XXIV INTERNATIONAL SCIENTIFIC CONFERENCE

DEFINING THE ARCHITECTURAL SPACE - ARCHITECTURE AND HISTORY

POSTER SESSION

XXIV INTERNATIONAL SCIENTIFIC CONFERENCE

DEFINING THE ARCHITECTURAL SPACE – ARCHITECTURE AND HISTORY – POSTER SESSION

Redaktorzy techniczni / Executive Editors:
Lukas Olma, Wojciech Ciepłucha, Matylda Wdowiarz-Bilska

Skład i łamanie / Typesetting:
Lukas Olma, Wojciech Ciepłucha

Projekt okładki / Cover Design:
Wojciech Ciepłucha, Lukas Olma

Przekład / Translations:
autorzy posterów (w poster session) / authors

Teksty / Text:
autorzy posterów (w poster session) / authors

Ilustracje / Illustrations:
autorzy posterów (w poster session) / authors

ul. Warszawska 24, 31-155 Kraków
tel.: 12 628 20 20

Kraków 2025

ISBN 978-83-904874-2-7

Nakład egz. 250

Cracow University
of Technology
80th Anniversary

WPROWADZENIE

Z wielką przyjemnością oddaję w Państwa ręce publikację jubileuszową zawierającą zbiór posterów naukowych i naukowo-dydaktycznych, zaprezentowanych podczas sesji towarzyszącej XXIV Międzynarodowej Konferencji Naukowej "Definiowanie Przestrzeni Architektonicznej 2025 – Architektura i Historia". Sesja posterowa została zorganizowana przez Wydział Architektury Politechniki Krakowskiej z okazji jubileuszu 80-lecia Uczelni. Wydarzenie to stało się wyjątkową okazją do zaprezentowania dorobku naukowego i dydaktycznego Wydziału oraz podkreślenia więzi łączącej badania i edukację. Współistnienie i wzajemne przenikanie się tych dwóch sfer pozwala kształtować rzetelnych, świadomych młodych twórców gotowych do kreowania nowych form architektonicznych, kształtowania przestrzeni oraz podejmowania wyzwań współczesnego świata.Prezentowane postery można podzielić na dwa zasadnicze nurty. Ich ramy ideowe zostały wyznaczone przez tezy sesji posterowej, wskazujące obszary refleksji nad przyszłością i wzajemnym powiązaniu dydaktyki i badań w nauczaniu architektury.

Pierwszy nurt obejmuje przegląd projektów badawczych, współczesnych zagadnień naukowych i prac dydaktycznych realizowanych przez środowisko akademickie Wydziału Architektury w Krakowie, a także na uczelniach w Gliwicach, Lublinie, Nowym Targu, Poznaniu, Warszawie czy Zielonej Górze. Ta część ukazuje różnorodny wachlarz działań w procesie dydaktyczno – naukowym, które w przyszłości wpłyną zarówno na sposób kształtowania form środowiska życia człowieka, jak i na rozwój teorii oraz rozwiązań praktycznych stosowanych w projektowaniu i planowaniu przestrzeni. Drugi nurt stanowi prezentacja procesu dydaktyczno – badawczego, który wiązał się ze zorganizowanym z dużym rozmachem i na wielką skalą Międzynarodowym Konkursem Studenckim CUT CAMPUS: Driven by Novel Approaches Competition dotyczącym opracowania koncepcji zagospodarowania terenów Politechniki Krakowskiej w Czyżynach. Przedsięwzięcie to o charakterze wspólnym, objęło całą społeczność Wydziału, a temat realizowany był w ramach wielu zajęć projektowych. Prezentowane na posterach fragmenty tego wysiłku ukazują szerokie spektrum podejmowanych problemów badawczych i dydaktycznych, a także kompleksowość i złożony charakter dyscypliny, jaką jest architektura i urbanistyka. Oba wątki łączy zbliżenie nauki i dydaktyki w celu poszukiwania coraz to lepszych rozwiązań odpowiadających na wyzwania współczesności i kreowania piękniejszej, lepszej przestrzeni w przyszłości.

Sesja posterowa, a w ślad za nią niniejsza publikacja dokumentują bogactwo podejmowanych tematów i zaangażowanie środowiska akademickiego. Mogą one stanowić inspirację zarówno dla nauczycieli akademickich, jak i dla studentów, którzy w swojej drodze badawczej i edukacyjnej odnajdują wzajemne powiązania.

Serdecznie dziękuję wszystkim Autorom posterów – badaczom, dydaktykom i studentom zrzeszonym w Kołach Naukowych za zaangażowanie i udział w tej sesji. Gratuluję kreatywności, pasji i naukowej dociekliwości, które znajdują swój wyraz w prezentowanych opracowaniach.

Magdalena Kozień-Woźniak
Dziekan Wydziału Architektury
Politechniki Krakowskiej I PK

INTRODUCTION

It is with great pleasure that I present this anniversary publication, which contains a collection of scientific and scientific-educational posters showcased during the session accompanying the 24th International Scientific Conference "Defining Architectural Space 2025 – Architecture and History." The poster session was organised by the Faculty of Architecture of the Cracow University of Technology on the occasion of the 80th anniversary of the University. The event provided a unique opportunity to showcase the Faculty's scientific and didactic achievements, emphasising the synergy between research and education. The coexistence and interplay of these two spheres enables the formation of reliable, self-aware young creators, prepared to design new architectural forms, shape space, and address the challenges of the modern world. The posters presented can be grouped into two main themes. Their conceptual framework was defined by the theses of the poster session, indicating areas of reflection on the future and the interconnection between teaching and research in architecture education.

The first trend encompasses an overview of research projects, contemporary scientific issues, and teaching initiatives undertaken by the academic community of the Faculty of Architecture in Cracow, as well as at universities in Gliwice, Lublin, Nowy Targ, Poznań, Warsaw, and Zielona Góra. This section presents a wide array of activities within the teaching and research process, which in the future will shape the human environment as well as contribute to the development of theories and practical solutions in architectural design and spatial planning. The second theme focuses on the teaching and research process linked to the large-scale International Student Competition CUT CAMPUS: Driven by Novel Approaches, concerning the development of the Cracow University of Technology site in Czyżyny. This joint initiative engaged the entire Faculty community, and the topic was covered across numerous design studio classes. The posters present fragments of this collective effort illustrating the wide spectrum of research and teaching issues addressed, as well as the complexity and multifaceted nature of the discipline of architecture and urban planning. Both themes are united by the convergence of research and teaching aimed at seeking ever better responses to contemporary challenges and at shaping a more beautiful and sustainable built environment for the future.

The poster session and this publication, documents the wealth of topics explored and the commitment of the academic community. It can serve as an inspiration to both academic teachers and students, encouraging them to find mutual connections between their research and educational paths.

I would like to express my sincere thanks to all the authors of the posters – researchers, teachers, and students associated with the Academic Clubs – for their commitment and participation in this session. I congratulate you on your creativity, passion, and scientific curiosity, all of which are reflected in the presented works.

Magdalena Kozień-Woźniak
Dean of the Faculty of Architecture of the
Cracow University of Technology I CUT

TEZY SESJI POSTEROWEJ

1. Rozwój wiedzy i technologii wpływa na obraz przyszłości. Nauczanie architektury i urbanistyki – to przekazywanie zasad i wartości wpływających na kształtowanie przestrzeni.

2. Historyczne style i zasady nie mogą być kopiowane, ale też nie powinny zostać zapomniane. Awangarda nie rodzi się w pustce. Wyrasta z tożsamości i pamięci – odnosi się do nich lub im zaprzecza. Kształtowanie przestrzeni to reinterpretacja.

3. Dzieła architektoniczne stanowią niekończące się źródło inspiracji. To medium przekazywania znaczeń. Jednak aby sięgnąć dalej, potrzebna jest wiedza i nauka.

4. Nauczanie architektury to budzenie kreatywności, która tworzy podwaliny przyszłości. Jej kształt formuje się z fragmentarycznych podejść, jak z puzzli powstaje spójny obraz. To wymaga odpowiedzialności.

5. Kształtowanie świadomych i rzetelnych twórców wiąże się z przekazywaniem wiedzy oraz z zaangażowaniem studentów w proces badawczy. Wiedza nie płynie tylko z góry na dół. Nauczyciele kształcą studentów, a oni nauczycieli. Dydaktyka i badania ściśle łączą się ze sobą. Prace studentów, warsztaty projektowe, koncepcje konkursowe są metodą procesu dydaktycznego, ale i narzędziem badań. Problem naukowy może zostać rozwiązany poprzez projekty.

6. W badaniach i dydaktyce poszukujemy odpowiedzi na problemy i wyzwania współczesnego świata. Jest ich coraz więcej. Chcemy poszukiwać piękna, projektować uniwersalnie, wprowadzać nowy europejski Bauhaus, wprowadzać zrównoważony rozwój, podejmować wyzwania klimatyczne, tworzyć ład przestrzenny. Wspólnie odkrywać "nowe".

7. Przyszłość Politechniki jest tłem naszych rozważań. Myślimy o architekturze i urbanistyce dla kampusu w Czyżynach. Chcemy, żeby jego przestrzeń była wizytówką miasta. Dlatego interesujące są wszystkie efekty łączenia badań naukowych i dydaktyki dla kreowania wizji przyszłości – budowy z fragmentów obrazu nowego świata

Matylda Wdowiarz-Bilska
Koordynator Sesji Posterowej

POSTER THESIS

1. The advancement of knowledge and technology affects the image of the future. The teaching of architecture and urban planning is the transmission of principles and values that shape space.

2. Historical styles and principles cannot be merely replicated, nor should they be forgotten. The avant-garde does not emerge in a void. It grows out of identity and memory – either referring to them or challenging them. The shaping of space is a reinterpretation.

3. Architectural works are an inexhaustible source of inspiration. They are a medium for conveying meaning. However, it requires knowledge and science to advance.

4. To teach architecture is to awaken creativity that lays the foundation for the future. Its shape emerges from piecemeal approaches, much like a coherent picture assembled from puzzle pieces. This requires responsibility.

5. Educating informed and diligent designers involves both the transmission of knowledge and the active engagement of students in the research process. Knowledge does not flow solely from the top down. Teachers educate students, and they, in turn, educate teachers. Teaching and research are intrinsically intertwined. Student work, design workshops, competition proposals serve not only as a method of the educational process, but also a tool for research. A research problem can be solved through design.

6. In both research and teaching, we seek answers to the problems and challenges of the contemporary world. There are more and more of them. We strive to pursue beauty, design universally, implement the new European Bauhaus, introduce sustainable development, address climate challenges, and create spatial order. Together, we aim to explore the "new".

7. The future of the Cracow University of Technology serves as the backdrop for our discussion. We reflect on architecture and urban planning for the Czyżyny campus. We envision its space as a hallmark of the city. Therefore, all outcomes that combine research and teaching to shape visions of the future are of interest – that construct an image of a new world from fragments.

Matylda Wdowiarz-Bilska
Poster Session Coordinator

POSTER SESSION

POSTER SESSIONS
SPIS TREŚCI / TABLE OF CONTENTS

POSTER SESSION – SCIENCE AND TEACHING IN SHAPING THE SPATIAL FORMS OF THE FUTURE

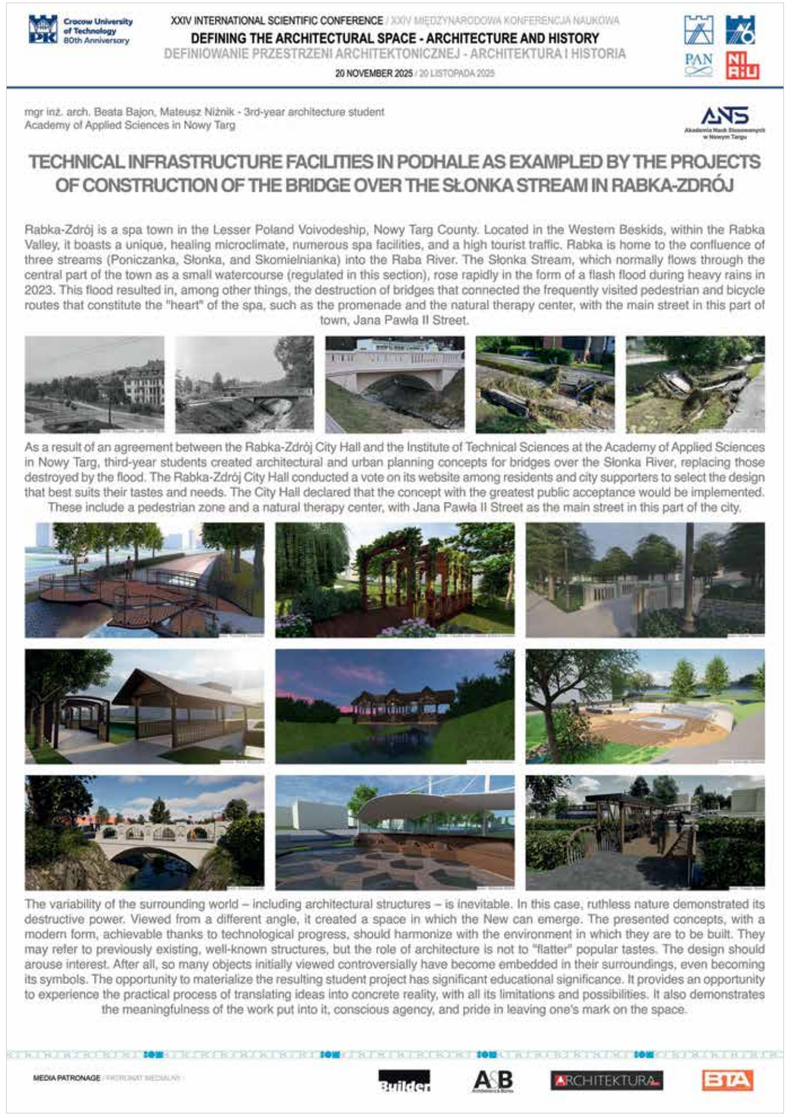
POSTER SESSION – SCIENCE AND TEACHING IN SHAPING THE SPATIAL FORMS OF THE FUTURE CZYŻYNY CUT CAMPUS

TECHNICAL INFRASTRUCTURE FACILITIES IN PODHALE AS EXAMPLED BY THE PROJECTS OF CONSTRUCTION OF THE BRIDGE OVER THE SŁONKA STREAM IN RABKA ZDRÓJ

BEATA BAJON
M.Sc. Eng. Arch., a graduate of the CUT and postgraduate studies in urban regeneration at the CUT. She is a member of the defunct Southern District Chamber of Urban Planners and the Society of Polish Town Planners. She has extensive knowledge of spatial planning and practical experience in urban design. Since 2014, she has been a teaching assistant at the Academy of Applied Sciences in Nowy Targ, as part of the Architecture programme. Since 2024, she has been a teaching assistant at the CUT, Department of Spatial Planning, Urban and Rural Design. She specializes in spatial structure, with particular emphasis on mountainous areas. Her interests include architecture, photography, and sports.

MATEUSZ NIŻNIK
A third-year student majoring in Architecture at the Academy of Applied Sciences in Nowy Targ, he graduated from the Stanisław Staszic Construction Technical School in Nowy Targ. He is actively involved in the university's Ad Quadratum research group, participating in numerous events within the group's activities. He actively participates in national and international architectural competitions and scientific conferences. He is interested in construction and technologies, both new and historical, as well as combining them or implementing old solutions in new projects. To gain practical knowledge and familiarize himself with the technologies and solutions used in construction practice, he undertakes summer jobs on construction projects.

AUTHORS OF THE PRESENTED WORKS:
Bartosz Ciszek, Klaudia Kowalczyk, Claudia Król, Dominika Michalik, Krzysztof Neupauer, Adrian Niemiec, Mateusz Niżnik, Kacper Sikora, Maria Słodyczka, Natalia Szklarz-Antołek



Crocow University of Technology 80th Anniversary

XXIV INTERNATIONAL SCIENTIFIC CONFERENCE / XXIV MIĘDZYNARODOWA KONFERENCJA NAUKOWA
DEFINING THE ARCHITECTURAL SPACE - ARCHITECTURE AND HISTORY
DEFINIOWANIE PRZESTRZENI ARCHITEKTONICZNEJ - ARCHITEKTURA I HISTORIA
20 NOVEMBER 2025 / 20 LISTOPADA 2025

mgr inż. arch. Beata Bajon, Mateusz Niżnik - 3rd-year architecture student
Academy of Applied Sciences in Nowy Targ

TECHNICAL INFRASTRUCTURE FACILITIES IN PODHALE AS EXAMPLED BY THE PROJECTS OF CONSTRUCTION OF THE BRIDGE OVER THE SŁONKA STREAM IN RABKA-ZDRÓJ

Rabka-Zdrój is a spa town in the Lesser Poland Voivodeship, Nowy Targ County. Located in the Western Beskids, within the Rabka Valley, it boasts a unique, healing microclimate, numerous spa facilities, and a high tourist traffic. Rabka is home to the confluence of three streams (Poniczanka, Słonka, and Skomielnianka) into the Raba River. The Słonka Stream, which normally flows through the central part of the town as a small watercourse (regulated in this section), rose rapidly in the form of a flash flood during heavy rains in 2023. This flood resulted in, among other things, the destruction of bridges that connected the frequently visited pedestrian and bicycle routes that constitute the "heart" of the spa, such as the promenade and the natural therapy center, with the main street in this part of town, Jana Pawła II Street.

As a result of an agreement between the Rabka-Zdrój City Hall and the Institute of Technical Sciences at the Academy of Applied Sciences in Nowy Targ, third-year students created architectural and urban planning concepts for bridges over the Słonka River, replacing those destroyed by the flood. The Rabka-Zdrój City Hall conducted a vote on its website among residents and city supporters to select the design that best suits their tastes and needs. The City Hall declared that the concept with the greatest public acceptance would be implemented. These include a pedestrian zone and a natural therapy center, with Jana Pawła II Street as the main street in this part of the city.

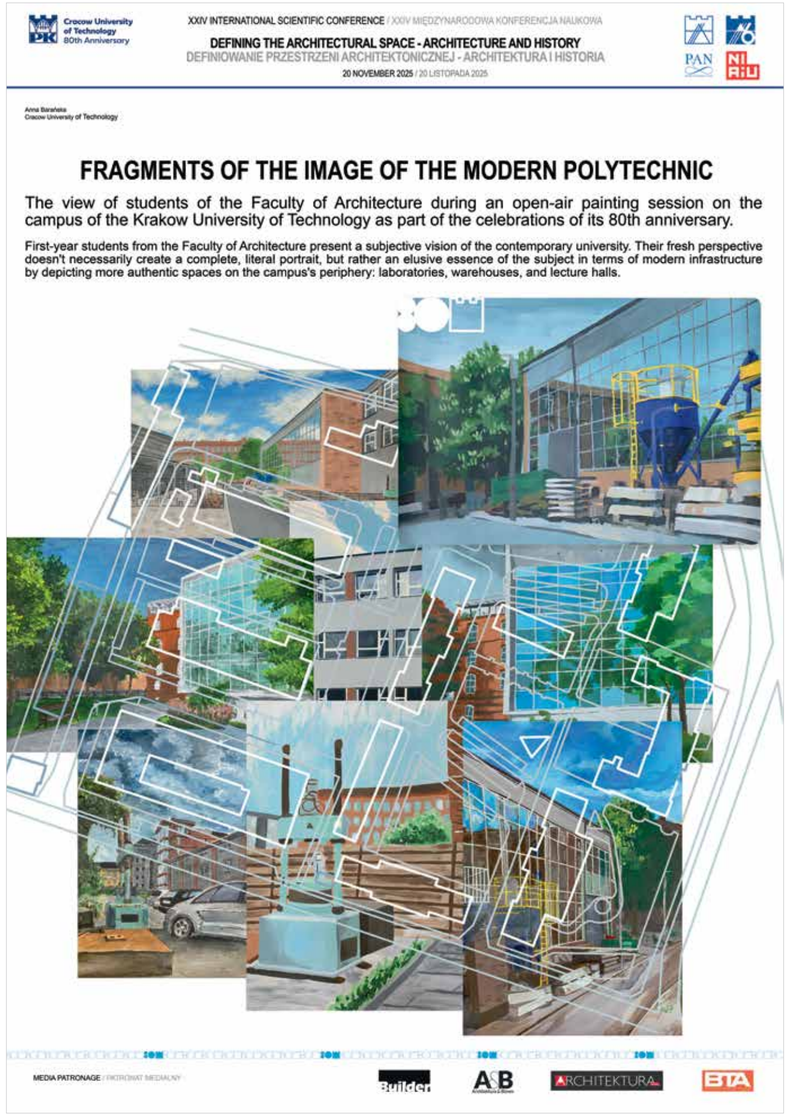
The variability of the surrounding world – including architectural structures – is inevitable. In this case, ruthless nature demonstrated its destructive power. Viewed from a different angle, it created a space in which the New can emerge. The presented concepts, with a modern form, achievable thanks to technological progress, should harmonize with the environment in which they are to be built. They may refer to previously existing, well-known structures, but the role of architecture is not to "flatter" popular tastes. The design should arouse interest. After all, so many objects initially viewed controversially have become embedded in their surroundings, even becoming its symbols. The opportunity to materialize the resulting student project has significant educational significance. It provides an opportunity to experience the practical process of translating ideas into concrete reality, with all its limitations and possibilities. It also demonstrates the meaningfulness of the work put into it, conscious agency, and pride in leaving one's mark on the space.

