

ON SUSTAINABILITY AND URBAN CONTEXT PRESERVATION: TWO DIPLOMA THESIS AT UAUIM BUCHAREST

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Abstract

The article has as a starting point a quote from a recent lecture that Rem Koolhaas, the world renowned architect and theoretician, has given to Harvard students and which is about sustainability and the real and substantial concerns on this extremely current topic. The subject is not new but it became a hot topic in recent years in both architecture critics and practice.

It is also one of the important topics that concern us within the University Department and a constant addition to the research topics proposed by our students for their final diploma projects.

As a tutor, together with my colleague PHD.Prof.Melania Dulamea, we seek along with our students the most profound approach to the problems of the modern city and try to provide viable answers and alternatives in their research projects.

The contemporary city and its development represent one of our major concerns. The current article is based on two diploma projects presented in this summer final jury at UAUIM Bucharest. Both projects propose different directions of investigation and adequate answers to the problems of the contemporary city and the way in which it can be developed sustainable and efficiently:

In the first case, Catalin Serbu discusses the conversion of a currently decommissioned historical building in a central area of Bucharest and how this building can be rendered to the local community in a gesture meant to repair and generate new urban activities.

In the second, Iulia Moraru explores the potential of an pos-industrial city, Ploiesti, and the ways in which research and new technologies can become engines for development and are in the same time capable to ensure a re-branding process for the post-industrial city.

KEYWORDS: SUSTAINABILITY, REGENERATION, CONVERSION, TECHNOLOGY, REBRANDING, COMMUNITY.

1. Introduction

At UAUIM there has been a constant concern over the last years regarding the problems of contemporary city and its development. We investigate through the studio projects the possibility to provide coherent and profound answers to the problems of the modern city. Ecology, sustainability aided by technology, in their deep and fundamental understanding are topics that came back constantly in the discussions of the semester juries and especially in the final graduation projects of our students. We try to provide balanced, consistent answers that go beyond a strictly technological approach that is too often shallow and subjective. We think of the city as a living mechanism which deserves to be carefully operated and in responsible and reasoned gestures that offer, besides innovation, a respect for the history, tradition, local context and values of the city in its ensemble.

One of the favorite themes of contemporary architecture, in terms of responsible development, increasingly discussed these days is the possibility to relate with the existing built heritage, the way it can be enhanced, re functionalized.

As the sustainability of contemporary cities has gained emphasis, there is an increased interest in architecture in particular, due to its social and public responsibility. Since sustainability is linked to public common values, research on sustainable spaces for the public is an important way to secure sustainability in cities. The aim of the study is to derive architectural methodology corresponding to local characteristics, and to suggest issues to consider in architecture design to promote urban sustainability based on this. First, regarding the environmental aspect, it can be observed that there is an effort to secure sustainability. Second, in terms of social sustainability, historical value remains as a witness of architectural place, so that it continues in people's memory. In addition, architecture provides public places where citizens can gather and enjoy programs, while the architectural methods showed differences influenced by cultural conditions.

The second scope is social sustainability, which aims to preserve historic buildings and places, to preserve social customs, and values, and revitalize local communities. Based on this, we aim to implement cultural and local identity, accessibility, security, and the redistribution of space. In addition, efforts should be made to develop local communities by the voluntary participation of residents, and to take over the cultural elements of the region in the process of urban development. The creation of architectural space to promote social interaction with local residents and to revitalize communities should be combined with equal accessibility to various social facilities.

It is our belief that it is essentially sustainable to preserve and reuse an existing built heritage rather than demolishing under any circumstances or building new, energy consuming assemblies. We believe in the power of aggregating community and urban life using to the maximum an already existing build environment with responsible resources and specific interventions.

During the tutoring process, discussing with our students on the topics of the graduation projects and it came out as an argument an interview recently offered by Rem Koolhaas, the well-known Dutch architect and theoretician about the meaning and significance of being responsible in contemporary society. On this occasion Koolhaas expresses his fears regarding a rather fashionable speech, facile and a less consistent where there is in fact a real problem:

But now sustainability is such a political category that it's getting more and more difficult to think about it in a serious way. Sustainability has become an ornament.

Together our aim was to get out of this trap with the proposed subjects.

2. Research Methodology

Research Methodology includes the materials, tools and method of the study. Our students research was grounded on studying the local archives, consulting the historical plans, understanding and studying the local and regional urban strategies, field visits, photographic studies, sociological investigation based on questionnaires, references and precedents used in similar situations in both local and international architecture.

The final diploma projects were carried out with three major stages:

- 1). A foundation study in which the premises and work strategy were presented as well as the opportunity for intervention. At this stage a map with a maximum number of twelve graphics and drawings was presented in front of a local university jury.
- 2). Pre-diploma and presentation of the written thesis that underpins the intervention. At this stage it was necessary to present the first intervention proposal with the drawn part and the layout of the ensemble accompanied by the theoretical work that had to contain a minimum of 10,000 words and which argued the project.
- 3). The Final project with the detailed proposal in technical execution specifications, detailed scale model of the whole existing context presented before a jury made up of UAUIM professors and guest professors from important universities in Europe, USA and Canada.

