When will Hong Kong build its first Passive House?

Concepts and Case Studies around Asia show great possibilities for Energy Savings

BASF
We create chemistry

Dipl. Ing. Anne Jacobs
Senior Expert for Sustainable Construction, BASF

WORLD Sustainable Built Environment Conference 2017 HONG KONG
Organisers: CONSTRUCTION INDUSTRY COUNCIL 建造業議會 HKGBC 香港綠色建築議會
International Co-owners: SBE SERIES iiSBE Sustainable Buildings and Climate Initiative FIDIC Global Alliance for Buildings and Construction

WORLD SBE HONG KONG 2017

WORLD Sustainable Built Environment Conference

Organisers:

CONSTRUCTION INDUSTRY COUNCIL 建造業議會

HKGBC 香港綠色建築議會

SBE SERIES

International Co-owners:

CIB

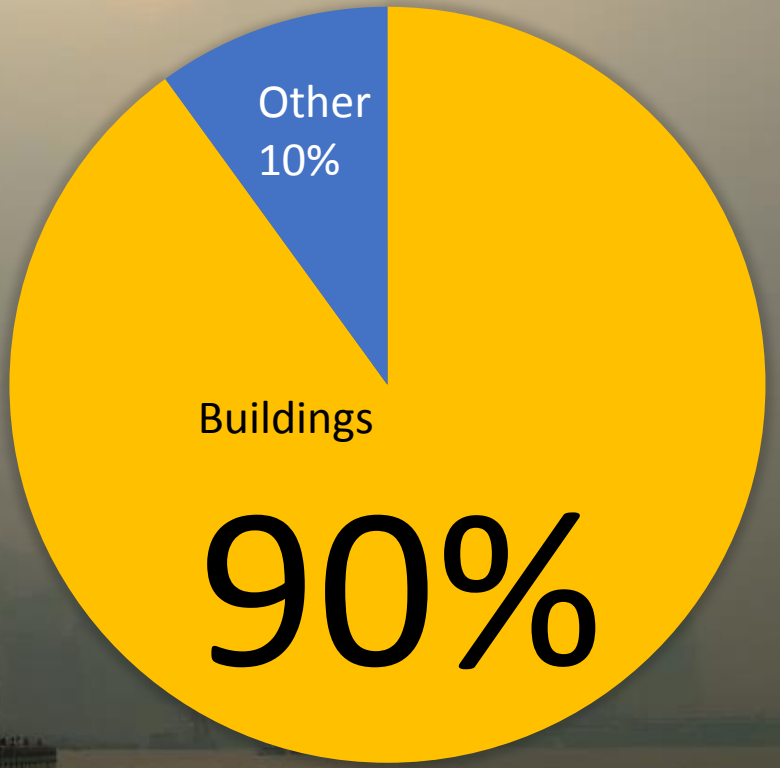
