

THE CONFLICTUAL PROMOTION OF AN ENERGY EFFICIENT BUILDING AND A HEALTHY INDOOR CLIMATE



WHAT'S THE PROBLEM ?

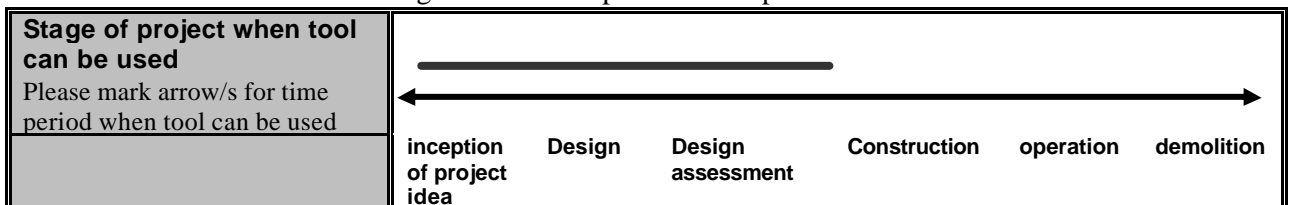
The energy saving of present newly built buildings is responsible for increasing asthma, especially among young people, due to strongly reduced fresh air ventilation. Ventilation reduction and moisture inconvenience cause Chronic Non Specific Lung Disease (CNSLD) such as asthma, chronic bronchitis, and pulmonary emphysema. Lung diseases among children have increased from 10% in the sixties to 30% now. Only 25% of them will cure.

Healthy indoor climates can be used for free-standing, connected, or high-rise home and utility buildings in all climate zones.

Household dust mite allergens are an important disease source. A standard is 10 household dust mites per 0,1 g household dust.

TIME AND SPACE SCALES' CHARACTERISTICS?

The time scale concerns a building innovation implementation period.



The space scale is at building level.

Scale of project that can be investigated using the tool	Component	Building	Neighbourhood	City	Region
		X			

CONFLICTING AREAS

Environment health promotion (energy saving prevents the greenhouse effect) as opposed to population health promotion (ventilation limitation reduces indoor air quality) is a controversial issue.

Conflicts exist between making a building airtight and reducing ventilation to be more energy efficient, which reduces the indoor air quality and results in health problems such as asthma.

Fossil energy use causes CO₂ emission. This CO₂ reduces the earth infrared radiation, changing the earth temperature balance, and causes the today temperature rise or greenhouse effect. Where

sustainable solar energy is applied, there is no emission, and a healthy indoor climate can be the criterion for energy consumption.

CASES STUDIES LINK TO THIS ISSUE

The Emporium case study for example can be linked to this issue.

WHAT COULD BE ENHANCED TO IMPROVE SUSTAINABILITY?

The main scope to solve this problem is changing today developments from low energy to low emission buildings.

Asthma problems can be avoided by health condition based ventilation and air qualities.

Healthy indoor air requires an input of fresh air of 20 litres per person per second, by (natural) ventilation without a return flow of discharged air.

How?

Radiation heating reduces the circulation of air, dust and mites, improving health and also comfort conditions.

Radiation heating limits an excessive air flow, for example in the case of air or convection heating, and feels more comfortable.

Radiation cooling compensates high air temperatures, and saves the cooling of the complete air volume of a building.

Material saving lightweight buildings, whereby water for energy storage replaces the building mass, remain comfortable.