

MALAYSIA GREEN BUILDING CONFEDERATION

GREEN BUILDINGS
ADAPTATION vs MITIGATION
&
LOCAL SOLUTIONS

presented by

Von Kok Leong
Immediate Past President, MGBC
Member, GBI Accreditation Panel

MALAYSIA GREEN BUILDING CONFEDERATION



**MILLION SQUARE FEET
CERTIFIED GREEN BUILDING**

MALAYSIA GREEN BUILDING CONFEDERATION



Launched
NRNC
RNC
NREB
Township
INC, IEB
Data Centres
Retail

Coming soon
Healthcare
Hotels

MALAYSIA GREEN BUILDING CONFEDERATION

CLIMATE CHANGE : ADAPTATION

means actions to adapt and adjust to global climate change, and to tolerate the effects, or to reduce vulnerability and to increase the resilience of a eco-system to change.

MALAYSIA GREEN BUILDING CONFEDERATION

CLIMATE CHANGE : ADAPTATION

Adaptation actions are such as

**defending against rising sea levels through better flood defenses,
changing patterns of land use like avoiding areas vulnerable to flooding for housing,
rainwater harvesting,
improved irrigation,
growing drought tolerant crop,
growing more crops per year.**

MALAYSIA GREEN BUILDING CONFEDERATION

CLIMATE CHANGE : ADAPTATION

IPCC Fourth Assessment Report WG II says

“...activities that improve adaptive capacity are essentially equivalent to activities that promote sustainable devt:

- a) improving access to resources
- b) reducing poverty
- c) lowering inequities of resources and wealth
- d) improving education and information
- e) improving infrastructure
- f) improving institutional capacity and efficiency”

MALAYSIA GREEN BUILDING CONFEDERATION

CLIMATE CHANGE MITIGATION

Mitigation is action to decrease the intensity of radiative forcing in order to reduce the potential effects of global warming.

MALAYSIA GREEN BUILDING CONFEDERATION

CLIMATE CHANGE MITIGATION

Typically, mitigation actions involve human interaction to reduce GHGs, usually by reducing at source, eg :

- a) energy efficient buildings,
- b) improving insulation in buildings,
- c) reducing dependency on fossil fuels for electricity generation, and
- d) preserving green areas which acts as sinks that help remove CO₂ from the atmosphere.

MALAYSIA GREEN BUILDING CONFEDERATION

ADAPTATION vs MITIGATION

ADAPTATION

Adjustment in natural or human systems in response to actual or expected climatic stimulus, which moderates harm or exploits beneficial opportunities.

MITIGATION

An anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases.

MALAYSIA GREEN BUILDING CONFEDERATION

ADAPTATION vs MITIGATION

ADAPTATION

Disaster risk reduction

Understand risks due to disasters

Capacity building at local levels to minimize damage

MITIGATION

Actions being taken to limit the magnitude and the rate of long-term global warming

IPCC AR4 WG2

MALAYSIA GREEN BUILDING CONFEDERATION

ADAPTATION vs MITIGATION

“Adaptation can reduce CC impacts but will incur costs and will not prevent all damages. In the absence of mitigation efforts, the effects of CC will reach such a magnitude as to make adaptation impossible for our ecosystem.”

IPCC AR4 WG2

“Mitigation reduces all impacts (positive and negative) of climate change and thus reduces the adaptation challenge, whereas adaptation is selective; it can take advantage of positive impacts and reduce negative ones.”

Goklany, 2005

MALAYSIA GREEN BUILDING CONFEDERATION

LOCAL SOLUTIONS

Revisit what we have forgotten



MALAYSIA GREEN BUILDING CONFEDERATION

Traditionalism



MALAYSIA GREEN BUILDING CONFEDERATION

Modernism



MALAYSIA GREEN BUILDING CONFEDERATION

PASSIVE DESIGN



LOCAL SOLUTIONS

MALAYSIA GREEN BUILDING CONFEDERATION

- **Is based on local climatic conditions**
- **Attempts to control comfort without consuming energy**
- **Uses the orientation of the building to minimize heat gain**
- **Uses shade (natural or architectural) to minimise heat gain**
- **Maximises free daylighting**
- **Maximises free natural ventilation**

MALAYSIA GREEN BUILDING CONFEDERATION

- **Passive Design** results when a building can simply work “on its own”, where the design, orientation, siting and use of materials can create a desired energy flow through the building.
- **Active Design** uses equipment to modify the state of the building, to create a condition suitable for human occupation

MALAYSIA GREEN BUILDING CONFEDERATION

PASSIVE DESIGN

The basic approach towards good passive design is

to orientate	adaptation
to shade	mitigation
to insulate	mitigation
to ventilate	mitigation
to daylit	mitigation