iiSBE

UNEP Sustainable Buildings and Climate Initiative

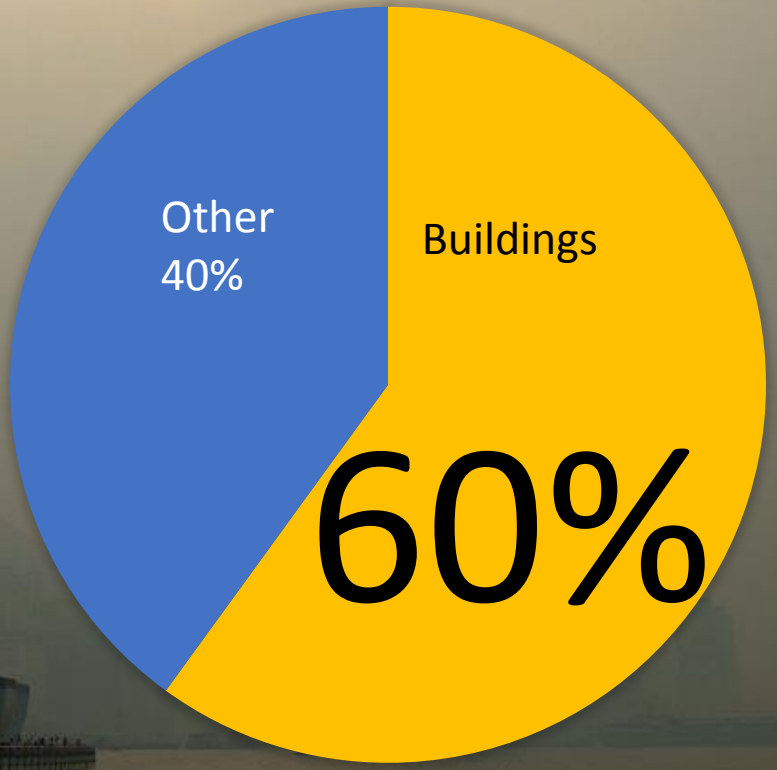
FIDIC

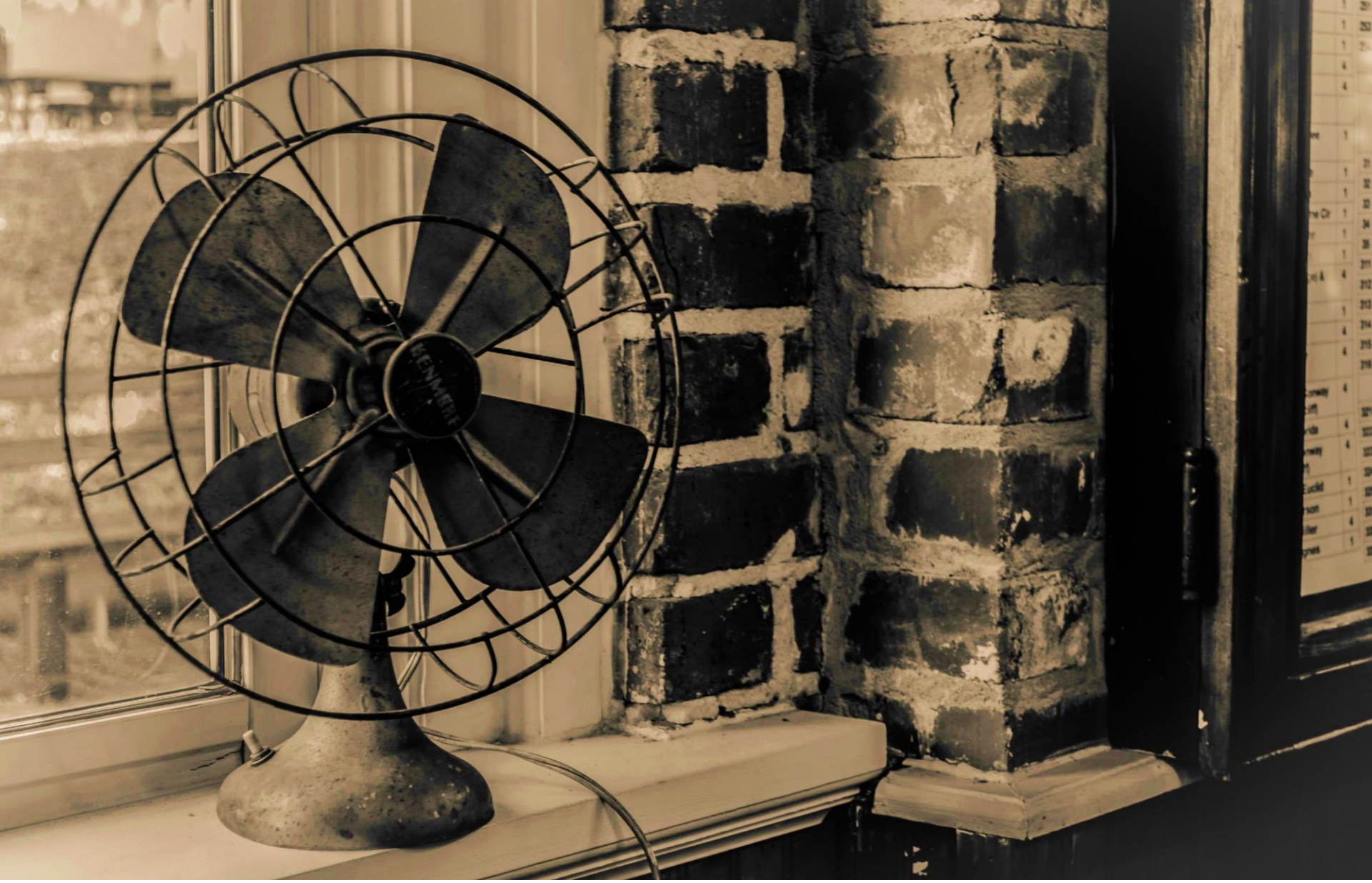
Global Alliance for Buildings and Construction

ELECTRICITY CONSUMPTION



GREEN HOUSE GAS EMISSIONS





WORLD SBE HONG KONG 2017

WORLD Sustainable Built Environment Conference

Organisers:

CONSTRUCTION INDUSTRY COUNCIL 建造業議會

HKGBC 香港綠色建築議會

SBE SERIES

International Co-owners:

CIB

iiSBE

UNEP Sustainable Buildings and Climate Initiative

FIDIC

Global Alliance for Buildings and Construction

WORLD SBE HONG KONG 2017

WORLD Sustainable Built Environment Conference

Organisers:

CONSTRUCTION INDUSTRY COUNCIL 建造業議會

HKGBC 香港綠色建築議會

International Co-owners:

