

Education and energy efficiency in Romanian schools

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- European regulations require all schools to reduce the energy consumption and costs.
- In recent years, schools' energy costs have been unpredictable.
- Unusually cold weather increases heating and electricity bills.
- Schools represent 10% of the total energy consumption in Romania.

Due to the lack of money, failures of installations, and bad administration, the pupil stay at low temperature in classrooms.

The education ministry don't know the real situation.

There are 14 schools where temperatures of 3-4 Celsius degrees were measured in classrooms.

Newspaper article, November 3rd



From the total of the number of educational units 16.817 (74%) uses stoves with wood and only 5.863 (26%) have centralized heating.

There are regional differences on using wood stoves:

- Brasov county – 59,42%,
- Botosani county – 94,11%,
- Bucharest - 30,62%

There is a debate about priorities.

The government bought expensive minibuses for students transportation.

They could save some money, by buying cheaper ones, and solve the heating problems in at least 10-15% of schools.

Economic Highschool, Arad, Romania

The building is placed in the centre of the town and it is not thermally insulated due to lack of funds.

Old (historical) building:

- regular window,
- no insulation,
- high rooms



The classrooms are equipped with large windows, so as there is much light and therefore, electric energy is saved.



Sibiu Highschool, Romania

New building:

- double glazing windows
- insulation
- regular high rooms



Energy consumption in schools

- The energy consumption in schools is quite atypical - buildings are usually not used in the evening and at night, neither during the week-ends and school holidays.
- Actually, classes are given more or less 180 days a year, from 8h00 until 16h00, which means around 1 440 hours/year.
- Buildings are characterized by short periods during which they are effectively used (class time), interrupted by short and long breaks (lunch time for example).
- This particularity implies special use conditions for the technical installations.

School Buildings insulation

Maintaining acceptable temperatures in buildings (by heating and cooling) uses a large proportion of total energy consumption worldwide. When well insulated, a building:

- is energy-efficient, thus saving the owner money.
- provides more uniform temperatures throughout the space. There is less temperature gradient both vertically (between ankle height and head height) and horizontally from exterior walls, ceilings and windows to the interior walls.
- has minimal recurring expense. Unlike heating and cooling equipment, insulation is permanent and does not require maintenance or adjustment.

Energy saving

The energy savings potential in the schools is important, because very little has been done so far.

On the side of the school boards, there is usually little concern to save energy : they usually have other priorities than energy measures in school buildings and depend on the political parties for the financial support.

On the political side, they accept that something should be done, but it is hardly in the financial agendas.

There are other priorities for the budget of the schools like : rapid increase of number of students, help to educational material,...

Energy saving

Implementing energy efficiency measures in Romanian schools would be positive in many ways:

- School managers would benefit from reduced costs and enhanced learning environments.
- Staff and students would have improved comfort conditions which can boost educational effectiveness and efficiency.
- Environment would also benefit from reductions in energy use and carbon emissions
- The school will benefit from a better image.

Insulated schools

A school from a small city was insulated with funds from National Agency for Energy Conservation.

„The project is important because we can assure the comfort of students and professors, and optimal conditions for the educational process. The results of energy audit show that the savings reach 50% of the energy bills.” explained the director.

Newspaper 19/02/2010



- Is the energy efficiency in schools a problem of:
 - Resources?
 - Governance?
 - Knowledge?
 - Attitude?

Thank you