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The New European Bauhaus: the challenges of Central Europe in terms of energy-efficient construction

The path to the ambitious European Union goal of climate neutrality leads largely through energy-efficient construction. Its creation is to be fostered by the New European Bauhaus – an initiative aimed at bringing together the knowledge and experience of representatives of various fields in order to redirect construction to low-carbon tracks. The countries of Central Europe face the greatest challenges in this regard because energy consumption of residential buildings in many of them is clearly above the EU average. Moreover, low energy efficiency – combined with high energy costs and relatively low income – contributes to energy poverty in the region.

The New European Bauhaus. Bauhaus was created more than a hundred years ago as an architectural style developed at a German artistic college with the same name. Its founder, Walter Gropius, as well as its later leaders Hannes Meyer and Ludwig van der Rohe, were supporters of the idea that urban planning, architecture, and design should focus on human needs, combining simplicity, functionality, and minimalism. Such an approach can be a remedy to today's environmental and sustainability challenges, says Ursula von der Leyen, President of the European Commission, who on 16 September 2020 called for the establishment of The New European Bauhaus (NEB). This initiative aims to promote sustainable construction and contribute to the objectives of the European Green Deal, including a commitment to climate neutrality by 2050. Today, buildings in the EU account for 40% of energy consumption and 36% of greenhouse gas emissions.

The NEB will be implemented in three phases. The first is the current "design" phase. The NEB launched a competition aimed at highlighting contemporary examples of buildings or spaces that combine sustainable development, aesthetics, and social integration. Applications are due by 31 May 2021 in ten categories, including techniques, materials, and processes for construction and design; building in a spirit of circularity; solutions for the co-evolution of built environment and nature; and regenerated urban and rural spaces. The second phase, called "deliver", is the implementation of pilot ideas and solutions selected from the competition, and the third, called "disseminate", is simply their dissemination in the EU.

The NEB also established the High Level Roundtable consisting of 18 people – 15 from the EU (including Hubert Trammer, architect employee of the Polish National Institute of Architecture and Urban Planning) and one each from India, Japan, and Norway.

Old Central European construction. Discussion on energy-efficient construction in the EU should reverberate in particular in Central European countries for two reasons. First, it provides the unique opportunity to direct significant EU funds in these countries to green transformation through grants and aid instruments under the long-term EU budget for 2021-2027 and the Instrument for Reconstruction and Resilience under the Next Generation EU. These funds will finance, inter alia, The Renovation Wave, an initiative that will significantly increase, and possibly double, the pace of improving the energy efficiency of buildings in the EU. Second, it recognizes the fact that efficiency in most Central European countries differs from the EU. While the energy consumption in public buildings in Central European countries¹ is close to the EU average (about 250 kWh/m²) energy consumption in residential building in Central European countries (218 kWh/m²) is much higher than for the entire EU (173 kWh/m²). The countries with the highest consumption in this regard across the EU are Romania, Latvia, and Estonia. Poland is in the seventh place in the highest EU performance against consumption of 238 kWh/m².

¹ Data presented in the text for the EU-11 (countries admitted to the EU after 2004, excluding Cyprus and Malta – Bulgaria, Croatia, Czech Republic, Estonia, Lithuania, Latvia, Poland, Romania, Slovakia, Slovenia, Hungary) regarding energy consumption in buildings comes from EU buildings Datamapper and – depending on availability – refer to years 2013 or 2014.

Differences in energy consumption in buildings can be due to many reasons, including climatic conditions. It is important because the energy consumption of households is used most to heat their homes (on average in the EU it is almost two-thirds of final energy consumption in households, then heating water, lighting and cooking). Another explanation – key from the point of view of the Renovation Wave program – is the age structure of the building stock, which is crucial for the program. In most cases, the newer the building is, the higher its energy efficiency standards are. The lowest share of new residential buildings, i.e. built after 2000, among the EU countries is recorded by Lithuania and Latvia.

Energy poverty. The low energy efficiency of buildings in Central Europe – combined with high energy costs and relatively low incomes – is also linked to the problem of energy poverty. To get a more complete view of this phenomenon, you can use several indicators, such as²:

- the inability to heat the house adequately affects an average of 7% of the EU population, but as much as 34% of Bulgarian and 28% of Lithuanian (Poles – 5%);
- the percentage of the population in arrears with utility bills in the EU is 7% and 30% in Bulgaria, 17.5% in Croatia, and 14.4% in Romania (in Poland – 6%);
- low absolute energy expenditure, related to countries whose share of households whose absolute energy expenditure is below half the national median, which concerns Poland (19.5%) and Romania (17%) (the interpretation of this indicator requires additional information on national circumstances with regard to building; its amount may result, on the one hand, from insufficient energy consumption for households, and, on the other hand, from high energy efficiency standards, e.g. in Finland this percentage is almost 30% – the highest in the EU).
- high share of energy expenditure to income, related to countries whose share of energy expenditure to income is more than twice the national median share, which concerns Estonia (19%) and Romania (17%) (for Poland, it is 16%).

Conclusions. The New European Bauhaus is a form of interdisciplinary initiative aimed at opening up a discussion on the creation of future living spaces and mobilizing designers, architects, engineers, and scientists to take a new perspective on a sustainable lifestyle. The creation of such an innovation incubator is part of the strategy for stimulating energy efficient construction in the EU, which consists of financial incentives as well as regulations and standards for the energy performance of buildings. For Central European countries, many of which struggle with high energy consumption in residential buildings and, at the same time, with energy poverty for a significant percentage of inhabitants, this is an opportunity to improve the energy efficiency of construction, the lack of which is the source of both of these phenomena. This mainly applies to the Balkan and Baltic states.

Basically, the NEB is not only intended to be a step towards climate neutrality in construction. It should lead to a broad transformation of our surroundings and a return to the basic assumption of the Bauhaus, so that urban planning, architecture, and design focus on human needs, providing better living conditions.

² Data on energy poverty are from the EU Energy Poverty Observatory and refer to 2018.