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TRANSITORINESS OF ARCHITECTURE AND THE RELATIONSHIP WITH THE NATURAL LANDSCAPE

PRZEMIJANIE ARCHITEKTURY, A RELACJA Z KRAJOBRAZEM NATURALNYM

Abstract

The article aims to discuss factors that have a direct impact on relations between architecture and the natural landscape, in the context of its transitoriness. Analyzing the life cycle of selected buildings, it is stated that an equally important factor as vitruvian durability is the way architecture is aging over time. A contemporary object today, in a few decades will be a relic of the past, and thus a completely new variation on what was originally designed. The presented research results indicate that the key for the architect is the ability to predict the long-term consequences of the proposed solutions, in the context of whether the building will gradually fuse with the surroundings over the years or, on the contrary, become more and more dominant in the natural landscape, causing irreversible and destructive changes.

Keywords: transitoriness of architecture, durability, landscape context, pro-ecological design, sustainable construction

Streszczenie

Artykuł ma na celu zbadanie czynników mających bezpośredni wpływ na relacje zachodzące pomiędzy architekturą a krajobrazem naturalnym, w kontekście jej przemijalności. Na podstawie przeprowadzonej analizy cyklu życia wybranych obiektów budowlanych stwierdza się, że elementem równie istotnym co witruwiańska trwałość jest sposób w jaki architektura starzeje się z biegiem czasu. Obiekt współczesny za kilkadziesiąt lat będzie już reliktem przeszłości, a tym samym zupełnie nową wariacją na temat tego co zostało pierwotnie zaprojektowane. Prezentowane wyniki badań wskazują, że kluczowa dla architekta staje się umiejętność przewidywania długofalowych konsekwencji proponowanych rozwiązań, w kontekście tego czy wraz z upływem lat budynek będzie stopniowo stapiał się z otoczeniem, czy wręcz przeciwnie – coraz bardziej dominował w krajobrazie naturalnym, powodując w nim nieodwracalne i destruktywne zmiany.

Słowa kluczowe: przemijalność architektury, trwałość, kontekst krajobrazowy, projektowanie proekologiczne, budownictwo zrównoważone

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1. INTRODUCTION

Durability, purposefulness and beauty[2] as the most important features that should be taken into account in the creation of the building according to the treatise of Vitruvius, remain the current foundation for today's designers. In an era focused on pro-ecological solutions and intensified activities to protect the Earth's resources, architects pay more attention to the design of objects, taking into account the natural context of environment. It is important not only to examine how the form of the object will fit into the landscape, but also to predict the long-term impact of the building on nature. One should be aware of the fact that a modern object today, in a few decades will be a relic of the past, and thus a completely new variation on what was originally designed. The need to analyze the aging process of architecture, in contrast to the idealized durability of Vitruvius, is today an element that complements the necessary considerations of the designer. There is no structure that is fully resistant to external factors, which would not be subject to this process. This allows us to state that architecture is inherently a derivative of time. The aim of the research undertaken by the author of the text will be to reach factors that have a direct impact on the relations between architecture and the natural landscape, in the context of its transitoriness. Based on the analysis of various examples of architecture from Poland, the basic relationships determining whether a given building will affect the natural landscape in a positive, neutral or negative way, were specified. The described criteria of impact assessment are to be the starting point for further considerations in the subject of sustainable design, following the principles of protection of natural resources for future generations.

2. CRITERIA FOR EVALUATING THE IMPACT OF THE BUILDING TO A NATURAL LANDSCAPE IN THE CONTEXT OF TRANSITORINESS

Following the main idea of the article contained in its introduction, the need to classify architectural objects in terms of the way in which they change over time is noticed. This is to help distinguish what is the aging of architecture (as a form, architectural style) and the aging of materials (components that make up architecture). The division into three main criteria for assessing the impact of buildings on the natural landscape is presented, in the context of their passing: the criterion of fusing with the landscape context, the stylistic criterion and the material criterion.