MEDIA PATRONAGE / PATRONAT MEDIALNY

FRAGMENTS OF THE IMAGE OF THE MODERN POLYTECHNIC

ANNA BARAŃSKA
M.Sc. Eng. Arch., CUT graduate. She has been working at the Chair of Drawing, Painting, and Sculpture since 2022. She holds a full architectural design and construction work management licence. She is the co-author of more than a dozen completed architectural projects.

AUTHORS OF THE PRESENTED WORKS:
Maria Gugałka, Jan Prusak, Anna Pulit, Weronika Purgal, Aleksandra Supersonic, Miłosz Surmacz, Natalia Wójcik, Julia Zwierzchowska



"GREEN CLASSROOM" PROJECT IN KRAKOW
A NEW, MOBILE SYSTEM OF EDUCATIONAL FACILITIES THAT TAKES RAINWATER RETENTION INTO ACCOUNT

AGNIESZKA CIEPIELA
Ph.D. Eng. Arch., an architect and urban planner who specialises in spatial planning, urban development and climate change adaptation in cities. Since 2014, she has been a research and teaching fellow in the Chair of Spatial Planning, Urban and Rural Design at the CUT. She is a member of the Krakow branch of the Society of Polish Town Planners and the Spatial Planning and Environmental Protection Section of the Commission on Urban Planning and Architecture Cracow Branch of the Polish Academy of Sciences.

JAKUB BŁACHUT
Ph.D. Eng. Arch., he has been employed at the CUT since 2004 as an assistant professor in the Chair of Spatial Planning, Urban and Rural Design. During more than twenty years of research and teaching work, he has dealt with issues related to urban spatial planning, broadly understood regional development, environmental protection and ecology, and urban development. His research focuses in particular on the development of areas related to air transport and the development of airport cities. Another important element of his work is the adaptation of urban areas to climate change. He is the author and co-author of numerous publications. He has collaborated on several research grants.

MARIUSZ ŁYSIEŃ
Ph.D. Eng. Arch., he graduated from the CUT in 2010. The following year, he began working at the same faculty. He defended his doctoral thesis in 2018. He received an award for his doctoral thesis in the 3rd edition of the Marshal Marek Nawara Competition for the best Doctoral, Master's and Bachelor's Theses in Lesser Poland. He is currently an assistant professor at the Chair of Spatial Planning, Urban and Rural Design, Faculty of Architecture, CUT. Member of the Lesser Poland Regional Chamber of Architects and the Society of Polish Town Planners.

Cracow University of Technology 80th Anniversary
XXIV INTERNATIONAL SCIENTIFIC CONFERENCE / XXIV MIĘDZYNARODOWA KONFERENCJA NAUKOWA
DEFINING THE ARCHITECTURAL SPACE - ARCHITECTURE AND HISTORY
DEFINIOWANIE PRZESTRZENI ARCHITEKTONICZNEJ - ARCHITEKTURA I HISTORIA
20 NOVEMBER 2025 / 20 LISTOPADA 2025

CIEPIELA AGNIESZKA[1,2], BŁACHUT JAKUB[1,2], ŁYSIEŃ MARIUSZ [1],
1. Cracow University of Technology; 2. Interdisciplinary Centre for Circular Economy Cracow University of Technology

"GREEN CLASSROOM" PROJECT IN KRAKOW

A new, mobile system of educational facilities that takes rainwater retention into account

Educational institutions in Poland often struggle with various problems, such as the lack of an adequate number of rooms or the poor technical condition of buildings. This is due to many factors, such as the age of the building, demographic trends, migration, political, social, historical and cultural conditions and, above all, financial conditions. In order to address these problems, the Cracow University of Technology undertook the implementation of the "Green Classroom" scientific project as part of the "Science for Society" programme of the Ministry of Education and Science. The Green Classroom is a mobile, free-standing educational facility consisting of a geometric arrangement of four basic modules (Fig. 1,2). Integrating this type of facility into existing infrastructure, especially in urban areas, requires the availability of suitable land, taking into account hydro-meteorological and wastewater conditions. This study presents a method using GIS tools to select school areas where it is possible to locate "Green Classrooms„, taking into account sustainable land retention. Based on typical rainfall for the city of Cracow, stormwater runoff was calculated taking into account the adopted "green classroom" module. An additional sealed area (a "Green Classroom" system) increases the rainwater run-off by approximately 1 m^3 (Fig.3). In order to balance the rainwater run-off, it is recommended to install a rainwater collection tank with a capacity of 1 m^3 next to the "green class" module. In order to relieve the sewerage system, especially in highly sealed urban areas, it is recommended to use above-ground or underground rainwater tanks. The size of the tanks should depend on the impervious surfaces and their number on the site conditions. Nomograms have been developed to estimate the size of tanks. (Fig. 5).

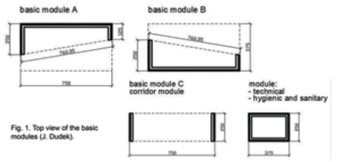


Fig. 1. Top view of the basic modules (J. Dudek).

Fig. 2. Examples of room arrangements for classrooms (J. Dudek).

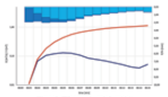


Fig. 3. Example of stormwater runoff from the roof of a "Green Classroom" building.

Fig. 4. Workshops with students from Krakow schools to develop guidelines for a modular, green classroom system.

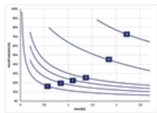


Fig. 5. Nomogram for selection of stormwater retention reservoir capacity.

Fig. 6. Examples of aboveground stormwater tanks VERDE tank manufactured by Impet ; JUMBO tank manufactured by Hydromil.

The Green Classrooms Project responds to the growing demand to improve the quality of educational space and increase school space by providing additional mobile classrooms. These can be used as classrooms or as multi-functional spaces such as a library, a study or a break area. The design is based on a modular system that can be easily adapted to the existing site conditions. A key element of the facilities are innovative ecological solutions such as rainwater retention systems and renewable energy installations. The development of rapid, cost-effective and energy-efficient solutions can provide an effective response to current and future emergencies, including the consequences of climate change.

Modular structures are designed to be more sustainable than traditional building methods. The proposed modular system is more environmentally friendly and energy efficient, which translates into long-term financial benefits. The use of advanced technologies and materials in such structures reduces energy consumption and carbon emissions. During the end-of-life phase, modular buildings can be dismantled and reused, while materials can be recycled, resulting in reduced environmental impact and promoting a more environmentally friendly approach to building design and management.

Furthermore, modular buildings frequently offer greater flexibility in terms of adaptation to changing educational needs. The ease with which existing modules can be extended or modified allows the school space to adapt to new curriculum requirements or increased student numbers. Modular system design allows flexible adaptation to different urban conditions. Such a solution can also contribute to the revitalisation and renewal of urban areas through the use of unused land and spaces between buildings.

A method for the analysis of spatial data available in the freely available QGIS software and basic hydrological calculations was developed. This method allows the adoption of potential locations and preliminary assumptions for the design of "Green Classrooms" facilities. The use of a typical rainfall distribution enables the performance of rainfall to runoff transformation calculations that correspond to the actual hydrological conditions in a specific area.

The utilisation of rainwater harvesting tanks, which are readily accessible, straightforward to install (mobile) and which can be integrated into the existing infrastructure, enables the reduction of the runoff of rainwater into the sewage system from school areas and the reduction of the associated costs. The retention of rainwater in the tanks allows it to be reused in non-fall periods, which, in addition to ecological considerations, also has tangible financial benefits.

The design guidelines for the modular green classroom system were developed in collaboration with primary and secondary school pupils in Krakow. Under the supervision of Krakow University of Technology employees, workshops were conducted to test the design assumptions of the system and promote the university.

Acknowledgments: The presented content is based on the article: Blazy, R., Bodziony, M., Baziak, B., Hrehorowicz-Gaber, H., Błachut, J., Ciepiela, A., Łysień, M., Dudek, J., Hrehorowicz-Nowak, A., & Synowiec, A. (2024). The example of the "Green Class" project in Krakow: a new, mobile system of educational facilities that takes rainwater retention into account. *Sustainability, 16*, Article 14. https://doi.org/10.3390/su16146157 ; Scientific work subsidized from the state budget under the program of the Ministry of Education and Science called "Science for Society" project number No5/544609/2021/2022 grant amount 1,637,268.00 PLN, total project value 1,647,268.00 PLN.

PREFABRICATED WOODEN STRUCTURES BETWEEN THE PAST AND THE PRESENT

ANDŻELIKA FIGAT
M.Sc. Eng. – Graduate Bachelor in Civil Engineering programme at SGGW in Warsaw and Master in Spatial Management programme at the University of Łódź, member of the Sustainable Architecture Academic Club "ARCHI-ECO-LAB" and the "EUROPA-URBIUM" Academic Club, operating under the Department of Architecture in the Institute of Civil Engineering at the Faculty of Civil and Environmental Engineering, Warsaw University of Life Sciences (SGGW) in Warsaw.

JUSTYNA JUCHIMIUK
Ph.D. Eng. Arch. – Assistant professor and researcher at the Institute of Civil Engineering, Warsaw University of Life Sciences. She received her Ph.D. in the field of the integration of renewable energy sources in architecture. She carries out interdisciplinary research in universal, inclusive and pro-environmental design in sustainable architecture. She has wide experience in architectural design, experimental teaching and organisation of the architectural workshops and summer schools. Supervisior of the Academic Club of Sustainable Architecture "ARCHI-ECO-LAB" and four thematic sub-groups.

MICHAŁ GOLAŃSKI
Ph.D. Eng. Arch. – Assistant professor and researcher at the Institute of Civil Engineering, Warsaw University of Life Sciences. He received his Ph.D. in field of parametric design of non-standard wooden structures. His research fields include the application of digital tools (Parametric Design, BIM, AI) in integrated architectural design process and DfMA (Design for Manufacturing and Assembly). He has wide experience in architectural design, experimental teaching and organization of the architectural workshops and summer schools.

MIKOŁAJ DONDEREWICZ
M.Sc. Eng. Arch. – Architect, 3D visualizer, author and co-author of various architectural projects. His professional achievements are related to conceptual, construction and execution projects, such as furniture, interiors, landscapes, single-family and multi-family buildings, as well as public and commercial projects. Frequent participant and awardee of architectural competitions, also at the international level. His interests concern pro-environmental and energy-saving solutions that fit into the contemporary trend of Eco-tech architecture. Ph.D. student at the Warsaw University of Life Sciences.

JACEK WOJCIECH KWIATKOWSKI
Ph.D. D.Sc. Eng. Arch., Assoc. Prof. SGGW – Architect and urban planner, university professor at the Department of Architecture in the Institute of Civil Engineering at the Faculty of Civil and Environmental Engineering, Warsaw University of Life Sciences (SGGW) in Warsaw. Expert in the theory of spatial concepts from the avant-garde period of the 1920s and 1930s. Specialization: barriers to urban development, new city-forming processes, issues of divided cities, urban and architectural theory. Academic supervisior of the "EUROPA-URBIUM" Academic Club and the thematic sub-group of the Sustainable Architecture Academic Club "ARCHI-ECO-LAB" – "FORM and SPACE", uniting students of the Faculty of Civil and Environmental Engineering at SGGW.

Crocow University of Technology 80th Anniversary
XXIV INTERNATIONAL SCIENTIFIC CONFERENCE / XXIV MIĘDZYNARODOWA KONFERENCJA NAUKOWA
DEFINING THE ARCHITECTURAL SPACE - ARCHITECTURE AND HISTORY
DEFINIOWANIE PRZESTRZENI ARCHITEKTONICZNEJ - ARCHITEKTURA I HISTORIA
20 NOVEMBER 2025 / 20 LISTOPADA 2025

ANDŻELIKA FIGAT, JUSTYNA JUCHIMIUK, MICHAŁ GOLAŃSKI, MIKOŁAJ DONDEREWICZ, JACEK. W. KWIATKOWSKI
Warsaw University of Life Sciences, Faculty of Civil and Environmental Engineering, Institute of Civil Engineering, Department of Architecture,
Scientific Circle of Sustainable Architecture "ARCHI-ECO-LAB" + Thematic Sub-groups: "DIGITAL-ARCHI-LAB" & " FORM&SPACE" | www.sggw.edu.pl

PREFABRICATED WOODEN STRUCTURES - BETWEEN THE PAST AND THE PRESENT

ABSTRACT
Prefabricated wooden structures have been a key element of architecture for centuries, combining tradition with modernity. Their development—from simple, hand-joined post and beam to advanced modular systems—illustrates how technology is transforming construction. Today, wood is experiencing a renaissance—as an ecological, lightweight, and energy-efficient material, it perfectly aligns with the needs of sustainable construction. Its use also supports the goals of the circular economy—wood can be easily recycled and reused, helping to reduce CO_2 emissions and mitigate climate change.

INTRODUCTION
Prefabricated wooden structures, historically considered synonymous with simplicity or makeshift solutions, are now gaining a reputation as innovative, sustainable solutions. Their contemporary applications not only address the demands of modern construction but also reflect a return to locality and respect for tradition.

RESEARCH PROBLEM
The scientific problem addressed is the practical design and technological problems of modern prefabricated wooden structures.

METHODS & TECHNIQUES
The research was conducted based on a systematic review of the scientific literature on prefabricated timber structures in the Scopus, Web of Science, Google Scholar, and ResearchGate databases. The review covered the period 2000–2025 and analyzed indexed publications with a particular emphasis on interdisciplinary approaches combining historical and technological aspects. A case study of the Choszczówka Public Library was included, illustrating contemporary approaches to timber prefabrication in Poland. The research process for prefabricated timber structures is illustrated as a step-by-step flowchart (Fig. 1).

Fig. 1 The research process

ANALYSIS
The key advantages of current prefabrication include reduced construction time, off-site quality control, design flexibility, and reduced environmental impact through recycling and reuse of wood. However, perceived barriers, logistical challenges, and the need for precise project coordination remain disadvantages. A SWOT matrix was developed presenting key aspects of prefabricated wooden structures (Fig. 2).

Fig. 2 SWOT matrix

RESULTS
The reviewed literature reveals the evolution of prefabricated wooden structures: from historical techniques of craftsmanship to contemporary large-scale modules utilizing advanced CNC cutting and joining technologies (Fig. 3). Examples from around the world (e.g., Scandinavia, Japan, and Canada) demonstrate the growing popularity of prefabrication in both single-family and large-scale construction. Contemporary building projects such as the Choszczówka Public Library in Warsaw demonstrate a successful collaborative design process of prefabricated wooden structures (Fig. 4).

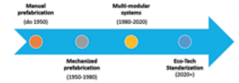


Fig. 3 An axial diagram of the evolution of prefabricated timber construction

Fig. 4 Choszczówka Public Library in Warsaw, Ambient 2023 (Photographs by authors)

CONCLUSION
Prefabricated wooden structures offer a sustainable building solution by leveraging the environmental benefits of wood as a renewable resource. Sourced from sustainably managed forests, wood stores carbon and has a lower carbon footprint compared to traditional materials like concrete or steel. The prefabrication process enhances sustainability by minimizing waste through precise factory production and reducing on-site construction time, thereby lowering energy consumption and emissions. Additionally, wooden structures can be designed for high energy efficiency, further reducing their environmental impact.

REFERENCES
1. Blanchet, P., Perez, C., & Cabral, M. R. (2024). Wood building construction: trends and opportunities in structural and envelope systems. Current Forestry Reports, 10(1), 21-38.
2. Gutierrez, N., Negrão, J., Dias, A., & Guindos, P. (2024). Bibliometric review of prefabricated and modular timber construction from 1990 to 2023: Evolution, trends, and current challenges. Sustainability, 16(6), 2134.
3. Noguchi, M., & Haddad, A. (2024). Prefabricated Construction for Sustainability and Mass Customization. BoD–Books on Demand.
4. Staib, G., Dörrhöfer, A., & Rosenthal, M. (2013). Elemente und Systeme: Modulares Bauen–Entwurf, Konstruktion, Neue Technologien. Walter de Gruyter.
5. Tavares, V., Calheiros, C. S. C., Martins, I. B., Maia, J., Tsikaloudaki, K., Fonseca, M. & Ungureanu, V. (2025). Modularity and Prefabrication. Circular Economy Design and Management in the Built Environment, 215.

Scientific Circle of Sustainable Architecture „ARCHI-ECO-LAB"
Faculty of Civil and Environmental Engineering
SGGW, Warsaw, Poland
www.sggw.edu.pl

Scientific Circle Supervisor:
Ph.D. Eng. Arch. Justyna Juchimiuk

"DIGITAL-ARCHI LAB" Thematic Sub-group Supervisors:
Ph.D. Eng. Arch. Michał Golański
M.Sc. Eng. Arch. Mikołaj Donderewicz

"FORM&SPACE" Thematic Sub-group Supervisor:
Ph.D. D.Sc. Eng. Arch., Associate Professor
Jacek Wojciech Kwiatkowski

MEDIA PATRONAGE / PATRONAT MEDIALNY :

MURALS AND STREET ART AS AN ALTERNATIVE MEMORY OF ARCHITECTURE – PART I

WERONIKA FLOREK
A fourth-semester undergraduate student in Spatial Management, pursuing her degree in an interfaculty programme at the CUT. She is an active member of the Academic Club "Young Urbanism", where she develops her interests in urban planning, public space design, as well as the concept of ecological and sustainable cities. Her academic focus is directed toward shaping urban spaces in ways that enhance residents' quality of life and support cities' adaptation to environmental and social challenges. Beyond her academic and research activities, she is also engaged in the university's sports community as a handball player representing the Cracow University of Technology.

PATRYCJA MAZURCZAK
A fourth-year student of Spatial Management at the CUT. Her academic interests include the history of urban planning, transport systems (with a focus on studying the capacity and load of public transportation networks), and the design of sustainable public spaces. She is also an active member of the Academic Club "Young Urbanism".

JAKUB TARGOSZ
A fourth-year Architecture student at the CUT. He is a member of the Academic Club "Young Urbanism". His interests include quality architecture, psychogeography, sustainable urban planning, and the design of urban spaces on both micro and macro scales. He is particularly interested in BIM technologies, especially Revit, and explores the relationships between city structures and user behaviour. In his free time, he develops his own DIY concepts and experiments with creating metropolises in Cities: Skylines – from functional analysis to aesthetics and flow. He is fascinated by architecture as a tool for organizing everyday life.

HANNA HREHOROWICZ-GABER
Ph.D. Eng. Arch., Assoc. Prof. CUT – Faculty of Architecture, Chair of Spatial Planning, Urban and Rural Design. She specialises in spatial structures, with particular emphasis on mountainous areas. Author of numerous academic publications and research projects in the field of urban planning and spatial development. Actively involved in research and educational activities. Her interests also include space and cultural landscape. She supervises the Academic Club "Young Urbanism".

ALICJA HREHOROWICZ-NOWAK
M.Sc. Eng. Arch., graduated from the CUT in 2020. In 2021, she also completed postgraduate studies in nature conservation named after Professor Stanisław Myczkowski at the University of Agriculture in Cracow. Her research interests focus on the spatial structure of cities, particularly green infrastructure and issues related to the protection of urban ecosystems. She is a member of the Society of Polish Town Planners (TUP), the Lesser Polands Ornithological Society (MTO), and the Polish Society for the Protection of Birds (OTOP). She actively participates in research projects and conferences devoted to the contemporary challenges of urban planning and nature conservation in cities.

MURALS AND STREET ART AS AN ALTERNATIVE MEMORY OF ARCHITECTURE – PART II

WERONIKA FLOREK
A fourth-semester undergraduate student in Spatial Management, pursuing her degree in an interfaculty programme at the CUT. She is an active member of the Academic Club "Young Urbanism", where she develops her interests in urban planning, public space design, as well as the concept of ecological and sustainable cities. Her academic focus is directed toward shaping urban spaces in ways that enhance residents' quality of life and support cities' adaptation to environmental and social challenges. Beyond her academic and research activities, she is also engaged in the university's sports community as a handball player representing the Cracow University of Technology.

PATRYCJA MAZURCZAK
A fourth-year student of Spatial Management at the CUT. Her academic interests include the history of urban planning, transport systems (with a focus on studying the capacity and load of public transportation networks), and the design of sustainable public spaces. She is also an active member of the Academic Club "Young Urbanism".

JAKUB TARGOSZ
A fourth-year Architecture student at the CUT. He is a member of the Academic Club "Young Urbanism". His interests include quality architecture, psychogeography, sustainable urban planning, and the design of urban spaces on both micro and macro scales. He is particularly interested in BIM technologies, especially Revit, and explores the relationships between city structures and user behaviour. In his free time, he develops his own DIY concepts and experiments with creating metropolises in Cities: Skylines – from functional analysis to aesthetics and flow. He is fascinated by architecture as a tool for organizing everyday life.

HANNA HREHOROWICZ-GABER
Ph.D. Eng. Arch., Assoc. Prof. CUT – Faculty of Architecture, Chair of Spatial Planning, Urban and Rural Design. She specialises in spatial structures, with particular emphasis on mountainous areas. Author of numerous academic publications and research projects in the field of urban planning and spatial development. Actively involved in research and educational activities. Her interests also include space and cultural landscape. She supervises the Academic Club "Young Urbanism".

