

Ideas of the New European Bauhaus (NEB) in architectural education

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ABSTRACT: The New European Bauhaus (NEB) is an interdisciplinary project initiated by the European Commission in 2020 [1], based on three values: sustainability, beauty and community (social inclusion). Its aim is to support the European Green Deal programme [2] by accelerating the transformation of various economic sectors, including construction, to improve the quality of people's lives and protect the natural environment. Even though the NEB ideas have been known in Europe and around the world for over three years, it turns out that they receive very little attention in contemporary architectural education in some countries. A survey conducted among students in the 4th semester of the first-cycle studies in the Faculty of Architecture at Gdańsk University of Technology, Gdańsk, Poland, indicated that students do not know the NEB ideas and do not try to implement them in their design work. Hence, the need to create an appropriate base - a school in which students are able to directly and tangibly encounter all sustainable spatial, functional, technical and technological solutions according to the values and requirements of modern society.

INTRODUCTION

In times of climate crisis, one of the basic elements in the process of educating architects is instilling in students respect for the natural environment and awareness of the need to implement the idea of sustainable development [3]. For several years now, the activities of the European Commission, implementing the interdisciplinary project the New European Bauhaus (NEB) [1], have been of great help in this area. This project, although it refers to the ideas of sustainable development that have been known for years in Europe and around the world [3][4], is, however, a certain novelty, organising and hierarchising issues related to three basic values: sustainability, beauty and community.

The concept of the NEB, as a contemporary European initiative, refers to the original Bauhaus by Walter Gropius. The difference, however, is that the NEB does not focus mainly on blurring the boundaries between art and craft, and, taking into account design solutions that focus on human needs, it tries to engage the community in joint activities to protect the natural environment and create environmentally friendly urbanised spaces.

Contemporary architecture must be much more than just an interesting form with a correctly designed functional system. Buildings constructed in accordance with the NEB ideas are warm, energy-efficient, respectful of the surrounding nature, do not exclude anyone and promote the integration of societies. These rules apply not only to individual buildings, but to entire estates, cities, villages and regions. The urban space created in this way must be based on well-thought-out spatial development plans created on the assumption that architecture is part of nature [5].

Man living in this space, as a social and warm-blooded creature, needs shelter to survive and live in harmony with others. In times of climate catastrophe, a beautiful house is a functional and economical house - the same, of course, applies to entire building complexes, housing estates and cities. The task of people involved in educating architects - young engineers and artists - is to create the best possible study programmes and conditions that will better prepare them to create architecture responsive to the most important challenges of today.

Almost all architecture schools in the world currently offer lectures and design exercises on the broadly understood topic of sustainability [4], i.e. a system of values friendly to man and his environment. However, problems arise when theoretical considerations in an architectural design need to be translated into specific engineering solutions regarding building structure elements, economics of construction and use, circular economy, energy efficiency or the principles of universal design and proxemics. This causes many problems for students and highlights their unpreparedness to tackle design issues that require broad, interdisciplinary knowledge [6]. Even though the NEB ideas have been known in Europe and around the world for over three years, it turns out that they receive very little attention in contemporary architectural education. This leads to a situation in which students of architecture faculties do not know these ideas and do not try to implement them in their design work.

EU countries have committed to achieving climate neutrality by 2050, thus fulfilling their obligations under the European Green Deal programme [2]. Although the war in Ukraine has questioned the feasibility of some activities (for example in agriculture), in the construction sector and many other sectors of the economy, this programme must be implemented due to the huge risk of climate catastrophe. The New European Bauhaus (NEB) aims to support this agenda and has set the EU and the world on a path to ecological transformation [1].

The New European Bauhaus is a name that may give the false impression that this idea covers only European countries. However, climate challenges are global challenges that require a global response and global co-operation [7]. Climate change and environmental degradation pose challenges that all countries in the world must face together. This global dimension is of great importance for the NEB project. In a sense, it is intended to create an international architecture, but embedded in the local context, moving from global to local solutions. Reaching specific areas is to be done with great respect for the context of the place and has to respond to the needs and preferences of local communities. The NEB addresses various levels of transformation, from the entire world to countries, cities, neighbourhoods and villages. It will be based on the power of a growing global, worldwide community striving to save the entire planet, while maintaining the diversity of local conditions.

As mentioned above, the NEB is based on three basic, inseparable values: sustainable development (starting from climate goals, ending with circular economy, zero pollution and biodiversity), beauty (aesthetics but, above all, the quality of a person's feeling or experience of the surrounding space) and social inclusion (including diversity, equality for all, accessibility and affordability). The great challenge is to address all three values simultaneously to develop creative solutions that best meet people's needs at the lowest overall cost [8].