2.1. THE CRITERION OF FUSING WITH THE LANDSCAPE CONTEXT

The first of analyzed criteria will be the status of a building fusing with the landscape context of the place, relative to the passage of time. It is supposed to help in assessing whether an architectural object is getting more and more connected with its environment, or, on the contrary – it starts to stand out.[3] The neutral situation is also possible, in which the building

[2] Witruwiusz, *O architekturze ksiąg dziesięć*, PWN, Warszawa 1956, p. 9.
[3] Wrana J., *Architektura z poszanowaniem miejsca*, Budownictwo i Architektura, 2011, no. 9, pp. 129–139.

does not change in this respect. At this time, it is worth pointing out that both architecture and landscape are variable, yet the architect designing the building usually takes into account only the situation present for him at the time of planning the investment. Usually, the moment when a given object is put into operation, is also the beginning of the building's life cycle . Sometimes the architectural object is so durable that its form does not change significantly in relation to the surrounding nature, while the natural landscape changes intensely towards the building. This opposite situation occurs when the greenery around the object grows in a significant way, covering it. A stronger connection between architecture and nature can be described then, where the form of the building is weakening. In some cases the object can become almost completely invisible.

2.2. THE STYLISTIC CRITERION

Another of the presented criteria for assessing the aging of objects is the stylistics of the architectural form. The article focuses directly on the relations between the building's structure and the natural landscape, which is why the analyzed examples are strongly embedded in the natural context. How does the architectural form of a building age? It may depend mainly on how much it follows the architectural trend that is currently valid. By designing a simple form, with a minimalist character, carefully matched to the existing topography of the terrain, it is easier to talk about a timeless building that will resist the passing of time. There is also an aspect related to the appeal to the native culture and inspiration taken from nature, manifested in the form of an architectural building. On the other hand, when a building is strongly associated with certain architectural style, or with a specific historical period, it will be judged against the aging of its stylistics. With great probability it will cease to be current much faster than objects that have a strong relation with the surrounding natural landscape. It is the state of the relationship of the building with the place, where the object was created, that may determine the timelessness of its form, while the imposed style will have the opposite effect.

2.3. THE MATERIAL CRITERION

The last criterion is the assessment in terms of materials used as elements directly forming the architecture. A universal building with a timeless form that fits well the natural landscape, can completely change its image after only a few years of existence, if the applied building materials prove to be very susceptible to weather conditions. It is therefore strongly related to the vitruvian durability of the building in the literal sense of this term. The more permanent the object, the less visible will be the wear of its façade over the subsequent years of the building's life cycle. However, there is no eternal architecture that would not be subject to any changes, so in each case one should predict how the building will look in the future. In terms of material criterion, it is first of all necessary to assess what kind of materials use the given architectural object. Elements of the outer shell of the building, made of raw materials of natural origin, will not only be safe for the environment, but also ensure a more noble aging of the building. Biodegradable materials such as wood, copper or brick will naturally overlap with a layer of sediment, patina or moss, which very often makes the building expand its relationship with the natural landscape. With time, when the life cycle of a construction object comes to an end and when in an extreme case it falls into disrepair, nature will slowly absorb the discussed structure into its ecosystem. Then the elements of the building start to be

the new ground for wild plants growing out of it and serve as a shelter for small mammals and insects. However, in the completely opposite situation, when the architectural object consists of artificial prefabricates, non-biodegradable plastics, toxic materials, the aging process of the building may be very harmful to the natural environment. Atmospheric conditions can cause material deformation, colour change, as well as the release of hazardous substances into the threatened ecosystem. These, in effect, lead to a complete disruption of relations between architecture and the natural landscape.

3. ANALYSIS OF THE RELATION BETWEEN ARCHITECTURE AND NATURAL LANDSCAPE, IN THE CONTEXT OF TRANSITORINESS ON SELECTED EXAMPLES FROM POLAND

In order to use the previously presented criteria for assessing the interaction of architecture and natural landscape in the aging of buildings, a multithreaded analysis on selected examples from the territory of Poland was carried out. The described objects will be characterized by diversity in terms of location, technical condition and environment, so as to show the widest possible case study.

