When will Hong Kong build its first Passive House?

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

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

- Buildings: 90%
- Other: 10%
GREEN HOUSE GAS EMISSIONS

- Buildings: 60%
- Other: 40%
Use of Electricity per segment

- Commercial
- Residential
- Industrial

Source: Census and Statistics Department Hong Kong Special Administrative Region People’s Republic of China
We can simply make our buildings more energy efficient
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%
Passive House in Hong Kong - insulation

U – Value < 0.15 W/m²K
Passive House in Hong Kong - shading

No solar heat gains!
Passive House in Hong Kong – clean air

Cool and clean indoor air

indoor

outdoor

FILTER

> 75%
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?
more than 80% 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