The NEB's goal is to blur the boundaries between science, technology and culture in order to allow designers to find new solutions to the problems of post-pandemic times. The programme also aims to seek design solutions that address sustainability, beauty and social inclusion, which bring people and communities closer to nature, contribute to the regeneration of natural ecosystems and prevent the loss of biodiversity. They constitute an incentive to search for the relationship between man and nature, however, they focus on life (biocentrism) and not man (anthropocentrism).

The nature of the ecological crisis makes it necessary to take a humanistic perspective, especially an ethical one, regarding the relationship between man and the environment. The new philosophical field that is currently environmental ethics distinguishes the two main trends mentioned above: anthropocentric and biocentric. For modern civilization, dominated by ecological issues, anthropocentrism is an extremely important trend because it points to man as the only propagator of the ecological ethos and the fight for humanity's survival in the world. On the other hand, anthropocentrism presents man as the main perpetrator of ecological threats to humanity, a being that fights the world's problems that he himself has created [9]. Therefore, today biocentrism should become the main trend of environmental ethics focused on human responsibility towards natural systems.

Thanks to the New European Bauhaus, it will be possible to promote the ideas of sustainable development in the world in such a way that they reach both homes and the minds of citizens [8], and become an important element of the education programme for engineers, including architects. Sadowski points out that:

Due to the presentation of the European Green Deal (EGD) on 11 December 2019, it is important to introduce a new context for the education of architects corresponding to the objectives set by the European Union. These include reducing greenhouse gas emissions, increasing the energy efficiency of buildings, designing buildings in accordance with the principles of the circular economy, using renewable energy, as well as promoting ecological food and protecting biodiversity [10].

In the environmental protection dimension, the foundations of the NEB are economic development and resource conservation. The NEB is an ambitious programme aimed at transforming cities into *greener* cities. The buildings themselves are also important elements in this context as they constitute the urban fabric, specifically their energy characteristics - high insulation of external partitions, the shape of the building body, and the modern technical and installation infrastructure used in the buildings. It is also very important to eliminate all substances and building materials from buildings that are harmful to the environment and people, and to properly develop the area to retain rainwater and protect the soil and greenery [6].

Architecture perceived by users as beautiful has a very positive effect on their well-being, sense of pleasure and even on the joy of being in a given place. The NEB acknowledges this relationship, placing the beauty of space as one of its priorities. However, beauty alone is not the most important thing. More important seem to be the components of architecture that build this beauty and influence the way it is perceived by the recipient. [6]. As early as in the mid-20th Century, Rasmussen wrote about *feeling* architecture through its elements, such as solids and voids, contrasts, planes of colour, scale, proportions, rhythm, texture, light and even about *hearing* architecture [11]. This approach to experiencing architecture with all the senses allows modern people to open up to a variety of impressions and, through their reception, reveal their true, individual mental needs and their true essence.

Therefore, it is not only about satisfying the human need to be in a beautiful architectural environment. Modern man is looking for his own, intimate space. Contemporary architecture, especially residential architecture, is *my space and only my space - existential* [6]. The ideas of Heidegger [12], Giedion [13] and Norberg-Schulz [14] opened up many possibilities for a new look at architectural work, and allowed one to see the measure of its value and artistry not only in its physical shape, but also in the search for an answer to such an important question today: How in the modern world, in a constantly transformed environment, can a person maintain his own identity and find his own place? [6]. What comes to the fore here is the need to adapt contemporary urban and architectural solutions to the local culture and local values. Despite a certain universality of the solutions used regarding the principles of environmental protection and resource conservation, an extremely important element that allows local communities to positively perceive the transformations of the surrounding space is the correct inclusion of these transformations in the existing *genius loci*.

Social inclusion, including diversity, equality for all, accessibility and affordability, is the third, extremely important pillar of the New European Bauhaus. Reclaiming a sense of belonging and celebrating diversity give character and meaning to places and communities. This is about fighting all forms of discrimination, starting from race, gender or religion, through age groups and ending with physical or intellectual ability.

Nowadays, any discrimination or social exclusion is something that in no way fits into the categories of norms of social coexistence, and yet it takes place in many places around the world. The NEB aims to create a new lifestyle that is inclusive and accessible to all, while respecting diversity. The project also aims to leave no one behind. Therefore, special attention is paid to the participatory approach, joint co-creation - inclusion and involvement of all citizens in all their diversity, including, above all, minorities and discriminated communities [1].

This approach is intended to ensure that the planned solutions meet various needs, including the need for affordable housing. This applies especially to young people and people with low incomes. Based on the results of the analysis of the situation of young people on the labour market, their income and data illustrating the situation on the housing market, it can be concluded that only a small group of people can freely meet their housing needs in a way that meets their needs and preferences [15].