3.1. TRADITIONAL BUILDINGS OF KOTLINA KŁODZKA AS AN EXAMPLE OF ARCHITECTURE FUSED WITH A LANDSCAPE CONTEXT

Kotlina Kłodzka, in terms of landscape, is one of the richest regions of Poland. The area of the Sudetes is filled with dense forests, valleys and hills, where the historical mountain villages are scattered over the surfaces of the slopes. Traditional huts will serve here as examples of architectural forms, which in the course of time blend more and more with the natural landscape. Thanks to the use of materials of natural origin, such as wood, brick and stone, the strong bond with the landscape of Kotlina Kłodzka is visible. The aging process of these often a hundred-year-old buildings is easily noticeable, however, the way in which they are aging doesn't interrupt in maintaining the landscape coherence of the place. Historical cottages usually grow around with thick forest, which is constantly expanding its territory, going down the valleys from mountain peaks.[4] The objects are then surrounded by greenery, and over time the structures of their walls, and roofs get covered with moss. An example of such object is the abandoned hut from the 19th century located in the village of Stary Waliszów near Bystrzyca Kłodzka, visible in Ill. 1.

The bad technical conditions of many objects in this area, resulting from the difficult socio-economic situation, makes it easy to find here buildings in ruins. An image of an abandoned villa in Kletno, at the foot of Śnieżnik Mountain, visible in Ill. 2, is a proof that the traditional architecture of the region, even after the total degradation of usability, continues its relationship with a natural landscape. An unusual view of a cottage, from which a fragment of a deciduous forest literally grows from, is the essence of the possibility of connecting architec-

[4] Staffa M., *Słownik Geografii Turystycznej Sudetów. Tom 16. Masyw Śnieżnika i Góry Bialskie*, I-Bis, Wrocław 1993, p. 61.

ture with the nature. In this relationship, the work of human surrenders to the growing strength of nature, where individual bricks, corroded beams, become the ground for the emerging, fresh greenery. The remains of the building walls shield nature from strong wind and excessive solar radiation, accumulating moisture, which in turn helps in the vegetation of plants. Thus, the values of the architectural form are being weakened and the natural ecosystem is enhanced. Coherence in terms of landscape, stylistics and materials made aging process of the building able to bring it closer to literal integration with nature.

3.2. CONTEMPORARY BUILDINGS OF KOTLINA KŁODZKA AS AN EXAMPLE OF ARCHITECTURE DOMINATING IN THE MOUNTAIN LANDSCAPE

In addition to the historical buildings of Kotlina Kłodzka, the south of Lower Silesia is also characterized by many housing estates of modernist housing blocks. They overshadowed the traditional model of mountain villages, in which urban tissue was created by tenements and detached houses with pitched roofs. In the second half of the 20th century, the structure of housing estates began to grow in the form of simple, large-scale buildings that didn't refer to the local tradition. The heavy solids of modernist buildings began to dominate in the panoramas of towns such as Kłodzko, Polanica Zdrój and Bystrzyca Kłodzka (Ill. 3). Looking at Ill. 4. showing a block of flats from the 1960s in the last of listed cities, it is clearly seen how strong the form of the building in the surrounding space is. Analyzing the visible relation in terms of a natural landscape criterion, it can be said that the object is dominating the natural context of the place, obscuring the view at the mountains. At this point, it is worth asking how does the relationship of this building with the mountain landscape change in the long time period. Well, almost not at all. Prefabricated structures are extremely durable and the surroundings of these buildings are largely concrete car parks, which do not give a chance to bring them closer to nature. Originally a grey block of flats recently underwent a thermo-modernization, which ended up with the elevation painted furious pink. The common problem of building colours in Poland called by Filip Springer as *pastelosis* is another element disturbing the good relations of architecture with the natural lanscape.[5]

Continuing the visit to the Sudetes, a team of newly erected apartment buildings in Sienna was analyzed in terms of their architectural form. The ski resort is characterized by very fast development, which entails further investments. Visible complex of buildings in Ill. 5. creates a strong form in a natural mountain landscape. Due to the large number of storeys, the buildings are standing out from the surrounding space. The construction of the investment has significantly interfered the existing topography of the area, by creating vast parking terraces. It can therefore be concluded that currently the relationship of the apartments with the natural landscape is associated with their strong domination. The designers intention was to build objects referring to the historic cottages of the region, however, through the use of chosen materials and considerable dimensions of buildings, inspiration with tradition seems to be very limited. Anticipating how these contemporary objects will look in the future, it should be assumed that their style follows strongly the general trends visible in modern architecture and only in a small extent refers to the landscape context. The design of the discussed buildings is evidently not coming from inspiration by nature, or existing topography of the place. In fact, the situation is