During the project the students benefited, besides the periodic guidance given by myself and Prof. Melania Dulamea, of periodic lectures and consultations with structural engineers and specialists for different related fields.

Part I: Urban Sustainability through Public Architecture - Conversion of an old factory

Catalin Serbu proposes an intervention in a central area of Bucharest, currently under damage and chooses as a study object a former symbol- factory of the 1930's - Cehoslovaca Factory.

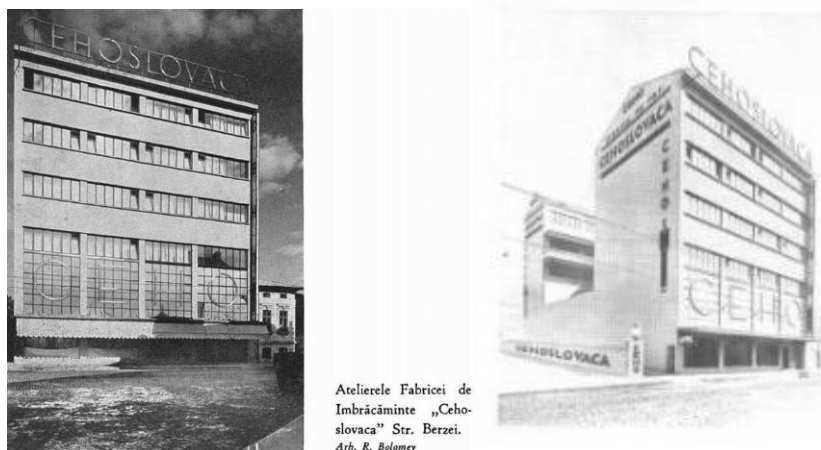


Fig.1 Cehoslovaca Factory and Outlet Store 1935. Arch.R.Bolomey © Catalin Serbu.

Archives study

The starting premise of the thesis is the importance of the place that bears the imprint of time, similar to the chapters of a book, which follow one another and show the path through the history. Urban revitalization involves not only the strictly physical renovation of a space or a building. Primordial is the preservation of collective or individual memory, vital in preserving the identity of a place. The thought of the *tabula rasa*, meaning demolishing and starting from scratch, of ignoring the pre-existing context represents the opposite of the conversion as a starting gesture. The quality of a conversion should also be deduced from the impact on the social and cultural life of the city.

The entire study area Buzesti-Berzei-Uranus is part of the Central Bucharest. It is also very important for the city infrastructure these days. Over the time, especially in the last thirty years, through massive infrastructure interventions, the layout of new boulevards and partial demolitions has altered the character of the neighbourhood. This had also direct implications for local communities and practices. Its character has been diluted by widening the streets and demolishing some symbolic buildings (the most important example is the iconic public market, Hala Matache).



Fig.2 The iconic Matache Market (now demolished) and the actual state of the old factory
© Catalin Serbu. Archives study

However, widening the boulevard increases the irrigation capacity of the areas and increases the prospects of the streets. The potential of re-using the existing building on site, a former garment factory that also had sales spaces, further supports the hypothesis of a conversion. The amplitude and character of the space can host functions and activities that bring back the local community, and further attracts people from outside, thus regenerating the entire area. The project proposes a co-working space, a creative hub completed with related functions.

In such a context, fragmented by aggressive demolitions and buildings left to degrade, an example of reuse can be set. By reactivating the whole urban context, new jobs, new sources of income can be generated through events or exhibitions, maintaining and promoting the local identity.

Industrial spaces are currently being swallowed up by cities, which are still developing outwards. In this way, the existing buildings placed in central areas, decommissioned or poorly used became inconsistent at the urban level. The conversion of industrial sites can be considered a component of urban revitalization, mainly by taking advantage of their central positioning. A space or a certain structure that has created its own story and relevance in history has also roots in the collective memory.

The antithesis to the conversion process is the attitude of the *tabula rasa*, meaning to demolish and build new structures. In some situations it is considered cheaper to build a from scratch rather than to refurbish the existing structure. Those who advocate for demolition confess a misunderstanding of the value itself of the architectural object and, beyond that, the ignorance of the special value of a possible symbolic gesture. In the same, time the size of industrial spaces is an asset for the conversion of such spaces. Their versatility to fit the needs of various functions is a strong argument for their reuse, but a holistic approach is imperative.

The theme of conversion is a viable solution to the problem of abandoned industrial sites. The reinterpretation of the old functions of the buildings represents a continuity that supports the identity of the place and of the surrounding community, beyond the financial, economic or even ecological considerations.

