Presentation Zorka Opeka Belgrade 18th May 2010

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Who are we?

- Alas Holding – a family owned business since 50 years - in Serbia since 2003
- Ziegelwerk Pichler Wels – a family owned business in Austria since 230 years
- Zorka Opeka – cooperation of Alas and Pichler since 2006

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Approach of Zorka Opeka

- Investments of more than 350 Mil. Dinars into production location in Donje Crniljevo
- Creation of more than 50 workplaces for well-trained and motivated employees
- Production of modern designed bricks named KLIMABLOC® with much better building physical, especially thermal insulation, values
- Due to fantastic raw materials production of high quality facing bricks with new colours in the pipeline
- Increase of export activities to surrounding countries like Bosnia, Croatia, Macedonia, Romania, Montenegro etc.

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Current regulation

- Energy prices are raising
- Building regulations need to be updated
- Actual requirement for thermal insulation of outside walls – U-Value for Serbia 0,8 to 0,9 whereas Austria has a required value of 0,2
- State of the art in Serbia is 25 cm bricks plus 5 cm polystyrene which gives a U-Value of 0,6
- Launch of a new 38 cm brick in 2009 based on modern design with a U-value of 0,33 – twice as good as existing way of building or three times as good as building regulations
- Launch of a new 50 cm brick with a U-value of app. 0,2 in 2010 - four times better then building regulations require
- Result - enormous savings in heating and cooling costs

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Energy Efficiency

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Why is energy efficiency important?

- Energy efficiency is the best way for improvement of the energy sector and the development of state and economy in general
- With appropriate actions Serbia could save up to 25 - 35 % of energy, currently used in: industry, transportation and housing.
- Financially, the state and the economy will save millions of EUR annually when being energy efficient
- Energy management is an efficient way to preserve energy resources, makes more independent from imports and preserves our environment

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Energy efficiency as a goal

- Fossil energy sources are limited
- Prices for fossil energy are raising
- Serbia 2nd largest country in SE Europe and depends on energy imports
- Actions for upgrading energy efficiency and enable sustainable development are urgently needed
- Serbia already has the right agency for that mission SEEA (Serbian Energy Efficiency Agency)

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Serbia

Average annual consumption of heating energy:

Apartment buildings in Serbia:
182 kWh or 18,2 liter oil/m2/a – heating demand

Average in Austria:
45 kWh or 4,5 liter oil/m²/a – heating demand

U –value Requirements - comparison

Country	Walls	Roof surface	Basement ceilings
Serbia	0,90	0,65	0,75
Austria	0,15 - 0,50	0,15 - 0,25	0,25 - 0,45
Bulgaria	0,44	0,30	0,44
Hungary	0,45	0,25	0,45

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Comparison Serbia - Austria

Based on existent building regulations the excess consumption of energy for heating in Serbia is:

