

# Biophilia in Strata/Commercial Development



**Gregers Reimann**

**IEN Consultants Sdn Bhd, managing director**  
Energy Efficient & Green Building Consultancy  
[gregers@ien.com.my](mailto:gregers@ien.com.my) | +60122755630



**Kody Kato (Dr.)**

**ODE Sdn Bhd, founder & managing director**  
Architecture & Advanced Structures  
[kody@officede.co](mailto:kody@officede.co) | +60122384293

**ODE**

A photograph of a man walking through a dense forest. The forest is filled with tall, thin trees, likely redwoods or sequoias, with their trunks curving outwards. Sunlight filters through the canopy, creating bright rays that illuminate the scene. The man is wearing a red shirt and dark pants, and he is walking on a fallen log. The overall atmosphere is misty and ethereal.

What we want



What we got!

# Status quo for most people



**90%**  
of time spend indoors

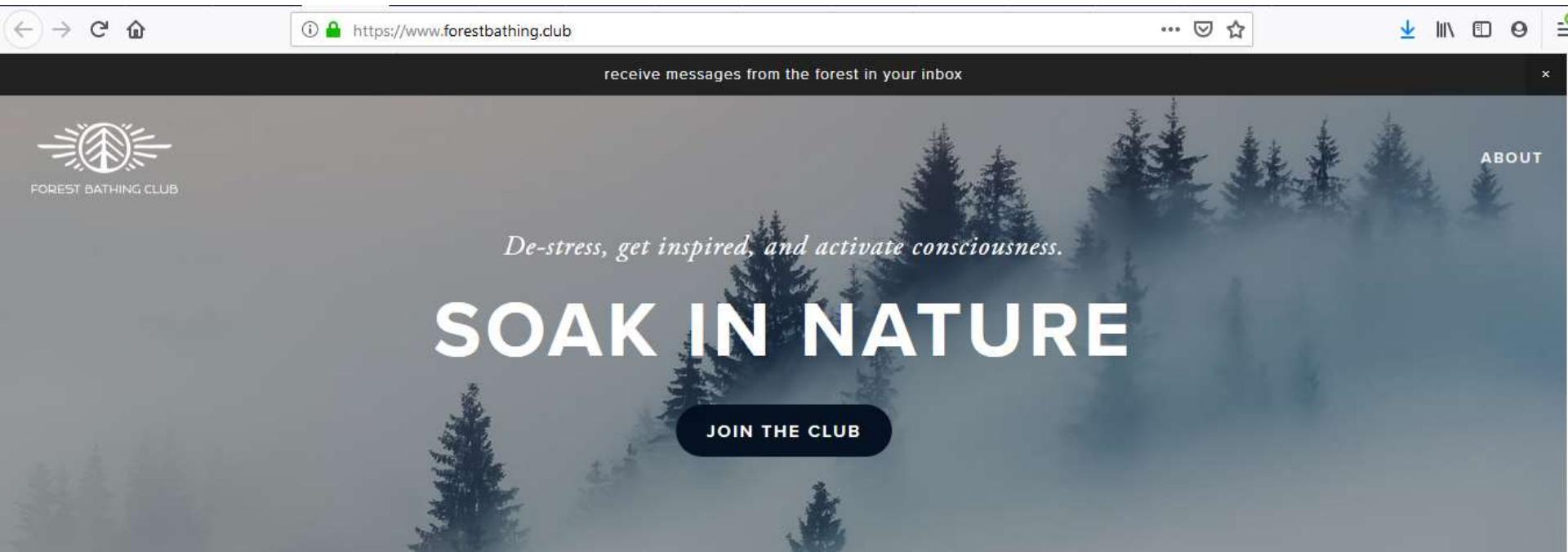


**less than 1%**  
of time spend in true Nature

**We need the build environment to strike a better balance**

In fact  
we are already so decoupled from  
Nature that doctors now prescribe

# FOREST BATHING



The screenshot shows a website for 'FOREST BATHING CLUB' with a dark, atmospheric background image of a forest. At the top, there is a navigation bar with icons for back, forward, refresh, and home, along with a URL bar showing 'https://www.forestbathing.club'. Below the navigation is a text input field with the placeholder 'receive messages from the forest in your inbox'. On the left, there is a logo of a stylized tree with radiating lines and the text 'FOREST BATHING CLUB'. On the right, there is a 'ABOUT' link. In the center, a tagline reads 'De-stress, get inspired, and activate consciousness.' Below this is a large, bold, white text 'SOAK IN NATURE'. At the bottom center is a dark button with the text 'JOIN THE CLUB' in white. The overall aesthetic is minimalist and nature-focused.