Thus, starting from these premises, the student rigorously inventoried the state of the building at the very present moment and identified the valuable elements and the areas of

possible intervention and completion. The local archives study helped also to re-compose the initial image of the building and helped in the decision of preserving and highlighting the initial structure and construction logic, the volume and facades, the original constructing material. Also it provided the arguments to remove the elements which came as a later addition and restore the initial structure. Further more the project proposes a series of new interventions, volume additions that are meant to help to streamline the urban image and to accentuate the public character of the building. These actions offer spaces for the community and give greater coherence to the whole ensemble.

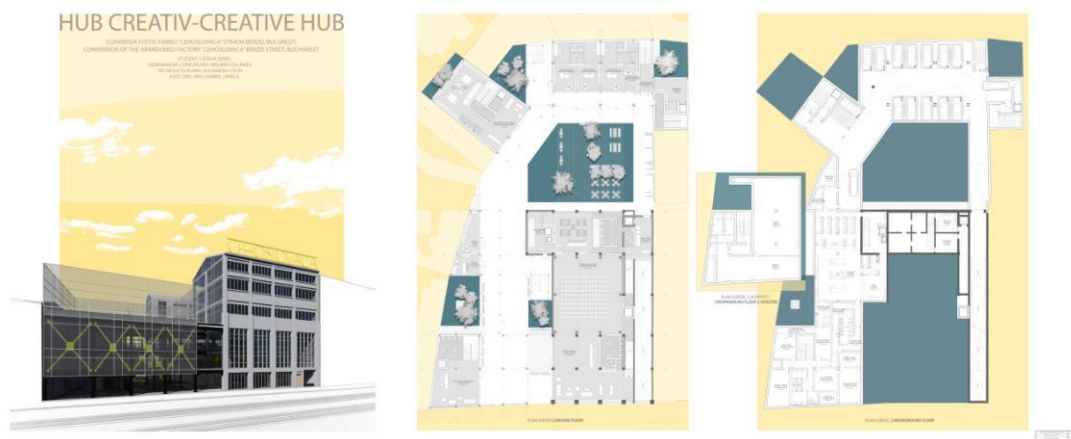


Fig.3 The new proposal for a creative hub © Catalin Serbu. Diploma project

The new interventions are marked both by the architectural form and by the materials in use, the new technology and construction techniques. Thus, an important building in the collective consciousness of the inhabitants, is presented to the city as a model of good practice and a possible engine of urban regeneration for the entire area.

The effects of the intervention will be noted at the community level as well. Re-activating the surroundings by adding a center of interest will increase pedestrian traffic, will also remove the fear generated by the occasional squatters of the buildings abandoned by the people. Naturally, by the presence of people and the increased level of safety in the area, the possibility of operating some other additional services is guaranteed.

The functional mix within the intervention will entail other activities that can be developed in the vicinity. The exhibition spaces, the library, or the canteen inside are opened to the general public. The possibility to host events due to the flexible main space reinforces the possibility of attracting people from outside. Bars, restaurants or shops will be able to operate due to the community attraction and tourism in the area.



Fig.4 New forms of public space. Additions to the main building © Catalin Serbu. Diploma project

A transparent approach, in which both working people and visitors can see each other, promotes activities and stimulates participation. Treating the ground floor as open as it can or glazed further supports this principle.

The return to the initial morphology of the building and to the key elements of the initial project, by restoring the facades, removing the additions made in time, consolidating the structure and restoring the details all contribute to the recovery of the place identity. The new intervention, in addition to the existing one, has a complementary materiality and color that helps the readability between the intervention and the successor.

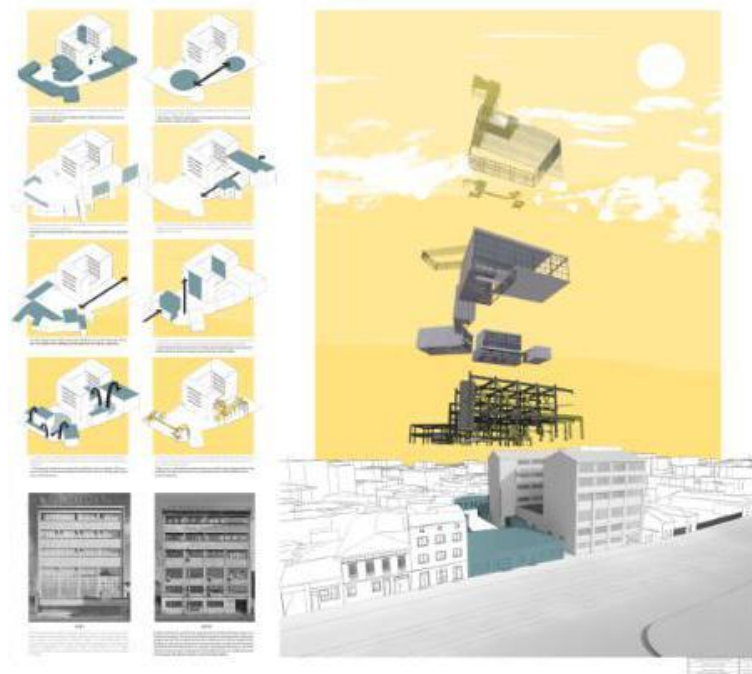


Fig.5 Diagrams and the scenario for intervention © Catalin Serbu. Diploma project

Affiliation with the creative industries should in the end considered the next step. The Hub can promote local artists and craftsmen through events, available rented spaces or by offering courses and facilities that will add value to their professional approach. Thus, it can become a desirable destination for professionals in related fields.