MALAYSIA GREEN BUILDING CONFEDERATION



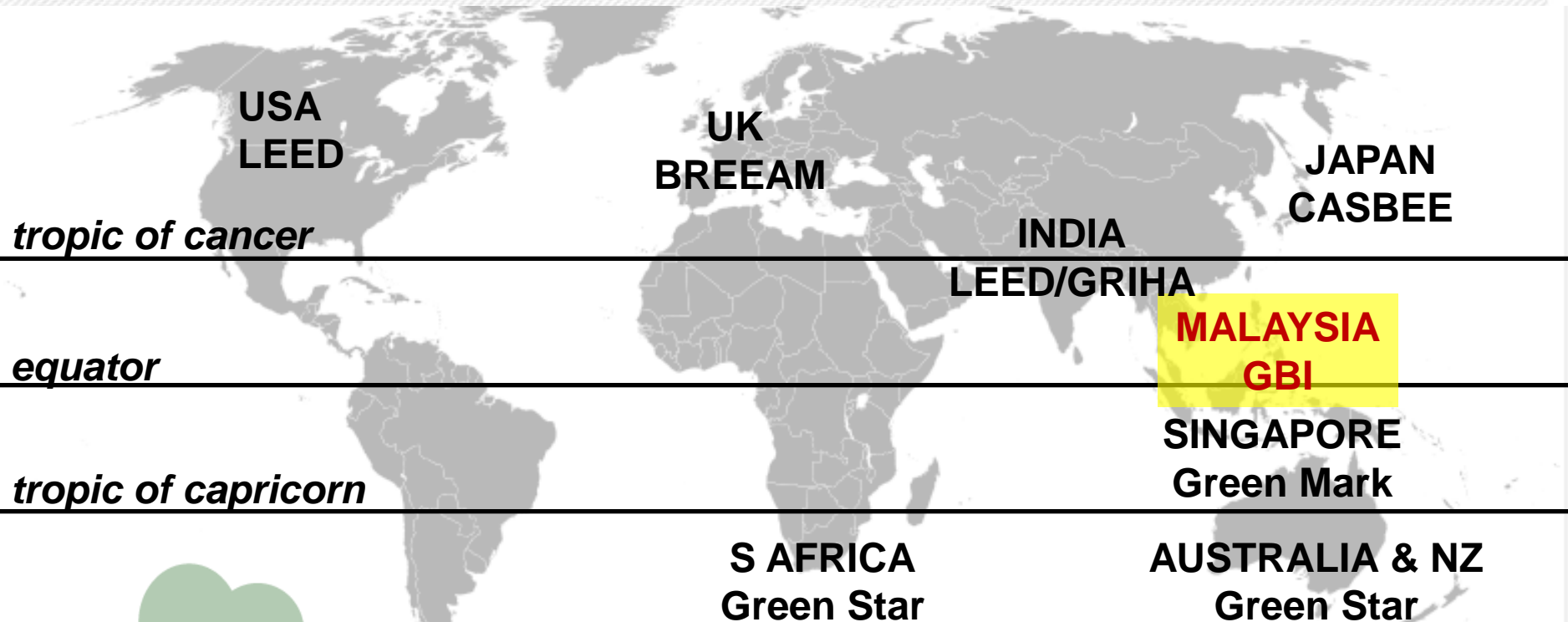
OWN TOOLS

greenbuildingindex

APPROPRIATE

**DESIGNED FOR OUR OWN CLIMATE
ADDRESS OUR OWN STRESSES
COMPLEMENT OUR OWN LAWS**

MALAYSIA GREEN BUILDING CONFEDERATION



OWN TOOLS

greenbuildingindex

www.mgbc.org.my

MALAYSIA GREEN BUILDING CONFEDERATION

MALAYSIA'S BUILDING LAWS & REGULATIONS

MS1525

UBBL

MASMA

Local govt planning controls

CIDB's IBS and QCLASSIC

DoE Act

RE Act

KPKT guidelines on SWM



MALAYSIA GREEN BUILDING CONFEDERATION

MALAYSIA'S OWN BUILDING INDUSTRY

**matured sector
addresses local needs
regulated
trained and professional consultants
integrity
best industry practices**

MALAYSIA GREEN BUILDING CONFEDERATION

WHY OUR OWN GREEN RATING TOOL?

Summary

1. Suits local climate and culture.
2. Suits local building typologies.
3. Observes local planning and development priorities.
4. Complements local laws and standards.
5. Uses local materials.
6. HOLISTIC