# What is Biophilia?

## BIOPHILIA AS A CONCEPT



The concept of biophilia implies that humans hold a biological need for connection with nature on physical, mental, and social levels and this connection affects our personal well-being, productivity, and societal relationships. – Sheeps Meadow, 2004

**Bio**

connected with life and living things

**philia**

denoting fondness, especially an abnormal love for a specified thing

loosely translated as

**Love of Nature**

# Biophilia is real



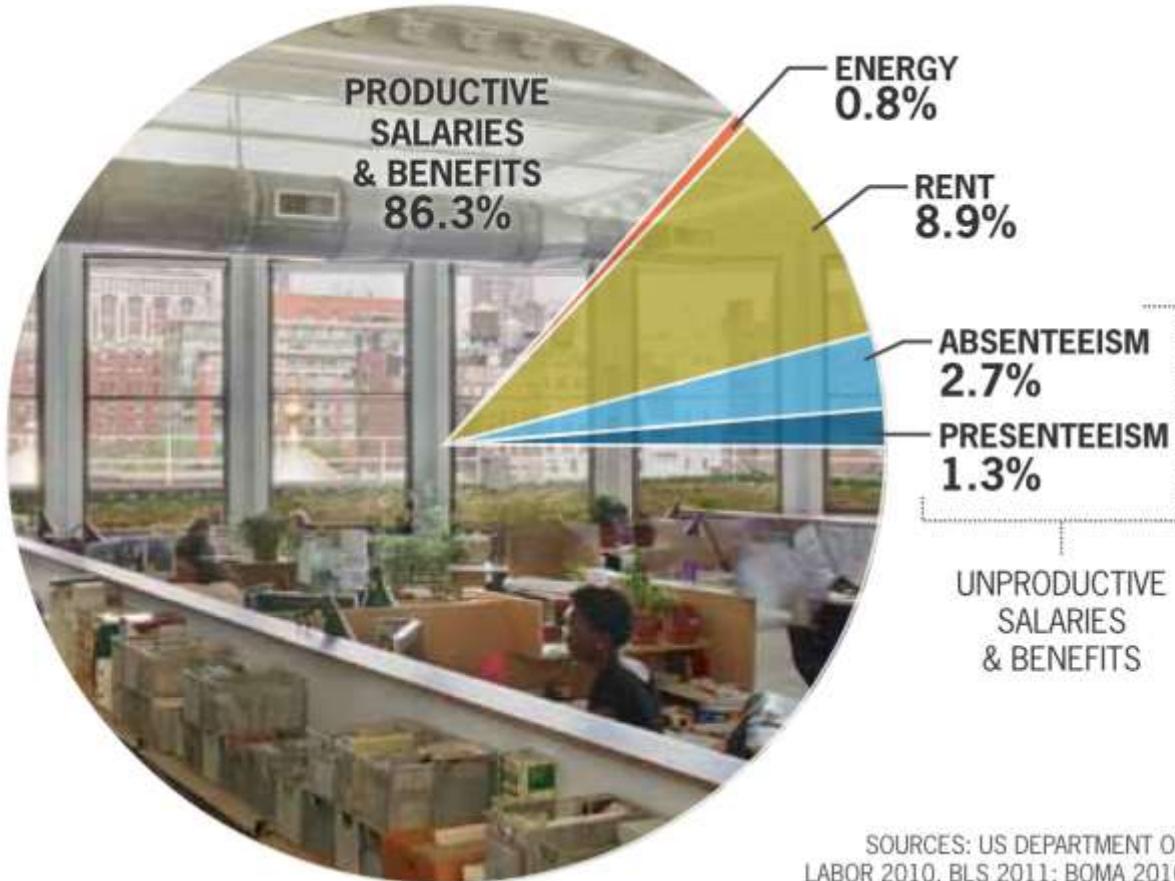
- **“What is the most attractive office space?”**  
Along the façade with a view out
- **When asked to “Draw your favorite place”**  
96% of the kids drew an outdoor location
- **20% more self-discipline**  
for teenage girls with greenery outside their home