ALICJA HREHOROWICZ-NOWAK
M.Sc. Eng. Arch., graduated from the CUT in 2020. In 2021, she also completed postgraduate studies in nature conservation named after Professor Stanisław Myczkowski at the University of Agriculture in Cracow. Her research interests focus on the spatial structure of cities, particularly green infrastructure and issues related to the protection of urban ecosystems. She is a member of the Society of Polish Town Planners (TUP), the Lesser Polands Ornithological Society (MTO), and the Polish Society for the Protection of Birds (OTOP). She actively participates in research projects and conferences devoted to the contemporary challenges of urban planning and nature conservation in cities.

Cracow University of Technology 80th Anniversary
XXIV INTERNATIONAL SCIENTIFIC CONFERENCE / XXIV MIĘDZYNARODOWA KONFERENCJA NAUKOWA
DEFINING THE ARCHITECTURAL SPACE - ARCHITECTURE AND HISTORY
DEFINIOWANIE PRZESTRZENI ARCHITEKTONICZNEJ - ARCHITEKTURA I HISTORIA
20 NOVEMBER 2025 / 20 LISTOPADA 2025

Weronika Florek – Spatial Management, 1st degree studies, 4th year
Patrycja Mazurczak – Spatial Management, 1st degree studies, 4th year
Jakub Targosz – Architecture, 1st degree studies, 4th year
Students' Scientific Association "Young Urbanism"

Supervisor(s):
Dr. Eng. Arch. Hanna Hrehorowicz-Gaber, Prof. CUT (Cracow University of Technology)
M.Sc. Eng. Arch. Alicja Hrehorowicz-Nowak
Department of Spatial Planning, Urban and Rural Design

MURAL TRAIL- BIAŁYSTOK TRAILS

Murals are gaining more and more interest every year, as evidenced by the city of Białystok, where new, noteworthy projects appear every year. Some of them can even be considered unofficial symbols of the city. An interesting fact is that in 2016, Białystok won the title of the city with the most interesting murals in the categories of largest, most beautiful, and most surprising. The capital of Podlasie beat 11 other cities, including Łódź and Gdańsk.
Street art has one significant disadvantage: it is not permanent. Therefore, tourist routes describing murals must be regularly updated. The map on the right shows the situation as of August 2021. It does not include all of the city's murals, but only some of them, which were created during festivals and artistic projects, as well as a few portraits and advertisements.

GRAFFITI AS A MANIFESTO

Banksy is a contemporary British street artist whose identity remains unknown to this day, which has largely contributed to his popularity and aura of mystery. He works mainly on walls and in urban spaces, using a stencil technique that allows him to quickly and precisely transfer his designs onto walls, often in public and illegal places. His work is recognizable for its strong social and political message. In his works, Banksy comments on contemporary issues such as war, social inequality, migration crises, violence, capitalism, consumerism, and the hypocrisy of the authorities and the media.

His works often use irony, sarcasm, and dark humor, which contrast surprisingly with the seriousness of the topics they address. Although his works are created on walls and are often vulnerable to destruction, they have gained enormous artistic and collector's value. Some of them have been protected by residents or city authorities, while others fetch staggering prices at art auctions.

Banksy also works in other forms – he organizes exhibitions, comments on reality through installations and happenings, always maintaining his anarchistic, critical attitude towards the art world and commercialization. His anonymity, the illegal nature of his activities, and his bold criticism of contemporary issues have made Banksy an icon of contemporary culture and one of the most influential artists of the 21st century.

Source: Private archive, Banksy Museum in Lisbon

Source: Private archive, Banksy Museum in Lisbon

MURAL AS EVERYDAY DECORATION

Murals not only have to moralize and convey a message in a harsh way, but they can also diversify the space in terms of aesthetics and make a place that was previously expressionless become an attractive space, full of colors and hues.
In recent years, murals have become an integral part of modern housing estates, as evidenced by the number of planned and already completed projects. An example of a mural that has been appropriately integrated into the space is the one located in the Vialo housing estate in Gdańsk.

MEDIA PATRONAGE / PATRONAT MEDIALNY :

THE FUTURE OF SPACE

AGATA GĄSOWSKA-KRAMARZ
She graduated from the Faculty of Architecture at Silesian University of Technology in Gliwice and the Faculty of Civil Engineering at Opole University of Technology. She holds a full architectural and civil engineering design and construction work management licence. She is the founder of her own architectural practice. Affiliated with the Department of Housing and Public Architecture Design, Faculty of Architecture, Silesian University of Technology, Gliwice, since 2019.

Cracow University of Technology 80th Anniversary
XXIV INTERNATIONAL SCIENTIFIC CONFERENCE / XXIV MIĘDZYNARODOWA KONFERENCJA NAUKOWA
DEFINING THE ARCHITECTURAL SPACE - ARCHITECTURE AND HISTORY
DEFINIOWANIE PRZESTRZENI ARCHITEKTONICZNEJ - ARCHITEKTURA I HISTORIA
20 NOVEMBER 2025 / 20 LISTOPADA 2025

AGATA GĄSOWSKA-KRAMARZ
Silesian University of Technology in Gliwice, Poland

Politechnika Śląska

THE FUTURE OF SPACE

Abstract
Human existence is full off unpredictability; each of us is different, each likes different things, each has different experiences, memories, and histories. Such inner beauty is proof of the absence of uniformity, and that humans are a strange creation of nature, of this world. Architects, as creators of living spaces, play with the products of their imagination, like painters evoking emotions with paintings, like sculptors reflecting individual beauty with sculpture. The response to today's architecture and perceived beauty, the essence of their philosophy, is the creation of contemporary space as an effect of eco-fascism amidst two hundred pairs of Chanel shoes and Armani suits, a surrealist mystification, a momentary flash on television screens, with no regard for caring for the natural environment, plants, animals, or ourselves.

Research Process
Searching for beauty and the philosophical aspect of being in space.

Fig. 1. Puppy
Jeff Koons, Guggenheim Museum
Bilbao, Spain
Source: https://thereaderwiki.com/en/Jeff_Koons

Fig. 2.The Wrapped Reichstag
Christo and Jeanne-Claude
Berlin, Germany
Source: https://epodreczniki.pl/a/sztuka-ziemi---emballage-christa/D18sx2eUH

Fig. 3. Floating jetties,
Christo and Jeanne-Claude
Lake Iseo, Italy
Source: https://www.m945.de/christo-walking-on-water

Research results:
Defining philosophy and beauty in the living space.

Fig.4.
Beauty as an emanation of needs
Image of the city
Dubai, ZEA
źródło: opracowanie własne

Fig.5.
Beauty as a personal space
Residential house
Huddersfield, England
źródło: opracowanie własne

Fig.6. Beauty as a perception
of the place of home
Residential house-terrace
Fairview Heights, RPA
źródło: opracowanie własne

Conclusions:
The response of today's architecture and perceived beauty, the essence of their philosophy, is the emerging Koolhaasian "junkspace," an image of the contemporary idea of the city, free, dynamic cities that transcend ethical, aesthetic, social, and cultural norms. This non-modern space is the result of the disorderly modernization of architecture, a result of globalization. This creates a space that is never completed because it is infinite, posing a problem for the entire globe, where half of humanity produces and the other half consumes.

MEDIA PATRONAGE / PATRONAT MEDIALNY /
Builder A&B ARCHITEKTURA BTA

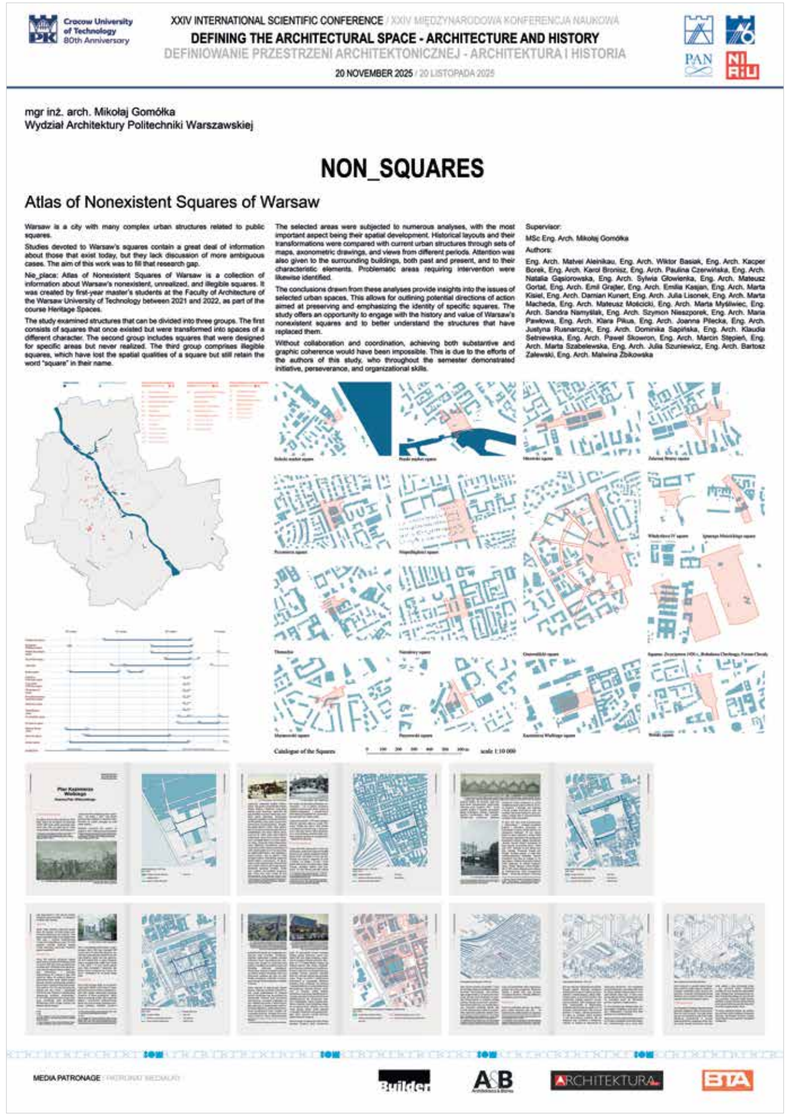
IZAAK HOUSE
IMPLEMENTING SUSTAINABLE DESIGN IN THE LOCAL CONTEXT OF A RURAL CITY HOUSE AND GARDEN IN THE LANDSCAPE OF HRUBIESZOW

MARCIN GIERBIENIS
Ph.D. Eng. Arch., a graduated of the CUT (2007). He is a member of the Lesser Poland Regional Chamber of Architects. He studied freehand drawing under Professor Wiktor Zin. In 2007–2016, he worked as assistant at renowned offices Kozień Architekci and DDJM. Since 2016, he has been co-running the Gierbienis + Poklewski studio. His latest design of the educational building in the Marszewo Forest Botanical Garden has won numerous awards in a number of competitions for the project of the year, including distinctions from PLGBC, Property Awards, Czas Gdyni, SAW, and SARP. Since 2017, he has been an employee of the CUT. In 2022, he defended his Ph.D. thesis entitled "Impact of technological and cultural changes on the functioning of public libraries in the 21st century" supervised by Professor Magdalena Kozień-Woźniak.

KAMILA PRZYTUŁA
M.Sc. Eng. Arch., a graduate of the CUT. Winner of national and international competitions, including "Tenement House in the City" (2022) and "Concrete Architecture" (2024). Finalist of the KDMA competition (2023) and the "YAC University Award" (2024). Author of the conceptual design for an ornithological complex in the Stawy Milickie nature reserve and a diploma project awarded in the "Concrete Architecture" competition, both developed under the supervision of Damian Poklewski-Kozieł, Ph.D.. She creates projects rooted in local context and social needs. She has participated in international workshops and conferences. Interested in spatial storytelling and exhibition design – co-author of the exhibition "10+1 Hrubieszów Houses with Character". Currently works as an assistant architect.

NON_SQUARES
ATLAS OF NONEXISTENT SQUARES OF WARSAW

MIKOŁAJ JAKUB GOMÓŁKA
M.Sc. Eng. Arch., an architect, urban planner, and academic whose work bridges theory, practice, and research. He is an assistant professor at the Warsaw University of Technology's Faculty of Architecture, where he also pursues his Ph.D. with the dissertation "Entropic City, on Urban Decomposition and Composition". His research focuses on shrinking cities, urban landscapes, and the intersections of architecture, culture, and society. He has held visiting positions at institutions such as the University of Detroit Mercy, Technical University of Berlin, and Hanoi Architectural University. He collaborates with TŁO architects and runs his own design practice alongside his academic career. His projects mainly concern the topics of campus masterplanning and arranging urban voids. His diploma project received first prize for the best Master's thesis in revitalization.



ARCHI-ECO-LAB. WORKSHOP METHOD IN THE EDUCATION OF ARCHITECTURE STUDENTS AT THE SGGW

JUSTYNA JUCHIMIUK
Ph.D. Eng. Arch. – Assistant professor and researcher at the Institute of Civil Engineering, Warsaw University of Life Sciences. She received her Ph.D. in the field of the integration of renewable energy sources in architecture. She carries out interdisciplinary research in universal, inclusive and pro-environmental design in sustainable architecture. She has wide experience in architectural design, experimental teaching and organisation of the architectural workshops and summer schools. Supervisior of the Academic Club of Sustainable Architecture "ARCHI-ECO-LAB" and four thematic sub-groups.

MICHAŁ GOLAŃSKI
Ph.D. Eng. Arch. – Assistant professor and researcher at the Institute of Civil Engineering, Warsaw University of Life Sciences. He received his Ph.D. in field of parametric design of non-standard wooden structures. His research fields include the application of digital tools (Parametric Design, BIM, AI) in integrated architectural design process and DfMA (Design for Manufacturing and Assembly). He has wide experience in architectural design, experimental teaching and organization of the architectural workshops and summer schools.

MIKOŁAJ DONDEREWICZ
M.Sc. Eng. Arch. – Architect, 3D visualizer, author and co-author of various architectural projects. His professional achievements are related to conceptual, construction and execution projects, such as furniture, interiors, landscapes, single-family and multi-family buildings, as well as public and commercial projects. Frequent participant and awardee of architectural competitions, also at the international level. His interests concern pro-environmental and energy-saving solutions that fit into the contemporary trend of Eco-tech architecture. Ph.D. student at the Warsaw University of Life Sciences.

NIKOLA FABISIAK
She is a student of Architecture at the Faculty of Civil and Environmental Engineering (WBiIŚ) at SGGW, a member of the Academic Club: Sustainable Architecture "ARCHI-ECO-LAB". President of the Academic Club: EUROPA URBIUM.

ŁUKASZ SOBCZYŃSKI
He is a student of Architecture at the Faculty of Civil and Environmental Engineering (WBiIŚ) at SGGW in Warsaw, a member of the Academic Club of Sustainable Architecture "ARCHI-ECO-LAB" (thematic sub-group "DIGITAL-ARCHI-LAB" and "FORM AND SPACE") as well as the Academic Club: EUROPA URBIUM.

HYDROELECTRIC ARCHITECTURE

NATALIA KOWALSKA
A third-year Spatial Management student at the Cracow University of Technology. She is interested in spatial planning, development of green infrastructure, and the relationship between the natural environment and urban space. She recently joined the Academic Club "Young Urbanism", expanding her knowledge and skills in urban planning and sustainable development.

ANNA SKOCZYLAS
A third-year Spatial Management student at the Cracow University of Technology. Her research interests include water management, waterside green space development, and the renaturalisation and revitalization of green spaces. For several years, she has been active in the Academic Club "Young Urbanism".

WIKTORIA ŁĘŻNIAK
A third-year student of Spatial Management at the Cracow University of Technology. She is active in the Academic Club "Young Urbanism". Her research interests include the accessibility of urban spaces, the functioning and creation of green spaces in cities. In her private life, she acts as an instructor and staff member of the Girl Scout Methodology Course.

ALICJA HREHOROWICZ-NOWAK
M.Sc. Eng. Arch., graduated from the CUT in 2020. In 2021, she also completed postgraduate studies in nature conservation named after Professor Stanisław Myczkowski at the University of Agriculture in Cracow. Her research interests focus on the spatial structure of cities, particularly green infrastructure and issues related to the protection of urban ecosystems. She is a member of the Society of Polish Town Planners (TUP), the Lesser Polands Ornithological Society (MTO), and the Polish Society for the Protection of Birds (OTOP). She actively participates in research projects and conferences devoted to the contemporary challenges of urban planning and nature conservation in cities.

Cracow University of Technology 80th Anniversary

XXIV INTERNATIONAL SCIENTIFIC CONFERENCE / XXIV MIĘDZYNARODOWA KONFERENCJA NAUKOWA
DEFINING THE ARCHITECTURAL SPACE - ARCHITECTURE AND HISTORY
DEFINIOWANIE PRZESTRZENI ARCHITEKTONICZNEJ - ARCHITEKTURA I HISTORIA
20 NOVEMBER 2025 / 20 LISTOPADA 2025

NATALIA KOWALSKA, ANNA SKOCZYLAS, WIKTORIA ŁĘŻNIAK II year – Cracow University of Technology, Faculty of Environmental Engineering and Energy, Spatial Management (inter-faculty course), ALICJA HREHOROWICZ-NOWAK, Faculty of Architecture of Cracow University of Technology, Department of Spatial Planning, Urban and Rural Design A-5

Hydroelectric architecture

Introduction

Contemporary approaches to defining architectural space increasingly rely on dialogue with the past and the usage of industrial heritage. This reflects technological development and socio-economic transformations, but also highlights the importance of historical industrial architecture, including hydropower, on the identity of a place. This study presents four diverse examples of hydropower plants. These facilities are located in different contexts, vary in scale, and underwent various functional transformations. This analysis can be used to reflect on how architectural space can be defined in terms of industrial heritage, contemporary utility needs, and significance for the surrounding context.

Toktogul hydroelectric station

The Toktogul Power Plant was built on the Naryn River in Kyrgyzstan. Construction began in 1962. Its power capacity is 1,200 MW. The main structural element is a concrete dam reaching a height of 215 meters. Together with the connected power plant, the facility forms a uniform architectural ensemble. The dam is divided into sections by transverse joints. The structure is made of concrete. The inclined structure and the reinforced central section of the dam provide a sense of stability.

Tabqa hydroelectric station

The power plant was built on the Euphrates River. Its power capacity is 880 MW. The main component of the structure is a fully enclosed power plant. Seven curved spillways branch off the power plant. These are located symmetrically to the structure, ensuring a well-balanced composition. Abutments containing office and industrial space are located on both sides. The entire structure is constructed from a single material: reinforced concrete.

Fig. 1. Monumental architecture of the Tabqa power plant on the Euphrates River.

Tysso I - Tyssedal

The Tyssedal Hydroelectric Power Plant in Norway, designed by Thorvald Astrup, has been in operation since 1906. It uses falling water to power turbines and generate electricity. Its power capacity is 100 MW. Constructed of concrete and brick, it combines solidity with thoughtful architecture, harmoniously blending into the fjord landscape. Since 2000, it has operated as a museum and is part of the European Industrial Heritage Route. It is a excellent example of the efficient use of renewable energy and industrial architecture integrated with its surroundings.

Fig. 2. Adaptation of historic hydropower infrastructure to new functions.

Leśna hydroelectric station

The Leśna Hydroelectric Power Plant, located in the town of Leśna, was commissioned in 1907 on the Kwisa River. Its power capacity is 525 MW. Its construction was intended to generate electricity and was part of the Lower Silesian flood protection plan. Architecturally, the plant exemplifies the aesthetic appeal of early 20th-century technical infrastructure. The power plant building and dam were constructed from local stone and brick. The structure's style reflects historicist architecture, with characteristic arches, turrets, and ceramic roof tiles. The dam's crown is topped with an arcaded frieze. It is a significant cultural and landscape element of the region.

Fig. 3. A local-scale power plant constituting cultural heritage.

Hydroelectric station	Country	River	City/ Countryside	Year	Power (MW)	Size	Form	Type of adjacent development	Performed functions	Impact on the landscape
Toktogul	Kyrgyzstan	Naryn	Mountains	1960-1976	1200 MW	Height - 215 m	Pumped-storage hydrostation	Absence of adjacen development	- Electricity generation - Water source for crop irrigation - Flood protection - Tourist facility	A large impact on the landscape, resulting in the creation of a water reservoir, yet well integrated
Tabqa	Syria	Euphrates	City	1968-1973	880 MW	Height - 60 m	Conventional hydrostation	Residential/technical development	- Electricity generation - Water source for crop irrigation	Large impact, causes the creation of a water reservoir
Tyssedal	Norway	-	Countryside	1908	100 MW	Building- 160m long	Reservoir hydrostation	Residential/industrial development	- Electricity production - Tourist facility	Minimal impact, integrated into the mountain landscape, technical parts partially hidden in the rock
Leśna	Poland	Kwisa	Countryside	1906-1908	525 MW	-	Run-of-the-river hydrostation	Residential development/Campgrounds/Farmlan d/Forests	- Electricity generation - Flood protection	Balanced impact, harmoniously fits into the rural and forest landscape

Summary and conclusions

Hydropower plants impact their surroundings in diverse ways, depending on their location, power, and function. The Tabqa and Tyssedal facilities have a stronger influence on the settlement structure and the development of residential, industrial, and tourist functions, demonstrating greater integration with their surroundings. Toktogul and Leśna primarily serve environmental and hydrotechnical functions. Hydropower plants should be considered as factors shaping and redefining space, significantly transforming it and becoming a component of local identity. Urban rivers, along with their accompanying hydrotechnical structures, become spaces for social activity and also constitute a significant element of the cultural landscape (Januchta-Szostak, 2011). This demonstrates that hydropower plants should be investigated individually—as part of the energy infrastructure, a factor shaping space, and supporting the development of renewable energy sources.

