люфт. Коэффициент динамичности рассмотрен в качестве определяющего фактора между максимальным и передаваемым моментом. Описаны типы упругих соединений с резиновыми подкладками, а также случаи, при которых возникают осевые колебания. Задача статьи – выявить влияние упругости сочленений на значения частот колебаний, чтобы обеспечить работу без резонанса. При проектировании упругие сочленения могут не приниматься во внимание из-за их низкой цены по сравнению со всей машиной. В статье подчеркнуто, что необходимы специальные исследования, основанные на динамическом анализе.

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THE ENERGETIC PERFORMANCE IN THE ALUMINUM AND GLASS CONSTRUCTION

The efficiency of energy use is determined by the technological application of energy rate reduction (e.g.: preservation of desired temperature in cutting down energy costs on heating/cooling by using effective thermal insulation or devices, profitable installation, etc.). Essentially it refers to the rapport between the amount of energy consumed in practice and the initial amount of energy used.

Energy conservation

Diminution of energetic consumption. People get a considerable impact to energetic consumption, when they use the aluminum cover layers in the buildings.

Practically, the energy conservation should be assumed as the process of using less energy in order to reach the required results. We should agree that the efficient energy use means efficient technological implementation in order to fulfill all energetic needs. From this point – it is to maintain the desirable temperature at the same level by periodically decreasing the warming energy or to keep fresh through the thermal insulation efficiency using special apparatus, rentable installation etc. It is a ratio between the practical amounts of energy consuming and inputs of energy.

Energetic efficiency for actual products in constructive elements and especially in aluminum construction such as cases, frame, facade, buildings and apparatus, including all characteristic influences on energy consumption.

Energetic yield on building must be calculated as the amount of energy consumed in reality in order to fulfill common needs of the building, such needs as warming, water heating, freezing, ventilation and lighting. This amount of energy can be expressed with one or more mathematical indicator. Indicators are calculated by taking into consideration insulation, technical and installation characteristics, ratio of planning and location with climate factors, sun exposure even the neighbor buildings, energy auto generated from the building itself and other influenced factors on energy needs including the climatic condition within the building.

Energy consumption commonly imposed from needs to keep inner climatic condition of buildings in the same level. Here are such things as warming and cooling, ventilation, lighting which function is to make thermal conformity. Usage of different electro machines for daily purposes is also included.

The greatest end-user consumers are buildings. Within EU, this consumer uses almost 40 % of the total amount of energy. Within one building, warming the space-area consumes 69 % of the total energy, water heating needs 15 %, lighting and electro machines use 11 % of the total energy.

Building sectors show that the increase rhythm of energy consumption reaches the annual level of 7 %. It mainly comes from the air-climate equipment and micro-equipment. Such rhythm stable in EU is not true for the countries with intensive development including Albania.

Protective cover, applied in building and the energy exchange. Protective cover applied in building plays a filter role between outside and inside environment. Air movement, dust, rain, humidity, temperature change and radiation have the same impact even in the inner space of the building but in much lower ratio. The difference between outside and inside areas is that outside you have huge dynamic changes and uncontrolled in time and inside you have limited influences even further you can control changes in time.

Protective cover, applied in building is a decisive element in energy exchange between outside and inside environment, thus it switches in the important element on building thermal efficiency figure 1.

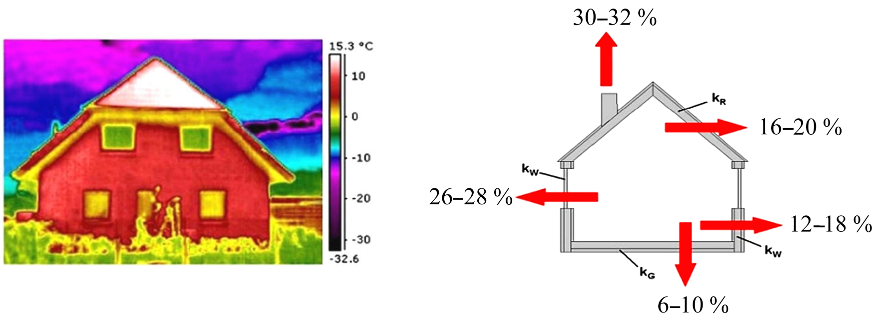


Figure 1 – Effects, of compound elements in total thermal loss

The main goal in modern energetic planning is to control and reduce thermal losses during the winter and thermal benefit during the summer, figure 2.

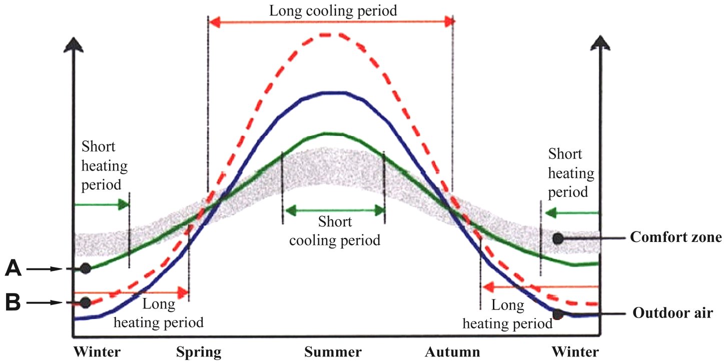


Figure 2 – Inner temperature and thermal conformity during the year
A – Building with thermal insulation; B – Building without thermal insulation

Thermal insulation is the key material which drastically limits the warming amount of energy circulating between protective cover and building.

