

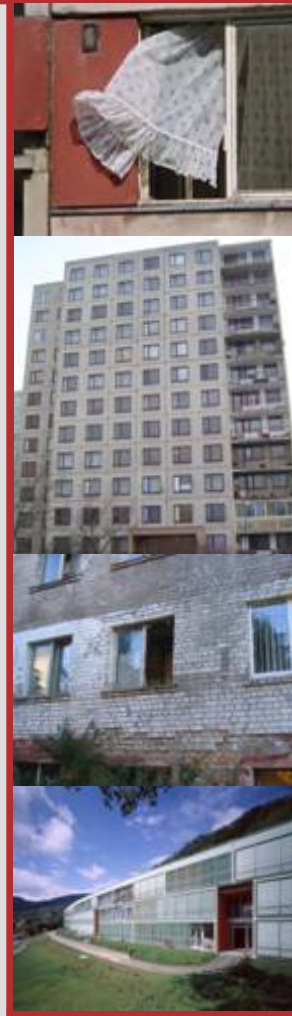
Influencing user behaviour of tenants in 5 European countries – ISEES

El-Education Workshop, 1 October 2007, Brussels

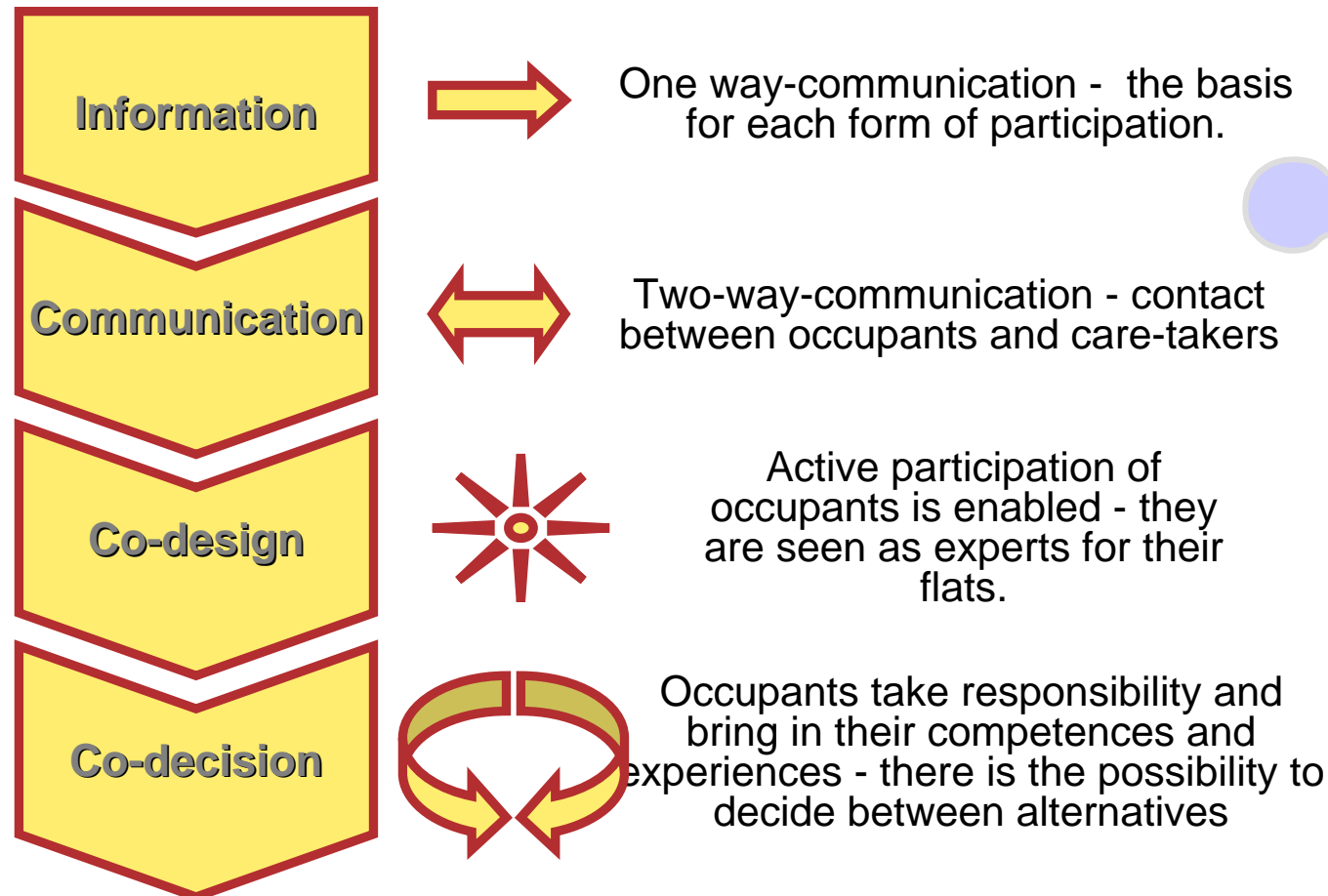
A project co-ordinated by KWI Consultants GmbH

