Engineering diploma projects performed by students of the Faculty of Architecture as an investment proposal for the City of Oświęcim

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ABSTRACT: An agreement on cooperation in the field of investment proposal for the City of Oświęcim was concluded on 12 November 2014 between the Municipality of Oświęcim, Poland, and Cracow University of Technology (CUT), Kraków, Poland. Cooperation between the two parties resulted in an offer of guidance including the visualisation of the potential development of jointly selected areas of Oświęcim. It was on this basis that an investment plan was developed by two students, which was also their engineering diploma project. The project featured a hotel and conference centre in Stanisława Leszczyńska Street in Oświęcim. The designed facility is close to the German Nazi Concentration and Extermination Camp Auschwitz Museum.

Keywords: Engineering diploma project, investment proposal, cooperation, didactics

INTRODUCTION

In 2014, under an agreement on cooperation between the Municipality of Oświęcim, Poland (represented by the Town President) and Cracow University of Technology (CUT), Kraków, Poland (represented by the Dean of the Faculty of Architecture), there emerged a possibility for students of the Faculty of Architecture at CUT to develop an investment proposal addressed to potential investors [1]. Two final year students of second cycle programme (Inga Muszyńska and Ewa Pałka) took the opportunity and developed a design of a hotel and conference centre on a plot in Stanisława Leszczyńska Street in Oświęcim [2]. The opportunity to develop the subject based on the requirements included in the existing land use plan for the area, the 1:500 scale map for design purposes, the Construction Law [3], and in particular, the requirements of Regulation of the Minister of Infrastructure on the technical conditions to be met by buildings and their location [4] allowed the students to become acquainted with the true work of an architect, which involves frequent struggles with restrictions.

DEVELOPMENT OF INVESTMENT PROPOSAL

The basis of the development was the abovementioned agreement, the map for design purposes and the assumptions of the land use plan [5], as well as the draft and photographic land inventory, preliminary programme assumptions and mandatory construction norms and regulations.

The subject of the design study was the programme and spatial concept developed on a complex of plots identified by registration numbers 1150/78, 1150/112, 1150/114, 1905/6, 1905/7 in Stanisława Leszczyńska Street. The scope of the study consisted of an analysis of the existing land use and utilities, and determining the options and conditions for a public service building location in regard to the optimal use of the plot's area.

In the investment proposal, the students included basic information about the town's history, its significance, geographical location and local industry. They also provided the legal status of the plots, which are the property of the Municipality of Oświęcim.

Prior to the design phase, the students had conducted a draft and photographic inventory of the existing small buildings located on the abovementioned plots. The inventory also encompassed plot topography and greenery found in the area.

Further, the investment proposal presented the transport accessibility of the area and the existing elements of utilities infrastructure including sewage and rainwater networks, the gas transportation system, electro-energy and water supply systems, and telecommunications installations. The students also included the information that the plots were not subject to conservation policies, were located outside areas affected by mining, and that there was no risk of landslides and floods in the region.

In the description of the offer, one can also find information on the acceptable use of the land in line with the land use plan, the required land use planning parameters and floor area ratios, e.g. the maximum floor area ratio - 0.5, the minimum percentage share of biologically active area - at least 20%, maintaining setback distance, maintaining distance from the technical infrastructure network in the insulation and protective zones, the options for building location within the plots, the use of flat or pitched roofs with symmetrical slopes, providing parking spaces within the plot intended for investment in the amount of at least 1 space per 40 m^2 of the total area of the public service building and a minimum of one space for each flat.