# Biophilia & Economic Sen\$e



*There's great economic value in the positive effects of biophilic design on well-being, stress reduction and enhanced learning*

# Biophilia & Economic Sen\$e



## BIOPHILIA CAN RE-ENGAGE LOSSES FROM UNPRODUCTIVE OPERATING COSTS

More than 90% of a company's operating costs are linked to human resources, and **financial losses due to absenteeism and presenteeism account for 4%**. Commercial spaces that give occupants access to nature serve as a release to outside stresses, and tend to cause less environmental stress themselves. It makes fiscal sense for companies to try to eliminate environmental stress that cost them thousands of dollars per year in employee costs.

Graphics credit: Catie Ryan for Terrapin Bright Green

*There's great economic value in the positive effects of biophilic design on well-being, stress reduction and enhanced learning*

# Unproductive 66 days per year!

Amount of time that average Malaysian worker is either absent or suffering from presenteeism

*NB. The UK figure is only 30 days per year*

**MOST EMPLOYERS DO NOT REALISE THAT  
HEALTH IS WEALTH...**



**EMPLOYEES UNDER-PERFORMING IN POOR WORKING ENVIRONMENT DESPITE  
81% OF COST ARE GOING TO SALARIES**

# Biophilia & Economic Sen\$e

Biophilic retrofit of call center (Sacramento, US)

- Employees with a view to the outside could take 6-7% more calls than employees without a view
- The call center was retrofitted to give everybody a view out (more office space, different seating arrangement, operable windows)
- Cost: USD 1000 per employee  
Savings: USD 2990 per employee  
Payback time: 4 months



# Biophilia & Economic Sen\$e

Improved student learning



# Biophilia & Economic Sen\$e

Hospitals patients recover faster

## HEALING VIEWS



Photo courtesy of G. Brändle, Agroscope

Patients with a view to nature, instead of a nondescript wall, are more likely to experience hospital stays that are 8.5% shorter, with fewer negative observational comments from nurses, and significantly fewer strong, post-surgical analgesics.  
– Ulrich, 1984

Patients can discharge  
8.5% faster from hospital

Khoo Teck Puat Hospital  
(Singapore)



# Biophilia & Economic Sen\$e

## Retail spaces



Retail customers judge businesses surrounded by nature and natural features to be worthy of prices up to 25% higher than businesses with no access to nature. – Albee Square, Brooklyn, NY, 2010

- Customers were willing to pay more for products when sold in a green retail setting:
  - +20% higher for convenient shopping (e.g. sandwich)
  - +25% higher for general shopping (e.g. jacket, watch)
- For a retail store chain in California with 73-stores, skylights were installed and sales increased by 40%



# Biophilia & Economic Sen\$e

Significant increase in property value

PEOPLE WILL PAY

**58%**

MORE FOR A  
PROPERTY WITH A  
**VIEW TO WATER**

OR

**127%**

MORE FOR A  
**LAKEFRONT  
PROPERTY**



Photo courtesy of Cook+Fox Architects

# Examples of Biophilia



**Fallingwater**  
by Frank Lloyd Wright



**Kampung House**  
(Vernacular Malaysian Architecture)

# Example of Biophilia (Malaysia)



Photo by Lin Ho

## Paramit – factory in the forest

Architect: Design Unit

ESD: IEN Consultants

Project performance: Measured 40% energy savings. High occupant satisfaction. More info: <http://ien.com.my/projects/paramit.html>

Nominee for "Best New Building of the World 2018"