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Visit our project website at: <http://www.isees.info>

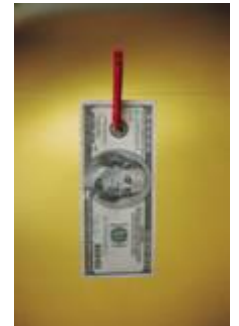


Four levels of social dialogue and participation



**ISEES
seeks to
improve all
these
levels**

- **Quality and affordability of housing** is one of main indicators for social welfare of tenants/owners
- **Energy demand** and amount of **energy costs** spent **influence** the quality of living
- **low energetic quality of housing** is a main problem in NMS and accession countries (to some extent in rest of EU as well)
- **Up to 15% of average HH income is spent for energy costs**, although energy prices are to large extent state subsidised
- ➔ **Result:** high % of tenants/owners living in „social housing“ are not able to afford high energy costs
They have to apply different „strategies“ to cope with the situation, simultaneously reducing their quality of living.



ISEES Project Summary



- Measure the influence of individual user behaviour on energy demand in social housing in 5 countries
- Develop innovative approaches & strategies for user participation for energy efficient housing
- Develop country-specific guidelines to realise a „social dialogue“ concept



Main Objectives of ISEES



- To **assess the „human factor“** in regard to energy consumption in social housing across 5 countries in Europe (CZ, SK, LT, BG, UK)
- To investigate possibilities to **optimise energy consumption in buildings through „social dialogue“**
- To assess the **magnitude of the disconnection process in regard to DH systems** in social housing and their reasons
- To **evaluate the socio-economic benefits/costs** of optimising energy consumption in social housing
- To **increase awareness** of tenants/owners, municipal reps., housing associations and energy utilities and involve them in a broad communication process

- Develop solutions to **improve** the level of services of **utilities** (e.g. DH companies)
- Develop solutions to **reverse** the trend of DH **disconnection**
- Propose **tools** for better access to energy for low **income households**
- Develop solutions for **removing barriers** regarding lack of appropriate incentives, lack of information and lack of knowledge on user behaviour

- **Measurement of user behaviour** over a 12-month period in one model building per country
- **Qualitative interviews** with occupants to identify their social needs
- **Pilot actions** where the process of an integrative „social dialogue“ in the course of model refurbishments will be outlined and implemented
- **Country specific guidelines** (user manuals, guidelines for operators)
- **Local awareness campaigns** (media, workshops, networking)



Preliminary results



- Survey conducted among 500 households in 5 countries with 220 responds focussing on **energy consumption patterns in social housing**

- ⇒ Generally high satisfaction with living situation and heating
- ⇒ Most tenants vote for energy saving measures to be applied to their buildings
- ⇒ Satisfaction with heating companies is differing between countries – high potential for improvement



- **Interviews with energy suppliers** revealed

- ⇒ demand for improved marketing & communication with customers
- ⇒ unsustainable billing & tariff schemes
- ⇒ lack of technical improvements due to economic situation

- **Monitoring of model apartments** took place throughout heating season 2006/07



Source: ESTIF/S.O.L.I.D.