SBE SERIES

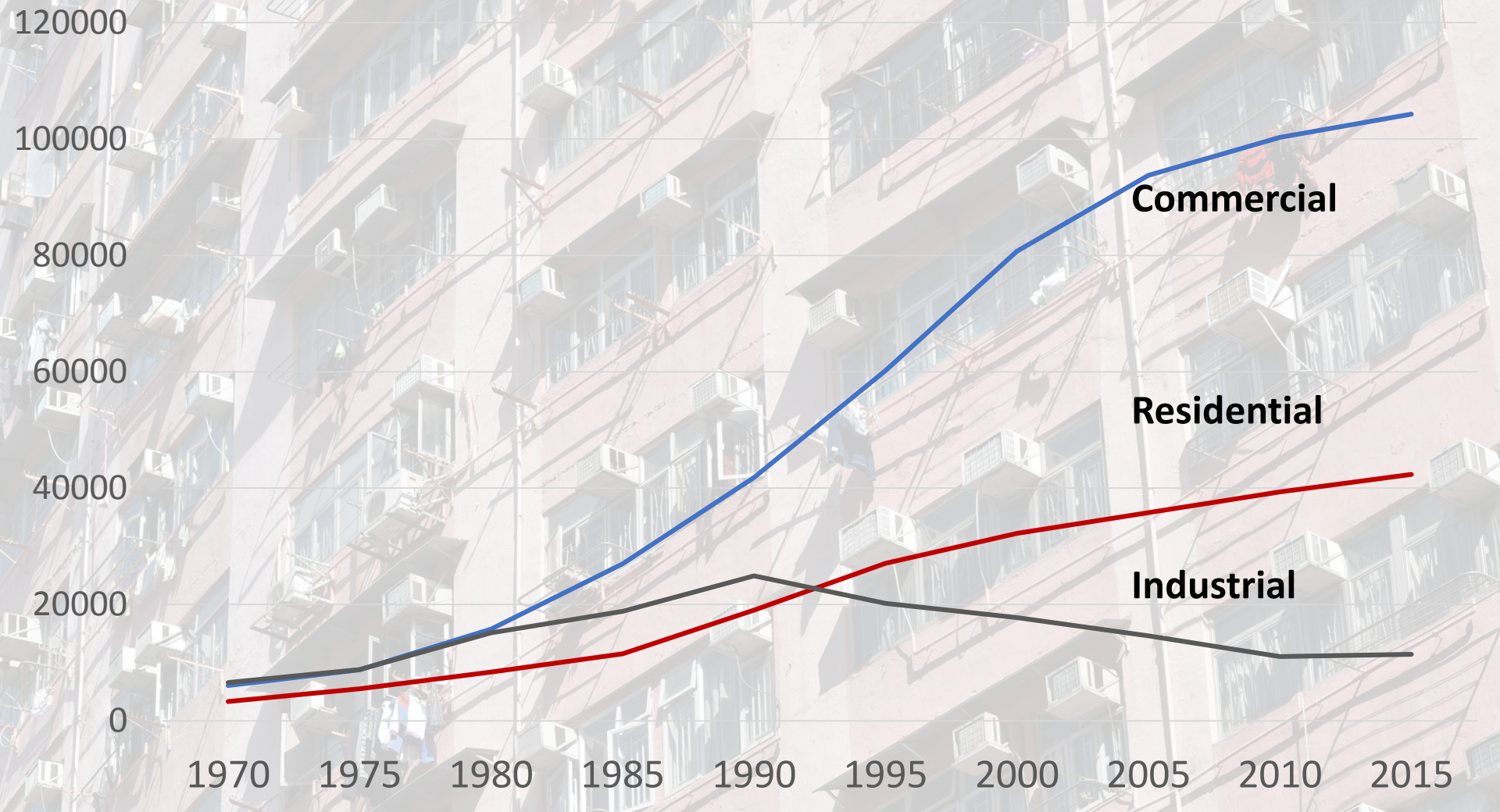
iiSBE

UNEP Sustainable Buildings and Climate Initiative

FIDIC

Global Alliance for Buildings and Construction

Use of Electricity per segment



Source: Census and Statistics Department Hong Kong Special Administrative Region People's Republic of China

WORLD SBE HONG KONG 2017

WORLD Sustainable Built Environment Conference

Organisers:

CONSTRUCTION INDUSTRY COUNCIL 建造業議會

HKGBC 香港綠色建築議會

International Co-owners:

SBE SERIES

iiSBE

Sustainable Buildings and Climate Initiative

FIDIC

Global Alliance for Buildings and Construction

We can simply make our buildings more energy efficient

The Passive House

THE PASSIVE HOUSE CRITERIA

1. HEATING/COOLING LOAD

PH/C < 10/11 W/m2

OR

HEATING/COOLING DEMAND

QH/C < 15/23 KWh/m2a

2. AIR TIGHTNESS

n50 < 0,6/h (small)

q50 < 0,6/h (large)