RIBA International Prize

# Example of Biophilia (Malaysia)



Photo by Lin Ho

## Paramit – factory in the forest

Architect: Design Unit

ESD: IEN Consultants

Nominee for "Best New Building of the World 2018"

RIBA International Prize

# Example of Biophilia (Malaysia)



Anonymous survey 2019:

**90% preferred the new factory  
to the old factory**

## Paramit – factory in the forest

Architect: Design Unit  
ESD: IEN Consultants

Nominee for "Best New Building of the World 2018"  
RIBA International Prize

# Example of Biophilia (Malaysia)



## Paramit – factory in the forest

Architect: Design Unit

ESD: IEN Consultants

Nominee for "Best New Building of the World 2018"

RIBA International Prize

# Example of Biophilia (Malaysia)

Replies to anonymous survey question "What do you like about the building?":

- 1) Its the best place i worked.. The greenery around the factory is simply amazing.. It give us a peaceful feeling..
- 2) Very green, light and healthy
- 3) Give a balance and serene feel (able to reduce stress). Work place = 2nd HOME
- 4) I like the environment of this building that have been surround by tress. Comfortable. Outstanding from others building.
- 5) The beauty of the natural, de-stress while working

## Paramit – factory in the forest

Architect: Design Unit

ESD: IEN Consultants

Nominee for "Best New Building of the World 2018"

RIBA International Prize

# Example of Biophilia (Malaysia)



.... instead of being stuck in traffic

Commute in nature along river in Kuala Lumpur

# New WELL Certification

with credits for Biophilia (qualitative & quantitative)



International Insights

## NEW TREND: HEALTHY BUILDINGS

"We shape our buildings, and afterwards our buildings shape us" These words, uttered by Winston Churchill during his speech at the House of Commons in 1943, are the very essence of a new trend that has emerged for buildings globally and in the Asian region.

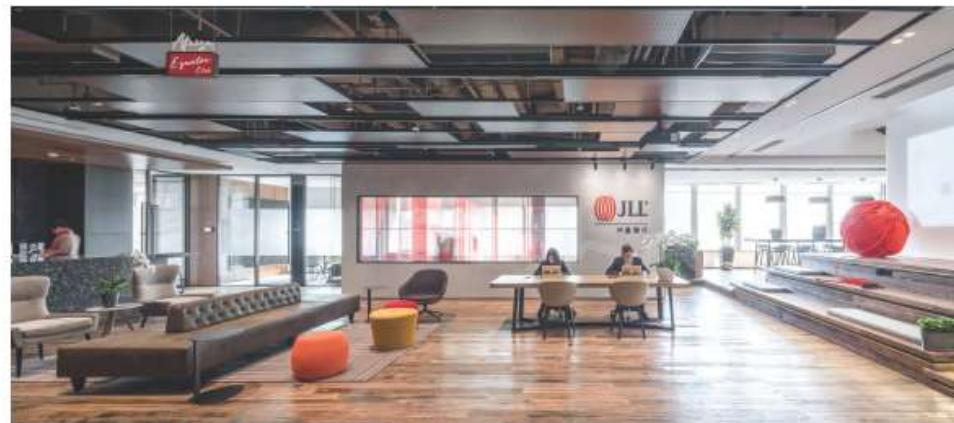


With over 500 registered projects in over 30 countries, covering more than 100 million sq.ft, one third of which is located in Asia, is WELL building standard

being? The answer is no, only partially, and unlike WELL, typically not as predominantly mandatory requirements. Most of the existing green building

by the immense financial logic of the WELL building standard. With attractive ROIs related to overall health care cost savings, worker productivity increases and reduced sick days and intangible benefits such as improved sales from better customer experience and increased work value produced by employees, the WELL building standard provides a great business case - one that in this region has been picked up very quickly by China, where WELL certification is highest outside of the US.

The WELL Standard addresses seven



a year and costing nations like Indonesia an estimated RM160 billion (\$35 billion) in economic losses.