MALAYSIA GREEN BUILDING CONFEDERATION

GBI CRITERIAS

Total Points = 100

Platinum ≥ 86 pts

Gold 76 to 85 pts

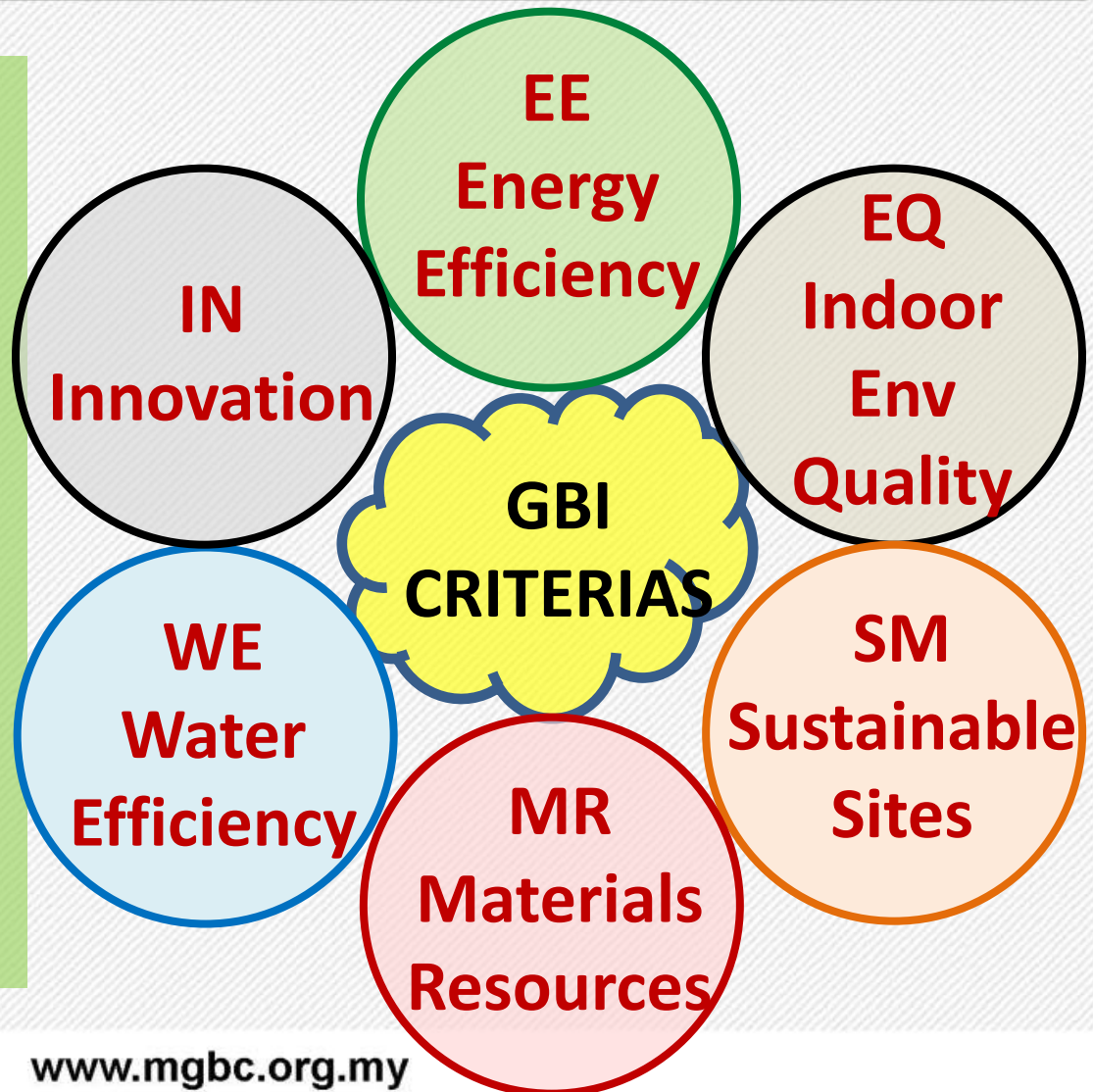
Silver 66 to 75 pts

Certified 50 to 65 pts

No Prerequisites

No Bonus points

Valid for 3 years



MALAYSIA GREEN BUILDING CONFEDERATION

ADAPTATION vs MITIGATION generally