Sources:
Vaksman, V.N., Pershanin, E.A. Architecture of foreign hydroelectric stations. Hydrotechnical Construction 17, 501–506 (1983). Matveev, E.S. Architecture of the Toktogul hydroelectric station on the Naryn River. Hydrotechnical Construction 22, 643–647 (1988). https://en.wikipedia.org/wiki/Norwegian_Museum_of_Hydropower_and_Industry https://pl.wikipedia.org/wiki/Elektrownia_Le%C5%9Bna A. Januchta-Szostak, Krajobraz rzeki miejskiej jako element tożsamości miejsca, Czasopismo Techniczne, Architektura 3-A/2011.

MEDIA PATRONAGE / PATRONAT MEDIALNY :

STUDY AND DESIGN FROM THE PERSPECTIVE OF CULTURAL LANDSCAPE

SABINA KUC
Professor, Ph.D. D.Sc. Eng. Arch., an architect and a Professor of CUT. She is a researcher and academic specializing in architecture and landscape architecture. She received her Ph.D. degree in architecture in 1997 and the DSc degree in Landscape Architecture in 2012 from the Faculty of Architecture CUT and full professor in 2021. She is working on ISE TCU and CUT. She was a Visiting Professor at Eurasian National University (Astana, Kazakhstan, from 2013 and 2021). Her current research interests include: technocreation, construction and building technologies in landscape architecture, and landscape water objects. Since 2020, she has served as Head of the Chair of Architectural and Construction Design. She is the author or co-author of 105 publications. She is also a practicing architect, responsible for numerous architectural projects.

MIŁOSZ ZIELIŃSKI
Ph.D. Eng. Arch., an Assistant Professor at the CUT since 2009, where he engages in academic teaching and research in the field of landscape architecture. His research areas include social participation, the axiology of space, sports in spatial planning and public space design. He has authored and co-authored numerous projects, "Accessible Playground" for disabled children (2021) and the Participatory Development Plan of the Former Medical District in Kraków (2020–2021). He is a member of the Society of Polish Landscape Architects (SPAK) and the Society of Landscape Architecture (SAK). His research interests focus on landscape composition, public parks design, urban landscape, spatial planning and public participation. He is a supervisor for engineering diploma projects and has also for Master's diploma projects (24 graduates) on CUT and ISE in TCU.

YAN SHULONG
Associate Professor and Master's Tutor in Landscape Architecture at Tianjin Chengjian University. Head of the Landscape Architecture Plant Application Center and, since 2020, as the Director of the Department of Landscape Architecture at the International School of Engineering (ISE), where she oversees the programme's curriculum and management. A graduate of Beijing Forestry University with a Master's degree, Professor Yan actively contributes to the wider academic community, serving on committees for the Tianjin Society of Landscape Architecture, Forestry Society, and Ecological Society. Her research is both extensive and impactful. She has led 4 provincial-level scientific projects, participated in 5 others, and authored over 20 academic papers. Her work focuses on landscape history and cultural theory, innovations in contemporary urban landscape design, and the ecological application of plants in landscape restoration.

HUO YANHONG
Ph.D. in Landscape Architecture from Tianjin University, Postdoctoral Fellow in Urban and Rural Planning, and Visiting Scholar at Tsinghua University. She currently serves as anAssociate Professor at Tianjin Chengjian University, Master's supervisor, Director of the Grand Canal Culture and Landscape Research Center. She has led 5 provincial/ministerial-level research projects, participated in 2 Major Projects of the National Social Science Fund, 1 project of the National Natural Science Foundation, and 7 provincial/ministerial-level research projects. She won the title of outstanding young professional in the first landscape architecture design industry. Her primary research focuses include cultural heritage conservation of the Beijing-Hangzhou Grand Canal, and digital & intelligent conservation of cultural heritage.

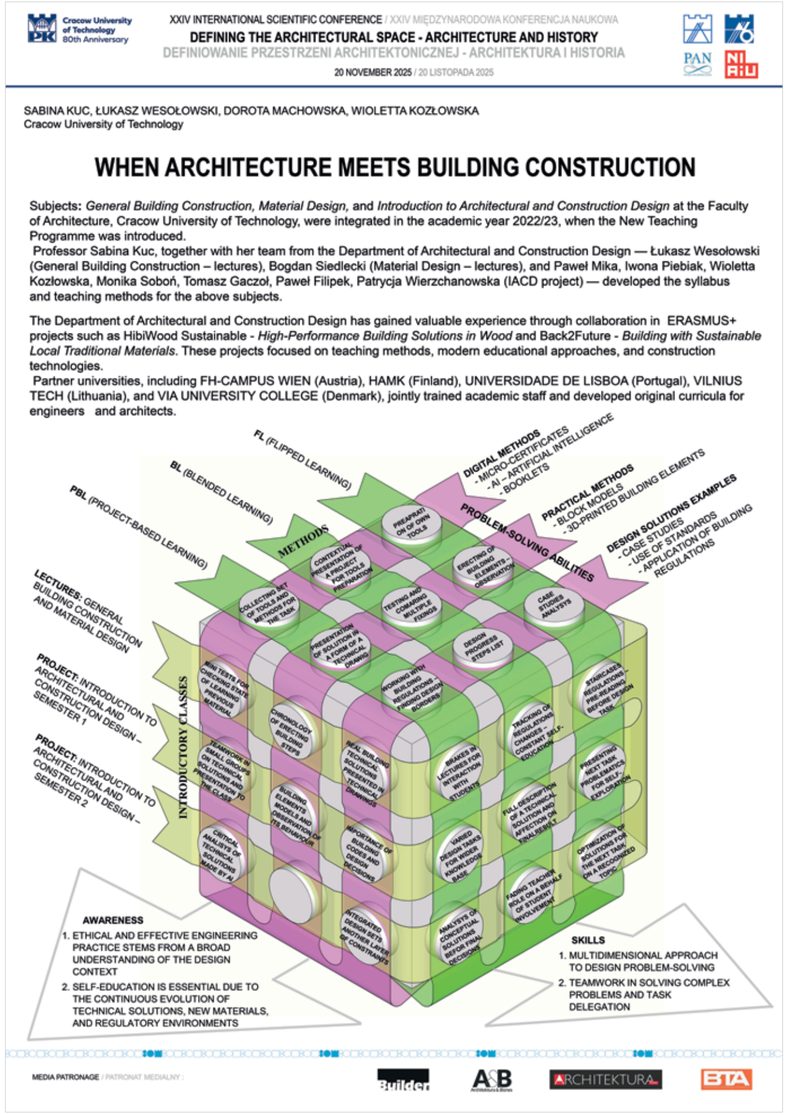
WHEN ARCHITECTURE MEETS BUILDING CONSTRUCTION

SABINA KUC
Professor, Ph.D. D.Sc. Eng. Arch., an architect and a Professor of CUT. She is a researcher and academic specializing in architecture and landscape architecture. She received her Ph.D. degree in architecture in 1997 and the DSc degree in Landscape Architecture in 2012 from the Faculty of Architecture CUT and full professor in 2021. She is working on ISE TCU and CUT. She was a Visiting Professor at Eurasian National University (Astana, Kazakhstan, from 2013 and 2021). Her current research interests include: technocreation, construction and building technologies in landscape architecture, and landscape water objects. Since 2020, she has served as Head of the Chair of Architectural and Construction Design. She is the author or co-author of 105 publications. She is also a practicing architect, responsible for numerous architectural projects.

ŁUKASZ WESOŁOWSKI
Ph.D. Eng. Arch., a graduated of the CUT and the Faculty of Interior Design at the Academy of Fine Arts in Krakow. In 2013, he earned a Ph.D. in technical sciences. His areas of specialisation include indoor environmental quality in spaces, the implementation of timber elements and timber primary structures in buildings, and 3D printing for architectural applications. He currently serves as Vice Head of the Chair of Architectural and Construction Design. He has served as supervisor and co-supervisor of numerous Bachelor's and Master's theses. Author of several architectural, construction, and urban design projects. Award winner in architectural and urban design competitions. Participant in the Back2Future grant project, the HiBiWood grant project, author of 32 academic publications, participant in national and international scientific conferences.

DOROTA MACHOWSKA
Ph.D., a graduated of CUT, Faculty of Environmental Engineering, specialising in heating, sanitary, and air protection systems. Her area of expertise focuses on heat and moisture calculations related to building physics and thermal comfort in heated spaces. After completing her degree, she pursued an additional year of study in a second specialization – water treatment and wastewater purification. In 2002, she earned a Ph.D. in technical sciences from the Faculty of Environmental Engineering at CUT. She works as an assistant professor at the Faculty of Architecture. She also lectures on "Infrastructure and Construction" at the Faculty of Landscape Architecture. She is the author and co-author of several academic papers, as well as numerous expert opinions and reports in the field of building physics and sanitary installations.

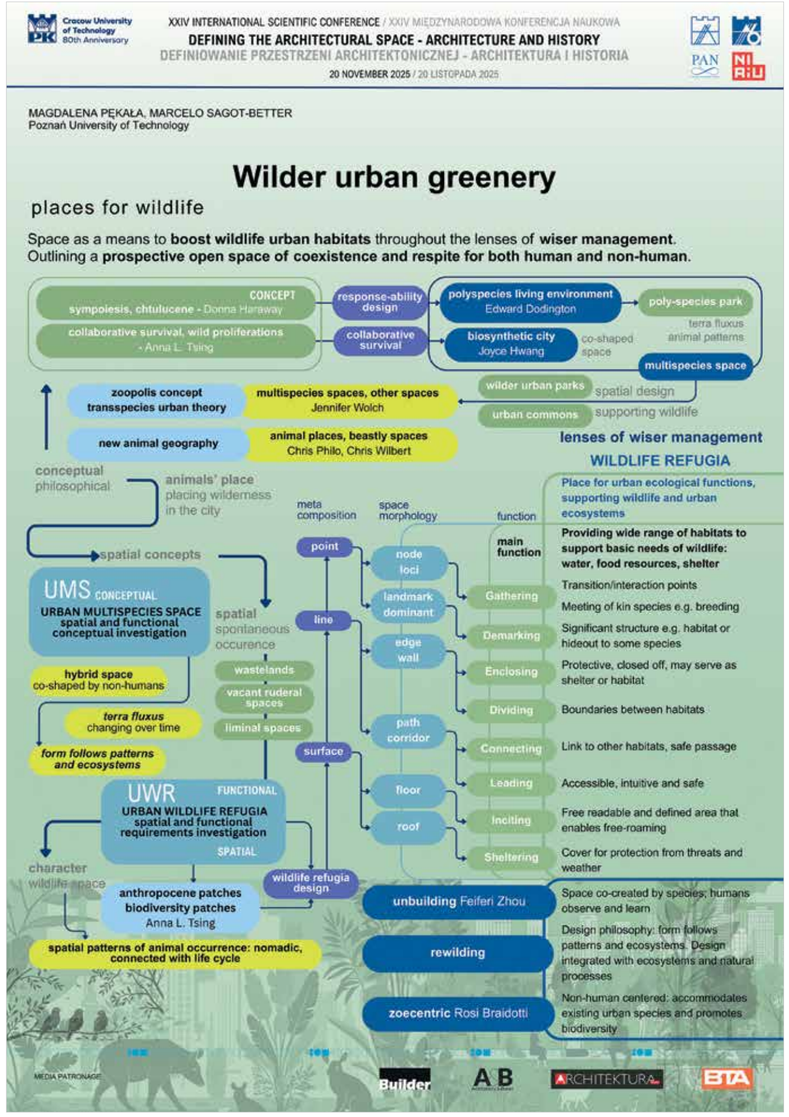
WIOLETTA KOZŁOWSKA
M.Sc. Eng. Arch., an architect and educator specialising in concrete and historic architecture. Graduate of the CUT. In her professional work, she is particularly interested in concrete construction and interwar architecture. She completed Postgraduate Studies in the Conservation of Architectural and Urban Heritage at the Institute of Architectural History and Monument Preservation at the CUT. In 2003, she obtained a full architectural design license. She works at the Department of Architectural and Construction Design at the Faculty of Architecture of the Cracow University of Technology. Scientific achievements: Participant in the Back2Future grant project, participant in the HiBiWood grant project, author of 3 scientific publications, participant in national and international scientific conferences.



WILDER URBAN GREENERY
PLACES FOR WILDLIFE

MAGDALENA PĘKAŁA
M.Sc. Eng. Arch., a Ph.D. student in the Doctoral School of Poznan University of Technology (PUT). Currently working in the international research group of EDITUA DUT Project (2025–2028). The areas of her expertise are multispecies urban spaces and urban wildlife refugia. Her ambition is to contribute to creating wilder cities focused on enhancing more-than-human relations and non-humans wellbeing. Since 2023 she has been a member of the Global Urban Development (GUD) and Society of Polish Town Planners. Recently, she became a Speaker at the Hochschule fur Biodiversitat Initiative (HIB). In the years 2016–2021 she studied Architecture and Urban Planning in the Faculty of Architecture in PUT. In 2023 she finished the postgraduate studies "Spatial Planning in City and Region Scales" at the Faculty of Architecture, PUT. As an urbanist, researcher and biodiversity activist she values multidisciplinary, innovative approaches.

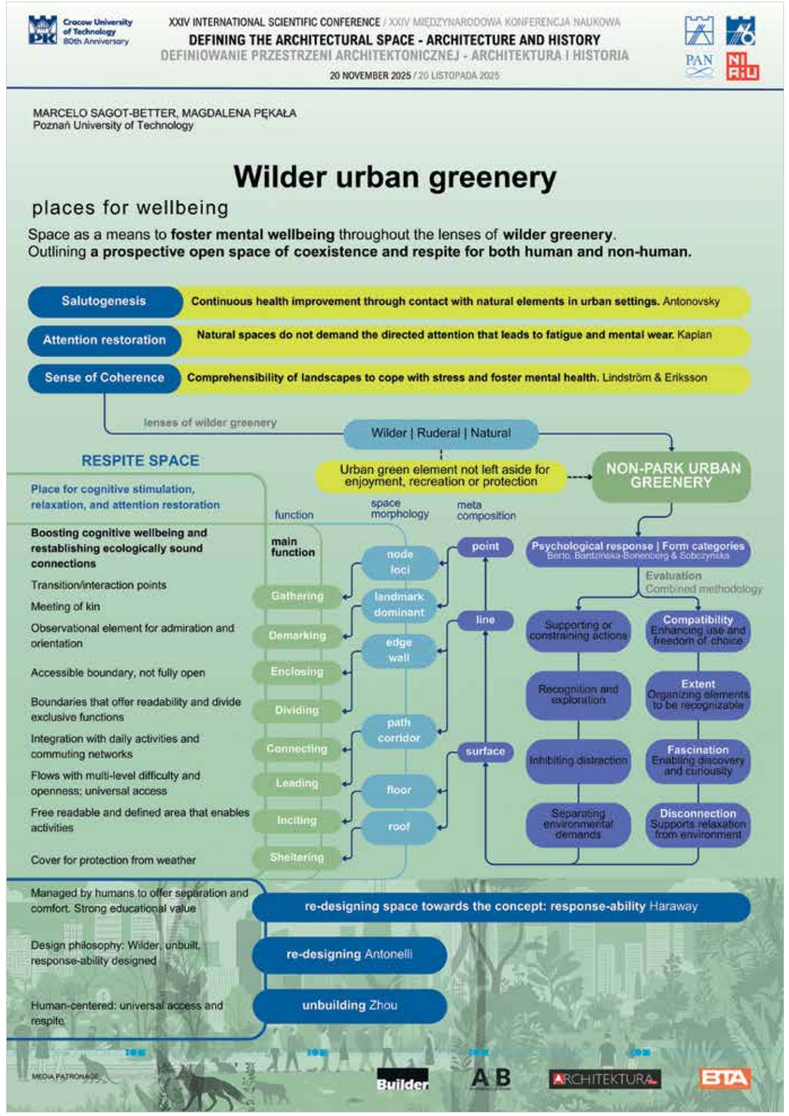
MARCELO SAGOT-BETTER
He is an architect and Ph.D. candidate in the School of Architecture and Urban Planning at Poznań University of Technology, Poland and holds a double Master's degree in Spatial Planning and European Environmental Policy from Cardiff University and Radboud University Nijmegen, respectively. His research interest is focused on the exploration of non-park urban greenery and the application of AI-driven methodologies for evaluation, while assisting in teaching urban design. He has conducted research in several fields, including historiography of urban planning, permanent housing exhibitions, ecological urban development and history of architecture.



WILDER URBAN GREENERY
PLACES FOR WELLBEING

MARCELO SAGOT-BETTER
He is an architect and Ph.D. candidate in the School of Architecture and Urban Planning at Poznań University of Technology, Poland and holds a double Master's degree in Spatial Planning and European Environmental Policy from Cardiff University and Radboud University Nijmegen, respectively. His research interest is focused on the exploration of non-park urban greenery and the application of AI-driven methodologies for evaluation, while assisting in teaching urban design. He has conducted research in several fields, including historiography of urban planning, permanent housing exhibitions, ecological urban development and history of architecture.

MAGDALENA PĘKAŁA
M.Sc. Eng. Arch., a Ph.D. student in the Doctoral School of Poznan University of Technology (PUT). Currently working in the international research group of EDITUA DUT Project (2025–2028). The areas of her expertise are multispecies urban spaces and urban wildlife refugia. Her ambition is to contribute to creating wilder cities focused on enhancing more-than-human relations and non-humans wellbeing. Since 2023 she has been a member of the Global Urban Development (GUD) and Society of Polish Town Planners. Recently, she became a Speaker at the Hochschule fur Biodiversitat Initiative (HIB). In the years 2016–2021 she studied Architecture and Urban Planning in the Faculty of Architecture in PUT. In 2023 she finished the postgraduate studies "Spatial Planning in City and Region Scales" at the Faculty of Architecture, PUT. As an urbanist, researcher and biodiversity activist she values multidisciplinary, innovative approaches.



RESEARCH – BASED AND PRACTICED – ORIENTED APPROACH IN TEACHING DESIGN IN ARCHITECTURAL STUDIES

NATALIA PRZESMYCKA
Ph.D. D.Sc. Eng. Arch., Assoc. Prof., Lublin University of Technology, Faculty of Civil Engineering and Architecture. Head of the Department of Architecture, Urban Planning and Spatial Planning, Architect IARP, research and teaching associate, area of interest: architecture of healthcare facilities, transformation and problems of public spaces, urban planning, wooden and historical architecture. Author of over 80 publications on topics including urban planning, public space design, healthcare facilities and wooden architecture. Co-organiser and leader of numerous student design workshops involving local communities and end users.

RAFAŁ STROJNY
Ph.D. Eng. Arch., Lublin University of Technology (LUT), Faculty of Civil Engineering and Architecture. Architect, BIM Manager, research and teaching associate, area of interest: architecture of healthcare facilities, specialised hospitals, hospital modernisation. He defended his Ph.D. thesis with honors at the Faculty of Civil Engineering and Architecture of the LUT (2023), for which he received the Scientific Award of the Chamber of Architects of the Republic of Poland (2024) – in the category of doctoral and habilitation dissertations on architectural topics that have an impact on the practice of the architectural profession.

BARTŁOMIEJ KWIATKOWSKI
Ph.D. Eng. Arch., Lublin University of Technology (LUT), Faculty of Civil Engineering and Architecture. Head of the Department of Contemporary Architecture, Architect IARP, research and teaching associate, area of interest: universal design, designing for people with special needs, wooden and historical architecture. Author of over 40 publications on specialised design for people on the autism spectrum, universal design, historical architecture and urban planning. Co-organiser and leader of numerous student design workshops involving local communities and end users.

WERONIKA GOSPODAREK
Eng. Arch., Lublin University of Technology (LUT), Faculty of Civil Engineering and Architecture. Graduate of engineering studies at Lublin University of Technology (2024), currently pursuing a Master's degree in Architecture at the Faculty of Civil Engineering and Architecture. Since 2024, she has been the president of the Academic Club "Healthcare Architecture". Actively involved in workshops and research focused on the design of healthcare facilities. Her interests include hospital care, medical building design, and inclusive architecture. She is committed to developing modern and accessible architectural solutions that support patient well-being and enhance the efficiency of healthcare institutions.

BLANKA ZIELIŃSKA
Architecture student, Lublin University of Technology (LUT), Faculty of Civil Engineering and Architecture. Currently pursuing a Bachelor's degree in Architecture at the Faculty of Civil Engineering and Architecture, Lublin University of Technology. Since 2024, she has been serving as the Vice President of the Academic Club "Healthcare Architecture". Her interests focus on healthcare architecture and the design of spaces that promote health and user comfort. She participates in workshops and research activities dedicated to the design of medical and pro-health facilities. Her areas of interest include hospital functionality, healthcare building design, and solutions that enhance accessibility and inclusivity.

BUILDING TYPOLOGY
POLISH TERRACED TENEMENT BUILDING AND POLISH GARDEN-CITY/URBAN VILLA – TYPOLOGIES DEFINITION

KINGA RACOŃ-LEJA
Ph.D. D.Sc. Eng. Arch., Assoc. Prof., an urban designer and architect, published over 95 academic and popular science papers. She gained professional experience in Germany and the US. She is a research and grant team leader in international cooperation.

ERNESTYNA SZPAKOWSKA-LORANC
Ph.D. Eng. Arch., an architect and assistant professor at the Chair of Urbanism and City Structure Architecture, CUT. She has authored and coauthored over 60 academic and popularscience publications. Her research spans urban planning, sustainability, inclusivity, city resilience, and narrative architecture.