For most people living in cities, 90% of our time is spent indoors - be it at our workplace, home or even in the car stuck in traffic. Unfortunately for a lot of people, while being stuck in the office to avoid bad outdoor air pollution might sound like a good idea, the comfort of being indoors can be nothing but an illusion as concentrations of some pollutant indicators can be 2 to 5 times higher indoors compared to outdoors. In

as studies issued under the Population Health Management Journal shows that eating unhealthily can be linked to a 66% increased risk of productivity loss. And Malaysia is the fattest nation in Asia with 42% of the population being overweight and 14% obese, in part because more than half of Malaysians have been reported to practice inactive lifestyles (defined as weekly exercise amounting to less than 150 minutes).

The WELL Building Standard looks at creating wellbeing at the workplace by setting forth preconditions that call

### About The Contributor



**Sheena** is in the process of joining the WELL Faculty while working as a green building consultant at IEN Consultants.



**Gregers** is the managing director of IEN consultants, the pioneering green building consultancy in Malaysia.

Let's do a WELL calculation example in the Malaysian context using our own office as an example, where 81% of our company's monthly expenditure goes to staff salaries, while other expenses (15%) and rental (4%) account for the rest of the expenses. From the employer's perspective, and under the assumption that by following the WELL standard, the absenteeism and presenteeism

Article in *Property Insight magazine* (December 2017 issue)

# Biophylic Masterplanning

## People and Nature First

Keep as much of the existing trees and plants as possible

Design with existing terrain

Design for human comfort in between and around buildings

## Computational Analysis

Street level shadows (morning & evening)

Exposure on buildings

Wind analysis

Gradient analysis

Allow activities to take place

Alternative transportation

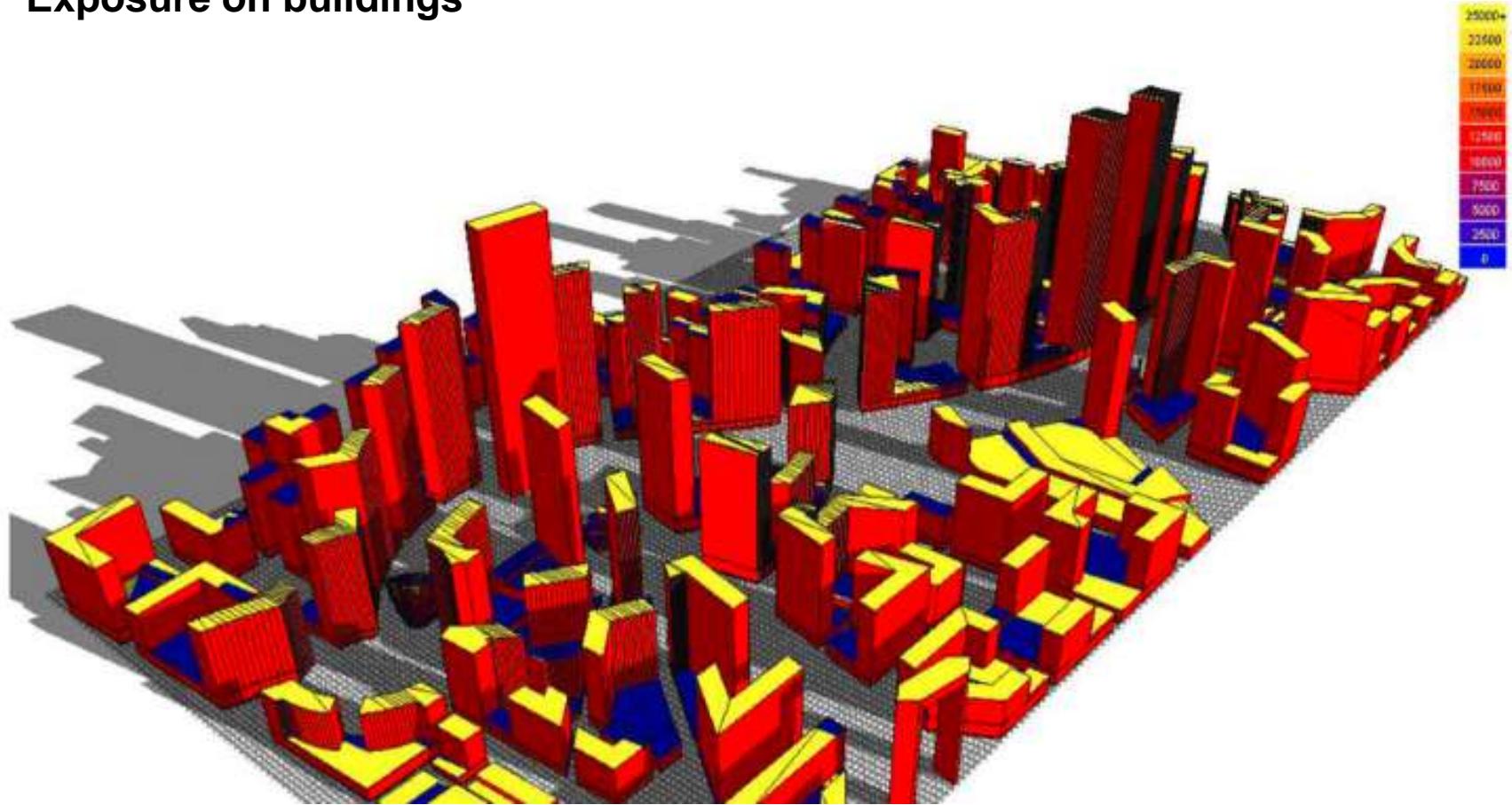
Image  
removed  
(as per ODE's request)