- Based on monitoring results, **social dialogue activities** started in 5 countries

Overview of Monitoring Programme



Concept

Background data in 5 European countries collected to identify the potential of tenant behaviour to help reduce heating costs

- 1 model building in each of 5 European countries

- ↳ Bulgaria

- ↳ Czech Republic

- ↳ Lithuania

- ↳ Slovakia

- ↳ United Kingdom

- In each building **5 identical apartments were monitored** via internet during the 2006/2007 heating season:

3 volunteer families

- Room temperatures
- Window opening and closing
- Heat consumption in each room

2 volunteer families

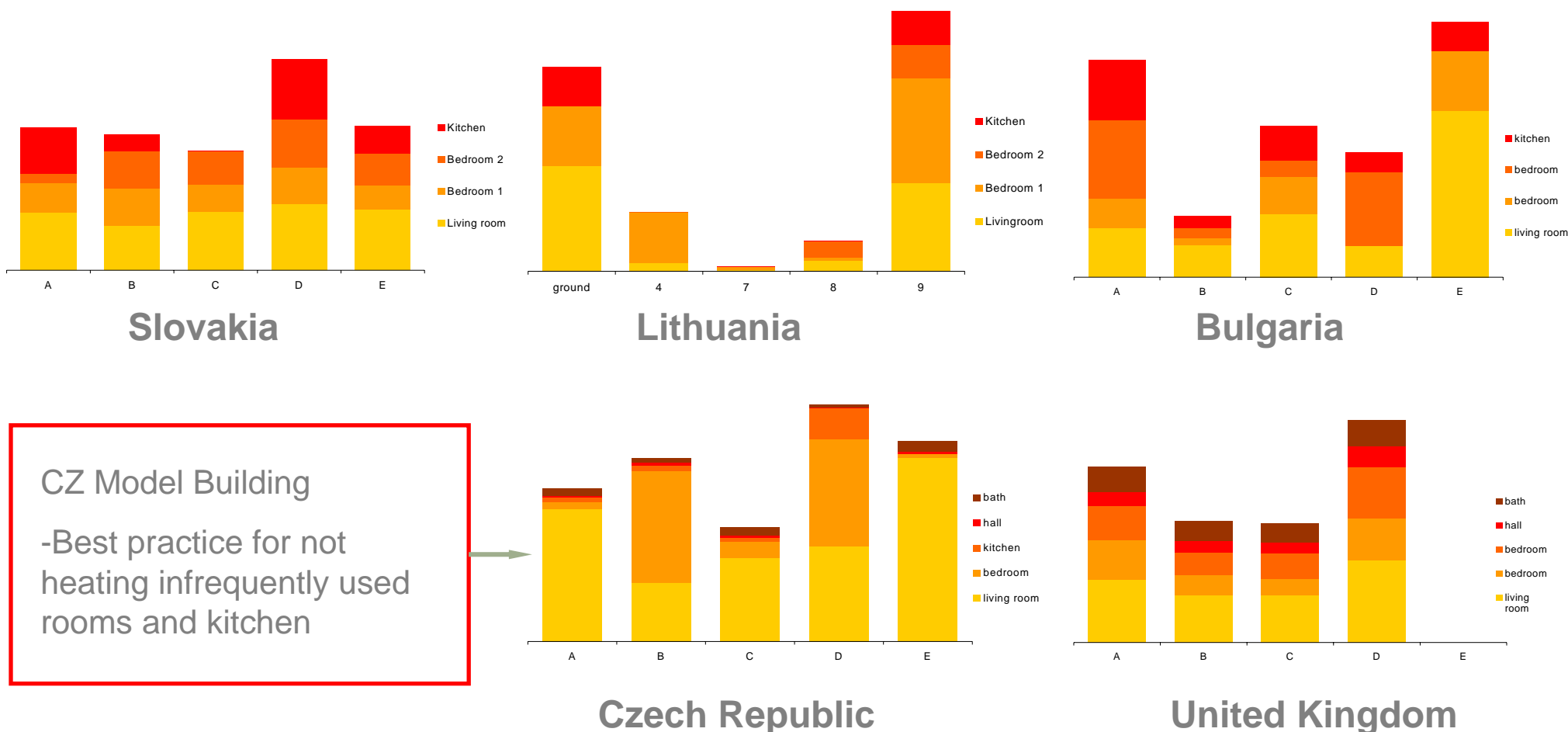
- Heat consumption only



Monitoring Results – 5 countries (1)