Part II: Urban Re-branding through Sustainable Architecture - Research Center for the Ploiesti University Campus (UPG)

Iulia Muraru researches the symptoms and the reasons behind the degradation of post-industrial cities over the last thirty years. It is a common phenomenon in Romania, where as a result of non-involvement and poor management decisions of the authorities together with the decline and closure of highly competitive industrial branches, migration and population decline, a whole series of localities face serious problems both of economic nature and, especially, with wider social and cultural implications in losing a specific identity.

For the last three decades, many of the Romanian industrial cities are in a process of contraction and loss of identity. It is a phenomenon described as *Shrinking-Cities*. This is also the case of the city of Ploiesti, located at a distance of about 50 km from the country's capital, Bucharest. It is a city whose image is built from the incipient forms of the Industrial Revolution in the 19-th century on the domestic territory, through the apparition of the first oil refineries. The urban DNA of Ploiesti is in the extraction of oil, and its strategic importance is confirmed even by the bombings during the Second World War. This positive image receives continuity during the communist period (1947-1989) by associating with the scientific ideology, the technical progress and the promotion of the engineering profession at national level.



Fig.6 Ploiesti after bombing in WW II. 1943© Iulia Muraru. Archive study

Once a flourishing economic city, the main center of the Romanian oil industry, the city is currently experiencing a visible decline. The phenomenon manifests itself with variable dynamics and can be observed at a careful urban reading, through its effects on society, urbanity, economy and even architectural landscape.

The stagnation and abandonment of the industrial infrastructure, as well as the low visibility of the university profile campus offers a static image of the city, almost a museification of the engineer era.

The research aims to search for a possible model of urban *re-branding*, based on the existing resources and identity, at three different scales of action in time: the scale of urban policies for education and research, the architectural scale of the UPG university campus and the landscape scale. It is therefore an image with consistency, the identification of clear and motivating values, the assumption of a personal mission.

The thesis investigates with theoretical and technical tools the idea of symbol, brand, and image of the city, starting from the hypothesis of participatory actions, which will outline the new image of Ploiesti in the collective mind through a new architectural landmark on the campus of UPG (University of Petrol and Gas): The Biotechnology Research Laboratory - Biotech CUBE- and a series of punctual actions in the built and vegetated landscape of the campus. The postindustrial city can be a city of a "*slow revolution*" (see also Mumford), of a consciousness awakening towards the re-approximation of nature through biotechnology.

The major concepts with which the proposed project operates are:

Postindustrial image = the image of a city whose main economic activity is no longer based on industry.

Urban branding = a strategy that aims to create an image or cultural significance for cities, which should function as a source of added and symbolic value .

Biophilic Design = A concept defined by Theodor Harasim in his presentation at the "Leaving Gray Living Green" conference as a concept for the "*increase connectivity of the occupants with the natural environment by using of the direct and indirect natural conditions of space and location*".

Iulia uses archival research and sociological investigation to establish a real diagnosis of the current state of the city. The research of the urban development and configuration, the historical premises and the stages of the development, the context of the emergence of the university center and the current general state provide the basis for a coherent intervention strategy.

The Oil District is thus identified as an element of the city (a neighborhood), which mainly contains educational functions, especially by the presence of the two high schools with technical profiles and the University of Oil and Gas. We can consider this neighborhood as an essentialization on a smaller scale of the industrial Ploiesti identity. UPG University itself represents a mental landmark both locally and nationally, being the only

academic environment with a technical profile oriented to the extraction and processing of oil and gas fields.

Also, UPG is an ensemble designed in the modernist style of the 1970s, with the architectural language specific to the prefabricated and thus of the "architect-engineer" era.

The architecture of the ensemble expresses the rational and technique-oriented values of the period, common with one of the ideal professions of the time in Romania - that of an engineer.



Fig.7 UPG image from a postcard. 1975 © Iulia Muraru. Archive study

The Oil and Gas University in Ploiesti is a physical and mental landmark for the city. (see Kevin Lynch's book "Image of the City"). It was actually founded in 1948 in Bucharest, in response to the need to train a large number of engineers for the oil industry, and in 1975 it was to be relocated to Ploiesti, nicknamed at that time the "Capital Of Black Gold". The demand for oil specialists was at that time constantly increasing, due to the constant development of refineries on the territory of Ploiesti. The presence of the University contributed to the international affirmation of Ploiesti, attracting students from all over the world. The University's reputation has also been shaped by the perception of the engineering profession in the collective mind, becoming a true brand of the city.