[5] Springer F., *Wanna z Kolumnadą*, Wydawnictwo Czarne, Wołowiec 2013, p. 68.

opposite – the topography of the area is subordinated to architecture. The white, plastered walls of the building will quickly cover with natural lichens that visually age erected constructions. If in exchange, more fine façade materials, such as wood, brick or stone, were chosen, then the expected effect of the passing time would surely be much better.

Ill. 1. A cottage from the 19th century in Stary Waliszów, author's photo
Ill. 2. The ruin of a villa in Kletno, author's photo
Ill. 3. Present panorama of Bystrzyca Kłodzka, source: http://anka88.bikestats.pl/1592657,Wakacje-w-Kotlinie-Klodzkiej-Gora-Igliczna-i-Miedzygorze.html
Ill. 4. A block of falts in Bystrzyca Kłodzka, overlooking the mountains, author's photo
Ill. 5. New apartment buildings in Sienna, author's photo
Ill. 6. The Bobrowisko enclave from a bird's eye view, photo. Dariusz Ptak

The conclusion from the analysis of the current situation of towns in Kotlina Kłodzka is the statement that the traditional architecture of the region fuses more and more with the surrounding nature during the aging process, while the modern housing development seems to go in the opposite direction. Breaking with the current of tradition, in favor of today's stylistic trends, is not able to ensure landscape coherence in the perspective of a further future.

3.3. THE BOBROWISKO ENCLAVE AS AN EXAMPLE OF CONTEMPORARY ARCHITECTURE INSPIRED BY NATURE

The system of walking paths opened in 2018 create a natural enclave of Bobrowisko in the fork of Dunajec and Poprad rivers near Stary Sącz.[6] This biodiverse area is inhabited by many protected species of mammals, amphibians and birds. The design by 55Architekci studio is distinguished by organic shapes and the finesse of structural, and material solutions. Zigzag bridges snake among the reeds giving the possibility of free access to a human, who wasn't able to witness this place before (Ill. 6). At the end of the designated observation route there is a lookout room, from which visitors can admire animals living in the wild through small holes in the walls, remaining unnoticed (Ill. 7). The vision of architects is focused on limiting the interference into the natural ecosystem to minimum, therefore the area of direct contact of the designed structures with the ground was reduced. Such an approach testifies to the developed ecological awareness of the creators.

When assessing the object in terms of its relationship with the landscape, it should be stated that it connects very well with the natural surroundings. The solutions adopted by architects are timeless because the inspiration comes directly from nature. Despite the fact that the material durability of the object may not be in this case high, the aging process of the object, in terms of architectural form and material, will certainly proceed in a way that guarantees a positive aesthetic experience. Over time, the building will absorb the moisture of nearby wetlands, gradually growing around with wild greenery. The elevation of the lookout and wood of the Bridges will change their hue to a slightly darker tone. Adding to this the fact that the object is safe for the environment, due to the use of biodegradable materials, it is concluded that the building is a pure form, gently disappearing in the vastness of nature.

3.4. OBSERVATION TOWER IN POZNAŃ'S SZACHTY DISTRICT AS A DOMINANT ERECTED IN A NATURAL LANDSCAPE

Another object worth analyzing is the observation tower located in Poznań's Szachty district, among dense greenery and picturesque lakes. The facility designed by Toya architectural office was erected in 2018 from the civic budget of the city.[7] The dynamic form of the object, measuring 25 m, is based on a triangular plan and is a new dominant in the park surroundings (Ill. 8). This is not caused by a garish nature of the architectural form, but by the considerable height of the object. Architecture of the tower is inspired by the bird's nest and its structure remains open-cast, regardless of the point from which it is observed (Ill. 9). Transparent gaps

[6] *Enklawa przyrodnicza Bobrowisko*, source: http://sztuka-architektury.pl/article/11932/enklawa-przyrodnicza-bobrowisko (access: 12.06.2019).