24.700.000.000 kw/annum

=

2.058.000.000 l/oil

=

1.035.000.000 €

or

102.000.000.000 Rsd

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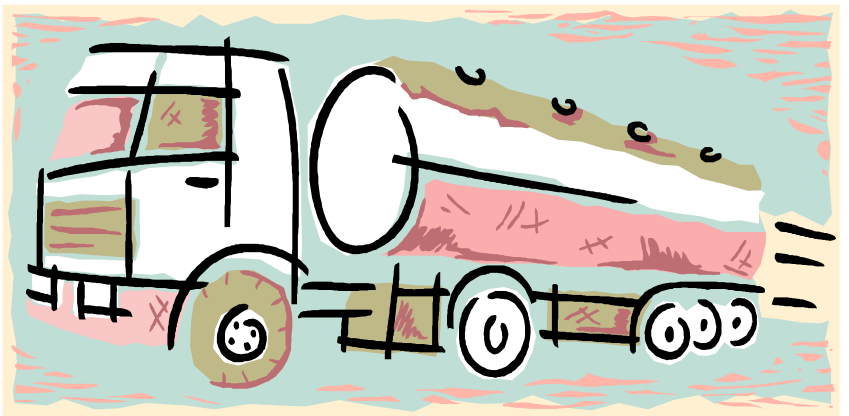
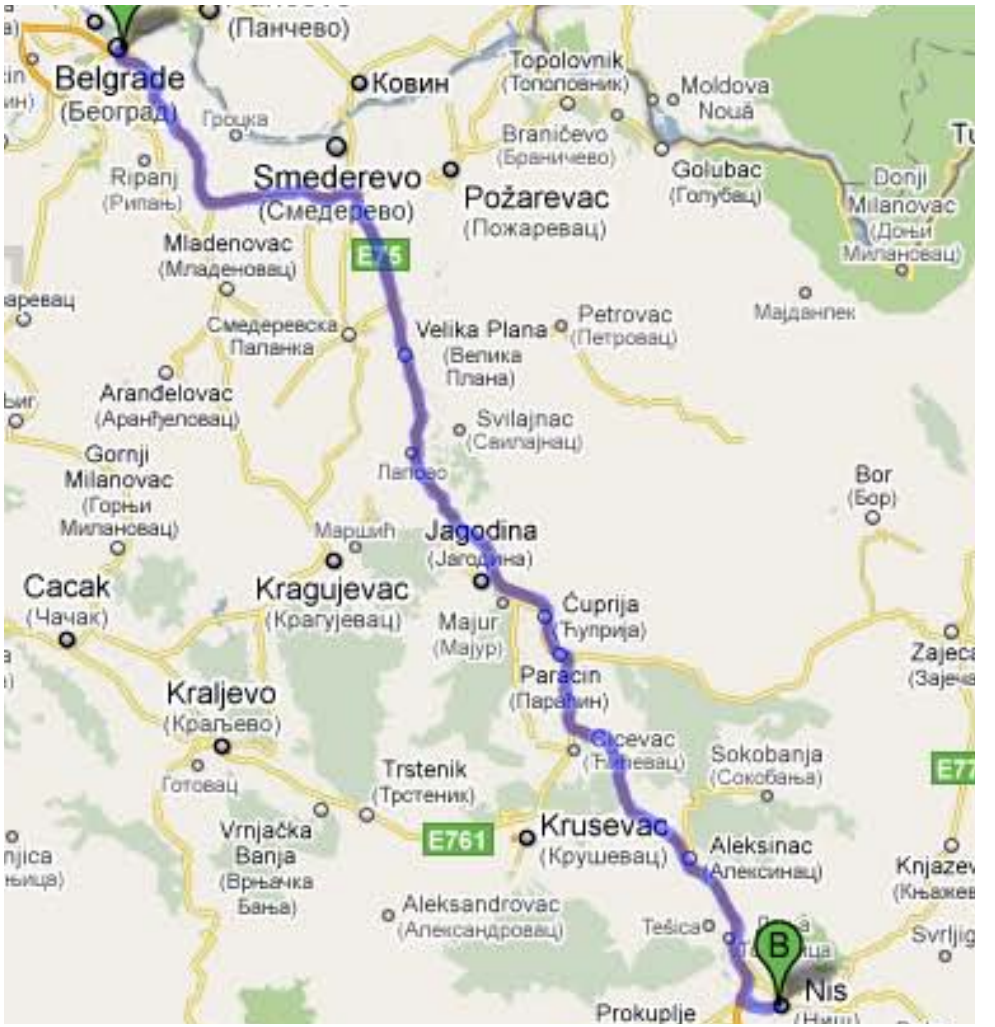
Illustration





Continous queue of

17.300 tank trucks

from Belgrade to Nis

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Advantages of modern bricks - Klimabloc

- Savings of 70 % of heating costs due to much better insulation
- Saving of cooling costs a - due to high thermal capacity no air-conditioning required - cooling is much more expensive then heating
- Diffusion permeable - no problems with creation of mould
- Optimal indoor environment
- High noise protection values due to massive walls and a weight of app. 320 kg/m² (Basis 38 cm wall)

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Advantages of modern bricks - Klimabloc

- Best air tightness
- No thermal bridges
- Long lasting – no maintenance required for decades
- Incombustible
- Lowest equilibrium moisture content of all construction building materials

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Influencing facts for energy consumption

- Outside walls
- Floor to cellar
- Ceiling to roof
- Windows and doors
- Heating / cooling system
- Thermal Bridges
- Geometry of building (Relation between surface and volume)
- Geographical position

