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NEW BUILDING TECHNOLOGIES IN THE CONTEXT OF REVALORIZATION OF A HISTORIC BUILDING
(ON THE EXAMPLE OF CONVERSION OF AN OLD DORMITORY INTO AN ADMINISTRATIVE OFFICE)

NOWE TECHNOLOGIE BUDOWLANE W KONTEKŚCIE REWALORYZACJI OBIEKTU ZABYTKOWEGO
(NA PRZYKŁADZIE ADAPTACJI BUDYNKU DAWNEJ BURSY NA POTRZEBY FUNKCJI BIUROWO-ADMINISTRACYJNEJ)

A b s t r a c t

Historic building adaptation connected with changing its use often makes architects apply modern building technologies, including latest materials and furnishing. It should be emphasized that nowadays adaptation of a historic building and introducing a new function into it, is often the only way to save it. This new function frequently requires a high level of finishing and furnishing the building in such a manner that it would fulfill current regulations. Such an investment is the revalorization of the old high school dormitory in Nowy Targ which is under conservation protection because of its location, form and architectural details characteristic for that part of Poland.

Keywords: historic building adaptation, new function in historic building, revalorization

S t r e s z c z e n i e

Adaptacja obiektów zabytkowych związana ze zmianą sposobu ich użytkowania często wymusza na projektancie zastosowania współczesnych technologii budowanych w tym nowoczesnych materiałów, a także elementów wyposażenia obiektu. Należy przy tym podkreślić, iż w obecnych czasach adaptacja obiektu zabytkowego i wprowadzenie doń nowej funkcji jest często jednym sposobem na jego uratowanie. Funkcja ta pociąga za sobą określony, niejednokrotnie bardzo wysoki poziom wykończenia budynku oraz wyposażenia go w taki sposób, aby spełniał wymogi obowiązujących przepisów. Przykładem takiej inwestycji jest rewaloryzacja budynku dawnej bursy szkolnictwa ponadgimnazjalnego w Nowym Targu, będącego z racji położenia oraz charakterystycznej dla tej części Polski formy i detalu architektonicznego pod ochroną konserwatorską.

Słowa kluczowe: adaptacja obiektu zabytkowego, nowa funkcja w obiekcie zabytkowym, rewaloryzacja

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1. Introduction

Currently, there has been a noticeable increase in the number of historic objects requiring revalorization, whose technical condition needs almost immediate conservation intervention. Such intervention necessitates investing considerable financial outlays, potentially exceeding the cost of erecting a new object with a higher standard of finishing and better technical parameters. Sometimes however, one cannot make a simple comparison between the historic and the new object, since the former possesses primarily non-material values such as its history, tradition and customs, concealed within its old walls. Besides those values, there are also several other arguments justifying protection and conservation of such a building [1]. They certainly are: historic, often practically unique architectural detail used within a specific region in the past, the building's location on a characteristic site in a given city or its shape designed in accordance with specific rules. Because of the high costs of modernization of historic objects, occasionally the only way to "encourage" an investor to carry out such a renovation is to convert the object and introduce a new function into it. Such a compromise between the investor, the owner of the historic building and the authorities responsible for its conservation protection has been accepted all over the world. For instance, in Germany and the Netherlands, it is allowed to convert unused sacred objects, thus saving them from falling into disrepair [2]. In Portugal, unused storehouses, post-industrial objects [3], tenement houses [4] and even whole quarters in city centres abandoned by their residents because e.g. too high cost of renovation, are being revalorized. Frequently, the only way to rescue such objects is to obtain permission from the conservation authorities to introduce a new function into the building, which would ensure a potential income for the new owners [5]. In most cases, those functions require a very high standard of building finish applying modern building technologies including the newest materials and elements of furnishing. Such a building, also has to meet all the current regulations.