December 2006 heat consumption – 5 model apartments in 5 countries



Monitoring Results – 5 Countries (2)



■ Room temperatures

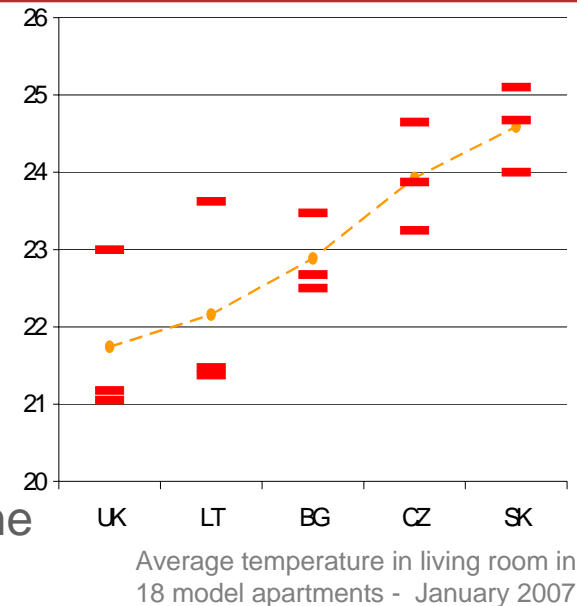
- 23, 24°C and higher are common in all countries
- Comfort levels are typically maintained day and night (except in the United Kingdom)
 - ◆ Optimal Settings 20°C day, 16°C night

■ Ventilation

- Use patterns vary a great deal between volunteers. Some rarely open windows while others have windows always open
 - ◆ Optimal ventilation = open windows wide 5 minutes every 6-8 hours for a thorough exchange of air

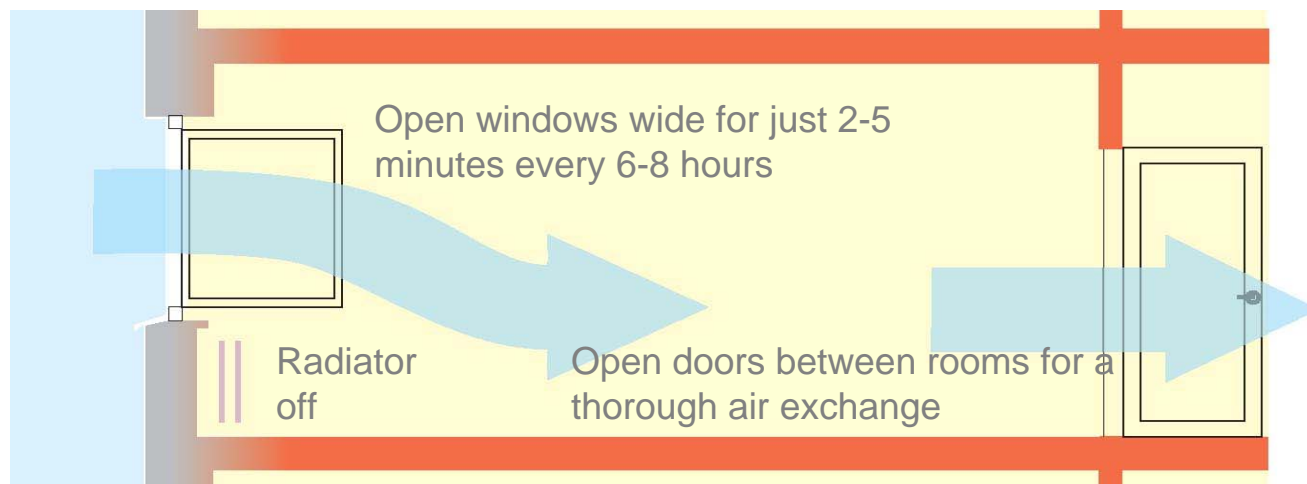
■ Heat consumption and Zoning

- Consumption levels and heat distribution within the apartment vary between volunteers
 - ◆ Optimal = little or no heat use in less used rooms
 - ↳ **Current best practice : CZ**