3. PRIMARY ENERGY DEMAND

QP < 120 KWH/M2A

Verified with PHPP

THERMAL INSULATION

Base, wall, roof, windows, doors

U≤ 0,15 W/m2K

SHADING SYSTEMS

IMPROVED AIR TIGHTNESS

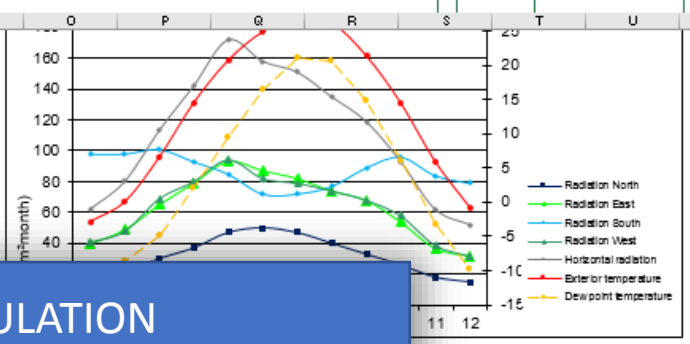
N50 or q50 < < 0,6/h

REDUCED THERMAL BRIDGES

VENTILATION SYSTEM + FILTERS

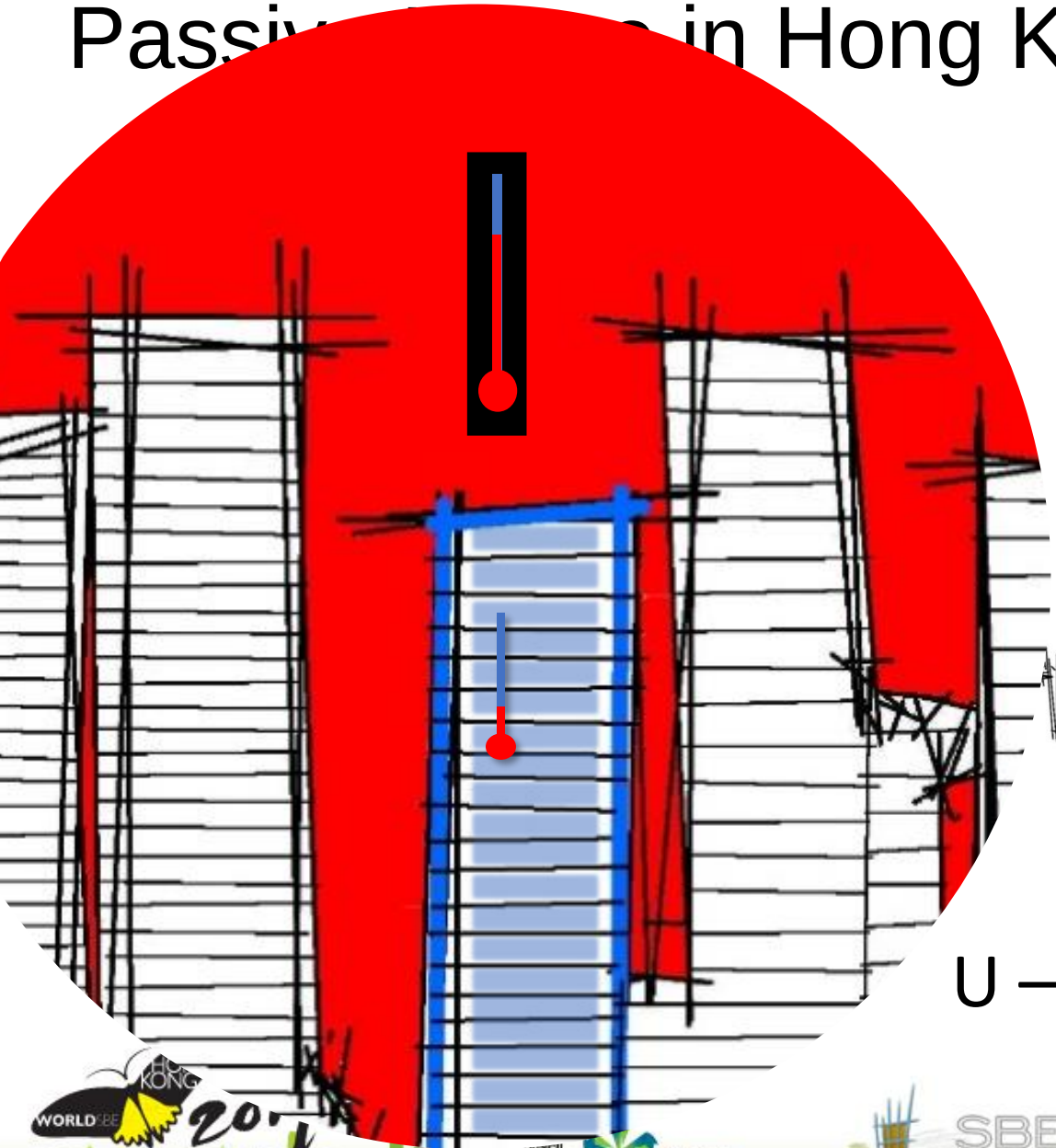
ENERGY RECOVERY

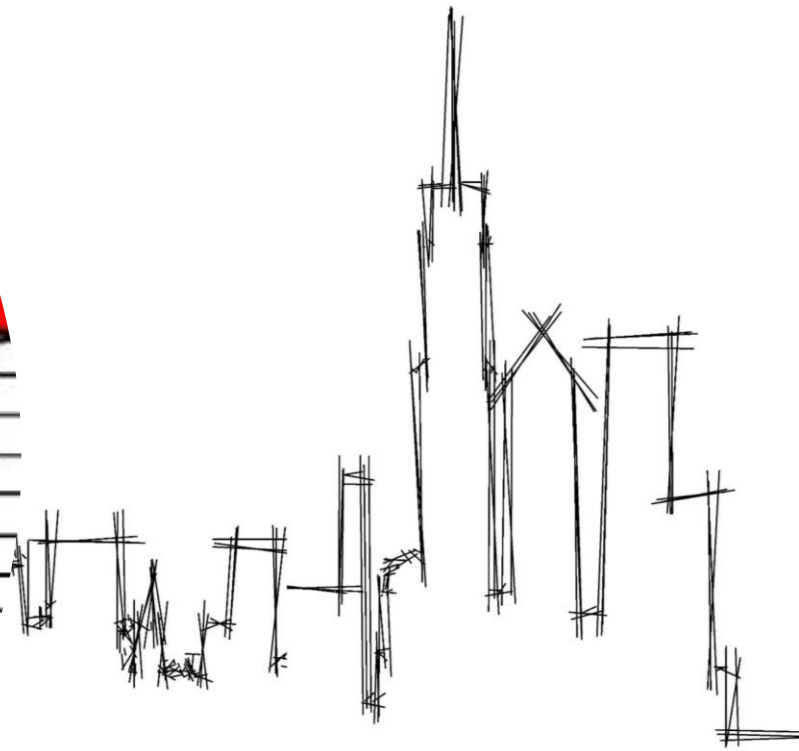
η*SHX > 75%



Brief instructions | Verification | Check | Variants | Climate | U-Values | Areas | Ground | Components | Windows ...

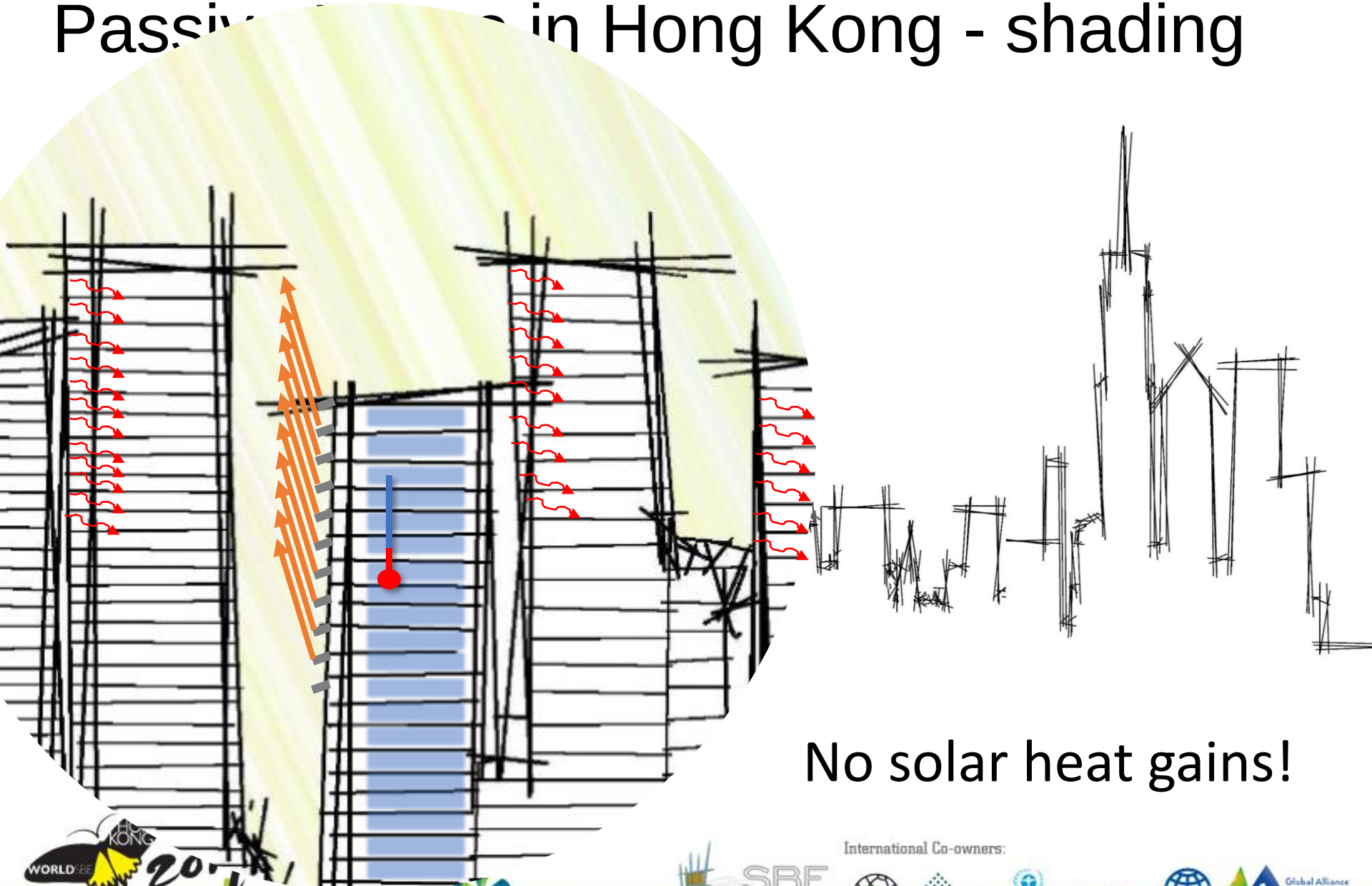
Passiv[illegible] in Hong Kong - insulation





