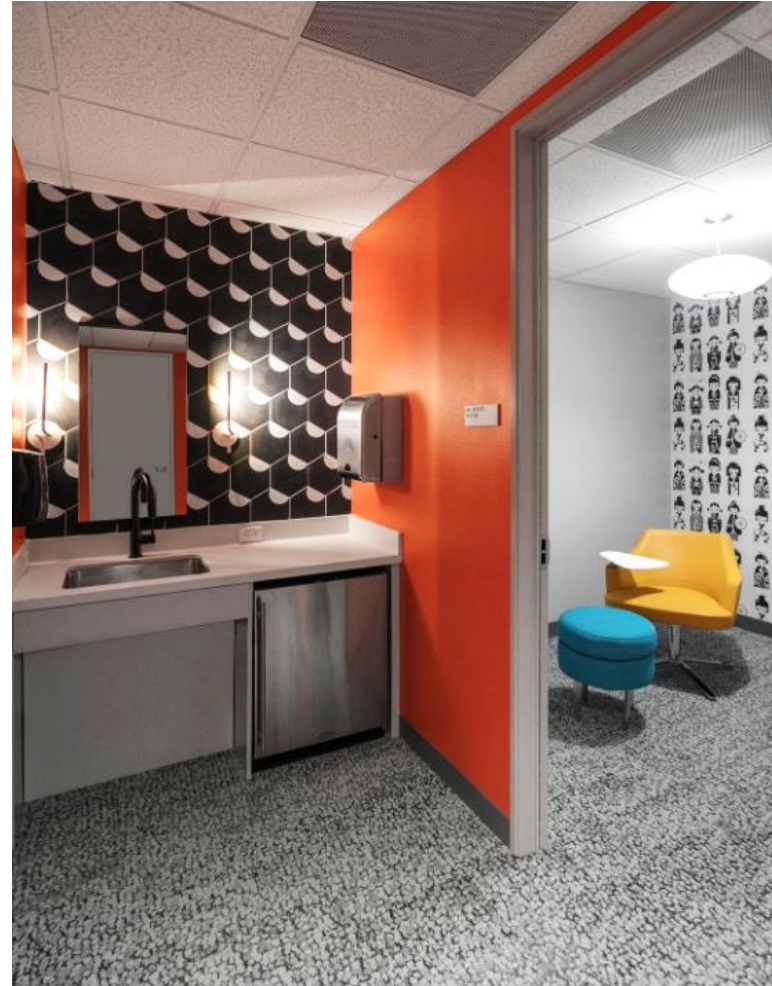
## BI IV1

### Other techniques

#### Room for Mom - Caring for Employees

Provide a mother's room with a sink, a refrigerator and a comfortable chair

*(Approval Year: 2019)*





# BI IV2 – Performance Enhancement

## IEQ1 - IAQ

Provide real-time IAQ monitoring

Detect Air Quality Parameters which include TVOC, Carbon Dioxide and Particulate Matters

*(Approval Year: 2018)*





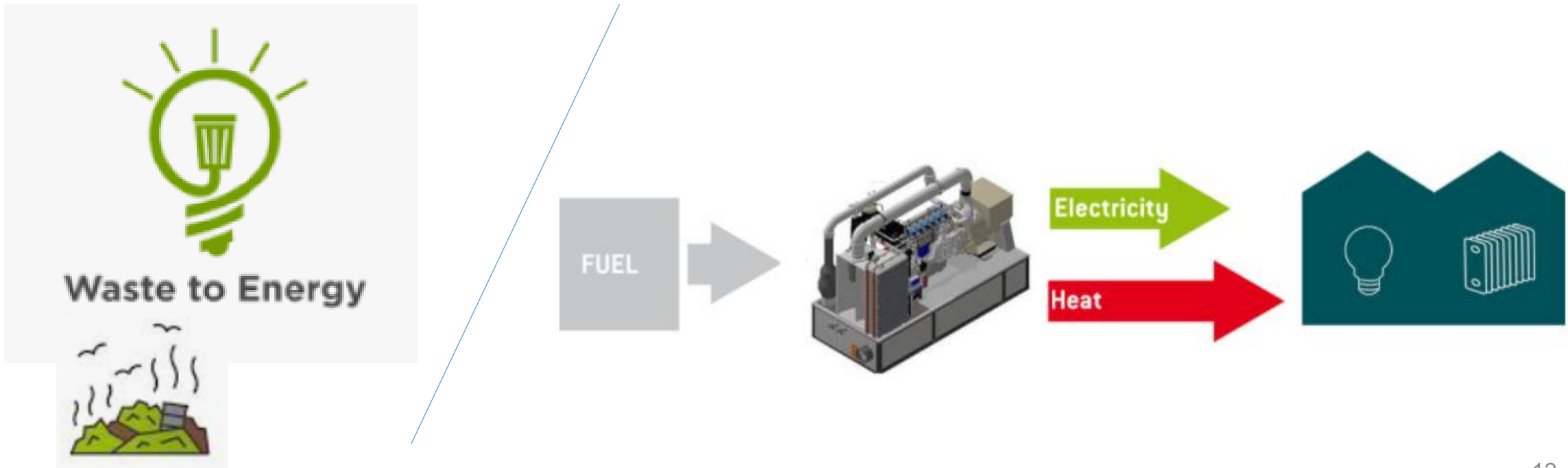
# ND Innovation / Enhancement



*IA1 innovation: New technology (thermal hydrolysis) to treat waste (sludge) -> produce energy and other useful products*

*IA2 Performance enhancement: CHP & PV -> generate more than 13% of annual energy demand*

*(Approval Year: 2020)*



# Remarks about IA/IV points

- (1) The assessment body will consider the **kind of technology** and the **extent of application** to judge whether it is an innovation worthy of a bonus (IA/IV) point. Typically, this would require newer kind of technology and a significant installation rather than a small trial.
- (2) As time goes by, some of the above features may be adopted by more and more projects. There is a possibility that the features will **no longer** be counted as innovations due to their prevailing popularity.