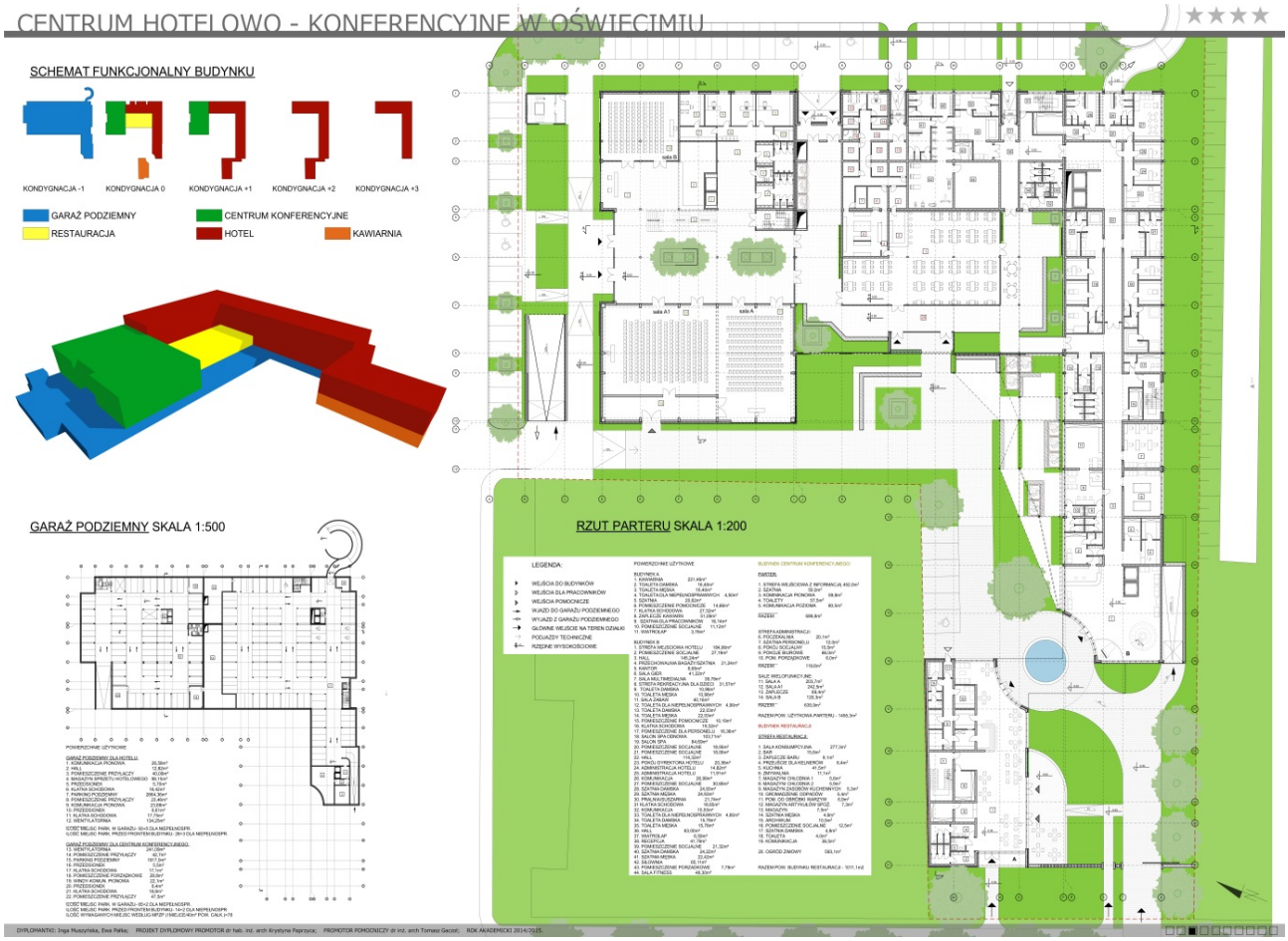

Figure 1: Hotel and conference centre in Oświęcim. Ground floor and underground garage plan and functional layout of the building [2].

Further information provided by the students included the adopted highest level of investment on the given plots. The construction of a taller building connected with lower parts facing Leszczyńska Street and the access road from the north-west side was planned. The higher part is of the maximum allowable building height, i.e. 15 m - 4 floors.

The front facility is 11.7 m high including three floors, while the congress centre part is 11 m high - two floors. The underground parking was designed for a total of 165 vehicles including seven parking spaces for the disabled. Moreover, the plot offers 45 parking spaces.

The buildings were designed by dividing them into individual *a*, *b* and *c* zones. The *a* zone consists of the congress centre with an entrance area, information desk, cloakroom, vertical access system, toilets, horizontal access system, administration zone and multi-purpose halls on the first floor. On the second level, there is a mezzanine, horizontal access system, foyer, toilets and multi-purpose halls.