ADAPTATION

SM
WE
MR

MITIGATION

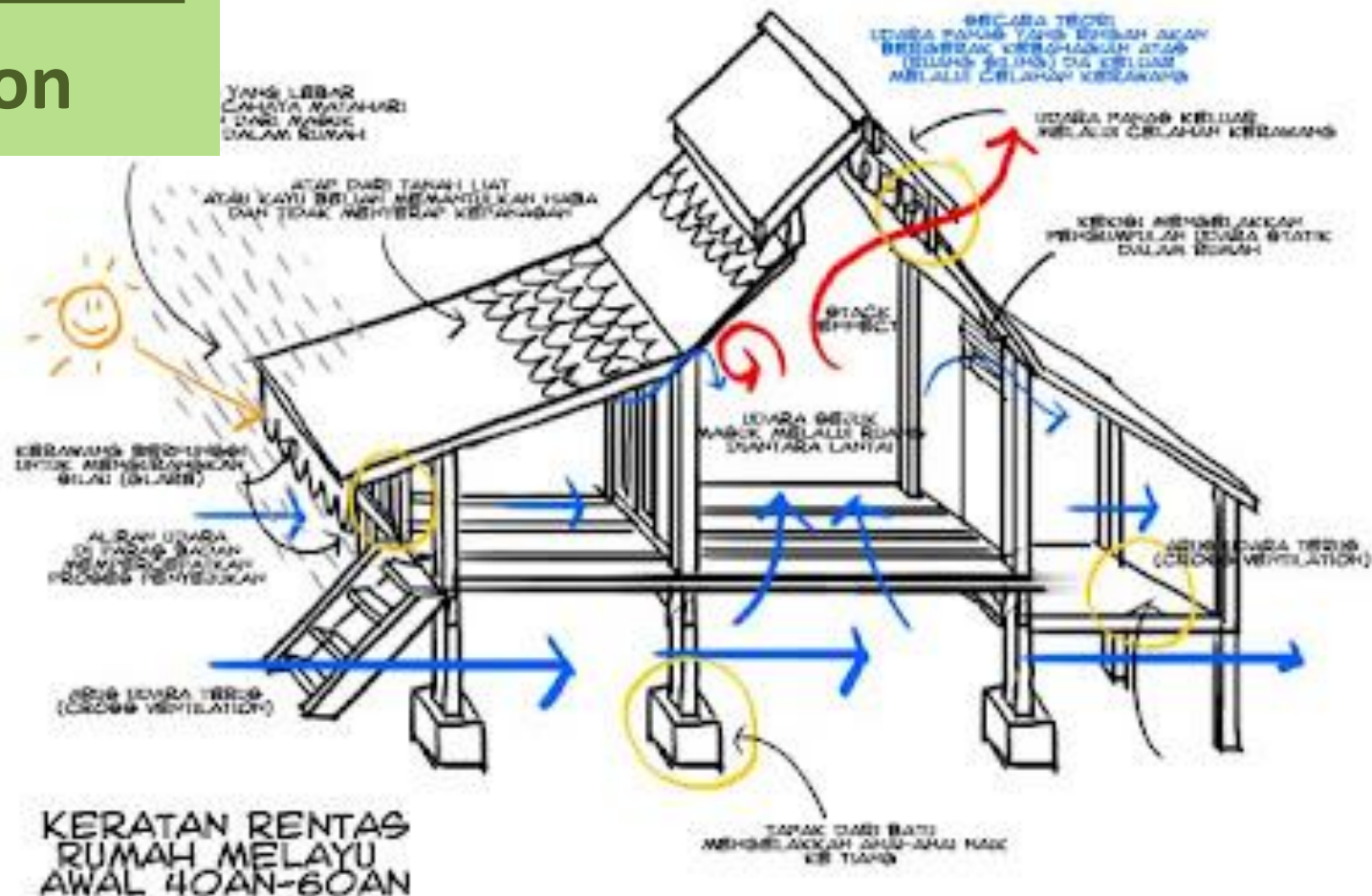
EE
EQ
IN

IPCC AR4 WG2

MALAYSIA GREEN BUILDING CONFEDERATION

Traditionalism

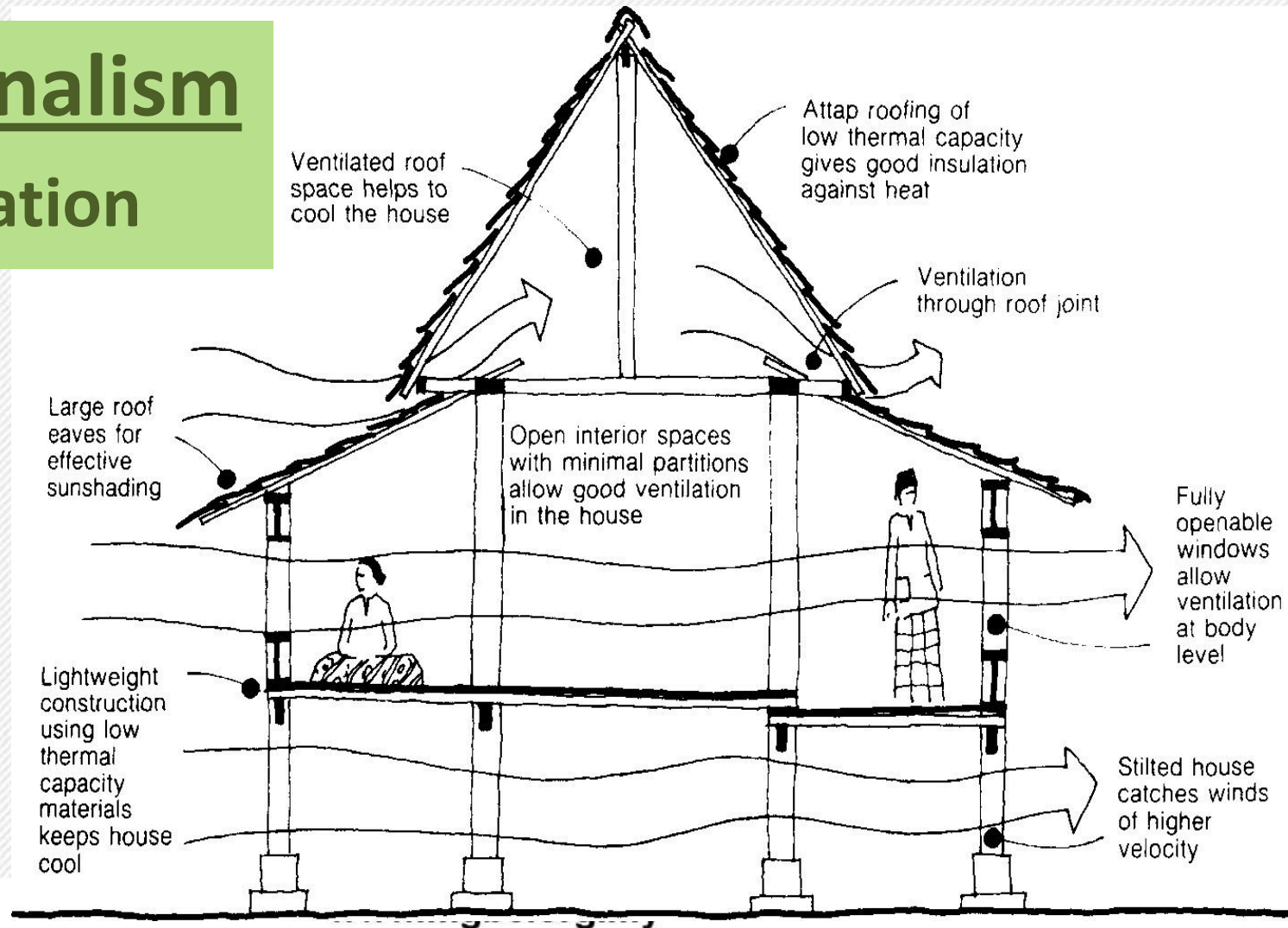
Adaptation



MALAYSIA GREEN BUILDING CONFEDERATION

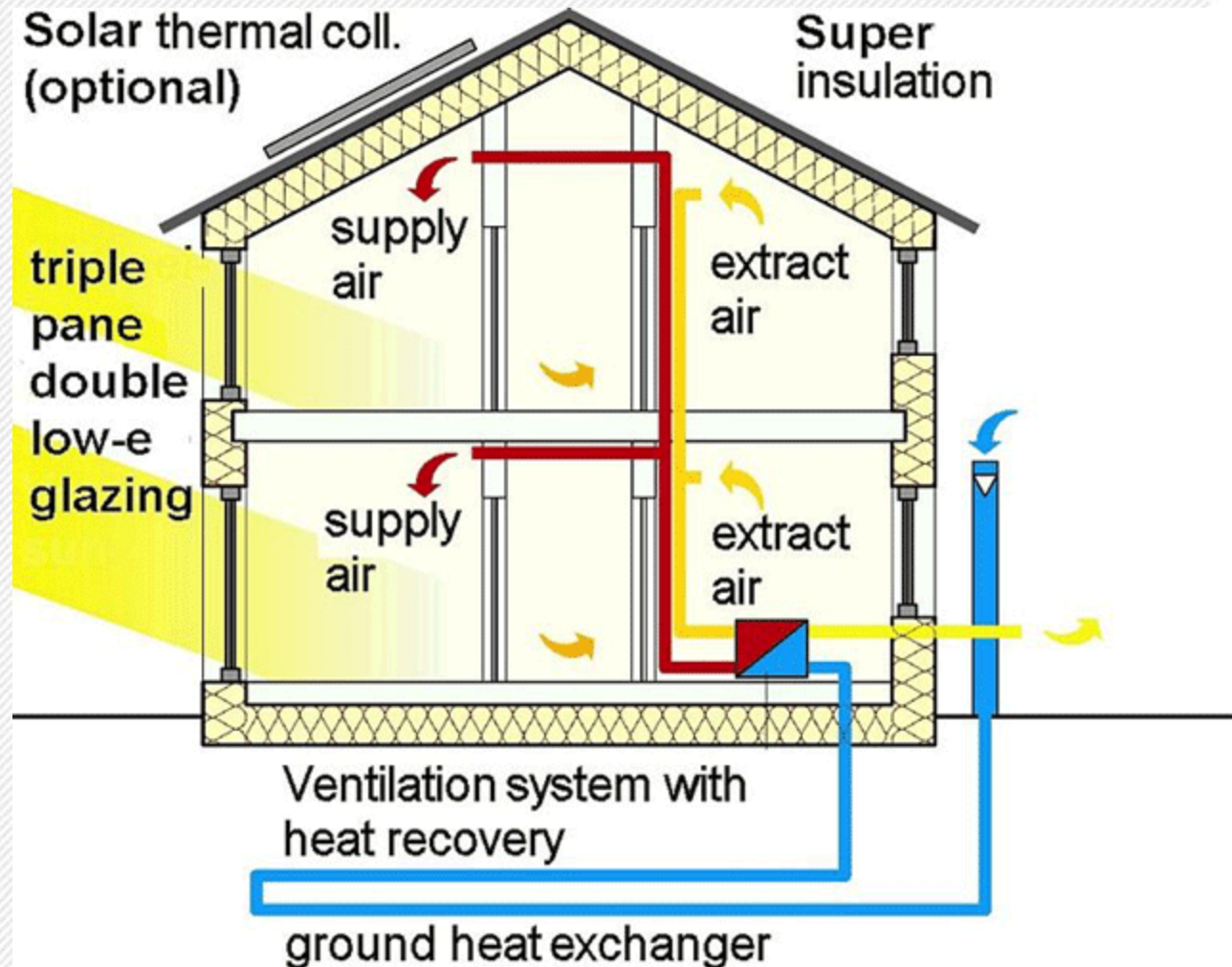
Traditionalism

Adaptation