2. The old dormitory building in Nowy Targ. History and description of its condition before project intervention

The building of the old dormitory in Nowy Targ is an example of an investment which was revalorized and its regional forms and details were highlighted again, owing to its adaptation and introduction of a new function into the building. The object is located in the city centre on the main street: Aleja Tysiąclecia. Because of its location within the conservation protection zone, just outside the city centre on the border of the downtown zone, the object is under protection of the director of the branch office in Nowy Targ, Lesser Poland Voivodeship Monument Protection Office (Ill. 1). The masonry building was erected in the mid-20th century, with a basement and 4 storeys (+ 1 subterranean storey). it was designed in the traditional style of regional architecture with distinct elements of Zakopane style [6]. That trend commonly occurs in the architecture of the Podhale region and the Nowy Targ Valley, and creates the characteristic features of the cultural landscape in that region. Since the moment of its erection, the building has served as a school dormitory for high school students from outside Nowy Targ. In recent years, its technical condition deteriorated (Ill. 2) and the old-fashioned infrastructure could no longer ensure appropriate accommodation or studying conditions for young people. Therefore, the object owner, the local administration authorities, decided to relocate the dormitory to another building. The situation caused the object, which for several decades had been an important element of the cultural landscape of the city, to lose its functions and users. One should add however, that the building has been a symbolic gateway into the city from the east.

Ill. 1. Old dormitory in Nowy Targ on the orthophotomap, [in:] Geoportal

Ill. 2. View of the dormitory building in Nowy Targ from the south (from Al. Tysiąclecia) before project intervention, November 2008 (photo: D. Kuśnierz-Krupa)

3. Object revalorization and adaptation

The object owner, the local administration authorities, decided to modernize the unused building, so that in future it can serve new office – administrative functions, as a seat of the County Starost. The investor set several very detailed requirements that the object was to meet after its adaptation had been completed. The building was to fulfill a formal function, while at the same time the costs of its realization and further exploitation had to be rationalized. It was assumed that the object revalorization would be carried out in two stages. In the first stage, work connected with the elevation modernization was completed and in the second, work inside the building was carried out.

3.1. Stage one of investment

The first stage of work connected with adapting the building to serve the office – administrative function was carried out from August till December 2012. Then, on the basis of project documentation[1] prepared by ZERIBA Designing Group, the object elevation was modernized and the roof covering was replaced. The colour scheme of the facade was kept in shades of grey. It was insulated by applying the Termo Organika system: 'Termonium plus fasada', using silver-grey panels 1000 mm long, 500 mm wide and 15 cm thick; produced on the basis of innovative raw material refined with a graphite composition, which added to granules during the polystyrene production process, it improves the insulating properties of panels, thanks to which better results of thermal insulation can be achieved. The roof was covered with roofing shingle-like sheets and painted granulated stone imitating traditional shingles, which covered the building roof in the past. Dormers and upper parts of gable walls were lined with wooden siding, which was painted and impregnated with water-soluble grey paint, to be applied outside. Window openings of the 1st floor were highlighted with light-grey 20 cm wide bands. In contrast, the window openings in the attic were highlighted with black bands. The stone facing on the ground floor, characteristic for the Podhale region, was cleaned and filled in. The main entrance from Al. Tysiąclecia was emphasised by a glass roofing spot-fixed to the elevation, which does not disrupt the architectonic composition of the south facade of the building. The entrance on the north side was emphasized with an openwork wooden construction (painted the same shade of grey as the dormers and roof gables) alluding to the architecture of the region.

[1] Grupa Projektowa ZERIBA (dr inż. arch. Dominika Kuśnierz-Krupa, dr inż. arch. Michał Krupa, dr inż. arch. Łukasz Wesołowski), Design documentation entitled: Transformation, modernization and altering the function of the school boarding house to serve the administrative-office purposes of the county administration, Kraków 2012, [in:] Archiwum Wydz. Administracji Bud.-Arch., Starostwa Powiatowego w Nowym Targu, s.v.