Basements, frames and glass play an active role in factors mentioned above. They are predominant parts of protective cover of building.

Protective cover fixes the energy exchange rate between outside and inside environment, thus it is a decisive factor in general effectiveness of building.

Rules improvements in energy consumption. Rules improvements in energy consumption have brought a significant result within the EU countries. If we compare energy consumption in the building we will have the following scenario: previous 1980 consumption has been 200–300 kWh/m^2 a year, today the modern buildings within EU consume 30–70 kWh/m^2 a year. The major improvements derive from implementation of new technologies such as thermal insulation covers, basement implementation, frames application, glass facades which are European common technologies today.

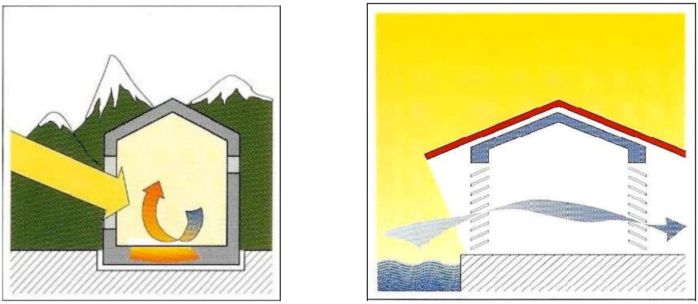
The difference of the thermal diffusion coefficient between a simple window ($U > 4$ W/m^{2}K) and a window of latest technology ($U < 0{,}8$W/m^{2}K) shows the potential amount of energy that we can save. It is worth emphasizing that for 0,1W/m^{2}K saving in thermal insulation of frame we reduce 1,2 liter petroleum per square meter of frame in a year.

Guidelines and legal-framework issued by EU commission for the energetic saving in buildings during the last 10 years emphasize requirements and conditions for improving energy saving, protecting warming level as well as certifying building for energy use and for minimal energetic efficiency.

Thermal insulation, glass, passive warming and cooling are included in the measures taken in order to improve the energetic yield.

Contemporary requests. Aluminum construction isn't a loss source for thermal, even further, they do not negatively influence the energetic balance. On the contrary, they are a positive factor in thermal balance due to the fact they control energy generation automatically and have a very positive impact in realization of building with null energy consume.

Cases, frames and glass should reduce thermal losses, when climatic condition impose warming, also they should benefit from sun rays to reach an equilibrium of losses. Finally we should say: to improve technology – to reduce losses. When climatic conditions impose cooling they should reduce the cooling loads. Finally a dynamic control is needed instead of the static one figure 3.



During the winter **During the summer**

Figure 3 – Building with null energy consume

Cases, frames and glass should maximize the benefit from sun rays during the winter period. They should accumulate energy and diffuse it in the inner area of building, in harmonic combination with materials which increase thermal capacity; meantime they should reduce thermal losses without reducing air circulation (table 1).

Table 1 – **Coefficient of thermal diffusion for different types glasses frames**

Type of glass frame	Thickness of glass frame, mm	Air in the empty place	Thermal diffusion coefficient, W/m^2K
Uneven	6	–	5,7
Uneven	8	–	5
Double	4-6-4	Air	3,4
Double	4-12-4	Air	2,9
Double-low translation	4-10-4	Air	2,0–2,4
Double-low translation	4-12-4	Air	1,7–2,4
Double-low translation	4-6-4	Argon	2,1–2,6
Double-low translation	4-12-4	Argon	1,3–1,7

During the summer materials should eliminate the over-warming within the building allowing the warming to pass through the air circulation and passive freshness.

Cases, frames and glass should be a guarantee of healthy and quiet life, contributing thermal comfort, air quality in inner areas, optic conformity, acoustic conformity and security. Meantime they should assure the proper ratio on yield, function, time and costs.

Conclusion. In practice energy conservation is the reduction of the required amount of energy for the concrete result. Efficient energy use means technological application for efficient resolution in the covering of energetic needed data. (Ex. Preservation of desired temperature, while we have the reduction of the energy in heating/cooling, by using with efficiency thermal insulation or devices, profitable installation, etc.). Essentially it refers to the rapport between the amount of energy consumed in practice and the initial amount of energy used.

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ЭНЕРГЕТИЧЕСКАЯ ЭФФЕКТИВНОСТЬ АЛЮМИНИЕВЫХ И СТЕКЛЯННЫХ КОНСТРУКЦИЙ

Эффективность использования энергии определяется применением технологий для снижения энергетических затрат (например: сохранение желательной температуры при сокращении затрат энергии на нагревание/охлаждение путем использования эффективной термоизоляции или экономичного оборудования и т.д.). Приведена оценка эффективности, которая определяется связью между количеством расходуемой энергии и ее начальным количеством.

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ВЛИЯНИЕ ВОДЫ, УГЛЕРОДНОГО ВОЛОКНА И САЖИ НА ФИЗИЧЕСКИЕ СВОЙСТВА ПОЛИАМИДА 6

В работе исследовано влияние количества сорбируемой воды и углеродного наполнителя (углеволокно и технический углерод) на удельное объемное электрическое сопротивление и физико-механические свойства полиамида 6 (ПА6). Содержание наполнителя варьировали в диапазоне от 0 до 40 мас. %. Установлено, что влияние воды на электропроводность ПА6 неоднозначно и зависит от концентрации углеродного наполнителя, кроме того, вода смещает температуру стеклования ПА6 в область более низких температур. Установлена предельная концентрация углеродного наполнителя, при которой начинают образовываться «цепочки» проводимости примерно 20 мас. %.