The *b* zone houses the restaurant for 150 people with a winter garden, covered with a green flat roof with skylights providing adequate light to the interior.

The *c* zone is the hotel.

The investment proposal ends with an assessment of the location and local conditions. Attention was focused on the attractiveness of the plot's location, access to technical infrastructure, the opportunity to build a large service facility on the site and good transport accessibility. In the concluding remarks, the fact that the area is covered by the local land use plan was emphasised, as it allows for a significant simplification of the whole investment process.

THE DIDACTIC PROCESS

There is a significant difference between developing a diploma project and preparing an investment proposal for the investor. In the latter case, several issues require exhaustive answers to be provided. The students encountered the requirements of the land use plan of the given area, where graphical attachment constitutes an integral part apart from the text for the very first time.

The students had to acquaint themselves with that study and answer several questions in accordance with its requirements. The design work was preceded by an on-the-ground inspection of the plots intended for investment. A series of field sketches and inventory measurements were performed, and photographs taken.

Figure 2: Hotel and conference centre in Oświęcim. The main entrance as seen from Stanisława Leszczyńska Street [2].

The conditions of the building plot's transport accessibility, services connections and scenic landscape values were pre-assessed. A preliminary decision as to the design solutions, concerning mainly the choice of material for elevations was also made. Clinker brick and glazed wooden windows and doors were chosen. Also in the initial stage, a decision was made to shape the body of the buildings - of both the hotel and the conference centre - in a way that would allow for the creation of an inner courtyard. In the courtyard, car traffic was kept to the minimum in order to create a pedestrian zone.

Another significant solution is the availability of the buildings directly from the surrounding area, which provides access to the designed zones for people with disabilities. After discussing these aspects, the author of the article as a co-supervisor made a decision about the independent design work [6]. It consisted of minimal interference in the architecture of the facilities by the author. The only forms of help offered to the students were corrections about fire safety, fire zones, evacuation routes, maintaining adequate distances and dimensions required by the regulations and assistance in designing the underground garage.

The students demonstrated their own inventiveness and provided the author with an abundance of technical-material solutions. The author also offered his assistance in the selection of the height of the rod-like construction elements depending on covered spans. Preparation of a board with details made in a large scale constituted an additional advantage of the work. It was a vertical section through the external wall of the conference centre facility, the glass façade of which was partly hidden behind an openwork wall of clinker brick.

In the final stage of the educational process, during the viva examination, the students had to discuss the project and answer several questions relating to design solutions. It should be emphasised that the students were highly motivated and prepared for their viva exceptionally well, as they knew the legal requirements imposed on such building and construction projects, the requirements included in the land use plan, and those set by the investor.

They discussed the project by dividing it into two parts, one concerning the hotel with restaurant and the other concerning the conference centre. Both students received a very good grade for the developed project and the same grade for the viva examination. Warm congratulations and thanks came from the President of the Town of Oświęcim who participated in the whole didactic process. In particular, he attended specially organised meetings, which were held every six weeks and resulted in certain changes being introduced into the design project by the students.

CONCLUSIONS

Preparing a graduation diploma project, which is simultaneously an investment proposal, may present a considerable difficulty, especially for the final year students of a first cycle programme. Nevertheless, it introduces an important aspect, namely the responsibility for the entire design process.

The design, however, was lacking because of limitations in work on the model in the urban planning scale. Unfortunately, the Faculty of Architecture at CUT does not have a models laboratory in which students could work to create architectural models of buildings. The author would like to emphasise that students coped with the set task very well. This was the result of their tremendous work, analysis and commitment.