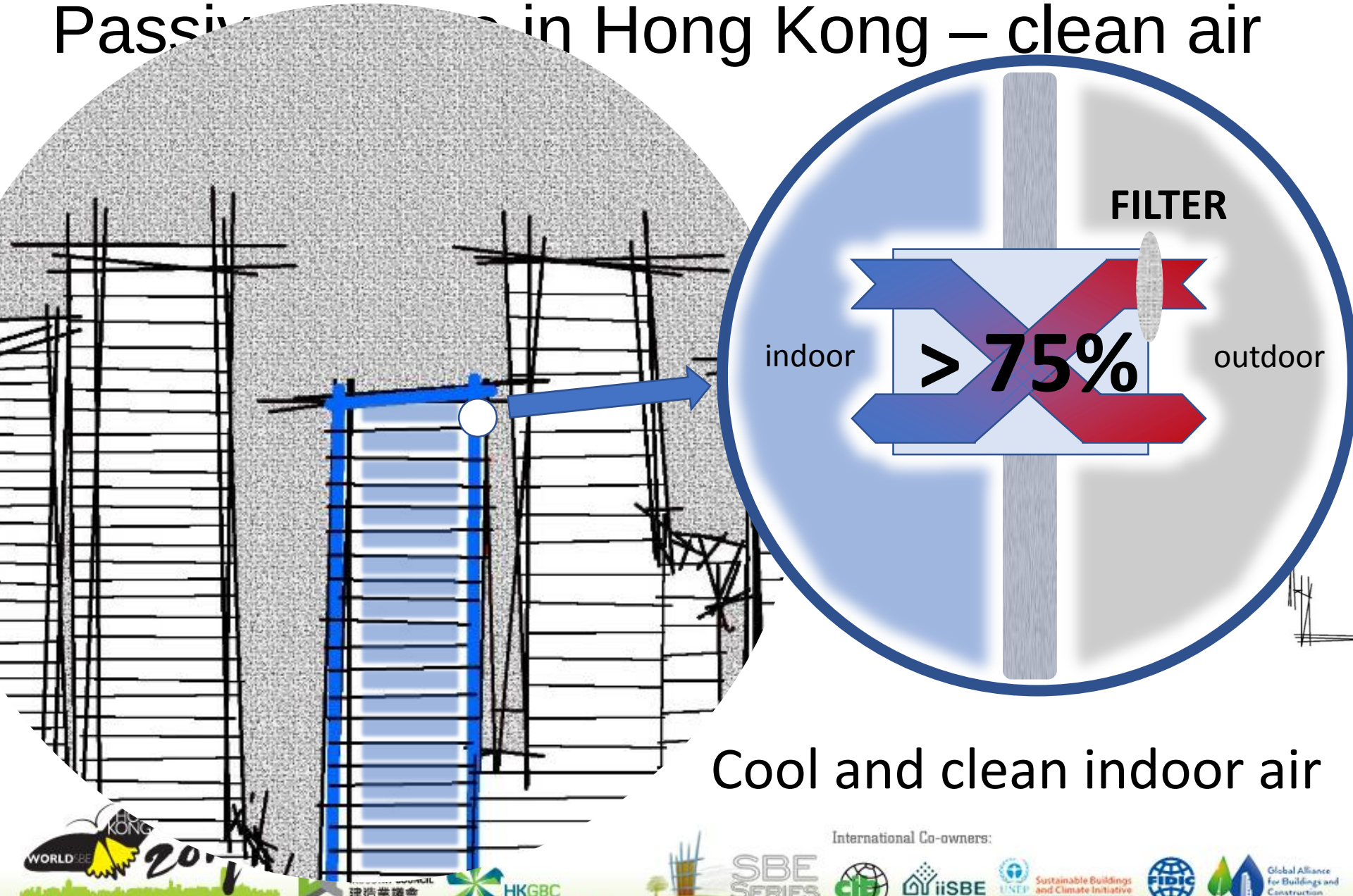
U – Value < 0,15W/m²K

Passiv[illegible] in