[7] *Poznań ma nowy punkt widokowy – wieża na Szachtach otwarta*, source: http://poznan.wyborcza.pl/poznan/7,36001,24256343,poznan-ma-nowy-punkt-widokowy-wieza-na-szachtach-otwarta.html (access: 14.06.2019).

were located both in boarded balustrades and in horizontal platforms made of steel grids. The fact that almost the entire tower structure is openwork, causes that the elements used weigh much less. Thanks to this, worn out parts of the object can be easily replaced with the new ones. From the top of the tower stretches a panorama view that creates a strong bond between the user and the rich natural landscape of the place (Ill. 10). Due to the use of steel elements as the main construction and resistant material imitating wood as an outer skin, the object will remain durable for much longer than it would be in the case of natural wood. At

Ill. 7. A lookout in the Bobrowisko enclave, photo. Jakub Adamczyk
Ill. 8. Observation tower in Poznań, author's photo
Ill. 9. View of the openwork construction of the observation tower, author's photo
Ill. 10. Panorama seen from the observation tower, author's photo

the same time, from a distance, the object fits very well with the surroundings, from where it is difficult to see that it is made of artificial materials. The designers managed to obtain a great compromise between the functionality and durability of the form and fusing it with the landscape context of the place. Today, modern materials allow to achieve much better results than ever before in this matter.

To sum up: the geometric observatory tower has become a new landmark near Poznań's lakes. The object is very durable, both in terms of materials (high resistance to external factors) and stylistics (a universal form inspired by nature). Despite its considerable height, the tower fits well with the nature of the place. This is due to deliberate spatial solutions that take advantage of the modern possibilities of creating an architectural form.

3.5. RELATION OF BYDGOSZCZ HARBOR WITH THE SURROUNDINGS THROUGH THE PRISM OF RAPID AGING OF THE FAÇADE

Bydgoszcz Harbor is a sports and tourist complex located near the Old Town on the Brda River. The building, designed by APA Rokiccy studio, was put into use in 2012 and was very well received by the residents of Bydgoszcz. Undoubtedly, it contributed to increasing the attractiveness of this part of the city as a water hub on the Vistula-Oder route. It also won several prestigious architectural awards.[8] Looking at the object from a further perspective, one can see a characteristic, partly rounded shape of a building, which clearly corresponds with the bay and the surrounding greenery. The state of strong relations between architecture and landscape is strengthened by the use of natural wood on the exposed elevation. The facility quickly joined the surroundings and its form seems to fit perfectly in the place where it was located from the very beginning. Bydgoszcz Harbor has become one of the city's icons, perfectly matching its atmosphere.

The analysis of the aging process of the discussed architectural object was conducted by a comparison of photographs from the moment of its opening (Ill. 11), with those taken in 2018 (Ill. 12). Just six years after completing the construction, the wall of the building covered with natural wood has changed in a drastic way. The discoloration, streaks and deformations of the planks strongly reduced the aesthetic value of the building. Nowadays it may seem that the marina is much older than indicated by the official data. Through the rapid aging of the façade, the impression is deepened that the object has been standing there for decades.

Based on the examined situation, it is concluded that the elevation resistance to weather conditions is an important issue in the preservation of objects using biodegradable materials. The material criterion is decisive when designing objects with a controlled process of aging, which in this type of structure usually extends the relationship with the natural landscape.