MALAYSIA GREEN BUILDING CONFEDERATION

Modernism Mitigation



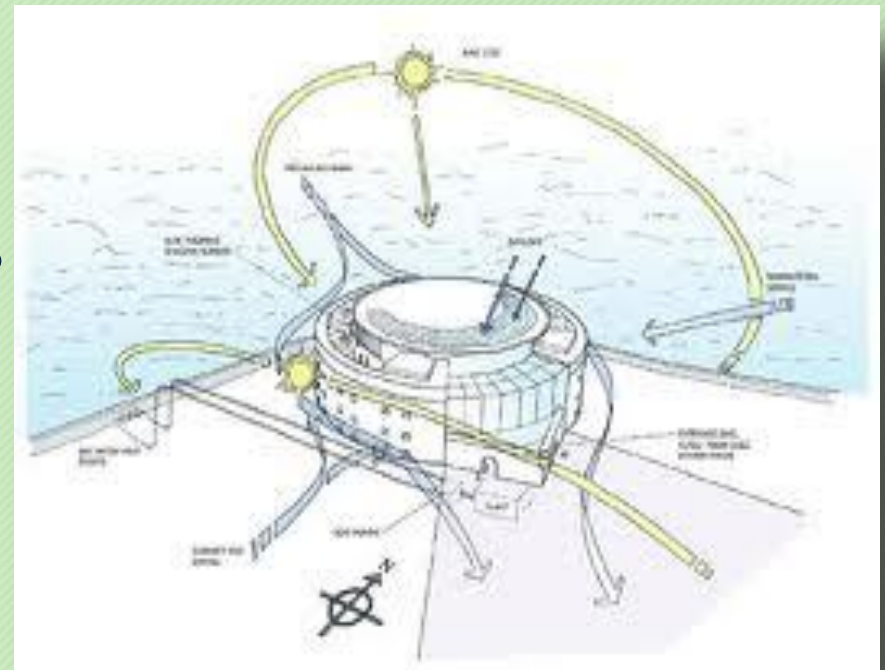
MALAYSIA GREEN BUILDING CONFEDERATION

PASSIVE DESIGN

Site planning and orientation

MS1525 Clause 4.3

Generally, the best orientation for buildings is with the long directional axis facing North-South, thus minimizing East-West orientation.