The global promotion of the engineer status given by the market demand at that time has directly contributed to the increase of competitiveness and to the development of the University. However, the effects of contemporary globalization as well as those of the technological revolution are fading in all cities of industrial character. With the closing of most of the refineries, factories and industrial services in Ploiesti led also to decreasing the

competition in the specific sections of the university which is currently facing a shortage of funds and students. This justifies the need for adaptation and reorientation towards new territories such as biotechnology.

Currently, the research activities are the ones that bring the most funds for the University, and with their support would benefit the entire academic community, contributing, at the same time, to the economic development of the city. The study and the research activities in this field would reinstate the University in the current context of the needs of a post-industrial society.

A possible direction of study would be the methods of soil contamination, the problem that currently affects large areas of the city. Thus, the University would not only come up with an answer to a local problem, but could, through research, deliver results of international importance. Also an advantage would be the proximity of the polluted industrial sites, facilitating the combination of the work in the laboratory with the field studies - *Phytoremediation*.

A relatively new field, but with significant potential is *phytoremediation* - "a process of using plants for removing, transferring, stabilizing and destroying pollutants from soil and sediments". This may be an answer to the problem of large areas of polluted soils - an important problem of Ploiesti - and a much less expensive alternative to the current methods. Phytoremediation can thus be one of the study areas of this research center, with the benefit of providing researchers with the possibility of field study - the former Astra Refinery is in the immediate vicinity of the university campus.

The building itself is a structural and technological experiment: double skin facades, a glass cube supported by a special structure. The project relies on transparency and interaction with the university community. An ovoid multifunctional room is suspended inside the cubic volume. The ground floor is entirely free and works as an extension of the existing green space, thus becoming a promenade, path and public space for student interaction.



Fig. 8 Biotech CUBE © Iulia Muraru. Diploma project

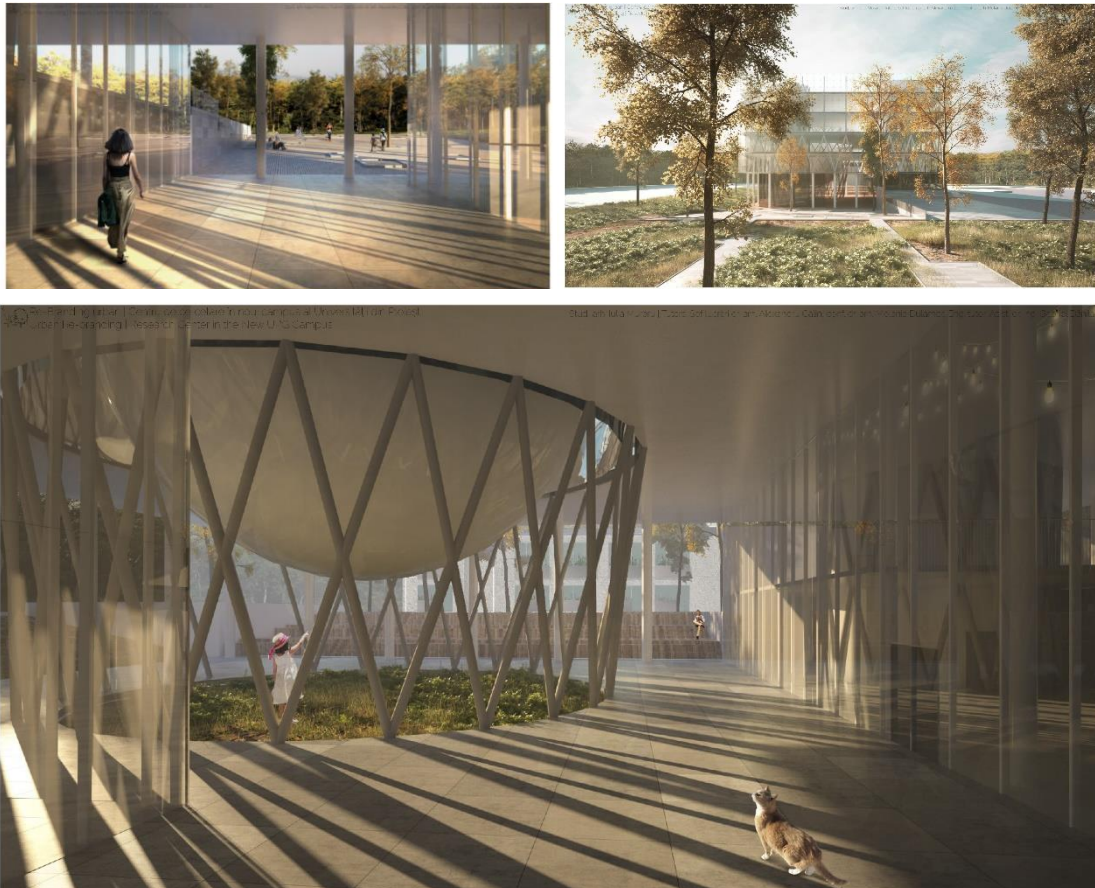


Fig. 9.10.11 Biotech CUBE. Public space and exterior view © Iulia Muraru. Diploma project

3. Research Results

Research Results tell the clear result of the study. From the technical specifications provided by the students research in the design process and the technical details shown in the final layouts of each project one can have a better understanding on how much the quality of the products and the technology helped the students achieve better building performances in terms of sustainable design and performance. Globalization plays a defining role in this building design process as well. Having the opportunity to access various types of information and references also means a better possibility to achieve outstanding results in the design process.