Optimal Ventilation

1



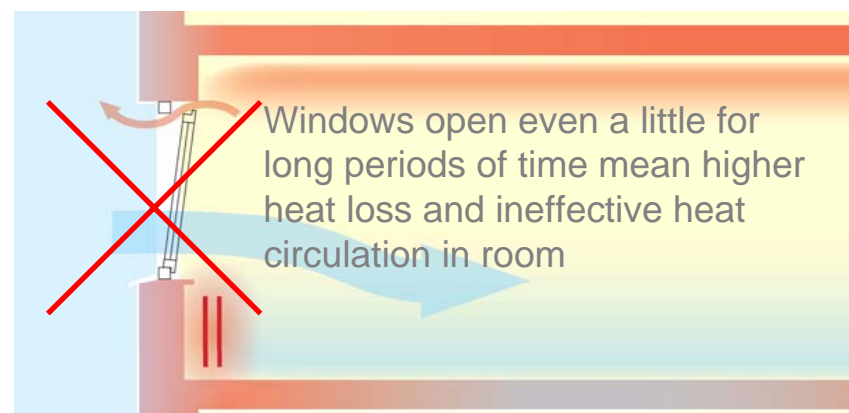
The most heat loss in apartments occurs through air exchange.

Conscientious ventilation can help minimize heat loss.

Short bursts of fresh air ensures the warmth stored in floors and walls remains



Once the window is closed the radiator can be turned back on



Continuous ventilation = high heat loss

Indoor temperatures – balancing comfort and savings



Optimal day setting = 20°C

Optimal night setting = 16°C



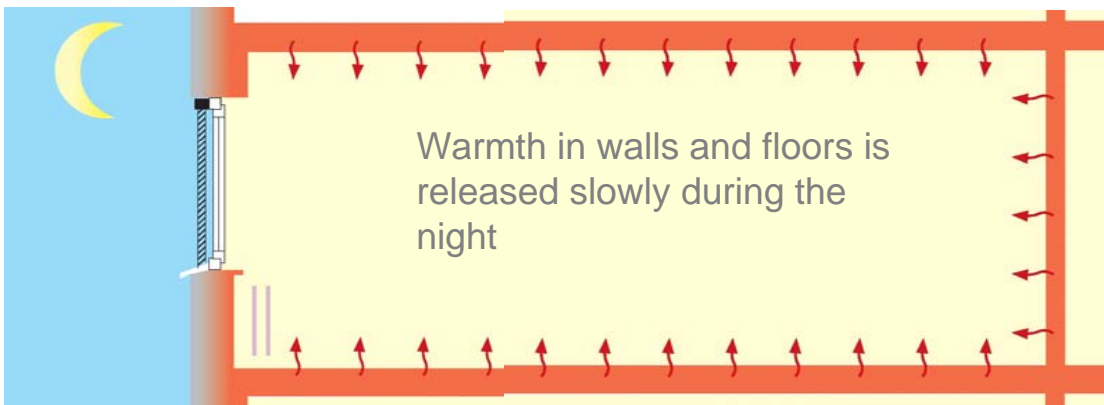
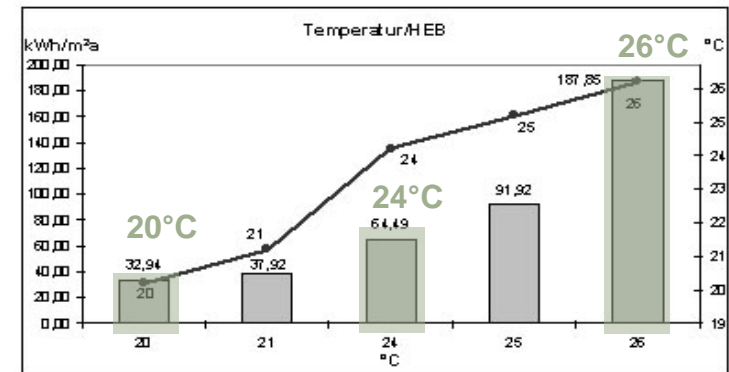
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Daytime Temperatures

A comfortable indoor temperatures is a matter of taste but keep in mind the energy costs.