Hong Kong - shading



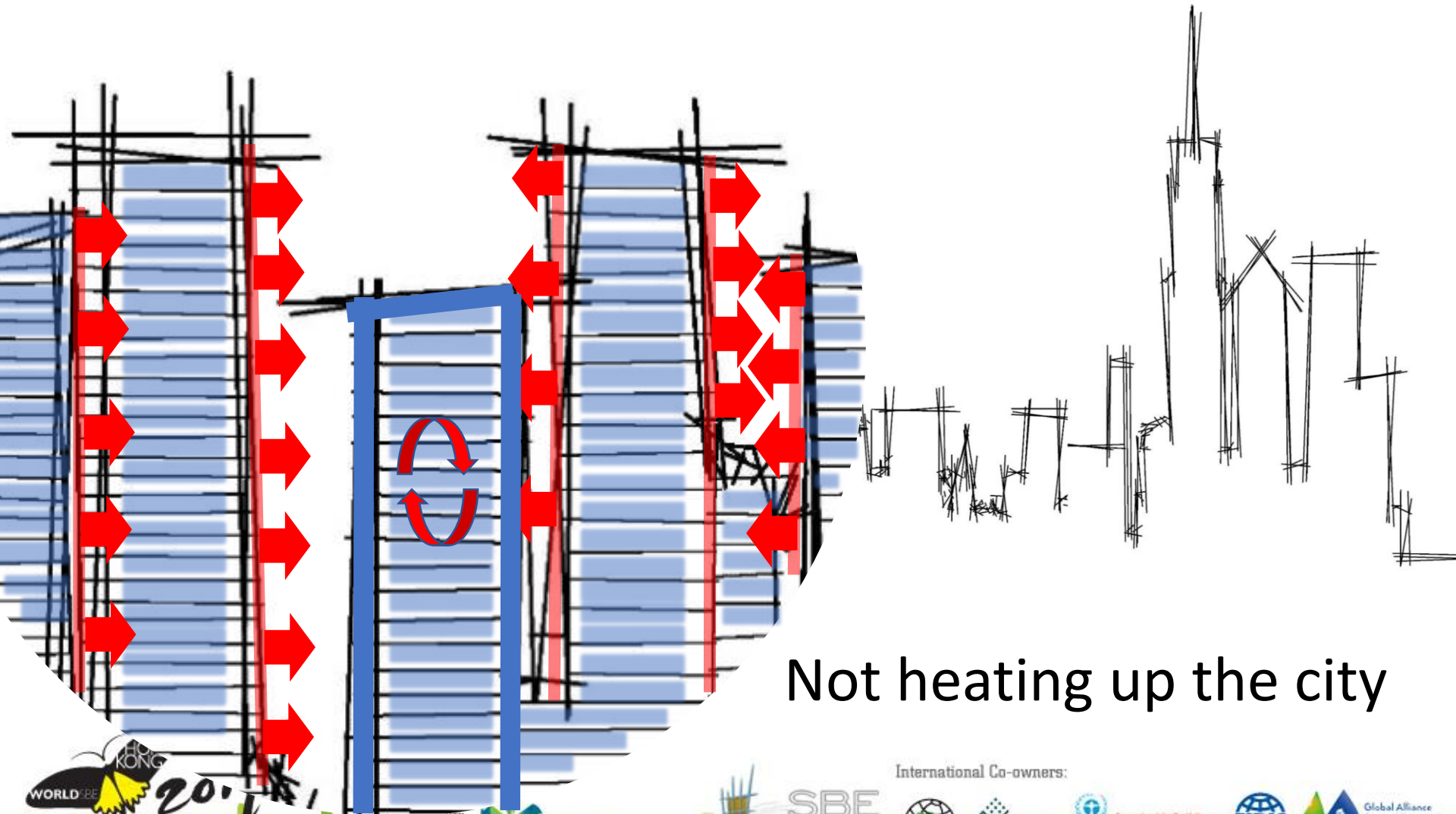
No solar heat gains!