# Biophytic Masterplanning

Do the trial and error on the computer, not in real life

SOLAR RADIATION impact:

- **Street level shadows** (morning & evening)
- **Exposure on buildings**



# Biophytic Masterplanning

Do the trial and error on the computer, not in real life

## USING CFD SIMULATIONS TO IMPROVE PEDESTRIAN COMFORT IN THE BUILT ENVIRONMENT

### OPTIMIZE Pedestrian Comfort:

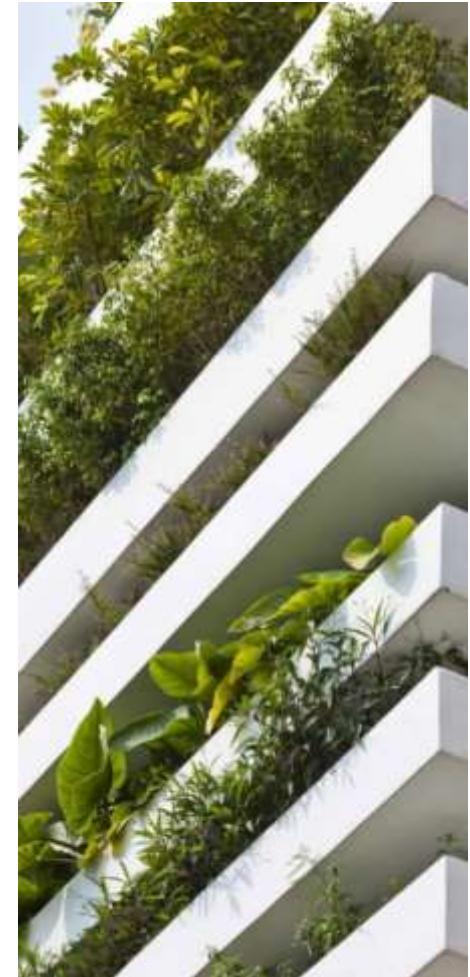
- **Wind velocity** (enhance breeze)
- **Solar radiation** (reduce impact for commuters)
- **Noise protection** (against noisy highways)

17 slides  
of biophilic masterplans  
and 3D renders removed

(as per ODE's request)

# Concluding remarks

- Humans are naturally drawn to nature
- Connect people with Nature
- Design with existing nature
- Biophilic design is important
- Biophilic design makes economic sen\$e
- Provide alternative modes of transportation



# Thank you

**Gregers Reimann**

**IEN Consultants Sdn Bhd, managing director**

Energy Efficient & Green Building Consultancy

gregers@ien.com.my | +60122755630



**Kody Kato (Dr.)**

**ODE Sdn Bhd, founder & managing director**

Architecture & Advanced Structures

kody@officede.co | +60122384293

**ODE**