In the first case it was mostly the case of adding a new independent structure and skin that could work together with the existing building without overshadowing it. It was so that the final decision was to work with metal and glass, a rather light structure that can also provide transparency and a good dialogue with the existent surroundings and the street.

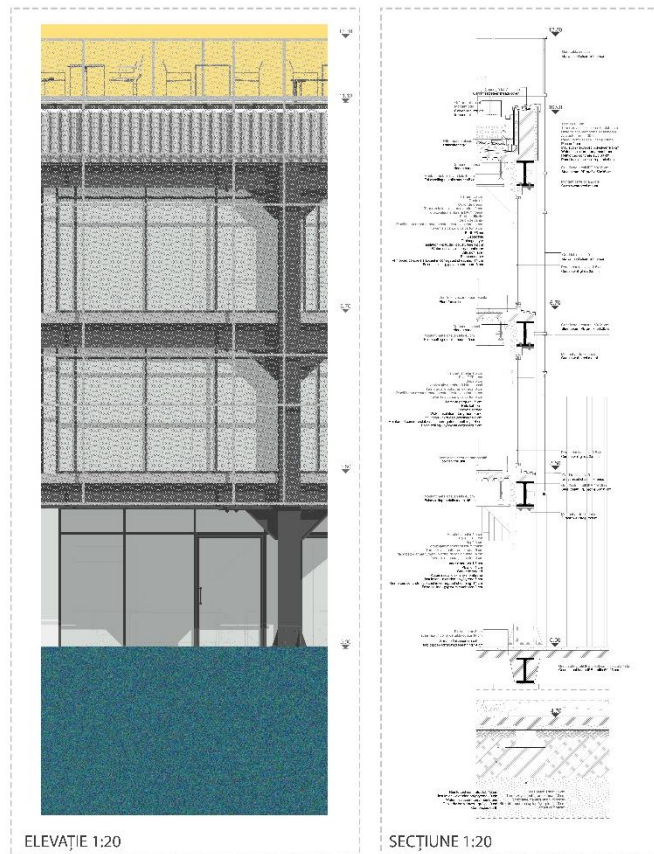


Fig. 12 Additional volume to the Cehoslovaka Factory. Facade and cross section in details
© Catalin Serbu. Diploma project

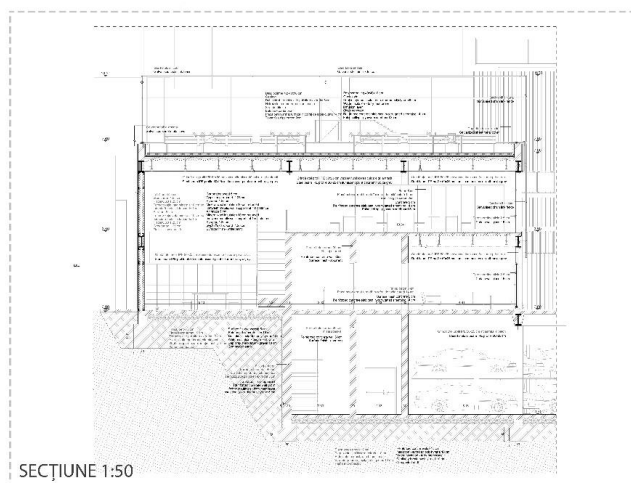


Fig. 13 Additional volume to the Cehoslovaka Factory. Cross section in details © Catalin Serbu. Diploma project

The second case is more about working with new technology and trying to achieve good performances as well as creating an iconic building for the campus. It was also a matter of transparency: towards the site and the public, towards the interior and the lab and working spaces in the same time. On top of that, in the end a matter of structural effort for a building that should redefine the image and the future of UPG campus.