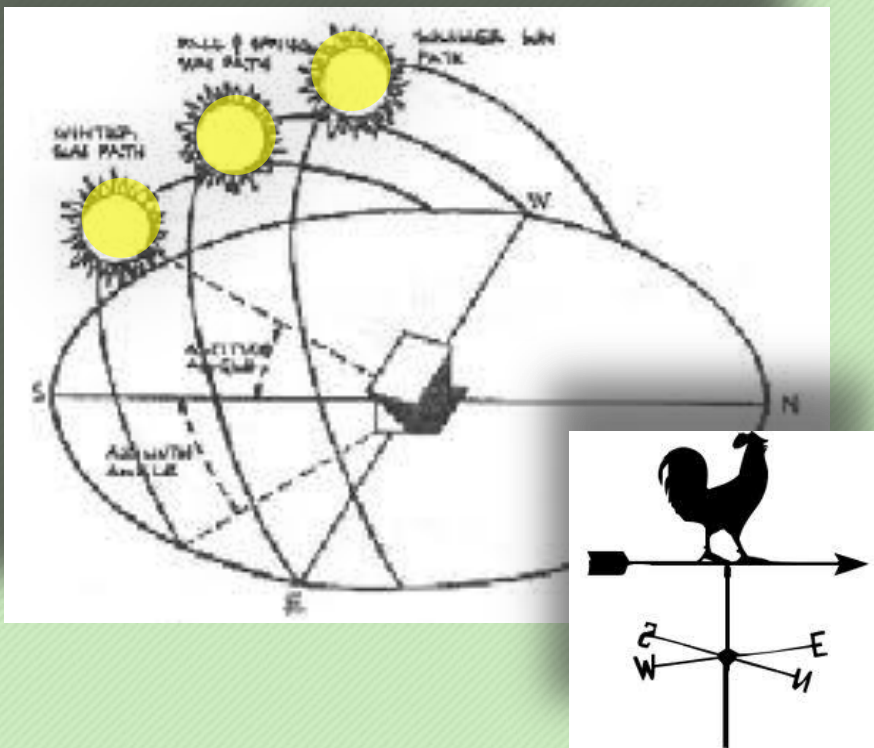
MALAYSIA GREEN BUILDING CONFEDERATION

PASSIVE DESIGN

Site planning and orientation

MS1525:2007 Clause 4.3

The micro-climate, shading, radiant temperature, wind direction, precipitation etc should be analysed for the locality.



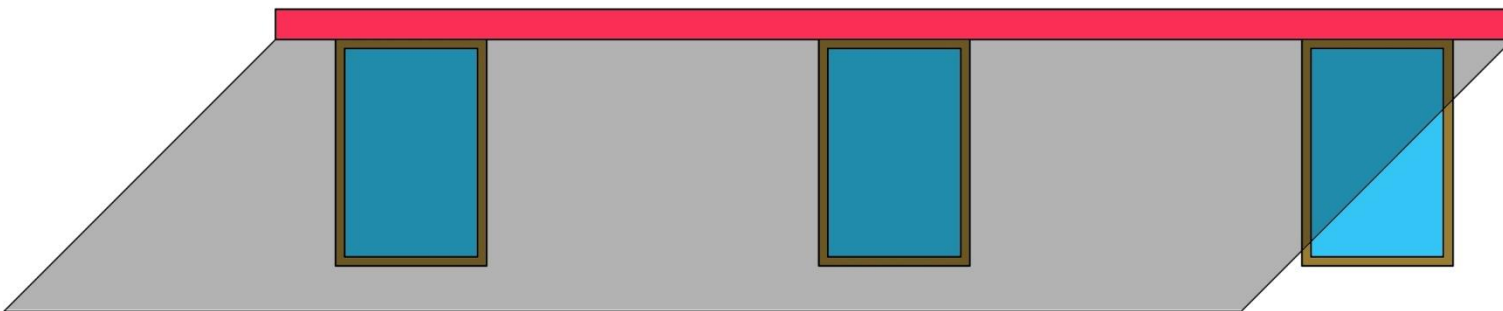
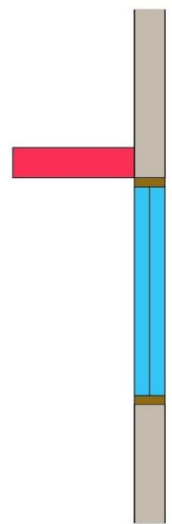
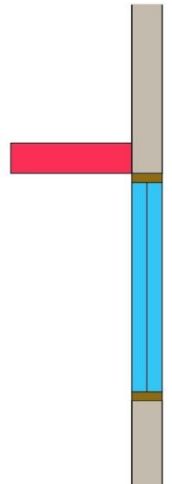
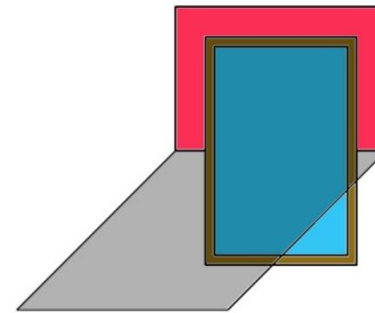
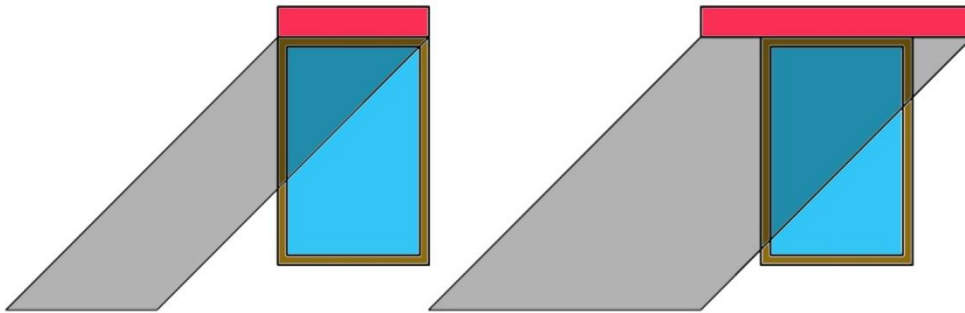
MALAYSIA GREEN BUILDING CONFEDERATION