Ill. 3. Visualization of the revalorization project for the dormitory in Nowy Targ. View from the south-east, [in:] Archive of ZERIBA DG

Ill. 4. Visualization of the revalorization project for the dormitory in Nowy Targ. View from the north-east, [in:] Archive of ZERIBA DG

Ill. 5. Dormitory building from the south (from Al. Tysiąclecia) after revalorization, 2014 (photo: D. Kuśnierz-Krupa)

3.2. Stage two of investment

Stage two of the work connected with adapting the building to fulfill the office – administrative function commenced in May this year. The work has been carried out based on the above mentioned documentation prepared by the ZERIBA Designing Group. According to the project, after the investment has been realized, the building will have a total capacity of 12 816.5 m^3 and the utility space of 4273.2 m^2. The functional layout of the object will provide the best accessibility for prospective clients, while at the same time optimally using the existing space to serve office needs. In accordance with the functional programme, the basement was designed to house: archive rooms, storage rooms, a boiler room, maintenance rooms, utility rooms and server rooms. The ground floor encompasses: information desk and correspondence register, the County Council conference room, catering zone and office rooms. On upper storeys there are office and conference rooms allocated to particular departments.

Detailed guidelines from the investor and the designers' vision determined the need to use the latest technologies as far as building materials and system elements (plumbing and wiring) are concerned. On the other hand, the level of architecture is raised by appropriately applied natural materials, such as stone and timber, which allude to the architecture of Podhale. In the architectonic project of the interiors, the motif of original stone facing from the ground floor outside walls was repeated e.g., in general communication routes. The fact that the corridors were relatively narrow, it not only negatively influences their functionality, but also posed a problem in the safety regulations of evacuation routes. Using traditional stone tiles would have narrowed them additionally by at least a few centimeters (on each side) and in some places would have required providing an additional substructure. Hence it was decided that another material would be used, which has recently been introduced to our market, although e.g., in Germany it has been already used for several years. Stone veneer is produced in typical format sheets of 120 × 60 cm or bigger and up to 3 mm thick. Fiberglass mats are bound to the surface of a stone block (slate) using polyester resins. The binding force is so great that when torn off, a layer of natural stone remains stuck to the mat surface. Each sheet has a unique appearance, thanks to which surfaces lined with veneer look natural. Besides their aesthetic value, the sheets are flexible (can be laid on arched curves, especially after heating), light and easy to assemble. Because of their thickness, the sheets are easy to process and after impregnation they are also 100% waterproof.

In selected rooms of particularly formal character (such as the County Council conference room or the Starost's office with the meeting room) it was decided to finish the walls with wooden panels. High aesthetic requirements, as well as those technically connected with fire hazard (fire resistance) enforced the use of the latest technologies. Materials classified as A2-s1, d0 (the highest class of non-flammability for flammable materials) were selected. While selecting concrete products, as a reference point, the designers chose Gustafs panels, which apart from their high quality and technical parameters matching the project requirements, allowed for using identically looking elements in 3 different variations – typified by higher fire resistance and "acoustic" (perforated panels with various degree of sound absorption).

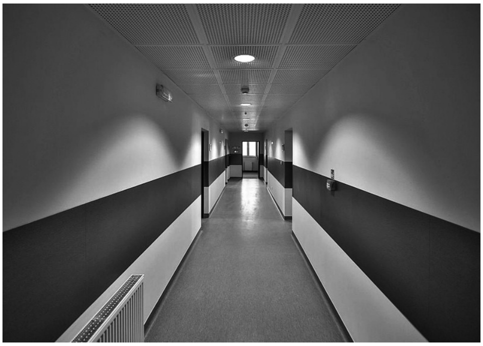
Finishing materials, used in the project on a larger scale because of their properties of increasing user's comfort, were suspended ceilings and fitted flooring. Naturally, system suspended ceilings are nothing new. Nevertheless in this case, the investor accepted the designers' arguments that in a building of such function and architecture, noise will be an issue significantly influencing the quality of work. That is why perforated soundproof ceilings have been fitted in almost all rooms meant for people and along the main communication routes. For similar reasons e.g., fitted tufted carpets were selected, which apart from muffling sounds, are very resistant to mechanical damage caused by office equipment or moisture. Moreover, they disperse electrostatic charges generated by electronic appliances.