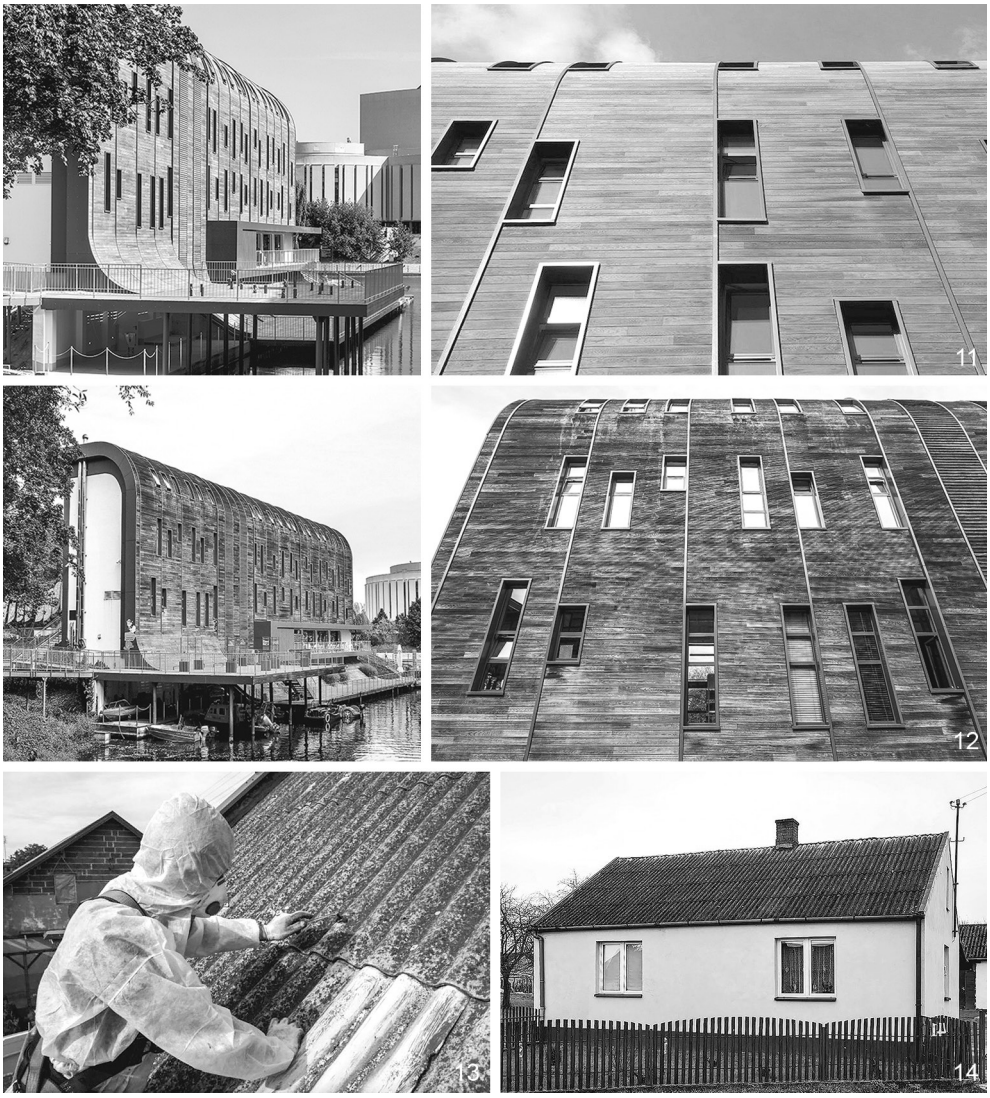
3.6. ASBESTOS IN POLISH ARCHITECTURE AS THE EXTREME IN THE MATERIAL CRITERION

The chapter based on the material criterion in the earlier part of the article discusses the situations in which the relationship between architecture and landscape, in the context of object aging, runs in extremely negative way. Toxic materials that exist in the world may pose

[8] *Stylowa przystań w Bydgoszczy*, source: http://www.bryla.pl/bryla/1,85301,12764118,Stylowa_przystan_w_Bydgoszczy.html (access: 16.06.2019).

a direct threat to the natural environment and in particular also to the health of living beings. On the basis of the problem with asbestos products, an analysis of factors that destructively affect relations between architecture and nature has been made.