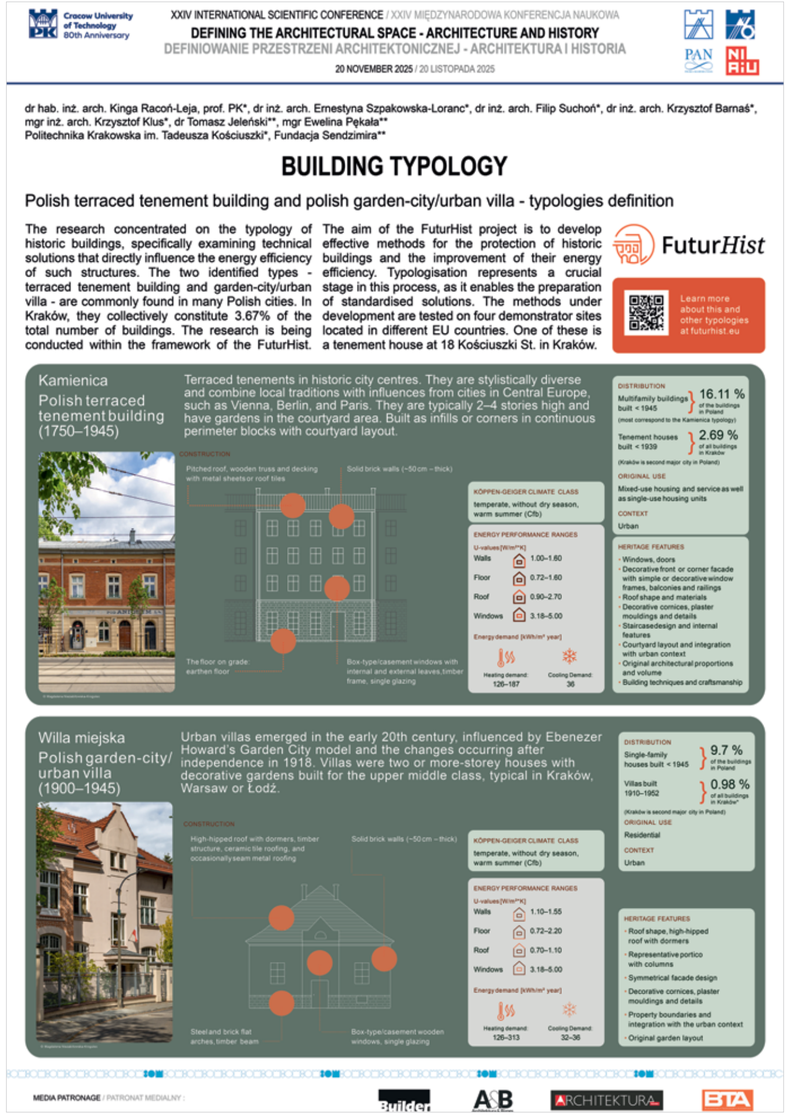
FILIP SUCHOŃ
Ph.D. Eng. Arch., a licensed architect, a research and teaching assistant professor at the Chair of Urbanism and City Structure Architecture, CUT. His research focuses on urban transformations and fortification heritage.

KRZYSZTOF BARNAŚ
Ph.D. Eng. Arch., a researcher and architect, operates his own Krakow-based design practice. He is academically affiliated with the CUT, where he has worked since 2020. His research interests cover sustainable architecture and regenerative architectural and urban design.

KRZYSZTOF KLUS
M.Sc. Eng. Arch., an architect, Ph.D. candidate, and academic teacher. He graduated with distinction from the Faculty of Architecture at the Cracow University of Technology in 2019. His research interests include urbanism, spatial planning, and the housing environment.

TOMASZ JELEŃSKI
Ph.D. Eng. Arch., an academic and designer specialising in sustainable urban design. He directs the International Centre of Education at Cracow University of Technology, where he founded the Postgraduate Programme in Sustainable Urban Management. His professional practice focuses on repairing spatial structures.

EWELINA PĘKAŁA
Graduated in Cultural Anthropology from Adam Mickiewicz University in Poznań. She did the Erasmus Mundus Master of Art's Euroculture Programme at the University of Uppsala, as well as the Socrates Erasmus Exchange Programme at the University of Lund – Division of Ethnology. Experienced project coordinator, worked in cultural institutions.



Cracow University of Technology 80th Anniversary

XXIV INTERNATIONAL SCIENTIFIC CONFERENCE / XXIV MIĘDZYNARODOWA KONFERENCJA NAUKOWA
DEFINING THE ARCHITECTURAL SPACE - ARCHITECTURE AND HISTORY
DEFINIOWANIE PRZESTRZENI ARCHITEKTONICZNEJ - ARCHITEKTURA I HISTORIA
20 NOVEMBER 2025 / 20 LISTOPADA 2025

dr hab. inż. arch. Kinga Racoń-Leja, prof. PK*, dr inż. arch. Ernestyna Szpakowska-Loranc*, dr inż. arch. Filip Suchoń*, dr inż. arch. Krzysztof Barnaś*, mgr inż. arch. Krzysztof Klus*, dr Tomasz Jeleński**, mgr Ewelina Pękała**
Politechnika Krakowska im. Tadeusza Kościuszki*, Fundacja Sendzimira**

BUILDING TYPOLOGY

Polish terraced tenement building and polish garden-city/urban villa - typologies definition

The research concentrated on the typology of historic buildings, specifically examining technical solutions that directly influence the energy efficiency of such structures. The two identified types - terraced tenement building and garden-city/urban villa - are commonly found in many Polish cities. In Kraków, they collectively constitute 3.67% of the total number of buildings. The research is being conducted within the framework of the FuturHist.

The aim of the FuturHist project is to develop effective methods for the protection of historic buildings and the improvement of their energy efficiency. Typologisation represents a crucial stage in this process, as it enables the preparation of standardised solutions. The methods under development are tested on four demonstrator sites located in different EU countries. One of these is a tenement house at 18 Kościuszki St. in Kraków.

FuturHist

Learn more about this and other typologies at futurhist.eu

Kamienica
Polish terraced tenement building (1750–1945)

Terraced tenements in historic city centres. They are stylistically diverse and combine local traditions with influences from cities in Central Europe, such as Vienna, Berlin, and Paris. They are typically 2–4 stories high and have gardens in the courtyard area. Built as infills or corners in continuous perimeter blocks with courtyard layout.

CONSTRUCTION
Pitched roof, wooden truss and decking with metal sheets or roof tiles
Solid brick walls (~50 cm – thick)
The floor on grade: earthen floor
Box-type/casement windows with internal and external leaves,timber frame, single glazing

KÖPPEN-GEIGER CLIMATE CLASS
temperate, without dry season, warm summer (Cfb)

ENERGY PERFORMANCE RANGES
U-values[W/m²K]
Walls 1.00–1.60
Floor 0.72–1.60
Roof 0.90–2.70
Windows 3.18–5.00
Energy demand [kWh/m² year]
Heating demand: 126–187
Cooling Demand: 36

DISTRIBUTION
Multifamily buildings built < 1945 } 16.11 % of the buildings in Poland
(most correspond to the Kamienica typology)
Tenement houses built < 1939 } 2.69 % of all buildings in Kraków
(Kraków is second major city in Poland)

ORIGINAL USE
Mixed-use housing and service as well as single-use housing units

CONTEXT
Urban

HERITAGE FEATURES
- Windows, doors
- Decorative front or corner facade with simple or decorative window frames, balconies and railings
- Roof shape and materials
- Decorative cornices, plaster mouldings and details
- Staircasedesign and internal features
- Courtyard layout and integration with urban context
- Original architectural proportions and volume
- Building techniques and craftsmanship

Willa miejska
Polish garden-city/ urban villa (1900–1945)

Urban villas emerged in the early 20th century, influenced by Ebenezer Howard's Garden City model and the changes occurring after independence in 1918. Villas were two or more-storey houses with decorative gardens built for the upper middle class, typical in Kraków, Warsaw or Łodź.

CONSTRUCTION
High-hipped roof with dormers, timber structure, ceramic tile roofing, and occasionally seam metal roofing
Solid brick walls (~50 cm – thick)
Steel and brick flat arches, timber beam
Box-type/casement wooden windows, single glazing

KÖPPEN-GEIGER CLIMATE CLASS
temperate, without dry season, warm summer (Cfb)

ENERGY PERFORMANCE RANGES
U-values[W/m²K]
Walls 1.10–1.55
Floor 0.72–2.20
Roof 0.70–1.10
Windows 3.18–5.00
Energy demand [kWh/m² year]
Heating demand: 126–313
Cooling Demand: 32–36

DISTRIBUTION
Single-family houses built < 1945 } 9.7 % of the buildings in Poland
Villas built 1910–1952 } 0.98 % of all buildings in Kraków*
(Kraków is second major city in Poland)

ORIGINAL USE
Residential

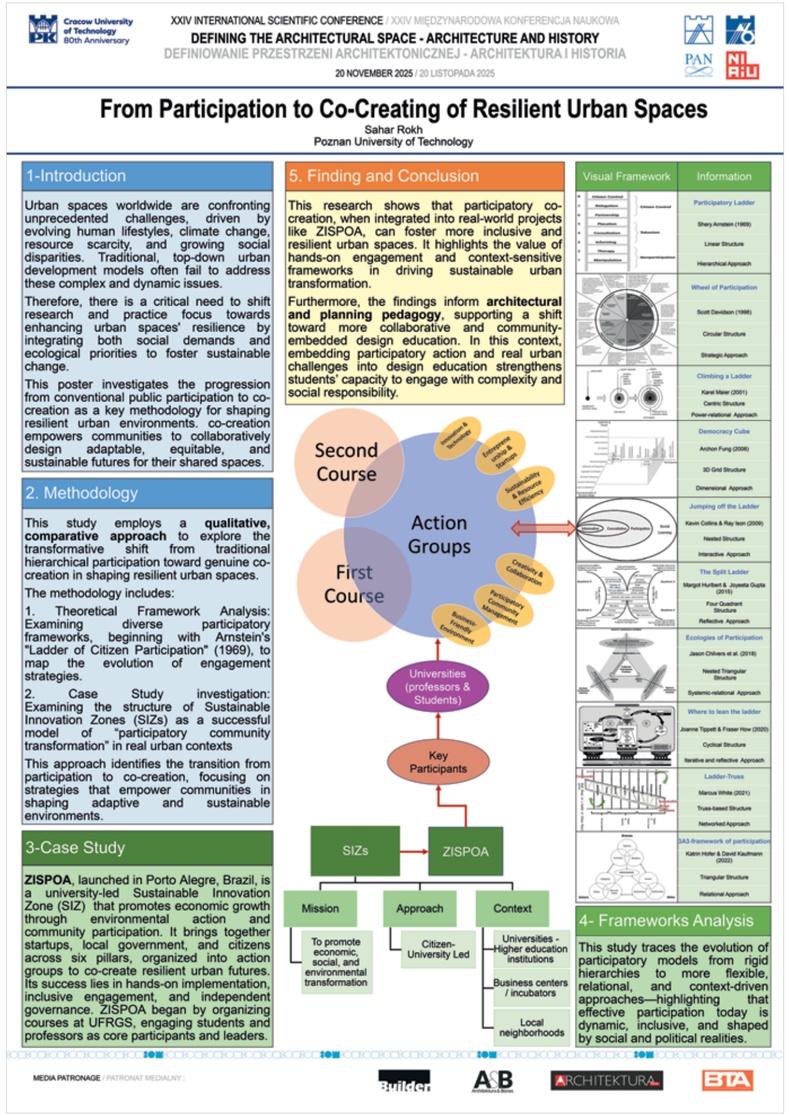
CONTEXT
Urban

HERITAGE FEATURES
- Roof shape, high-hipped roof with dormers
- Representative portico with columns
- Symmetrical facade design
- Decorative cornices, plaster mouldings and details
- Property boundaries and integration with the urban context
- Original garden layout

MEDIA PATRONAGE / PATRONAT MEDIALNY :

FROM PARTICIPATION TO CO-CREATING OF RESILIENT URBAN SPACES

SAHAR ROKH
A Ph.D. candidate at Poznan University of Technology (PUT). With a research focus on regenerative urbanism, her current work centres on community-driven transformation of urban spaces through redefining the relationship between society and ecology. She is particularly interested in imagination-based participatory practices to envision alternative future for cities and develops roadmaps to bring these scenarios into reality, guiding the co-creation of knowledge, aiming at fostering resilient and inclusive cities. Holding both a Master's and a Bachelor's degree in Architecture with distinction from the Art University of Isfahan, Iran, Sahar has consistently focused her academic work on the dynamic interplay between buildings and their socio-ecological contexts. With experience as project engineer, manager, and senior architect, she has built strong skills in field studies, data analysis, and developing design principles.

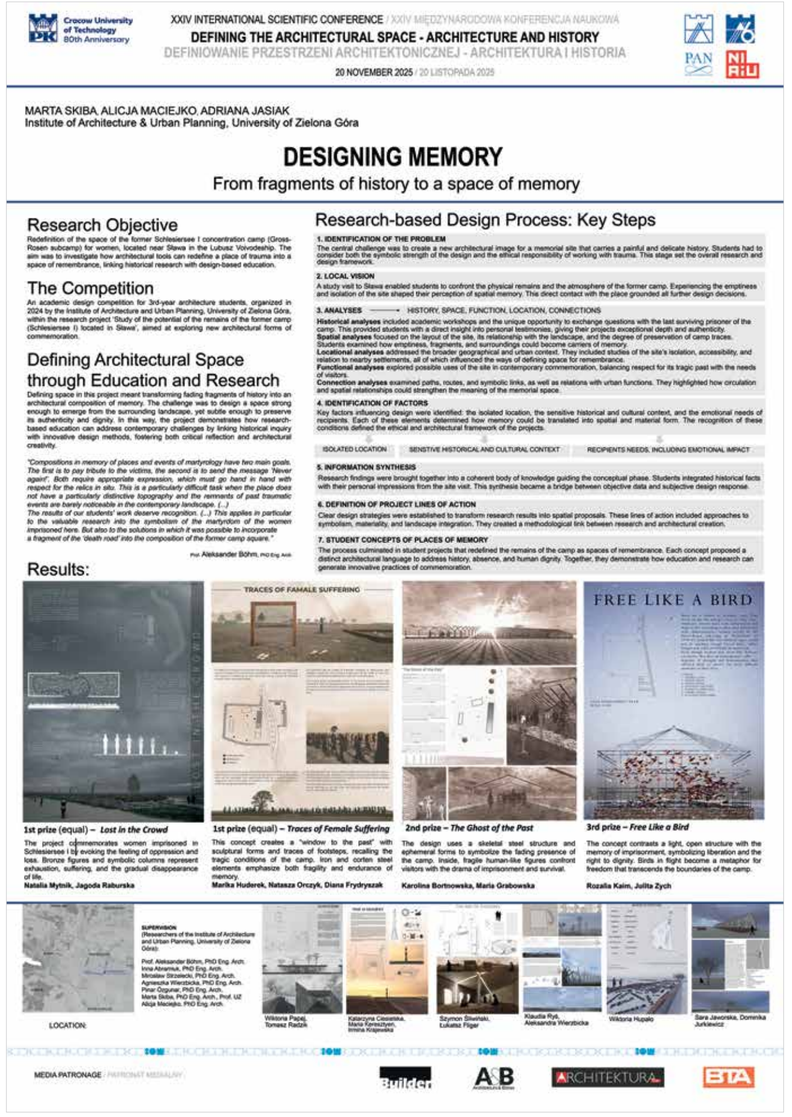


DESIGNING MEMORY
FROM FRAGMENTS OF HISTORY TO A SPACE OF MEMORY

MARTA SKIBA
Ph.D. D.Sc. Eng. Arch., Assoc. Prof., University of Zielona Góra, Chair of the Scientific Discipline Council for Architecture and Urban Planning and the Director of the Institute of Architecture and Urban Planning at the University of Zielona Góra. She applies architectural and urban planning knowledge, theories of city development, and spatial information systems to solve problems related to strategies and development policies.

ALICJA MACIEJKO
Ph.D. Eng. Arch., an IARP Architect and Deputy Director of the Institute of Architecture and Urban Planning at the University of Zielona Góra. She is the owner of her own architectural studio and serves as Chair of the track Human Factors in Architecture, Sustainable Urban Planning and Infrastructure (SUPI) at the international AHFE Conference.

ADRIANA JASIAK
M.Sc. Eng. Arch., in 2023, she successfully defended her Master's thesis in architecture at the Institute of Architecture and Urban Planning of the University of Zielona Góra. Winner of student competitions and the Rector's Scholarship, Graduate Extra 2023 of the University of Zielona Góra. Since October 2023, she has been an assistant at the Department of Residential and Commercial Architecture Design at the Institute of Architecture and Urban Planning at the University of Zielona Góra. Speaker at the 9th Holzbau Polska Forum in the Master session. Author of three scientific articles and a paper in a conference monograph. Area of interest: architecture and post-industrial areas, relics and objects of wine culture, sustainable design, cultural landscape, Lubusz Voivodeship.



WARDING ECOSYSTEM COMMONS THROUGH EDUCATION

ELIZA SZCZEREK
Ph.D. Eng. Arch., an assistant professor at the CUT. She graduated from the CUT, completing her Master's degree in 2004 and doctoral studies in 2014. Her doctoral dissertation, successfully defended with honours in 2017, was awarded the Minister of Investment and Development's Prize in 2018. Her research focuses on issues of revitalisation and the challenges related to shaping valuable housing environments and public spaces adapted to the needs of 21st-century society. Her teaching experience, besides courses taught in both Polish and English, includes participation as a tutor in international workshops. She gained practical experience working as an architect in architectural practices in Dublin and Krakow.

MATEUSZ GYURKOVICH
Professor, Ph.D. D.Sc. Eng. Arch., a professor at the CUT. A graduated of CUT and the University of Tennessee, he earned his Ph.D. with honours in 2005, completed his habilitation in 2014, and was awarded the title of professor in 2020. His research focuses on contemporary urban structures, with particular emphasis on cultural spaces, inner-city revitalization, the design of public urban spaces, and the processes of metropolisation and exurbanisation. He leads and participates in numerous national and international research and educational projects. He is the author or co-author of over 100 academic publications and the editor of several international monographs. Since 2017, he has served as editor-in-chief of the journal PUA – Space, Urbanism, Architecture. Supervisor of numerous doctoral and diploma theses. A practicing architect and member of SARP, TUP, SKZ and MPOIA.

DAMIAN POKLEWSKI-KOZIEŁŁ
Ph.D. Eng. Arch., an assistant professor at the CUT, a practicing architect and an academic teacher. Since graduating in 2003, he has been involved in architectural design and, since 2009, has been co-owner of his own architectural office. He is the author and co-author of numerous completed projects, including pavilions at the Krakow Zoo. He is a laureate of the international Young Architects Competitions (2017, 2019). Since 2017, he has been teaching design studios at Cracow University of Technology. He has participated in international workshops and research projects. He has authored numerous national and international scientific publications. His research focuses on shaping human-friendly cities.

BARTŁOMIEJ HOMIŃSKI
Ph.D. Eng. Arch., an assistant professor at the CUT. He graduated from the CUT and also studied at Fachhochschule Hildesheim (Germany) and the University of Tennessee (USA). He earned his Ph.D. with honours in 2011. His research interests include public libraries in urban structures, affordable housing, bottom-up residential development, urban design, and sustainable transport. He is the author or co-author of over 30 academic publications. He teaches courses and has supervised several dozen diploma projects. As a practicing architect and co-founder of the studio 9780 Architekci, he has received multiple awards in architectural and urban design competitions. He is a member of MPOIA and co-founder of the association Space-People-City.

AUTHORS OF THE PRESENTED WORKS:
Jakub Barczak, Kseniya Burlakova, Kinga Celtner, Aleksandra Andriushkevich, Joanna Bolka, Wiktoria Brzewska, Oskar Cieślik, Weronika Skórska, Jonasz Markiewicz, Dawid Lorczyk, Marta Szleper, Patryk Tatara, Kacper Żak, Paloma Gomez Del Bano, Coranne Bacquey, Arina Naumenko.

Cracow University of Technology 80th Anniversary

XXIV INTERNATIONAL SCIENTIFIC CONFERENCE / XXIV MIĘDZYNARODOWA KONFERENCJA NAUKOWA
DEFINING THE ARCHITECTURAL SPACE - ARCHITECTURE AND HISTORY
DEFINIOWANIE PRZESTRZENI ARCHITEKTONICZNEJ - ARCHITEKTURA I HISTORIA
20 NOVEMBER 2025 / 20 LISTOPADA 2025

ELIZA SZCZEREK[1], MATEUSZ GYURKOVICH[2], DAMIAN POKLEWSKI-KOZIEŁŁ[3], BARTŁOMIEJ HOMIŃSKI[4],
1,2,3,4 Cracow University of Technology

WARDING ECOSYSTEM COMMONS THROUGH EDUCATION

Introduction

The poster presents a didactic process that is part of the WECARE project (Warding Ecosystem Commons through Action-Research & Education)[1], conducted at the Chair of Urbanism and City Structure Architecture A-9, Faculty of Architecture, Cracow University of Technology.

The WECARE project aims not only to raise awareness of sustainable development through educational and cultural activities but also to establish a replicable methodology that empowers residents to take agency in improving their living conditions. The project is based on an Action-Research methodology, involving neighbours, researchers, and students working collaboratively to explore and address shared environmental issues.