PASSIVE DESIGN Shading



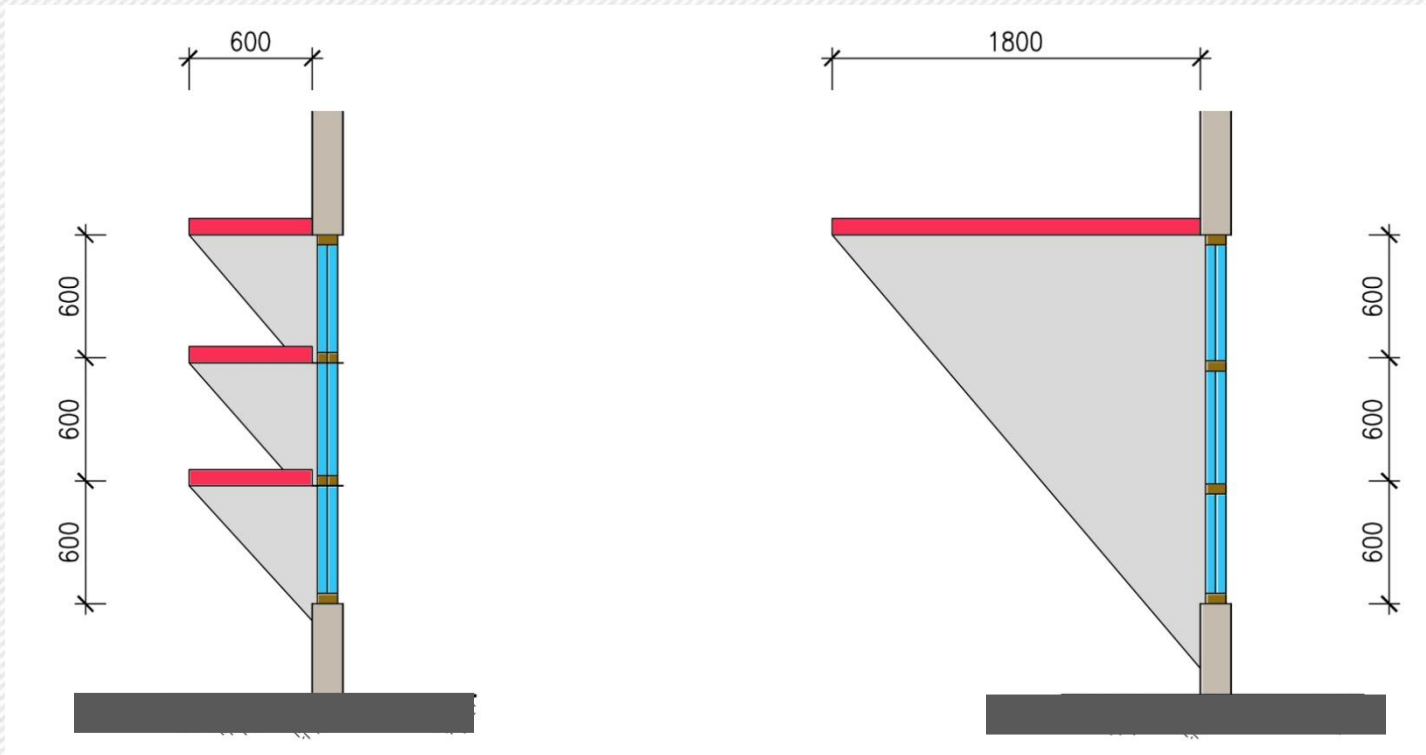
MALAYSIA GREEN BUILDING CONFEDERATION

Horizontal Shading Devices



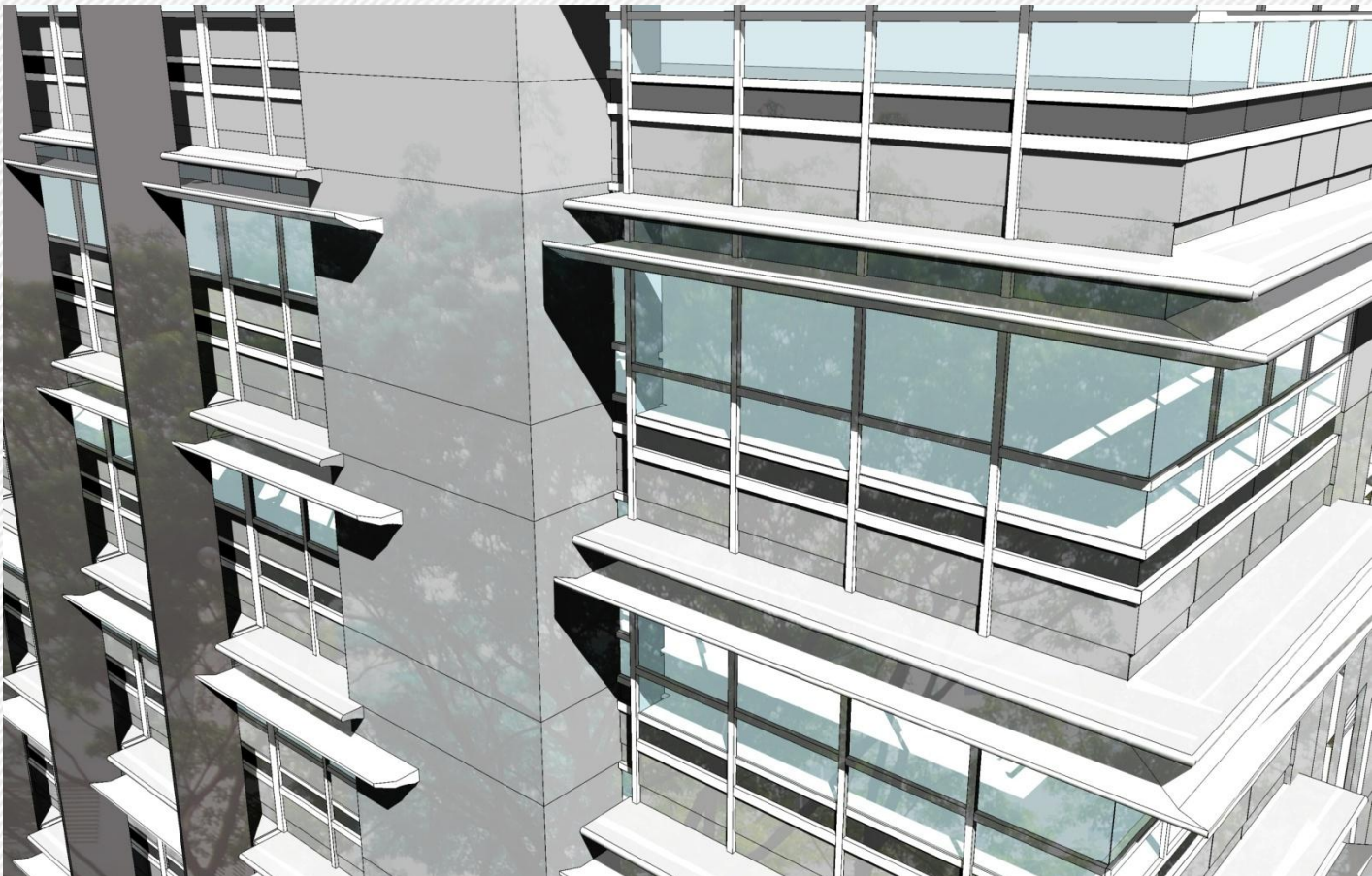
MALAYSIA GREEN BUILDING CONFEDERATION

Horizontal Shading Devices



MALAYSIA GREEN BUILDING CONFEDERATION

Horizontal Shading Devices



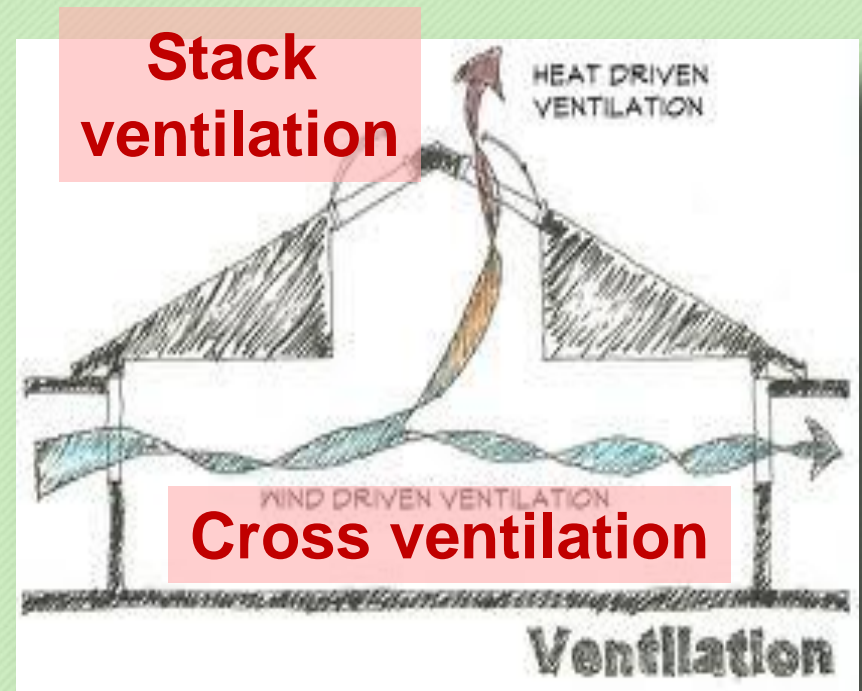
MALAYSIA GREEN BUILDING CONFEDERATION

PASSIVE DESIGN

Natural ventilation

MS1525:2007 Clause 4.6

Natural ventilation is the use of the natural forces of wind and buoyancy.....to ventilate internal spaces and provide thermal comfort with reduced energy.



MALAYSIA GREEN BUILDING CONFEDERATION

PASSIVE DESIGN Daylighting

MS1525:2007 Clause 4.4

Conventional and innovative daylighting systems that collect, transport, and distribute light deep into buildings that reduce the need for artificial lighting are recommended.



MALAYSIA GREEN BUILDING CONFEDERATION

PASSIVE DESIGN

Façade Design

MS1525:2007 Clause 4.5

The exterior wall and cladding systems should be designed to provide an integrated solution for the provision of **view, daylight control, passive and active solar energy collection** and moisture management systems while minimizing heat gain.



MALAYSIA GREEN BUILDING CONFEDERATION

CLIMATE CHANGE : ADAPTATION

IPCC Fourth Assessment Report WG II says

“...activities that improve adaptive capacity are essentially equivalent to activities that promote sustainable devt:

- a) improving access to resources
- b) reducing poverty
- c) lowering inequities of resources and wealth
- d) improving education and information
- e) improving infrastructure
- f) improving institutional capacity and efficiency”

MALAYSIA GREEN BUILDING CONFEDERATION

CLIMATE CHANGE : ADAPTATION

SUSTAINABILITY



SUFFICIENCY

MALAYSIA GREEN BUILDING CONFEDERATION



THANK YOU

Presenter : Von Kok Leong
Immediate Past President MGBC
Member GBIAP



MALAYSIA GREEN BUILDING CONFEDERATION

MALAYSIA GREEN BUILDING CONFEDERATION