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Energy losses standard house

1 Roof	15 – 20 %
2 Outside walls	20 – 25 %
3 Windows	20 – 25 %
4 Ground	5 – 10 %
5 Heating	30 – 35 %
6 Ventilation	10 – 20 %

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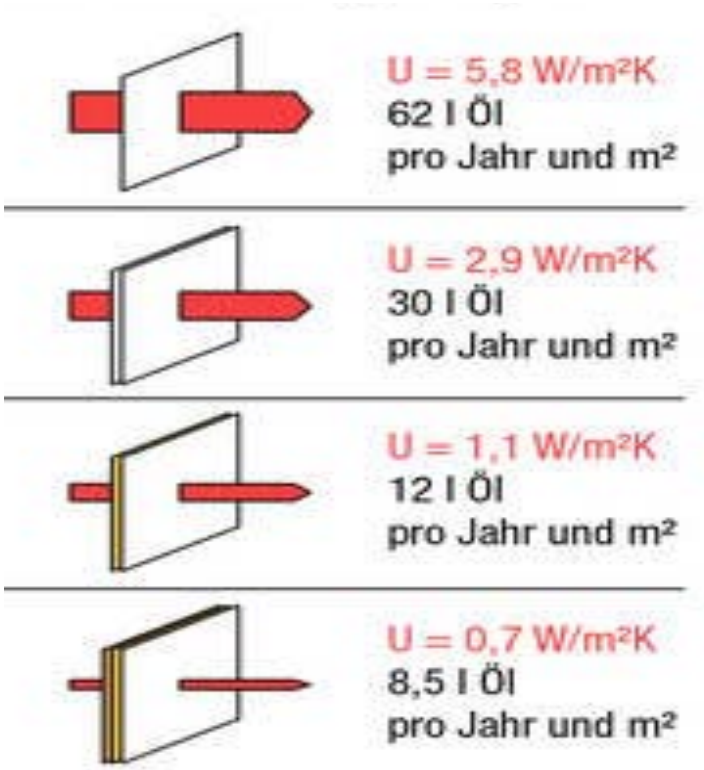
Example with windows

Energy losses various construction windows

Single glazing



Double glazing

Double heat protection glas

Triple heat protection glas

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Visualization of thermal insulation

Thermograms are pictures showing surface temperatures of building parts in different colors.

- White, red and yellow => higher temperatures
- Darker colors => lower temperatures

Objectives :

- establish constructive characteristics
- review aspects of building physics like thermal bridges
- get to the final evaluation of the building

Older facilities: support decision to conduct restoration

New facilities: check the conducted works.

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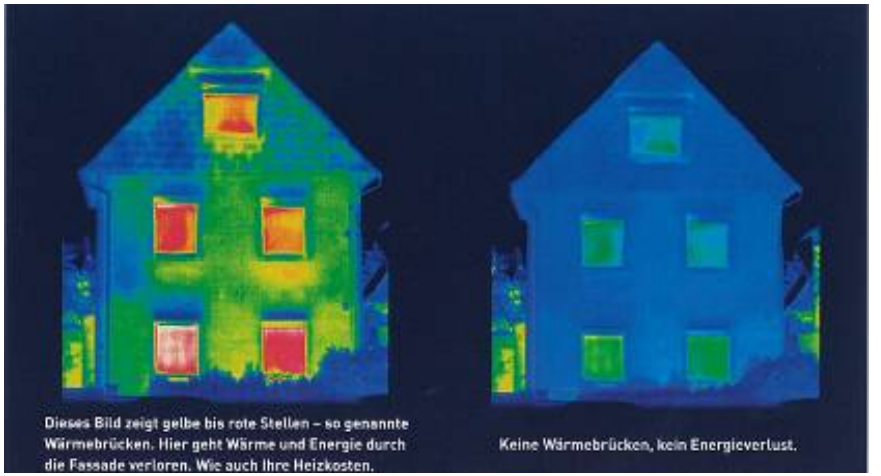
Visualization of thermal insulation