Case Studies

The initiative takes place in three partner cities, within post-war housing estates: El Besòs i el Maresme (Barcelona), Crângași (Bucharest), and Złotego Wieku (Cracow). These estates were selected due to their increased risk of socio-environmental conflicts and social exclusion.

WECARE

Education and Capacity Building – Cracow, Mistrzejowice, Złotego Wieku Housing Estate

Socio-environmental diagnosis – a set of expert analyses conducted by the project team as a starting point for the didactic activities.

Collective discovery of ecosystem commons with the participation of students, experts and the local community.

Capacity-building workshops – reflection and critical summary of lessons learned, accompanied by a dialogue with the local community and a presentation of students' work.

Educational courses on ecosystem commons, conducted at the Faculty of Architecture, Cracow University of Technology, were aligned with the concept and methodology of WECARE.

The content of the courses covered architectural and urban issues related to environmental sustainability. Special attention was paid to such aspects as green infrastructure, the water cycle and new social needs resulting from climate change challenges. Consultations and lectures by visiting professors from foreign universities were an integral part of the course, thus contributing to the networking and knowledge sharing of the project.

Courses topics
- Ecological Revitalization / Urban Design, 1st degree, year 3, sem.6
- In Search of a New Sense of the Hybrid Urban Edge of the Mass Housing Estate – In Search of Commons / Public Utility Buildings Design, 1st degree, year 3, sem.6 and 2nd degree, year 1, sem.1
- Shaping the Housing Environment and Universal Design – Contemporary Challenges / doctoral studies
- Study of Spatial Structure; Interior Design Project for an Apartment in a Prefabricated Housing Estate; Public Utility Building Design; Concept for Redevelopment of an Existing Public Space: Marketplace Square / Introduction to Design, 1st degree, year 1, sem.1 & 2.

Selected courses outcomes

Conclusion

Based on the assumption that contemporary environmental issues are more cultural challenges than technical ones, education gains particular significance. The students' visions provide a valuable contribution to the shared process of identifying and defining ecosystem commons as a foundation for their protection and for responsible, bottom-up management. Education and capacity-building are among the project's overarching objectives, ensuring that the impact of WECARE extends beyond its duration.

1. WECARE project is funded by the European Education and Culture Executive Agency (EACEA) under the Program Creative Europe Programme (CREA) through the Call: CREA-CULT-2023-COOP. https://wecare.upc.edu/

MEDIA PATRONAGE / PATRONAT MEDIALNY :

IN SEARCH OF A NEW TRADITION OF THE PLACE
SHAPING THE FORM OF CONTEMPORARY RURAL DEVELOPMENT BASED ON REGIONAL ARCHITECTURE ARCHETYPES: EXAMPLES FROM WA PK STUDENT'S PROJECTS

JUSTYNA TARAJKO-KOWALSKA
Ph.D. Eng. Arch., a lecturer at the CUT in the Department of Spatial Planning, Urban and Rural Design, since 2001. In her research, she focuses on the issue of colour in the built environment and the history of color in architecture and urbanism. She is also interested in urban farms with animals and the sustainable development of rural areas. She is the author of over 70 articles and numerous lectures, mostly on color in architecture and urban planning, published in Polish and English. She has participated in many conferences and scientific sessions. Since 2005, she has been a member of the AIC Environmental Color Design Study Group. She is also active in developing projects for public spaces and landscape architecture in villages in Poland.

INGEBORGA CYGANKIEWICZ
Ph.D. Eng. Arch., a graduate of the CUT, architect and academic teacher. In 2005-2006, she was associated with the Independent Department of Regional Architectural Design, teaching the subject "Design of Service Buildings and Complexes". Since 2021, she has been working at the Department of Spatial Planning, Urban and Rural Design. She has authored and co-authored architectural designs for public buildings, residential architecture, conservation designs for historic buildings, municipal sports centers, village centers, architectural details, and interior designs. Her research focuses primarily on issues related to rural landscape and architecture.

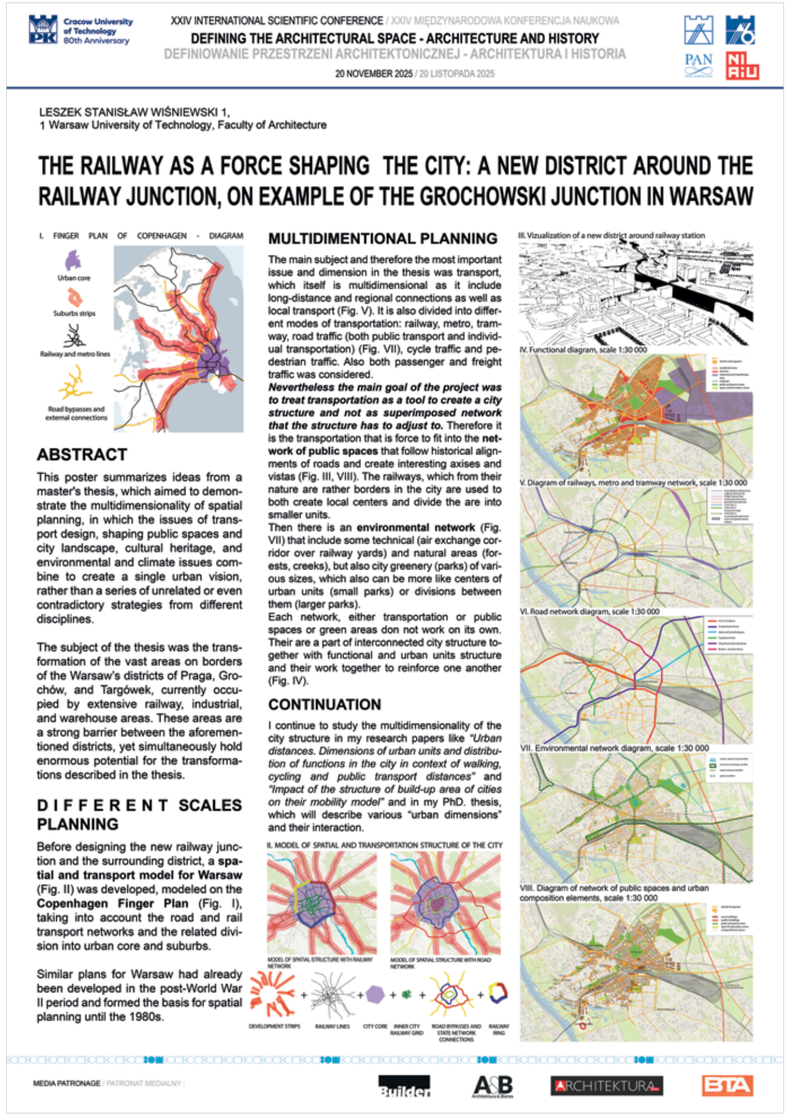
DOMINIKA MOSKAL
M.Sc. Eng. Arch., a graduate of the CUT, architect, academic teacher. Since 2021, she has been working at the CUT in the Department of Spatial Planning, Urban and Rural Design. Author and co-author of architectural designs and interior design. She is working on her doctoral thesis with the working title: "Specific topographic and historical conditions may be conducive to the creation of a polyfunctional (polycentric) model of a multifocal urban center on the example of the city of Bielsko-Biała". Author of scientific articles, including those devoted to the wooden architecture of Hrubieszów and the creative transformation of the traditional archetype for the needs of the modern user.

AGATA KORZENIOWSKA
Ph.D. Eng. Arch., a research and teaching assistant at the Department of Spatial Planning, Urban and Rural Design at the CUT. Since 2016, she has been involved in academic teaching, delivering courses in Rural Design and Architecture and related to spatial planning. She is also an active professional urban planner. She has authored numerous spatial development plans and is a member of the Sociaty of Polish Town Planners. Her research interests focus on the history of urban planning and the challenges of rural development, with particular attention to the role of local heritage in shaping contemporary planning practices. She has published several scholarly articles addressing these themes, contributing to the discourse on sustainable rural development and the preservation of cultural landscapes.

JAN ŁAŚ
Ph.D. Eng. Arch., Assoc. Prof. CUT, an academic teacher at the Faculty of Architecture for 35 years. He is an active architect and designs various types of buildings, from single-family homes and residences to public buildings and reconstructions, as well as interior design and individual furniture designs (several dozen buildings completed, mainly in the Podhale region). He is also building, supervising, and providing technical advice on the construction, reconstruction, and conservation renovation of various types of wooden structures. In his scientific studies, he specializes in the history of wooden architecture in Podhale region, as well as in the traditional and modern use of wood in construction and cladding.

THE RAILWAY AS A FORCE SHAPING THE CITY: A NEW DISTRICT AROUND THE RAILWAY JUNCTION, ON EXAMPLE OF THE GROCHOWSKI JUNCTION IN WARSAW

LESZEK S. WIŚNIEWSKI
M.Sc. Eng. Arch., a graduate of the Faculty of Architecture at Warsaw University of Technology, and the Institute of Public Space Research at Academy of Fine Arts in Warsaw. Currently an research and teaching assistant at the Department of Urban Design and Rural Landscape at the Faculty of Architecture of the Warsaw University of Technology. A member of the Expert Team of the Municipal Urban Planning and Architectural Commission. From 2020 to 2023, te was a member of the Working Group for the Reform of the Spatial Planning System at the Ministry of Development and Technology. Co-author of the work awarded in the competition "Futuwawa – Look at the Square" (2016) concerning Parades Square (pl. Defilad) in Warsaw. Author of the Master's thesis "Railway as a force shaping the city: a new district around the new railway junction on the example of Grochowski Junction in Warsaw" honoured with the Minister of Infrastructure Award (2018) and the distinction of the President of City of Warsaw ("Diplomas for Warsaw" – 2018). Author of academic and journalistic articles in the fields of spatial planning, transport, sustainable development, and renewable energy. He collaborates with non-governmental organizations: the "Miasto Jest Nasze" Association, the Jagiellonian Club, the SISKOM Association, the ClientEarth Lawyers for Earth Foundation, and the "Bęc Zmiana" Foundation.



Crocow University of Technology 80th Anniversary

XXIV INTERNATIONAL SCIENTIFIC CONFERENCE / XXIV MIĘDZYNARODOWA KONFERENCJA NAUKOWA
DEFINING THE ARCHITECTURAL SPACE - ARCHITECTURE AND HISTORY
DEFINIOWANIE PRZESTRZENI ARCHITEKTONICZNEJ - ARCHITEKTURA I HISTORIA
20 NOVEMBER 2025 / 20 LISTOPADA 2025

LESZEK STANISŁAW WIŚNIEWSKI 1,
1 Warsaw University of Technology, Faculty of Architecture

THE RAILWAY AS A FORCE SHAPING THE CITY: A NEW DISTRICT AROUND THE RAILWAY JUNCTION, ON EXAMPLE OF THE GROCHOWSKI JUNCTION IN WARSAW

I. FINGER PLAN OF COPENHAGEN - DIAGRAM

Urban core
Suburbs strips
Railway and metro lines
Road bypasses and external connections

ABSTRACT

This poster summarizes ideas from a master's thesis, which aimed to demonstrate the multidimensionality of spatial planning, in which the issues of transport design, shaping public spaces and city landscape, cultural heritage, and environmental and climate issues combine to create a single urban vision, rather than a series of unrelated or even contradictory strategies from different disciplines.

The subject of the thesis was the transformation of the vast areas on borders of the Warsaw's districts of Praga, Grochów, and Targówek, currently occupied by extensive railway, industrial, and warehouse areas. These areas are a strong barrier between the aforementioned districts, yet simultaneously hold enormous potential for the transformations described in the thesis.

DIFFERENT SCALES PLANNING

Before designing the new railway junction and the surrounding district, a **spatial and transport model for Warsaw** (Fig. II) was developed, modeled on the **Copenhagen Finger Plan** (Fig. I), taking into account the road and rail transport networks and the related division into urban core and suburbs.

Similar plans for Warsaw had already been developed in the post-World War II period and formed the basis for spatial planning until the 1980s.

MULTIDIMENTIONAL PLANNING

The main subject and therefore the most important issue and dimension in the thesis was transport, which itself is multidimensional as it include long-distance and regional connections as well as local transport (Fig. V). It is also divided into different modes of transportation: railway, metro, tramway, road traffic (both public transport and individual transportation) (Fig. VII), cycle traffic and pedestrian traffic. Also both passenger and freight traffic was considered.
Nevertheless the main goal of the project was to treat transportation as a tool to create a city structure and not as superimposed network that the structure has to adjust to. Therefore it is the transportation that is force to fit into the **network of public spaces** that follow historical alignments of roads and create interesting axises and vistas (Fig. III, VIII). The railways, which from their nature are rather borders in the city are used to both create local centers and divide the are into smaller units.
Then there is an **environmental network** (Fig. VII) that include some technical (air exchange corridor over railway yards) and natural areas (forests, creeks), but also city greenery (parks) of various sizes, which also can be more like centers of urban units (small parks) or divisions between them (larger parks).
Each network, either transportation or public spaces or green areas don not work on its own. Their are a part of interconnected city structure together with functional and urban units structure and their work together to reinforce one another (Fig. IV).

CONTINUATION

I continue to study the multidimensionality of the city structure in my research papers like *"Urban distances. Dimensions of urban units and distribution of functions in the city in context of walking, cycling and public transport distances"* and *"Impact of the structure of build-up area of cities on their mobility model"* and in my PhD. thesis, which will describe various "urban dimensions" and their interaction.

II. MODEL OF SPATIAL AND TRANSPORTATION STRUCTURE OF THE CITY

MODEL OF SPATIAL STRUCTURE WITH RAILWAY NETWORK
MODEL OF SPATIAL STRUCTURE WITH ROAD NETWORK
DEVELOPMENT STRIPS
RAILWAY LINES
CITY CORE
INNER CITY RAILWAY GIRD
ROAD BYPASSES AND STATE NETWORK CONNECTIONS
RAILWAY RING

III. Vizualization of a new district around railway station
IV. Functional diagram, scale 1:30 000
V. Diagram of railways, metro and tramway network, scale 1:30 000
VI. Road network diagram, scale 1:30 000
VII. Environmental network diagram, scale 1:30 000
VIII. Diagram of network of public spaces and urban composition elements, scale 1:30 000

MEDIA PATRONAGE / PATRONAT MEDIALNY :

DIGITAL ARCHIVING OF THE DESIGN PROCESS
CREATING HISTORICAL DATABASE OF OBJECTS IN BIM TECHNOLOGY

WOJCIECH CIEPŁUCHA
PH.D. Eng. Arch., a research and teaching assistant at the CUT in the Chair of Architectural Design. Ph.D. defended in 2024 under the supervision of Professor Tomasz Kozłowski, dissertation titled "Dwelling in an architectural structure". BIM enthusiast, speaker, certified Revit instructor.

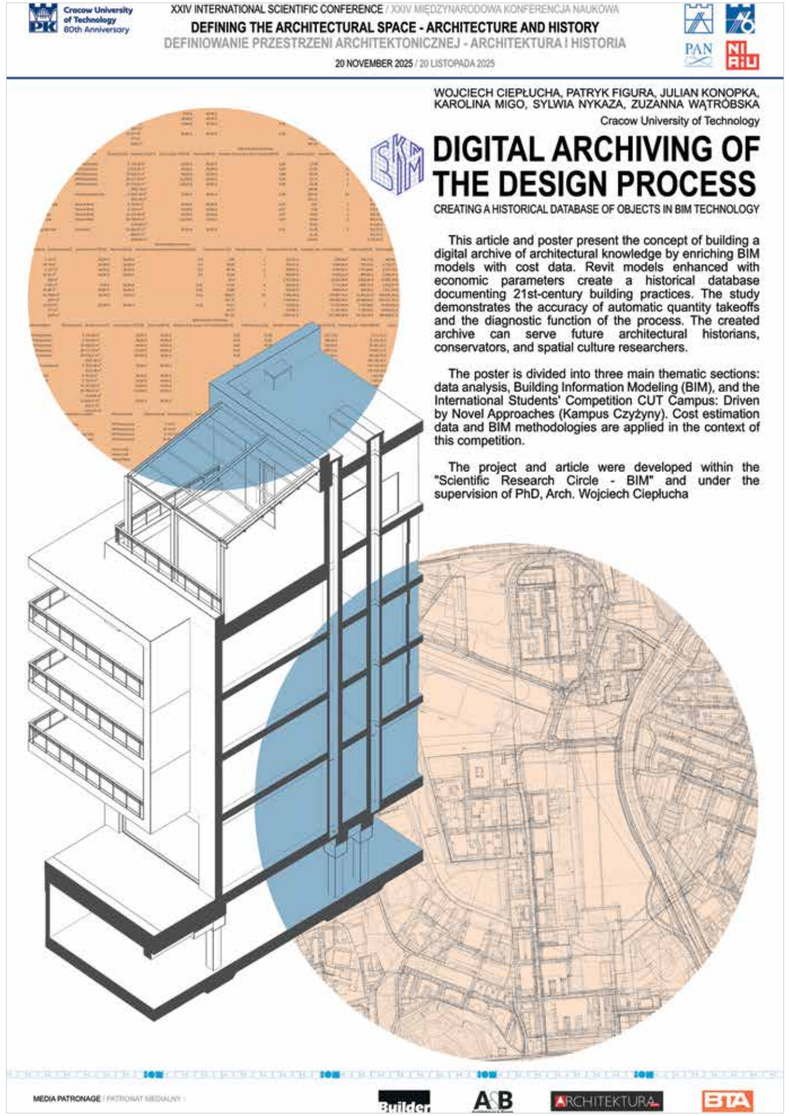
PATRYK FIGURA
He is a final-year civil engineering student specializing in Structural Engineering and BIM (TOB/BIM). He currently works as a structural designer, focusing on industrial construction projects. Passionate about BIM technology and its role in modern engineering.

JULIAN KONOPKA
Architect Engineer, Student of Architecture. Passionate about BIM and its role in the early stages of the design process. He defended his Bachelor's thesis project in July 2025 titled: "Reintegration and Rehabilitation Center for Individuals Completing Their Prison Sentences".

KAROLINA MIGO
Architect Engineer, Student of architecture, Bachelor's thesis project titled "Youth Center Bagry" defended in 2025 with distinction. Passionate about photography, art and history of art.

SYLWIA NYKAZA
Master's student of architecture. Since July 2023, I've been working as a Junior Architect at Cubicform architectural office. I'm interested in designing contemporary functional spaces and am currently developing my skills in BIM and teamwork.

ZUZANNA WĄTRÓBSKA
Master's student in Architecture at CUT. Earned her Bachelor's degree at the Silesian University of Technology. In 2025, she completed postgraduate studies in BIM technology, which she uses daily in her professional work. Interested in modern design methods and digital tools supporting the creative process.



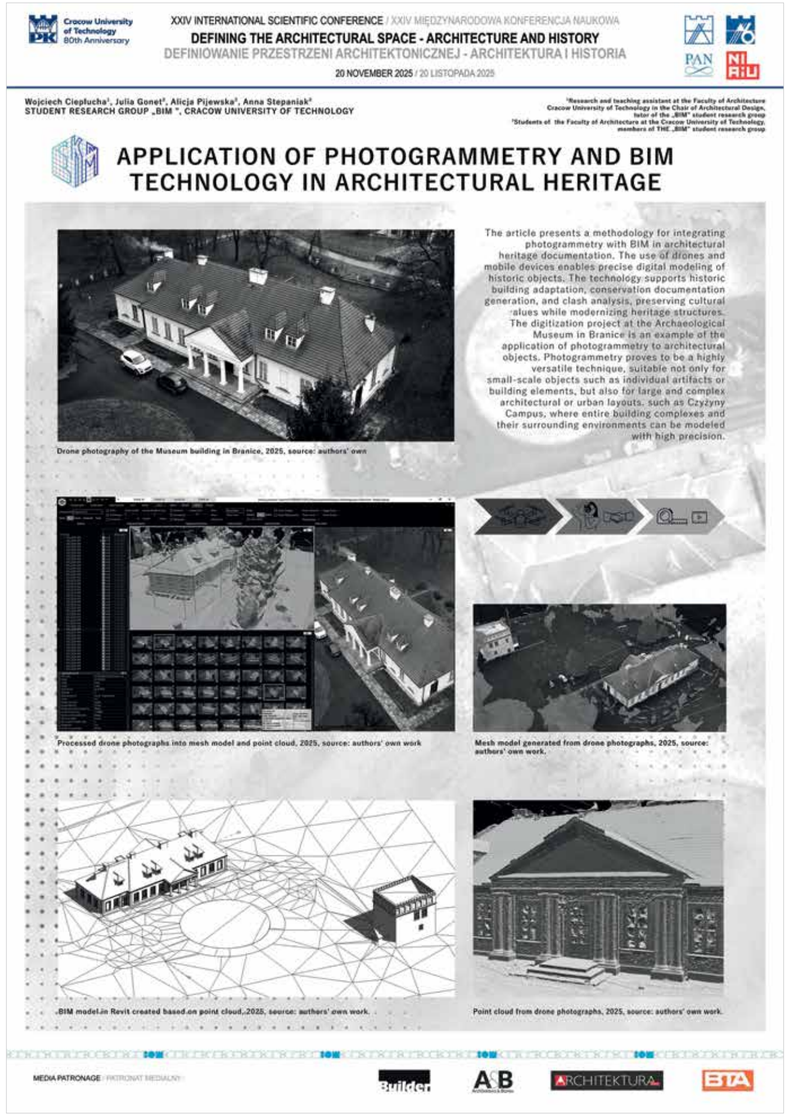
APPLICATION OF PHOTOGRAMMETRY AND BIM TECHNOLOGY IN ARCHITECTURAL HERITAGE

WOJCIECH CIEPŁUCHA
PH.D. Eng. Arch., a research and teaching assistant at the CUT in the Chair of Architectural Design. Ph.D. defended in 2024 under the supervision of Professor Tomasz Kozłowski, dissertation titled "Dwelling in an architectural structure". BIM enthusiast, speaker, certified Revit instructor. Author of publications in the field of design theory, housing, and decision-making in design. Specialises in modern technologies in architecture and construction – Building Information Modelling (BIM).