For most young people, purchasing their preferred apartment becomes a huge challenge [15]. As a result, these people are forced to live in buildings and housing estates with features that are inconsistent with their preferences. This applies to both real estate and their immediate and distant surroundings. This forces architects and engineers from other industries to look for technical and technological solutions enabling the creation of residential buildings in a cheap, but also aesthetic and environmentally friendly way. A great opportunity in this respect is, of course, the use of natural building materials [16] and recycling [17]. In its activities the New European Bauhaus supports this approach to creating a new housing substance.

Just like Walter Gropius's Bauhaus, the NEB also needs a school - a space that will educate students not only in theory but also in engineering and architectural practice, conduct research and, based on it, create modern technical solutions and standards. The NEB needs a space where students, apart from acquiring purely theoretical knowledge, can have tangible contact with practical solutions and their implementation. If this space meets the requirements of being friendly to people and the environment, one can talk about a well-shaped educational space. Many researchers note the relationship between the physical shape of the space in which young engineers are educated and the quality of this education. For example, Szczepański and Nyka write:

The study programmes are often considered the main formative factors in the process of educating future architects. Another highly influential component is the architectural characteristics of learning spaces, and consequently the impact of the physical built environment on the quality of education has been widely discussed [18].

Of course, not every university can afford to create a modern, fully equipped and environmentally friendly educational base. Most often, economic reasons stand in the way. One of the good examples in this respect will soon be Gdańsk University of Technology, Gdańsk, Poland, which is in the process of building one of the most modern scientific and research buildings in Europe called the Eco-Innovation Centre. The building will be put into use at the end of the first quarter of 2024. Designed by the authors of this article and financed with a significant share of EU funds, the Centre is a modern scientific and research facility dealing with the development of *green* technologies and pro-ecological solutions (Figure 1).

The Eco-Innovation Centre will enable scientists from Gdańsk University of Technology to develop and implement innovative technologies in the field of engineering and environmental protection. This includes energy savings in construction, transport and industry, the development of renewable energy sources, revitalisation of degraded urban areas, construction of eco-cities, as well as water and flood management and sewage treatment. The Centre will also be used for research, laboratory and teaching purposes, thus enabling the education of young staff - engineers and specialists focused on developing and implementing new, innovative ecological technologies. In accordance with the intention of the authors of the project and the University authorities, the architectural shape and technical equipment of the Eco-Innovation Centre building correspond to the role it will play.



Figure 1: Eco-Innovation Centre, Gdańsk University of Technology, Gdańsk, Poland. Authors: FORT Taraszkiewicz Architekci Sp. z o. o. in Gdańsk, Poland.

When designing the Eco-Innovation Centre, the focus was on the use of environmentally friendly, innovative, ecological technologies. The building itself will become an example of their use, setting a new direction for green construction. The facility will therefore make maximum use of renewable energy sources in the form of photovoltaic cells and wind turbines installed on the roof. A significant part of the energy will also be obtained from heat pumps using the underground, so-called *lower heat source*. The Centre will be a facility equipped with rainwater recovery and storage installations, the so-called *grey water* used for watering greenery and flushing toilets. A significant part of the building's roof was designed as a *green roof* planted with plants used to retain rainwater. Some of the building's sanitary facilities will be equipped with negative pressure toilets and waterless urinals, which will result in savings in water consumption. Carefully selected chilled water units will cool fan coils, i.e. devices that combine the functionality of radiators and air conditioning devices. All building installations and equipment will be operated by intelligent control systems.

The architecture of the Eco-Innovation Centre building is faithful to the ideas of the New European Bauhaus, directly referring to the *genius loci* of the Gdańsk University of Technology campus, where the building is located. References to the context of the place concern not only the historical buildings of the campus, but also the contemporary architecture that is still being built on the campus. The authors of the design/article tried to find an architectural bridge between history and the present through the scale, proportions, colours and type of natural materials used for construction. The new scientific and research facility is a real example of respect for existing values, and at the same time an attempt to implement new values, drawing from the context of the place, but seeking its own, contemporary creation through the previously mentioned solids and voids, contrasts, planes, rhythm, textures, light and even sound [11].

Such a holistic approach to architecture allows its recipients to activate all senses in the perception process, and thus leads to its full reception, enabling the whole campus community of Gdańsk University of Technology to positively perceive the architectural work, treating it as a balanced, friendly space, where staff, students and visitors can maintain their own identity, find their own place and promote social integration [19].