Apart from building materials, an important issue are the proposed solutions concerning system installations and furnishing elements. Some of those will have a direct impact on saving energy or water etc. The project involves fitting solar panels on the south slope of the roof, which will help to provide hot utility water and central heating. It was decided that flat panels will be used, since their efficiency considerably exceeds that of the most frequently applied vacuum panels. Non-contact, photocell-controlled taps fixed on all the washbasins should help to limit the use of running water and therefore, the amount of produced sewage. It is estimated, that it will allow saving approximately 30–40% in comparison to traditional installations.

Ill. 6. View of the object interior after modernization – hall on the ground floor, 2014 (photo: D. Kuśnierz-Krupa)

Ill. 7. View of the object interior after modernization – County Council meeting room, 2014, (photo: D. Kuśnierz-Krupa)

Ill. 8. View of the object interior after modernization – customer service desk, 2014 (photo: D. Kuśnierz-Krupa)



Ill. 9. View of the object interior after modernization – hall on the 1st floor, 2014 (photo: D. Kuśnierz-Krupa)

Ill. 10. View of the object interior after modernization – County Administration Board meeting room, 2014 (photo: D. Kuśnierz-Krupa)

Ill. 11. View of the object interior after modernization – toilets on the ground floor, 2014 (photo: D. Kuśnierz-Krupa)

4. Conclusions

Summing up the above considerations, it should be observed that although designing new buildings **creates an opportunity** to apply new technologies, paradoxically conversions of existing buildings, particularly those of historic value, **frequently force** architects to use such solutions. It results from discrepancies between current regulations, requirements which particular functions have to meet nowadays and standards binding at the time when the building was erected. Suitably selected and applied technologies, including the latest finishing materials, offer designers a wider range of possibilities to highlight the most important and valuable elements of a historic object bearing evidence to its eventful past and rank.

References

[1] Jasieńko J., Kuśnierz K., Rouba B.J., *Konserwacja zabytków jako proces interdyscyplinarny – badania, nauka, technika, praktyka*, [in:] Kongres Konserwatorów Polskich, Publ. DWE, Warszawa 2005.
[2] Kuśnierz-Krupa D., Krupa M., *Nowe życie średniowiecznych kościołów z Maastricht*, „Wiadomości Konserwatorskie" 24/2008, Publ. ZG SKZ, Warszawa–Wrocław 2008, 103-106.
[3] Kuśnierz-Krupa D., *Portugalska szkoła konserwacji" – Muzeum Transportu i Komunikacji Eduarda Souto Moury w Porto*, „Wiadomości Konserwatorskie" 32/2012, Publ. ZG SKZ, Warszawa–Wrocław 2012, 31-38.
[4] Kuśnierz-Krupa D., *Konserwatorski profesjonalizm w Lizbonie*, [in:] *Karta Krakowska 2000 – 10 lat później*, A. Kadłuczka (Edit.), Monografia PK, Seria Architektura nr 400, Kraków 2011, 175-181.
[5] Kuśnierz-Krupa D., *„Portugalska szkoła konserwacji" – kwartał das Cardosas w centrum Porto*, „Wiadomości Konserwatorskie" 33/2013, Publ. ZG SKZ, Warszawa–Wrocław 2013, 39-46.
[6] Jabłońska T., *Styl zakopiański Stanisława Witkiewicza*, Publ. Bosz, 2008.
[7] Grupa Projektowa ZERIBA (dr inż. arch. Dominika Kuśnierz-Krupa, dr inż. arch. Michał Krupa, dr inż. arch. Łukasz Wesołowski), Design documentation entitled: Transformation, modernization and altering the function of the school boarding house to serve the administrative-office purposes of the county administration, Kraków 2012, [in:] Archiwum Wydz. Administracji Bud.-Arch., Starostwa Powiatowego w Nowym Targu, s.v.