Raising the temperature from 24 to 25°C needs substantially more energy than raising the temperature from 20 to 21°C

Heat requirements for different room temperatures



Warmth in walls and floors is released slowly during the night

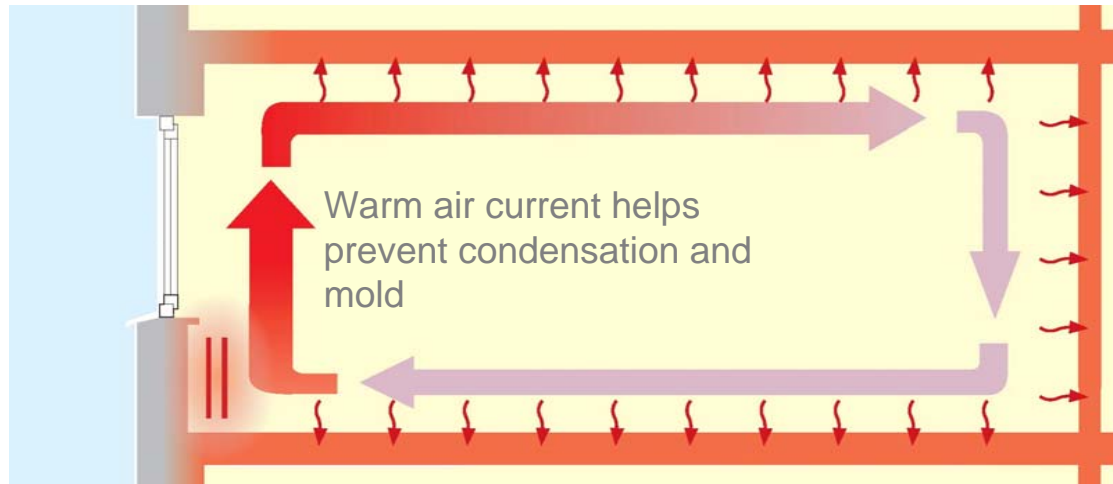
Lower Settings at Night

Generally the heating should be turned down an hour before going to bed and a half hour before rising.

Lower settings at night can reduce heat consumption by as much as 20%.

Optimize Heat Distribution

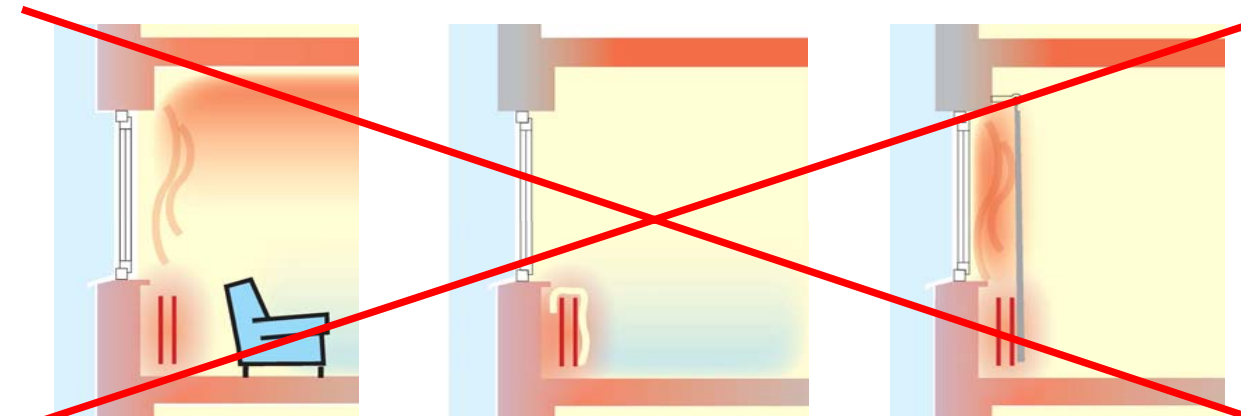
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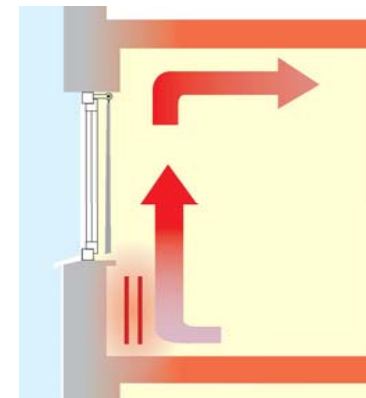
Optimal warm air circulation in room