JULIA GONET
Student at the Faculty of Architecture of Cracow University of Technology. Internship at an architectural office. Specialises in BIM technology, actively participates in the work of the BIM Acadamic Club.

ALICJA PIJEWSKA
Student at the Faculty of Architecture of Cracow University of Technology. Internship at an architectural office. Specializes in BIM technology, vice-president of the BIM Acadamic Club alongside the Chair of Architectural Design.

ANNA STEPANIAK
Student at the Faculty of Architecture of Cracow University of Technology. Member of the BIM Acadamic Club. Develops competencies in modern design methods and modelling in the digital BIM environment.



KWADRAT 2.0

MANEZHA DOST
Ph.D. Eng. Arch., an architect and painter with over twenty years of professional experience in Poland and abroad. After defending her Master's thesis "Kabul Spatial Development Plan" she was invited to collaborate on a government project in Afghanistan. Currently works as an assistant professor at the CUT. She is an active member of IARP and SARP. Inspired by Kenneth Frampton's Critical Regionalism, her work as an architect places particular emphasis on design deeply embedded in context and local conditions. She is fascinated by spaces that engage users through all the senses and present structural solutions as an integral part of architectural aesthetics. With design experience in a diverse range of cultures, she seeks in modern architecture a response to the need for identity and a sense of rootedness in a dynamically changing world.

KLAUDIUSZ HUS
A third year student at the Faculty of Architecture of the Cracow University of Technology.

HIGH-DENSITY SINGLE-FAMILY DEVELOPMENT ENSEMBLE – CZYŻYNY RESIDENTIAL PART

PATRYCJA HAUPT
Ph.D. D.Sc. Eng. Arch., Assoc. Prof. CUT, HEAL Laboratory Supervisor, Chair of Housing Environment, CUT, an architect, academic teacher and researcher with over 20 years of experience in sustainable housing and urban design. Awarded the Ministry of Development Prize for the best habilitation thesis (2018), published more than 80 academic papers and book chapters, EC Expert in sustainable architecture and social innovation, member of the Housing Advisory Board, she has led multiple EU-funded projects that integrated accessibility, health, and innovation into the built environment. Her work focuses on research by design, exploring housing environments through experimental and socially responsive architectural solutions that merge sustainability, inclusivity, and well-being.

PIOTR BRONIEWICZ
Ph.D. Eng. Arch., an assistant professor at the Chair of Housing Environment since 2013. He teaches classes of design of social housing complexes at Bachelor and Master's degree studies at the Faculty of Architecture of the Cracow University of Technology. Supervisor and co-supervisor of several Master's and Bachelor's diploma projects. In his research work he focuses on public buildings and surrounding them city spaces. Member of MPOIA. Apart from the University, he works as architect and interior designer.

AGNIESZKA ŻABICKA
Ph.D. Eng. Arch., an Assistant Professor at the CUT, Chair of Housing Environment. Her research focuses on social spaces in extreme climatic conditions, sustainable housing, and the integration of innovative design methods in architectural education. She is the author of the academic monograph "Spitsbergen. Social Spaces in Extremely Cold Climate Areas" (2023) and co-author of numerous peer-reviewed articles published in journals such as "Sustainability" and "Housing Environment". In parallel with academic research, she has gained professional experience through architectural and urban projects, including the award-winning projects, recognized in national and international competitions.

ZBIGNIEW KĘSEK
Ph.D. Eng. Arch., Assoc. Prof. CUT, a graduate of the CUT, where he works at the Chair of Housing Environment. In addition, he has pursued postgraduate studies in sacral architecture and pedagogy. The doctoral thesis was prepared under Professor W. Kosiński in 2005. His teaching focuses on residential architectural and urban design. His research is reflected in numerous articles and scientific publications. Since 1996, he has also managed his own architectural studio, designing and building residential and public buildings. He is an active member of the SARP and the Lesser Poland Regional Chamber of Architects, holding full professional architectural entitlements.

TOMASZ OBARA
An architect with a full architectural design licence. He graduated with distinction from his Master's (2019–2020) and Bachelor's (2015–2019) studies in architecture at the Cracow University of Technology. Since 2019, He has been working at the architectural firm URBA Architects. His responsibilities include architectural design, project coordination, and BIM workflow management. His work has been recognised with individual awards, such as the Annual Award of the Association of Housing Builders (2020) or the SARP Creative Scholarship (2019). He has also participated in award-winning team projects in national and international competitions.

AUTHORS OF THE PRESENTED WORKS:
Julia Deleszek, Mateusz Fryźlewicz, Emilia Pasiuch, Katarzyna Półchłopek

ARCHITECTURE AS A PROCESS
CHANGING THE 21ST CENTURY DESIGN EDUCATION MODEL

JAKUB KNAPEK
Eng. Arch., a Master's student at the Faculty of Architecture of the Cracow University of Technology. He works professionally as an architect, focusing on public utility building projects at an architectural office in Krakow. His interests include art, contemporary architecture, and academic activities. In his creative work, he develops skills in hand drawing, acrylic painting, and digital graphics, with particular emphasis on 3D modelling.

HANNA HREHOROWICZ-GABER
Ph.D. Eng. Arch., Assoc. Prof. CUT – Faculty of Architecture, Chair of Spatial Planning, Urban and Rural Design. She specialises in spatial structures, with particular emphasis on mountainous areas. Author of numerous academic publications and research projects in the field of urban planning and spatial development. Actively involved in research and educational activities. Her interests also include space and cultural landscape. She supervises the Academic Club "Young Urbanism".

Cracow University of Technology 80th Anniversary
XXIV INTERNATIONAL SCIENTIFIC CONFERENCE / XXIV MIĘDZYNARODOWA KONFERENCJA NAUKOWA
DEFINING THE ARCHITECTURAL SPACE - ARCHITECTURE AND HISTORY
DEFINIOWANIE PRZESTRZENI ARCHITEKTONICZNEJ - ARCHITEKTURA I HISTORIA
20 NOVEMBER 2025 / 20 LISTOPADA 2025

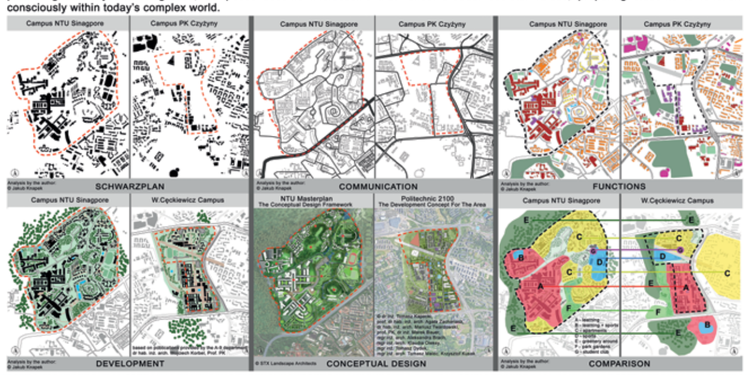
inż. arch. JAKUB KNAPEK, dr inż. arch. Hanna Hrehorowicz-Gaber, prof. PK
Cracow University of Technology, Faculty of Architecture,
Department of Spatial Planning, Urban and Rural Design
Academic Circle "Young Urbanism"

ARCHITECTURE AS A PROCESS

CHANGING THE 21ST CENTURY DESIGN EDUCATION MODEL

COMPARATIVE ANALYSIS OF URBAN TRANSFORMATIONS OF THE NTU CAMPUS AND THE CONCEPT OF THE PK CAMPUS IN CZYŻYNY

Contemporary academic campuses should not be perceived as static architectural entities, but rather as complex, dynamic spatial organisms that constantly evolve in response to the rapidly changing educational, technological, and social needs of the 21st century. Today, the campus functions as a multidimensional platform integrating a variety of roles — from teaching and research to social interaction and recreation — which requires flexible, sustainable, and adaptive design solutions. An analysis of the current campus of the Cracow University of Technology in Czyżyny and the Nanyang Technological University in Singapore reveals both differences stemming from distinct climatic, cultural, and landscape conditions, as well as surprising similarities in fundamental urban and conceptual principles. The Cracow school of architecture was shaped by outstanding post-war architects and urban planners, including Prof. Witold Cęckiewicz. Among the lasting traces of Cęckiewicz's professional activity are numerous realized projects and conceptual designs, including the Cracow University of Technology campus in Czyżyny. Both Cęckiewicz's project and the NTU campus are based on a legible functional-spatial scheme, with a hierarchical organization of circulation networks, a clear division of functional zones, and a conscious integration of built structures with communal and green spaces, which together form a coherent whole. The spatial layout of the campus's key functions reflects a similar model, addressing the need to create environments conducive to academic collaboration, social integration, and user comfort. The differences lie primarily in form and spatial articulation: the Cracow University of Technology campus is characterized by a compact, axial, and geometric structure governed by spatial rhythm, while the NTU layout is organic, flexibly adapted to the natural features of the landscape and the requirements of a tropical climate. However, these formal differences are dictated by topography, and the approach to function and campus concept remains aligned. What is essential is to perceive the campus not as a collection of isolated architectural objects, but as an integrated, functional urban organism that combines education, research, housing, and recreation into a harmonious and sustainable whole. This holistic approach fosters a sense of belonging among users and is essential to supporting social engagement and academic excellence. In the face of evolving paradigms in design education, campuses are transforming into spatial laboratories where new modes of collaboration, knowledge exchange, and creativity development emerge. This shift requires a redefinition of academic space — from a static construct to a dynamic process that continually adapts to the changing needs of users and environmental challenges. As a result, campus architecture reflects learning as a continuous, flexible process that fosters innovation, interdisciplinarity, and technological advancement. The analysis of both campuses confirms that universal design values — such as spatial legibility, functional integration, environmental consciousness, and the creation of friendly and accessible places — remain the foundation of contemporary educational architecture. Future campuses should function as living, evolving environments that integrate nature preservation, knowledge development, and active community engagement, offering open spaces that promote relationships and participation. Campus development should be directed toward building a sense of community within the academic environment and enabling the creation of more dynamic academic settings, in line with the standards and strategies adopted by each institution according to its specific needs. This requires incorporating biophilic design principles that strengthen the human-nature connection, positively impacting well-being and performance. Only in this way can campuses create environments that support the holistic development of individuals and communities. The architecture of academic campuses thus transcends mere form, becoming a process that enables the continuous adaptation of space to the expectations of successive generations of students, researchers, and staff — supporting not only the transfer of knowledge but also the development of critical thinking, creativity, and interdisciplinary collaboration. Moreover, the social dimension is playing an increasingly important role in campus life, and design strategies that account for inclusivity and accessibility — regardless of physical ability, cultural background, or social status — are essential. By promoting diversity and integration, campuses become microcosms that reflect broader societal values, preparing students to function consciously within today's complex world.



MEDIA PATRONAGE / PATRONAT MEDIALNY :

PUBLIC SPACE ON CAMPUS CUT
PUBLIC SPACE MADE BY 1st-YEAR STUDENTS OF THE INTRODUCTION TO ARCHITECTURAL AND URBAN DESIGN COURSE

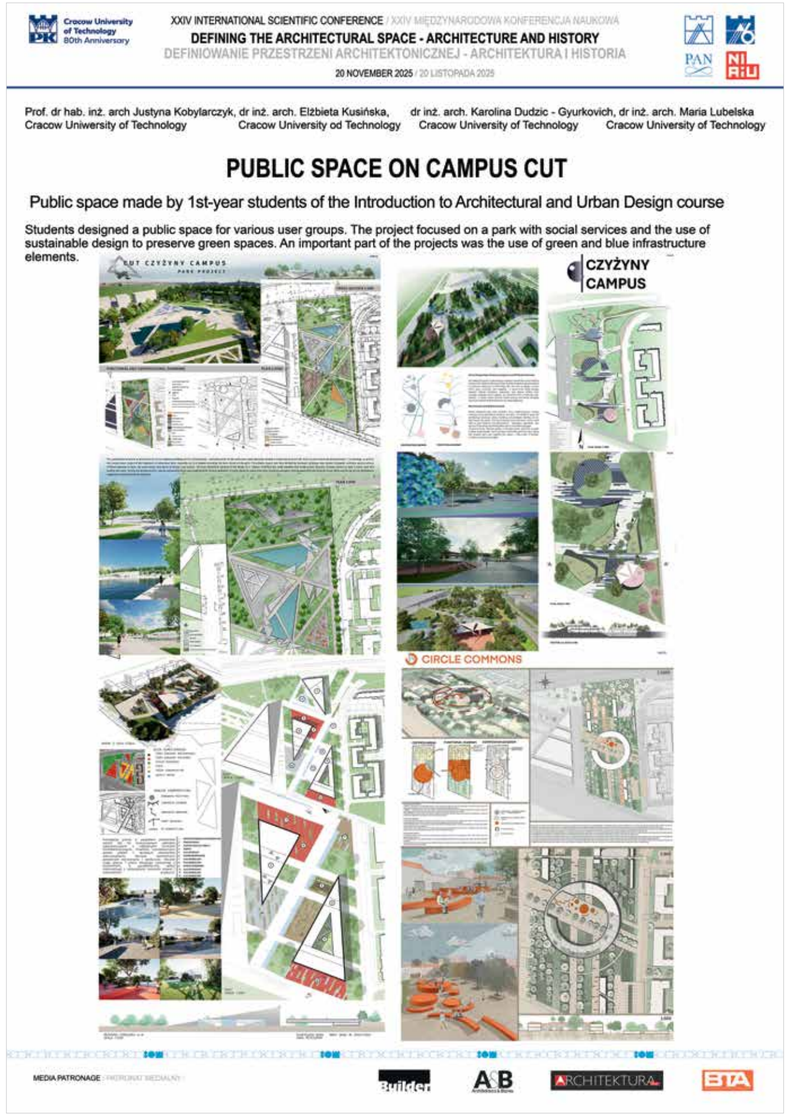
JUSTYNA KOBYLARCZYK
Professor, Ph.D. D.Sc. Eng. Arch., CUT, head of the Chair of Housing Environment, author of numerous books and more than 100 research papers. Her scientific interests relate: assessing the quality of the housing environment, sustainable development, the impact of climate change on the way architectural structures are shaped and functioning, as well as the role of architecture in public spaces of cities. She has also developed her scientific interests in other areas of activities which include a didactic, scholar and creative work. She is an expert in many organisations, and a member of Societies, among other she is a member of the PKN MROZ ICOMOS; She is the chair of the Committee on Architecture and Urban Planning of the Polish Academy of Sciences. In addition, she is a member of editorial committees of few academic periodical.

ELŻBIETA KUSIŃSKA
Ph.D. Eng. Arch., she conducts classes for students of Architecture and Urban Planning as well as for both undergraduate and graduate levels of the interdisciplinary Spatial Management program. She is involved in a variety of teaching activities, has served as the academic advisor for the student project Future Lab, and has led numerous student workshops both as an organizer and as a mentor to project groups. The author and co-author of many articles published in academic journals, as well as an editor and co-editor of scientific studies and teaching materials. She has participated in many international programs, including the "Blueprint" for planning and supply policy in sustainable construction development, INTERREG III C, "Green Growth", Erasmus+, and POWER programs such as "Young Architects". She collaborates with the National Institute of Architecture and Urban Planning as a member of the team for Universal Architectural Education.

KAROLINA DUDZIC-GYURKOVICH
Ph.D. Eng. Arch., a graduated from the CUT in 2003. After graduating, she spent over 10 years working to gain experience in building design, as well as reconstruction and renovation projects. She has been employed at the CUT since 2013 and obtained her Ph.D. in 2018. Her doctoral dissertation addresses quality issues and the areas surrounding expressways in urban applications, as well as methods for their revitalization to ensure the quality of the living environment and restore the continuity of public space systems. She is the author and co-author of dozens of academic publications and a reviewer for several academic journals. She is a member of the Section (on Urban Morfology) of the Commission on Urban Planning and Architecture of the Polish Academy of Sciences Cracow Branch and the Society of Polish Town Planners. Her research focuses on urban design, urban form in the context of quality, pedestrian access, and sustainable transport.

MARIA LUBELSKA
PH.D. Eng. Arch., She teaches design, with particular emphasis on the role of future users in the design process. She teaches courses on the collaboration of all stakeholders in socially engaged projects. She is familiar with challenge-based learning.
Her research interests lie in socially responsible architecture, particularly in the development of the contemporary concept of humanitarian architecture. She is interested in changing the model of architects' work on projects for vulnerable communities experiencing housing crises. She also conducts research on identifying design strategies that support the development of effective humanitarian architecture and the roles architects assume in this process.

AUTHORS OF THE PRESENTED WORKS:
Vladyslava Ruda/Yana Petryshyn, Kalina Podolska/Wiktoria Poniewierska, Joanna Pająk/Yaryna Onyshko, Anna Pulit/ Jan Prusak



CUT CAMPUS
DESIGN EXERCISES THROUGH AN INTERNATIONAL COMPETITION FOR STUDENTS – CUT CAMPUS: DRIVEN BY NOVEL APPROACHES

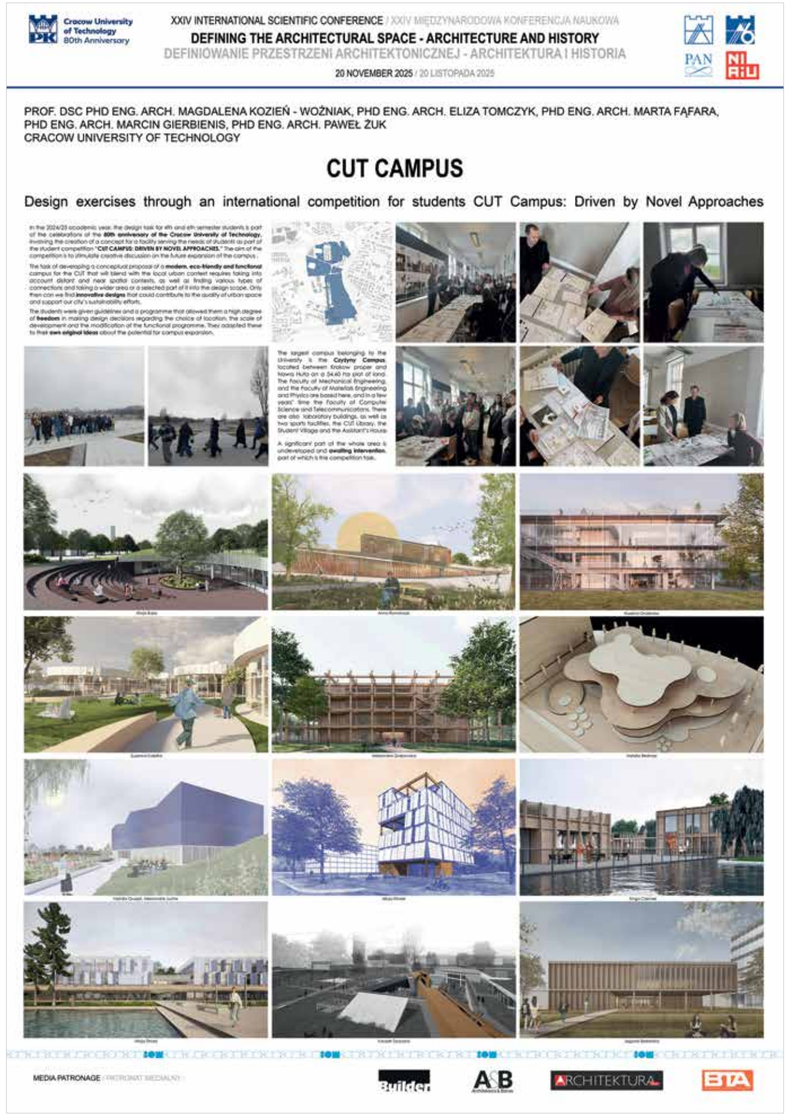
MAGDALENA KOZIEŃ-WOŹNIAK
Professor, Ph.D. D.SC. Eng. Arch., an architect, Dean of the Faculty of Architecture at the CUT. The most important problems that she addresses in her work are related to the architectural design of contemporary museum and theatrical buildings. She is an author of the monograph "Theatres of Interference. Contemporary Theatre Architecture and the Informal Space of Theatre". She is a partner at the Kozień Architekci architecture studio. Together with the team, she is a laureate of a number of awards and distinctions in architectural competitions. The National Muzeum in Przemyśl was nominated for the Mies van der Rohe Award 2008. The Capitol Theater in Wrocław won the Beautiful Wrocław 2013 Grand Prix. The Visitor Service Centre of the Memorial and Museum Auschwitz-Birkenau was honoured with the SARP Award of the Year 2024 in the category of architecture in the field of heritage. She is a member of the Committee for Architecture and Urban Planning of the Polish Academy of Sciences.