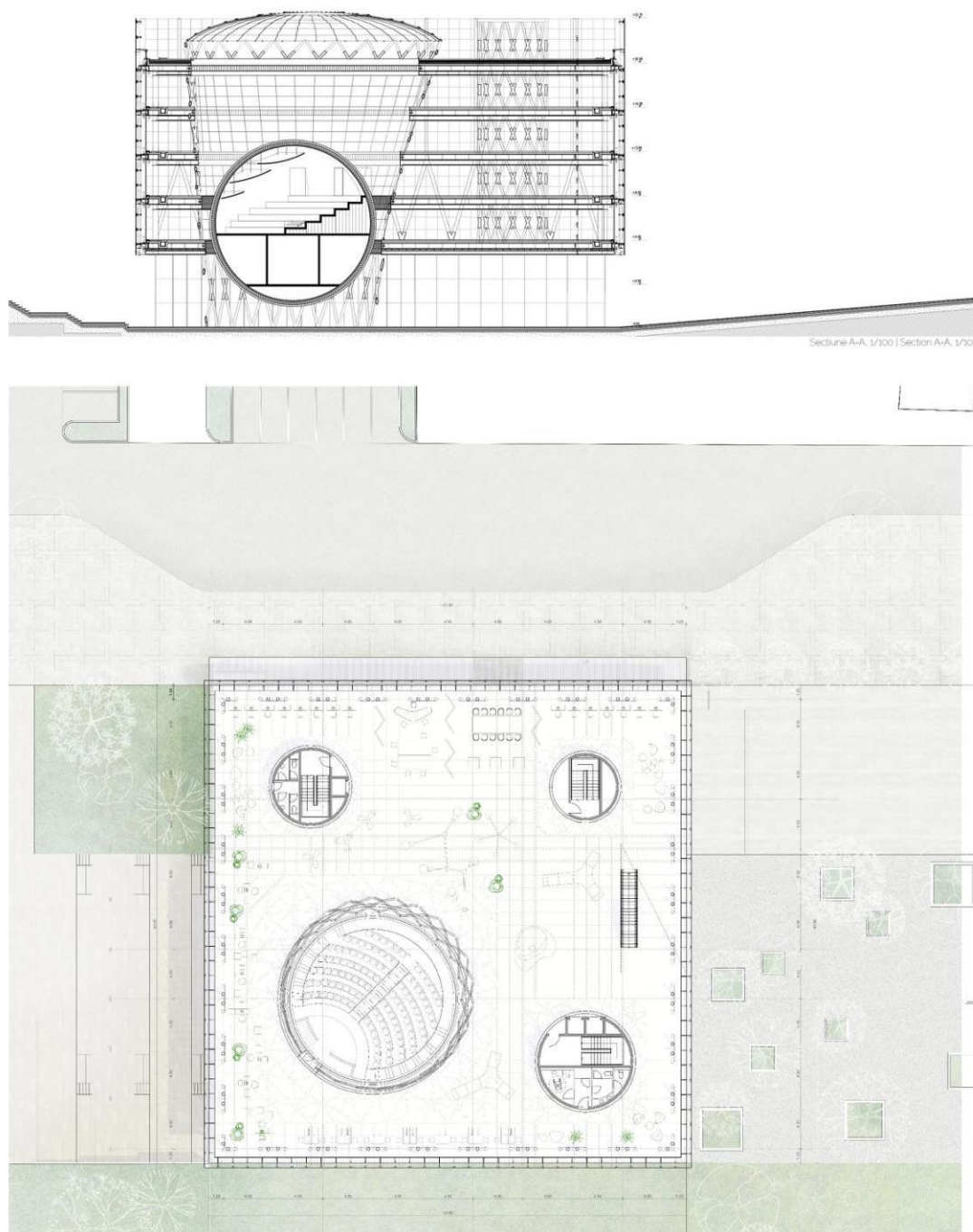


Fig. 14 Biotech CUBE. Plan and cross section © Iulia Muraru. Diploma project

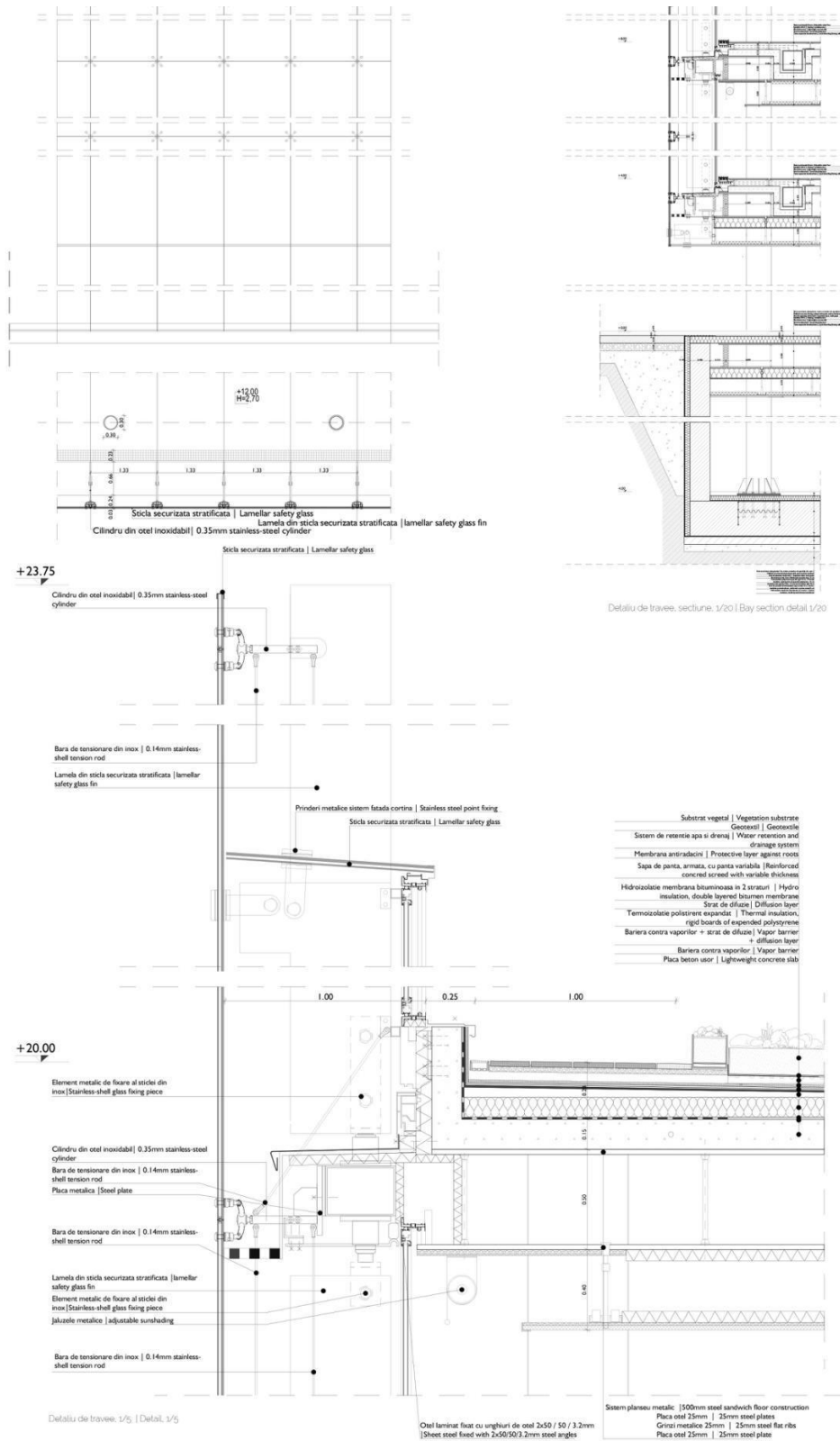


Fig. 15 Biotech CUBE. Technical details in cross section and facade © Iulia Muraru.
Diploma project

4. Conclusion and Discussion

Both studies results can be applied in several areas such as sustainability and permanence over time, materials, energy efficiency, proper land management and waste reduction as well as in more deep matters such as preservation, cultural identity, build heritage or economic sustainable growth.

Existing buildings represent a resource. The value of a building should not be measured by its economic potential but rather also on its social impact. If one looks at the economic components buildings have an intrinsic value. The built substance, the technical infrastructure and site development are all already present. Comparing with demolition and starting from scratch a simple renovation often represents significant cost savings. In addition the building and capital costs have already been amortised. As a result new value creation can be initiated through a conversion. In their architecture and appearance the still-existing buildings show their original use and meaning. They are witnesses of the past and part of the identity of a place. This is determined not only by prominent buildings but rather by the ordinary buildings of living commerce and production. In this sense buildings can have important social significance. People identify and orient themselves with them. If existing buildings are reused they remain an active part of the city's built fabric. A conversion is reasonable in terms of ecological considerations as well in the sense of sustainable economic activity resources could be saved (money, workforce, construction material, land consumption).