- heat main rooms effectively
- use less heat in secondary rooms

Zoning – heat main rooms to comfort temperatures while reducing heating to bedrooms, bath, kitchen and hallways. These rooms receive heat through warm air currents within the apartment



Furniture, laundry and curtains can block effective warmth circulation



Better – curtains in window alcove

Passive Heating - Optimize use of all heat sources



4

Where possible, the living room should face south and benefit from the light and warmth of the sun's rays.

Every person in a room gives off warmth. The more people in a room, the lower you need set the thermostat. With enough people the heating could be turned off completely.

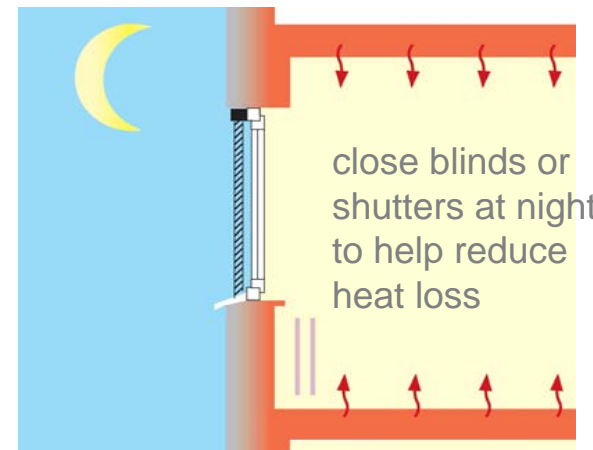
The sun's rays, people and appliances contribute to a room's comfort and can reduce the need for heating

Shutters, Blind and Curtains

-keeping the heat in at night

Closing exterior shutters or blinds at night reduces heat loss from windows.

Closing curtains and interior blinds also helps keep the comfort in.

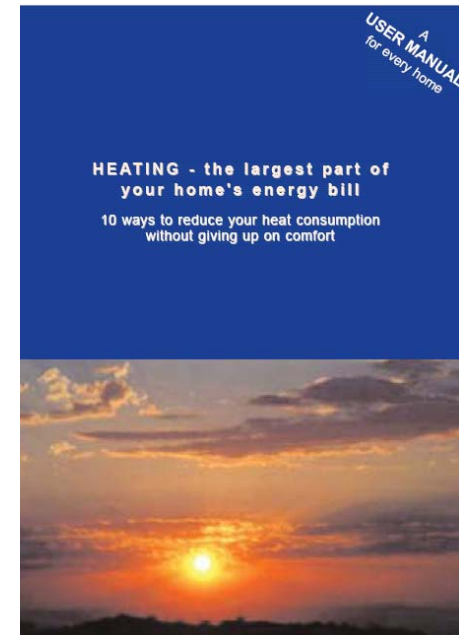


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Activities to realise social dialogue



- Guidelines for specific stakeholder groups
 - country specific guidelines for realising SD
 - user manual for occupants
 - common guidelines for energy suppliers
- Meetings, workshops
 - invite occupants, housing companies, municipal stakeholders, energy suppliers
 - present scope of EE activities to be realised in specific model buildings
 - learn from each other – get common understanding of situation
- Develop common vision to improve energy quality in buildings
- Develop action plan



Some preliminary conclusions



- Motivation is the key – “social events” instead of pure information events
- There is no „ideal“ participation process
- Early information is crucial for the success
- Housing companies: contact person on site to “have somebody to ask”
- After-care



Thank you for your attention!

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www.isees.info