OLD

OLD

NEW

NEW

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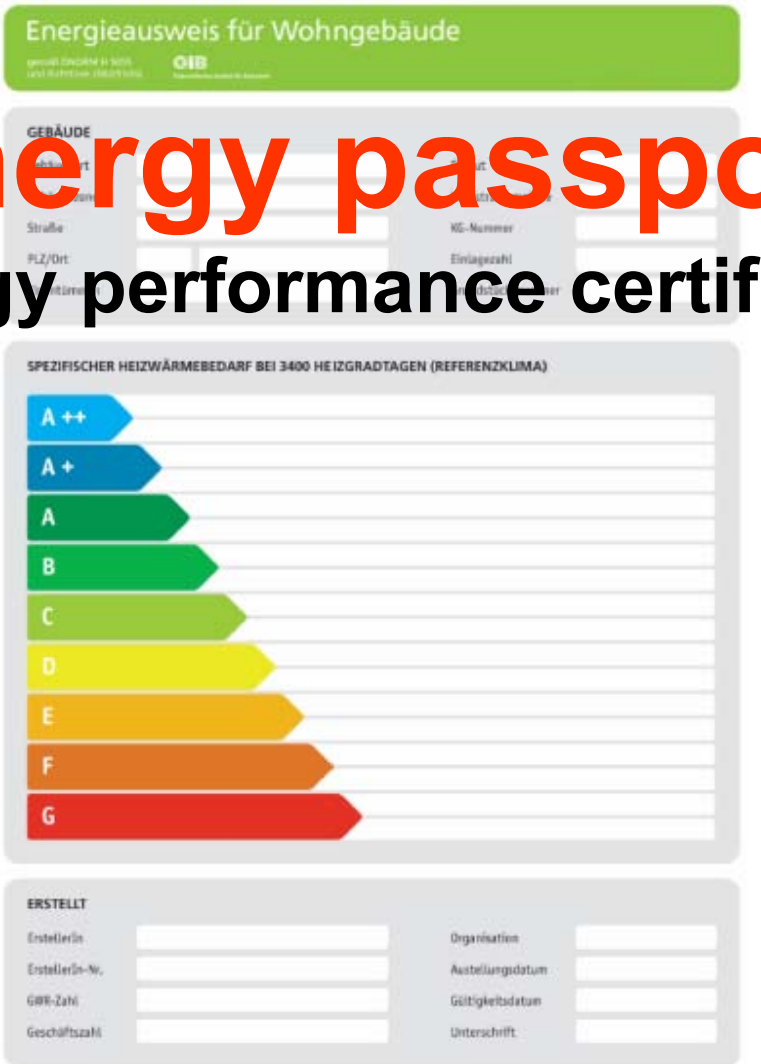
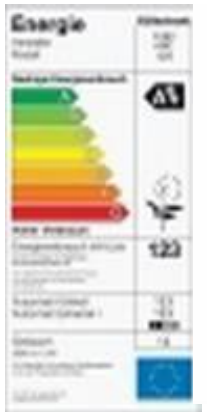
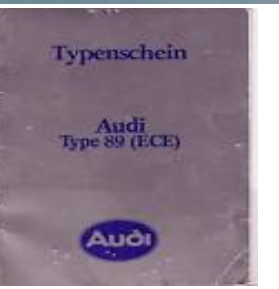
Solution for buildings in Serbia



Energy passport

Energy performance certificate





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What is the energy passport?

- Accounts the **total energy consumption** of a building (existing or planned).
- Presents the energy efficiency, and the energy-related data of the building.
- Issued by highly qualified and competent, independant institutions or persons (civil engineers, accredited supervisors and analysis institutions).
- Must be presented to competent institutions during **approval procedure**, or while **selling** or **renting** buildings.

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Do all buildings have to have the energy passport?

- All categories of buildings, apartment buildings and non-residential facilities (public and commercial buildings, industrial constructions) should have the energy passport.

- Non-residential facilities - definition: offices, schools, hospitals, hotels, sports halls, shopping malls.

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What is evaluated by the Energy passport?