Eternit was one of the most popular building materials in the 20th century. Asbestos-cement products were mainly used for covering roofs and façade of buildings. Material was



Ill. 11. Elevation of Bydgoszcz Harbor in 2012, source: http://www.bryla.pl/bryla/1,85301,13682874,-BRYLA_ROKU_2012__WASZE_OPINIE_.html
Ill. 12. Elevation of Bydgoszcz Harbor in 2018, author's photo
Ill. 13. Dismantling of the eternit panels from the roofs of residential buildings, source: https://dziennikzachodni.pl/mieszkancy-ogrodzienca-chca-wymieniac-dachy-z-azbestu/ar/12642850
Ill. 14. A single-family house in Osieki village covered with eternit, author's photo

often used in Poland at the turn of the 70s and 80s of the last century. In the 1990s, due to the discovery of asbestos's harmfulness to human lungs, mass-withdrawal of material from distribution was started. The Polish government adopted in 1997 the law on liquidation of asbestos from the economy and since 2002 a program of removing dangerous material from architectural objects has been implemented (Ill. 13). Currently, the problem still exists and current data say that over 6 mln. tons of asbestos has not been disposed yet.[9]

The single-family house visible in the Ill. 14 is located in one of West Pomeranian villages and is still covered with eternit roof. This is an example of thousands of Polish households that still haven't got rid of this carcinogenic material. The elapsing time causes the detachment of further asbestos fibers that are deposited in the respiratory tracts of humans and animals.[10] Objects such as this one may be in good relations with the natural landscape in terms of visual matters, however, the assessment of their long-term environmental impact on microbiology remains deadly dangerous. The lack of awareness of architects about the toxicity of eternitic products in the last century causes serious complications for new generations.

The example of asbestos in architecture was to show how great is the responsibility of builders for the state of nature today, and also in the distant future. It should be remembered that the aging process of a building can be irreversibly destructive to the environment.

4. CONCLUSION

Summing up the article's content, it is stated that architecture leads a constant dialogue between the past, the present and the future. Analysis of environmental factors was considered in three main criteria: landscape, stylistic and material. Based on the selected examples of architecture from Poland, most important features were discussed.

The situation in Koltina Kłodzka showed that the objects that have the strongest connection with the natural context are the traditional buildings of the region. The use of natural materials ensures that a sustainable aging process of buildings, often leading to the complete integration of architecture with a mountain landscape, will occur. On the other hand, modern buildings increasingly dominate in the surroundings over time. A large scale of objects often obscures the views of the mountain panoramas, also the materials and stylistics of the designed buildings can't provide them with a timeless character.

The Bobrowisko enclave showed the possibilities of harmonious co-existence of man and nature. Biology-inspired forms perfectly fit into the landscape of the surrounding wetlands. The manner in which this example is implemented, provides a secure future, in the context of the transitoriness of architecture.

A similar situation is also associated with the observation tower in Poznań's Szachty district. Thanks to the construction and material solutions used, the new height dominant merges with the place, where it was created and the durable materials used ensure its controlled aging process.

Comparison of the façade condition of Bydgoszcz Harbor from 2012 and 2018 gave an answer to the question about the influence of the material criterion, on the reception of architecture that is relative to the environment. The building, after only six years from its erection,

[9] *Azbest w Polsce*, source: https://wbdata.pl/mapa-azbestu-w-polsce/ (access: 19.06.2019).
[10] Obmiński A., *Azbest w budynkach*, Instytut Techniki Budowlanej, Warszawa 2017, p. 16.

is characterized by a clear violation of the structure of the natural plating. Thanks to this, the facility is stronger associated with the landscape, but in terms of material durability presents itself in a rather negative way.

The last of the examples discussed was the problem of asbestos in Poland. Material that is very toxic to the environment, is constantly disturbing the relationship between architecture and the natural context.

There is no doubt that the wider awareness of the creator, who will be able to predict the long-term consequences of his own design decisions regarding the environment, is crucial for sustainable construction. Architects bring with them a huge responsibility for the image of the world of future generations, because the buildings they design are usually structures planned for the next decades.

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[2] *Enklawa przyrodnicza Bobrowisko*, source: http://sztuka-architektury.pl/article/11932/enklawa-przyrodnicza-bobrowisko (access: 12.06.2019).

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[8] Witruwiusz, *O architekturze ksiąg dziesięć*, PWN, Warszawa 1956.

[9] Wrana J., *Architektura z poszanowaniem miejsca*, Budownictwo i Architektura, 2011, no. 9.

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