Passiv[illegible] in Hong Kong – clean air



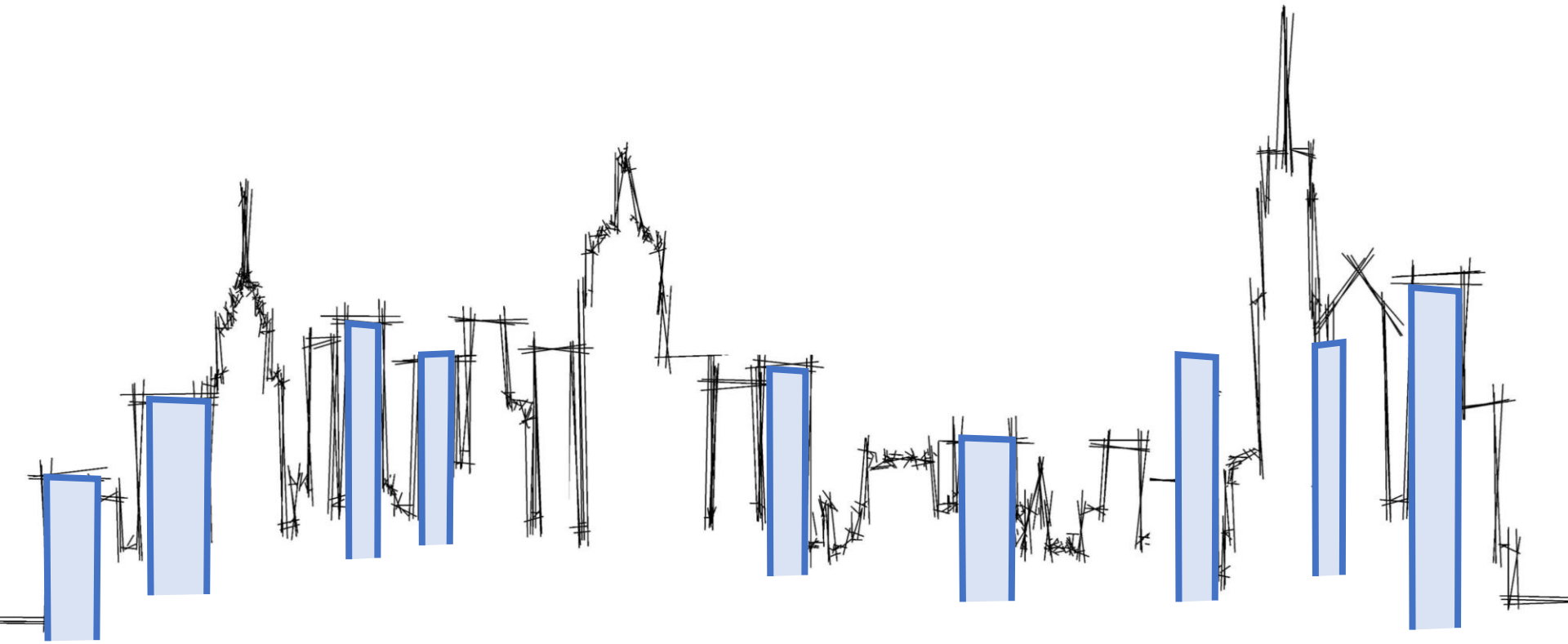
Cool and clean indoor air

Passive House in Hong Kong – cool environment heat is used inside buildings



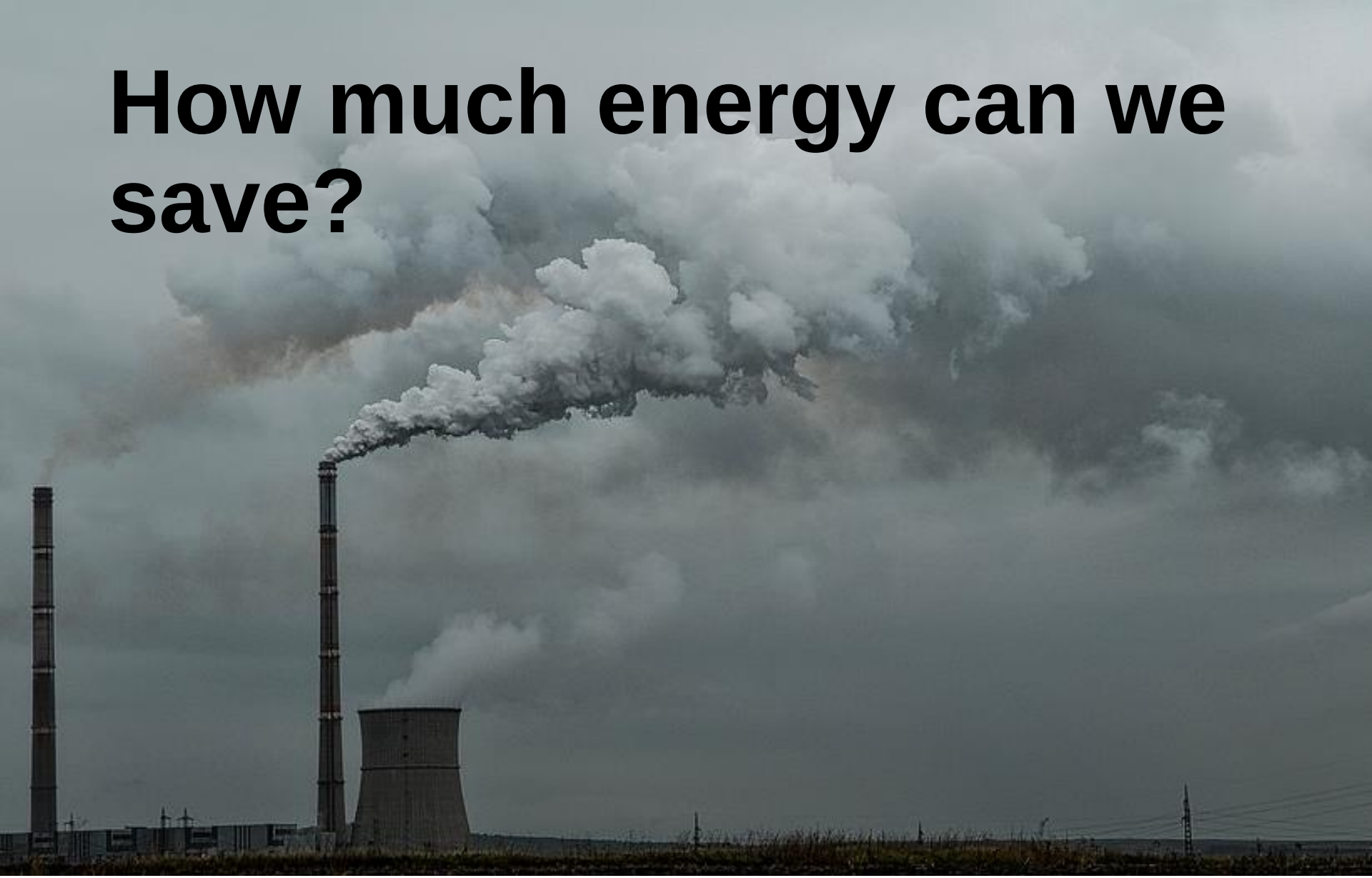
Not heating up the city

Energy Efficient Acupuncture!



To enable more sustainable urban living

How much energy can we save?



Japan SFH

Sources: BASF, Hokushu

more than 80%

Bruck Hotel, Yangtze River Delta

Sources: BASF

Hamburg House, Shanghai

- 90%

Sources: BASF

High-rise, Tianjin

-90%

Sources: BASF

Hong Kong – Asia's World City

- **Massive new construction each year**
- **High potential for savings**
- **Existing Infrastructure**
- **HK 2030 strategy**
- **Mature construction industry**

Thank you