- Thermal envelope of the building including walls, windows and doors, floors, ceilings, roofs, solar energy gains
- Heating devices
- Hot water supply
- Mechanical ventilation
- Cooling
- Electric lighting

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Advantages of Energy passport for buildings

- Immediate reduction of energy consumption and costs
- Quality insurance in new building and in case of restoration
- Increase in real estate value and image improvement
- Comprehensive documentation of the current situation
- Development of realistic suggestions for improvement

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Deployment in Europe

- Energy efficient housing programme (energy performance building directive)
- Use of renewable energy sources like wind, biomass, geothermal energy or solar – the result should be self sustaining houses
- Concentration on reduction of use of primary energy (fossil energy) as a result reduction of CO_2 - emissions




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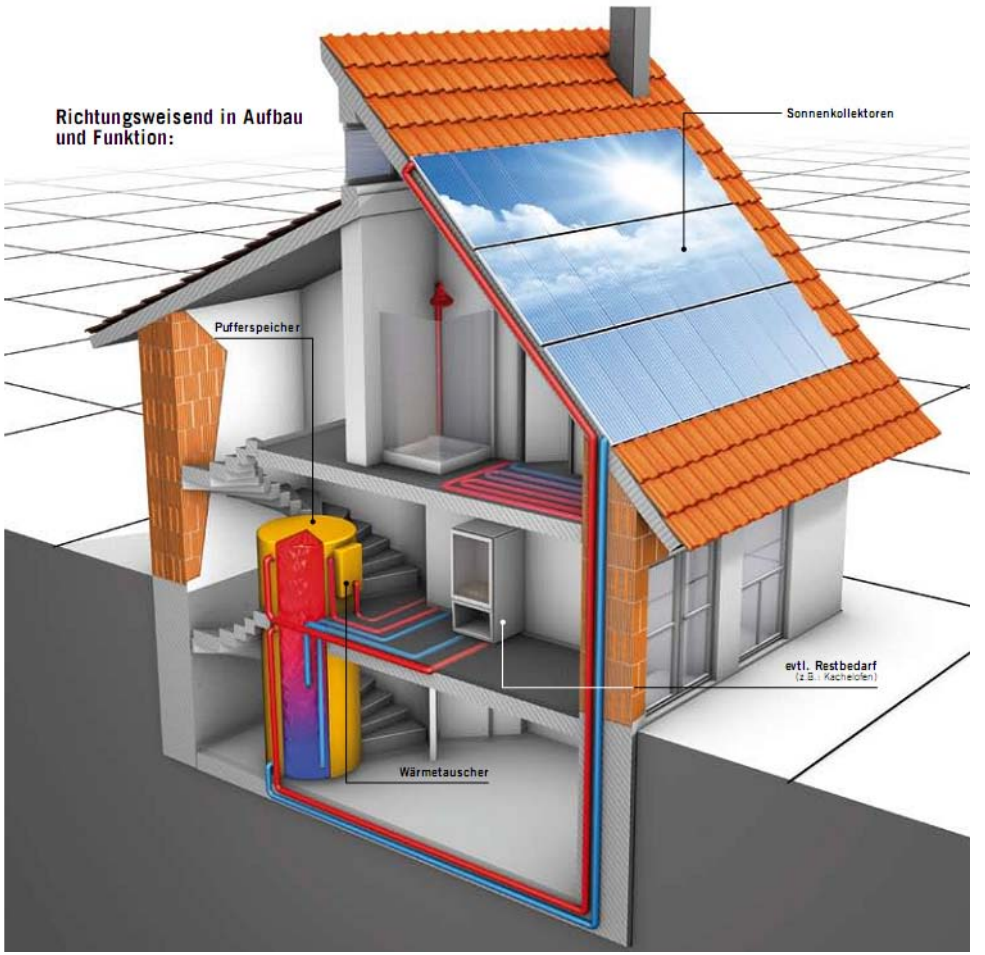
Ultimate solution



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Kalkulator

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Klimabloc kalkulator

- Na sajtovima www.zorka-opeka.rs i www.klimabloc.rs
- Virtualni računar – koliko se uštedi energije gradeći Klimablocom
- Termoizolacione karakteristike Klimabloca

Final conclusions

- Stepwise adjustment of existing building regulations to European standards
- Implementation of an energy efficiency certification system - Energy Passport
- Awareness raising of Serbian population through medias and information in cooperation with the Ministry of Environment
- Economic and financial incentives for energy efficient buildings

Results:

- **Less expenses for energy**
- **Less CO_2 emissions – against global warming**
- **Healthier environment**

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Thank you for your attention

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