IDEAS OF THE NEW EUROPEAN BAUHAUS IN ARCHITECTURAL EDUCATION

To verify students' knowledge of the concept of the New European Bauhaus and their ability to implement these ideas in their architectural designs, a survey prepared by the authors of this article was conducted in the Faculty of Architecture at Gdańsk University of Technology, Poland, among students in the 4th semester of first-cycle studies in the academic year 2022/2023. The survey included three questions based on which students were to demonstrate their knowledge of NEB issues and answer whether the principles of sustainable development - its harmony and care for the surrounding space - are important to them when carrying out semester designs. Subsequent survey questions were asked to students at weekly intervals during lectures on the theory of architectural design and exercises in architectural design regarding multi-family housing. The survey included the following questions:

1. Are you familiar with the term *New European Bauhaus* (NEB)?
2. If you are familiar with the NEB ideas, describe them briefly.
3. Will you incorporate the NEB ideas into your semester design and, if so, how?

The above questions were addressed to 100 students in the 4th semester. The answers to the questions included in the survey fully confirmed the assumptions presented in the introduction to this article regarding students' lack of knowledge of the ideas of the New European Bauhaus and the ability to implement these ideas in architectural designs. The large number of respondents improved the credibility of the research conducted. The survey also revealed that students' knowledge of the various nuances of the NEB programme varies greatly. There are issues that they know quite well, but their knowledge of other issues is completely insufficient. The survey also showed that despite the lack of detailed knowledge of the NEB ideas among students, there is a large tendency, drawn from other sources or intuition, to look for design solutions that are pragmatically economical, favourable to interpersonal contacts, and consistent with the idea of sustainable development and its care for space.

To question 1, asked during the first week of lectures and design exercises, regarding students' knowledge of the New European Bauhaus concept, as many as 61% of the surveyed students answered that this term was completely unknown to them, only 32% confirmed their knowledge of the concept, while 7% could not answer this simple question.

In the second week of classes, when students had more time to familiarise themselves with the ideas of NEB, the situation changed quite dramatically. In response to question 2, only 6% of the students could not describe the NEB ideas, 91% described these ideas quite accurately and 3% could not give an answer. The satisfactory number of students who were able to describe the NEB ideas proves that the students, even though they did not know the next question in the survey, were interested in the issue and conducted an independent study of the problem in the intervening week.

The responses to question 3 were quite surprising and disturbing at the same time. Fourteen percent of the respondents declared that they would definitely not include the NEB ideas in their semester designs, while the same number of students - 14% - said they did not know yet whether they would do so. It is true that 72% of students declared their willingness to implement the NEB ideas in their semester designs, but none of the respondents could comprehensively describe how they would do so. In the survey, students described in a rather non-comprehensive way the method of approaching the implementation of the NEB ideas in the design, treating them quite selectively and very superficially.

The most common of the given methods, which in some way referred to sustainable activities, was the desire to integrate the designed buildings and development complexes into the surrounding greenery. When talking about beauty, students focused only on the aesthetics of the shape and functionality of buildings, completely ignoring the NEB message that *beauty* refers to the positive experiences of people, going beyond functionality; it can mean aesthetics, but also be related to the spirit of a given place or the sense of belonging to the community. It was also difficult to find references to the idea of social integration including diversity, equality for all, accessibility and affordability in the students' answers. The ideas of social inclusion, which aim to improve the quality of life and meet the needs of entire communities but also of individuals requiring urgent attention, are still theoretical, distant to students.

CONCLUSIONS

The results of the survey presented in the article clearly indicate that architecture students do not have sufficient knowledge of the latest contemporary challenges, including the idea of the New European Bauhaus - one of the most important programmes aimed at facing these challenges. They also do not have appropriate interdisciplinary knowledge enabling them to properly, comprehensively and engineeringly solve design issues leading to the creation of contemporary architecture that fits into the ideas of sustainable development, and cares for beauty and social integration. Climate protection, recycling and biodiversity are just slogans for students and they cannot work out how to implement them. For the surveyed students, beauty is only the architectural form and functionality, and not the human perception of the surrounding space, while social integration comes down only to good neighbourly contacts.

It is extremely important in the process of educating architects and engineers in various disciplines to create an appropriate base - a school in which students can directly and tangibly encounter all sustainable spatial, functional, technical and technological solutions, learning their concepts, construction and principles of operation. In this way, they will be able to become familiar with all the advantages and disadvantages of individual solutions, better understand their philosophy, make improvements and engage in innovative activities in the future. If this base meets the requirements of a human and environmentally friendly space, one can talk about a well-shaped educational space that gives students the opportunity to fully master all the issues that allow them to create architecture and engineering solutions that meet the challenges of today and satisfy the needs of modern people.

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