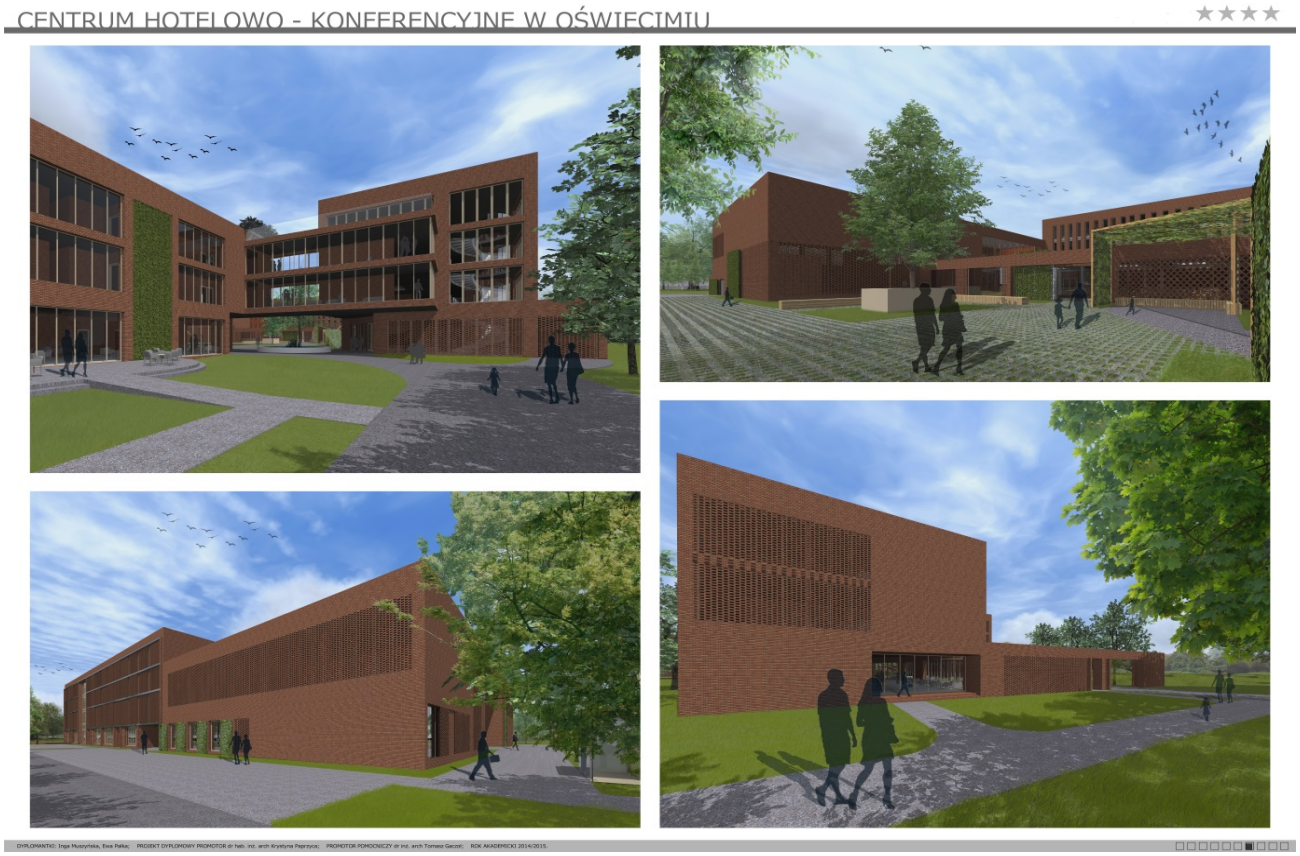

Figure 3: Hotel and conference centre in Oświęcim. Perspective view of the buildings [2].

During adjustments and the entire didactic process, the author had the feeling that he was participating in a project team, which, after all, is one of the most important determinants of success - i.e. teamwork skills [2].

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BIOGRAPHY

Tomasz Gaczoł was born in 1970. He graduated from the Faculty of Architecture at Cracow University of Technology (CUT), Kraków, Poland, in 1994 and received the degree of Master in Engineering Architecture. He, then, undertook doctoral studies, which ended in 2002 with a doctoral graduation based on a thesis entitled *Ventilation as a factor shaping the architecture*. Dr Gaczoł has been employed at the Institute of Building Design at the Faculty of Architecture (CUT) since May 2000. In 2004, he received the authority to design without restrictions. From 2012 until the present, he has been leading classes of civil engineering and building structures at the Faculty of Interior Design of the Academy of Fine Arts in Kraków. His research concerns problems associated with the natural ventilation of buildings. He is the author of architectural projects and peer-reviewed scientific publications, the subject of which are bound to the natural ventilation facilities. In 2014 and 2015, he won the second and the third prize awarded by the Student Council of the Faculty of Architecture at Cracow University of Technology *Archidydaktyk*.