The concept of industrial heritage is in this study understood as industrial heritage from the age of technique and science. The importance of technical objects throughout history is due to their much slower organic degradation, as, for example, Mumford explains in his writings. These types of weather-resistant footprints have also resulted in an inevitable increase in artificiality in the human life environment, with notable medical and psychological effects.

The post-industrial city can be a city of a "slow revolution" (Mumford), of a consciousness awakening towards the re-approximation of nature through biotechnology. In search of a reinvented identity, Mumford anticipates an evolution of society from "*power to plenitude*", from a "*mechanical*" world to an "*organic*" one, centered on the human-nature relationship.

By carefully analyzing the proposed situations it can be concluded that this is obviously influenced by several factors: materials, experimentation with forms and the use of sustainability principles. The link between the three elements is consistent in many situations, their corroboration providing an architecture whose stake is the transformation of the consumerist society into a society that reports its needs to existing resources, sensitive to the same extent for the future. . Both had to experiment with the right forms in order to imagine a building that through design and conformation implies a minimum consumption of non-regenerative resources. Similarly, the use of modern, state-of-the-art

materials is the instrument by which both students choose to meet the requirements of BREEAM or LEED energy certification programs.

What is to learn from that experience is to prevent something that we, the architects, are often tempted to do: sacrificing the comfort, function or environmentally friendly approach by searching for some aesthetic qualities or egotistical approaches.

5. Acknowledgment

Acknowledgment goes to both my students for their effort in documenting the studies and trying to achieve the best results as well as my co-tutor partner, PHD Prof. Melania Dulamea for having me as part of this team. Both can offer ways and responses in the field of contemporary architecture.

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