ELIZA TOMCZYK
Ph.D. Eng. Arch., an architect and a 2012 graduated of the CUT. She is a member of the Lesser Poland Regional Chamber of Architects. From 2011 to 2017, she managed the design activities in prestigious architectural offices (including HS99 in Koszalin, Müller-BBM in Berlin, Kruszelnicki & Leetch in London). Since 2017, she has been employed at the Faculty of Architecture at the Cracow University of Technology as a research and teaching assistant tutor. In 2024, she defended her Ph.D. thesis, entitled "Opportunities for adaptations of office buildings: analysis of changes after the pandemic on the example of the city of Cracow" supervised by Professor Magdalena Kozień-Woźniak. Since 2016, Eliza Tomczyk has been actively working as an independent architect, carrying out numerous design projects related to competitive tendering and acquiring private investors.

MARTA FĄFARA
Ph.D. Eng. Arch., an architect, graduated of the CUT in 2009. During her architectural studies, she had the opportunity to study at the Bauhaus-Universität in Weimar as an Erasmus student. In 2016, she defended her Ph.D. thesis with honours under the supervision of professor Piotr Gajewski. She gained professional experience while working at the Swiss-German office Erik Schmitz-Riol and at architectural offices in Krakow. She holds a full architectural design license (2017) and is a member of the Lesser Poland Regional Chamber of Architects. Since the beginning of her professional career, she has been involved in research on public and commercial architecture. She is the author of a dozen academic publications and completed architectural buildings.

MARCIN GIERBIENIS
Ph.D. Eng. Arch., a graduated of the CUT (2007). He is a member of the Lesser Poland Regional Chamber of Architects. He studied freehand drawing under Professor Wiktor Zin. In 2007–2016, he worked as assistant at renowned offices Kozień Architekci and DDJM. Since 2016, he has been co-running the Gierbienis + Poklewski studio. His latest design of the educational building in the Marszewo Forest Botanical Garden has won numerous awards in a number of competitions for the project of the year, including distinctions from PLGBC, Property Awards, Czas Gdyni, SAW, and SARP. Since 2017, he has been an employee of the CUT. In 2022, he defended his Ph.D. thesis entitled "Impact of technological and cultural changes on the functioning of public libraries in the 21st century" supervised by Professor Magdalena Kozień-Woźniak.

PAWEŁ ŻUK
Ph.D. Eng. Arch., an architect, graduated of the CUT. He has been an employee of this faculty since 1997. In 2011, he defended his doctoral thesis entitled "The Role of Natural Lighting in Shaping the Architectural Form of Contemporary Museums" supervised by Professor Piotr Burak-Gajewski. He has published 17 scientific publications in Polish and English. A member of SARP (Polish Architects Association) since 1999. He has held a design licence in the field of architecture since 2018. In addition to teaching, he collaborates as a freelance architect, his main achievements include Historical Museum in Skierniewice 1st prize (2015), Modernization of Market Square in Kołobrzeg 1st prize (1998).



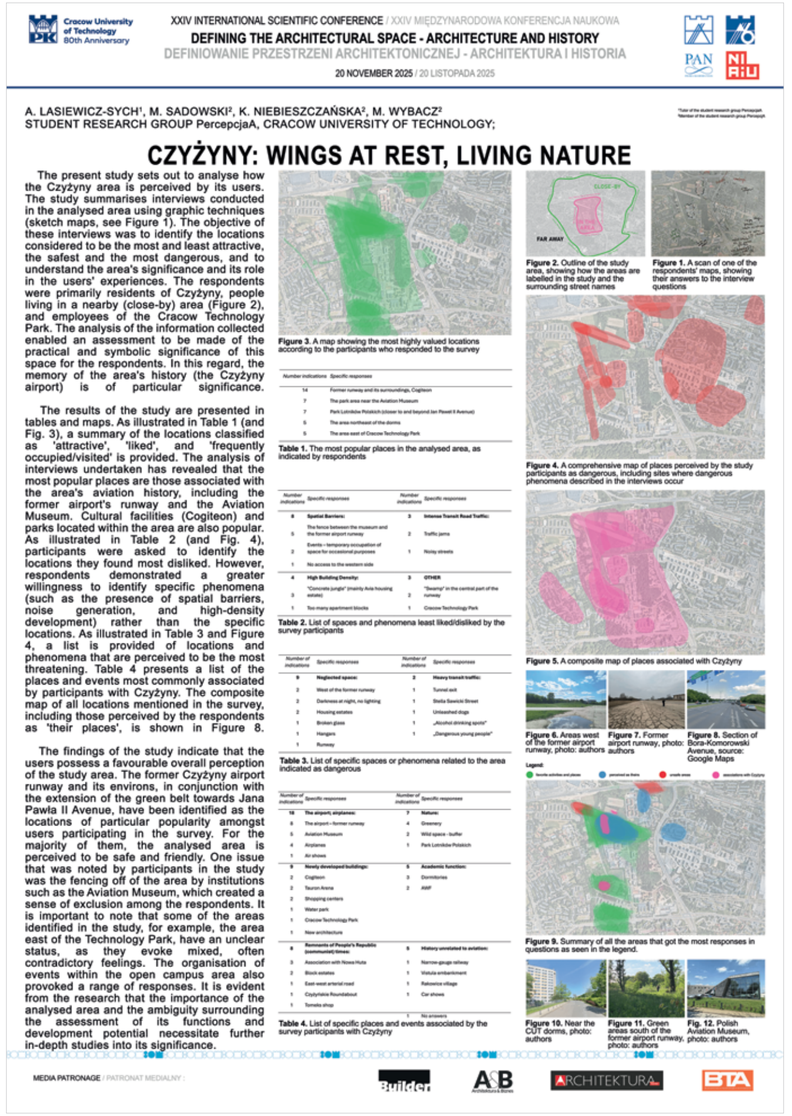
CZYŻYNY: WINGS AT REST, LIVING NATURE

ANGELIKA LASIEWICZ-SYCH
Ph.D. Eng. Arch., an architect and assistant professor at the Chair of Architecture of Workplaces, Sports and Services, CUT. Her research is situated at the intersection of architectural theory and environmental psychology, with a particular focus on the social impact of architectural space and the role of users in shaping the meaning of a place. She is also a tutor for the student research group PercepcjaA at the CUT.

MIŁOSZ SADOWSKI
Student of a Master's programme in architecture at the Cracow University of Technology. Vice-president of the student research group PercepcjaA at the CUT.

KINGA NIEBIESZCZAŃSKA
Student of a Master's programme in architecture at the Cracow University of Technology. President of the student research group PercepcjaA at the CUT.

MAGDALENA WYBACZ
Student of a Bachelor's programme in architecture at the Cracow University of Technology. Member of the student research group PercepcjaA at the CUT.



Cracow University of Technology 80th Anniversary

XXIV INTERNATIONAL SCIENTIFIC CONFERENCE / XXIV MIĘDZYNARODOWA KONFERENCJA NAUKOWA
DEFINING THE ARCHITECTURAL SPACE - ARCHITECTURE AND HISTORY
DEFINIOWANIE PRZESTRZENI ARCHITEKTONICZNEJ - ARCHITEKTURA I HISTORIA
20 NOVEMBER 2025 / 20 LISTOPADA 2025

A. LASIEWICZ-SYCH[1], M. SADOWSKI[2], K. NIEBIESZCZAŃSKA[2], M. WYBACZ[2]
STUDENT RESEARCH GROUP PercepcjaA, CRACOW UNIVERSITY OF TECHNOLOGY;

[1]tutor of the student research group Percepcja
[2]Member of the student research group Percepcja

CZYŻYNY: WINGS AT REST, LIVING NATURE

The present study sets out to analyse how the Czyżyny area is perceived by its users. The study summarises interviews conducted in the analysed area using graphic techniques (sketch maps, see Figure 1). The objective of these interviews was to identify the locations considered to be the most and least attractive, the safest and the most dangerous, and to understand the area's significance and its role in the users' experiences. The respondents were primarily residents of Czyżyny, people living in a nearby (close-by) area (Figure 2), and employees of the Cracow Technology Park. The analysis of the information collected enabled an assessment to be made of the practical and symbolic significance of this space for the respondents. In this regard, the memory of the area's history (the Czyżyny airport) is of particular significance.

The results of the study are presented in tables and maps. As illustrated in Table 1 (and Fig. 3), a summary of the locations classified as 'attractive', 'liked', and 'frequently occupied/visited' is provided. The analysis of interviews undertaken has revealed that the most popular places are those associated with the area's aviation history, including the former airport's runway and the Aviation Museum. Cultural facilities (Cogiteon) and parks located within the area are also popular. As illustrated in Table 2 (and Fig. 4), participants were asked to identify the locations they found most disliked. However, respondents demonstrated a greater willingness to identify specific phenomena (such as the presence of spatial barriers, noise generation, and high-density development) rather than the specific locations. As illustrated in Table 3 and Figure 4, a list is provided of locations and phenomena that are perceived to be the most threatening. Table 4 presents a list of the places and events most commonly associated by participants with Czyżyny. The composite map of all locations mentioned in the survey, including those perceived by the respondents as 'their places', is shown in Figure 8.

The findings of the study indicate that the users possess a favourable overall perception of the study area. The former Czyżyny airport runway and its environs, in conjunction with the extension of the green belt towards Jana Pawła II Avenue, have been identified as the locations of particular popularity amongst users participating in the survey. For the majority of them, the analysed area is perceived to be safe and friendly. One issue that was noted by participants in the study was the fencing off of the area by institutions such as the Aviation Museum, which created a sense of exclusion among the respondents. It is important to note that some of the areas identified in the study, for example, the area east of the Technology Park, have an unclear status, as they evoke mixed, often contradictory feelings. The organisation of events within the open campus area also provoked a range of responses. It is evident from the research that the importance of the analysed area and the ambiguity surrounding the assessment of its functions and development potential necessitate further in-depth studies into its significance.

Figure 3. A map showing the most highly valued locations according to the participants who responded to the survey

Number indications	Specific responses
14	Former runway and its surroundings, Cogiteon
7	The park area near the Aviation Museum
7	Park Lotników Polskich (closer to and beyond Jan Paweł II Avenue)
6	The area northeast of the dorms
5	The area east of Cracow Technology Park

Table 1. The most popular places in the analysed area, as indicated by respondents

Number of indications	Specific responses	Number of indications	Specific responses
6	**Spatial Barriers:**	3	**Intense Transit Road Traffic:**
5	The fence between the museum and the former airport runway	2	Traffic jams
2	Events – temporary occupation of space for occasional purposes	1	Noisy streets
1	No access to the western side		
4	**High Building Density:**	3	**OTHER**
3	"Concrete jungle" (mainly Avia housing estate)	2	"Swamp" in the central part of the runway
1	Too many apartment blocks	1	Cracow Technology Park

Table 2. List of spaces and phenomena least liked/disliked by the survey participants

Number of indications	Specific responses	Number of indications	Specific responses
9	**Neglected space:**	2	**Heavy transit traffic:**
3	West of the former runway	1	Tunnel exit
3	Darkness at night, no lighting	1	Stella Sawicki Street
2	Housing estates	1	Unleashed dogs
1	Broken glass	1	„Alcohol drinking spots"
1	Hangars	1	„Dangerous young people"
1	Runway		

Table 3. List of specific spaces or phenomena related to the area indicated as dangerous

Number of indications	Specific responses	Number of indications	Specific responses
10	**The airport, airplanes:**	7	**Nature:**
6	The airport—former runway	4	Greenery
5	Aviation Museum	3	Wild space - buffer
4	Airplanes	1	Park Lotników Polskich
1	Air shows		
9	**Newly developed buildings:**	5	**Academic function:**
3	Cogiteon	3	Dormitories
2	Tauron Arena	2	AMP
2	Shopping centers		
1	Water park		
1	Cracow Technology Park		
1	New architecture		
6	**Remnants of People's Republic (communist) times:**	5	**History unrelated to aviation:**
3	Association with Nowa Huta	1	Narrow-gauge railway
2	Block estates	1	Vistula embankment
1	East-west arterial road	1	Rakowice village
1	Czyżyńskie Roundabout	1	Car shows
1	Tomeks shop	1	No answers

Table 4. List of specific places and events associated by the survey participants with Czyżyny

Figure 1. A scan of one of the respondents' maps, showing their answers to the interview questions

Figure 2. Outline of the study area, showing how the areas are labelled in the study and the surrounding street names

Figure 4. A comprehensive map of places perceived by the study participants as dangerous, including sites where dangerous phenomena described in the interviews occur

Figure 5. A composite map of places associated with Czyżyny

Figure 6. Areas west of the former airport runway, photo: authors

Figure 7. Former airport runway, photo: authors

Figure 8. Section of Bora-Komorowski Avenue, source: Google Maps

Figure 9. Summary of all the areas that got the most responses in questions as seen in the legend.

Figure 10. Near the CUT dorms, photo: authors

Figure 11. Green areas south of the former airport runway, photo: authors

Fig. 12. Polish Aviation Museum, photo: authors

MEDIA PATRONAGE / PATRONAT MEDIALNY :

KWADRAT (SQUARE)2
CRACOW UNIVERSITY OF TECHNOLOGY STUDENT CENTRE

ANGELIKA LASIEWICZ-SYCH
Ph.D. Eng. Arch., an architect and assistant professor at the Chair of Architecture of Workplaces, Sports and Services, CUT. Her research is situated at the intersection of architectural theory and environmental psychology, with a particular focus on the social impact of architectural space and the role of users in shaping the meaning of a place. She is also a tutor for the student research group PercepcjaA at the CUT.

ANNA STEPANIAK
Student of a Bachelor's programme in architecture at the Cracow University of Technology.

GLASS ARCHITECTURE
MASTERPIECES OF GARDEN ART

MAŁGORZATA ŁYKO
Fourth-year student of Architecture at the CUT. Active member of the Academic Club "Young Urbanism" and the "Urban Lab" Academic Club. She actively participates in numerous research activities in Poland and abroad, thus expanding her knowledge, skills and design experience. Participant in the 25th edition of the RéA international scientific symposium in Armenia. Winner and finalist of architectural competitions, including: 1st place in the student competition for the interior design of the Student Zone at the Faculty of Environmental Engineering and Energy at the CUT. Privately, she is passionate about construction, BIM technology, law and sustainable design in architecture.

MAŁGORZATA WĘGRZYN
Third-year student of Spatial Management at the CUT, an interdisciplinary field combining knowledge from the Faculties of Environmental Engineering and Energy, Architecture, and Civil Engineering. Her academic interests focus on spatial planning issues, with particular emphasis on architectural accessibility and the creation of inclusive spaces. She is actively involved in research and social activities in the academic community. She is the chair of the Academic Club "Young Urbanism", where she participates in competitions, research projects and conferences aimed at promoting sustainable urban development and spatial awareness among students.

HANNA HREHOROWICZ-GABER
Ph.D. Eng. Arch., Assoc. Prof. CUT – Faculty of Architecture, Chair of Spatial Planning, Urban and Rural Design. She specialises in spatial structures, with particular emphasis on mountainous areas. Author of numerous academic publications and research projects in the field of urban planning and spatial development. Actively involved in research and educational activities. Her interests also include space and cultural landscape. She supervises the Academic Club "Young Urbanism".

ALICJA HREHOROWICZ-NOWAK
M.Sc. Eng. Arch., graduated from the CUT in 2020. In 2021, she also completed postgraduate studies in nature conservation named after Professor Stanisław Myczkowski at the University of Agriculture in Cracow. Her research interests focus on the spatial structure of cities, particularly green infrastructure and issues related to the protection of urban ecosystems. She is a member of the Society of Polish Town Planners (TUP), the Lesser Polands Ornithological Society (MTO), and the Polish Society for the Protection of Birds (OTOP). She actively participates in research projects and conferences devoted to the contemporary challenges of urban planning and nature conservation in cities.

MAŁGORZATA ŁYKO Politechnika Krakowska im. Tadeusza Kościuszki w Krakowie, Wydział Architektury
MAŁGORZATA WĘGRZYN Politechnika Krakowska im. Tadeusza Kościuszki w Krakowie, Wydział Inżynierii Środowiska i Energetyki
DR INŻ. ARCH. HANNA HREHOROWICZ-GABER, PROF. PK Wydział Architektury, Politechniki Krakowskiej im. Tadeusza Kościuszki Katedra Planowania Przestrzennego, Projektowania Urbanistycznego i Ruralistycznego
MGR INŻ. ARCH. ALICJA HREHOROWICZ-NOWAK Wydział Architektury, Politechniki Krakowskiej im. Tadeusza Kościuszki Katedra Planowania Przestrzennego, Projektowania Urbanistycznego i Ruralistycznego.

GLASS ARCHITECTURE
MASTERPIECES OF GARDEN ART

Introduction
Glass architecture can be seen as a complement to a building's façade or in the context of standalone structures such as conservatories, greenhouses or winter gardens. These structures have served both practical and aesthetic purposes throughout history. From 18th-century conservatories used to store exotic plants to modern, innovative greenhouses that combine technology with nature. The analysis shows how the form and function of these structures have changed, as well as how glass, as a material, has influenced the design of garden spaces, creating a unique dialogue between man, architecture and nature. It is important to make a distinction: greenhouses are functional structures, whose appearance is usually secondary to their role in the production process. Orangery and palm houses, on the other hand, are often architectural masterpieces, where aesthetics and form are as important as their purpose.

Orangeries as a specific type of architectural structure
Orangeries have evolved from simple Roman functional structures to technologically advanced 21st-century buildings. Their purpose is to create a controlled environment for growing exotic plants while maintaining aesthetics. From ancient specularia and Asian microclimate systems, through Renaissance status symbols, to monumental 19th-century structures (e.g. Crystal Palace). The modern era has brought automation, new materials and technologies, leading to the development of vertical farms and urban greenhouses as models of sustainable agriculture.

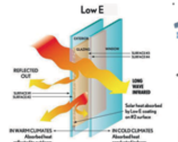
Glass as a construction material


Illustration 1, Multi-layer glazing with low-emissivity (low-e) coatings Source: www.glassmanufacturing.com

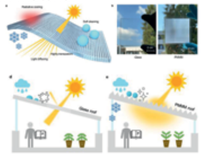


Illustration 2, Schematic illustration of polymer-based multifunctional microphotonic metamaterials (PMMM) Source : https://www.nature.com/articles/s41467-024-48150-2

The development of glass technology has significantly influenced the architecture of garden art. From single-layer glass to coated glass and smart glazing with low-emissivity (low-e) coatings, all these innovations improve light transmission, thermal insulation and energy efficiency. A particular breakthrough is photonic metamaterials (PMMM), based on micro-pyramid structures that combine light scattering, radiative cooling and self-cleaning functions. They enable the creation of highly energy-efficient greenhouses without the need for electricity for cooling. PMMM also increase photosynthesis efficiency through better light scattering, while protecting user privacy.

Warzewicz's Orangery in the Jagiellonian University Botanical Garden in Cracow
This orangery is a faithful reconstruction of the palm house from 1882. It is a single-storey building with a basement and a terrace, with a full height of 11.66 m from the lowest ground level to the ridge, and a spire of 14.92 m. The building is based on a solid steel structure, and the walls are made of glazing in a façade system, ensuring adequate thermal insulation and light supply. The building is topped with a glass mansard roof. All ventilation, air conditioning and heating systems were designed and constructed in such a way as not to interfere with the structure of the preserved boiler room building. The total cost of the investment amounted to approximately PLN 9.7 million. Information taken from https://www.modernizacjaroku.org.pl/


Illustration 3, Archival image of a greenhouse Source: https://zgrod.uj.edu.pl/aktualnosci/-/journal_content/56_INSTANCE_3NvU1BQuAi7/9371677/15400 5085


Illustration 6, Warszewicz's orangery against the backdrop of Czyżyny Source: photos (background: Czyżyny and Warszewicz's Orangery) by Alicja Hrehorowicz-Nowak, MSc Eng. Arch.

Proposal
The new greenhouse on the PK campus in Czyżyny will be a multifunctional teaching, research and cultural centre, designed in accordance with the principles of sustainable development. Its surroundings will be transformed into a public park, creating a green recreational space for the community.


Illustration 5, Interior of the Orangery in the Jagiellonian University Botanical Garden in Cracow, Source: photographs by Alicja Hrehorowicz-Nowak, MSc Eng. Arch.


Illustration 4, Orangery in the Botanical Garden of the Jagiellonian University in Cracow Source: https://www.ui.edu.pl/wiadomosci/-/journal_content/56_INSTANCE_dB2KZvhHAHm/10172/15859487?

SUSTAINABLE DEVELOPMENT IN CONTEMPORARY URBAN DESIGN ANALYSES AND SOLUTIONS BASED ON THE EXAMPLE OF THE CZYZYNY AREA IN CRACOW

MARIUSZ ŁYSIEŃ
Ph.D. Eng. Arch., he graduated from the CUT in 2010. The following year, he began working at the same faculty. He defended his doctoral thesis in 2018. He received an award for his doctoral thesis in the 3rd edition of the Marshal Marek Nawara Competition for the best Doctoral, Master's and Bachelor's Theses in Lesser Poland. He is currently an assistant professor at the Chair of Spatial Planning, Urban and Rural Design, Faculty of Architecture, CUT. Member of the Lesser Poland Regional Chamber of Architects and the Society of Polish Town Planners.

Cracow University of Technology 80th Anniversary
XXIV INTERNATIONAL SCIENTIFIC CONFERENCE / XXIV MIĘDZYNARODOWA KONFERENCJA NAUKOWA
DEFINING THE ARCHITECTURAL SPACE - ARCHITECTURE AND HISTORY
DEFINIOWANIE PRZESTRZENI ARCHITEKTONICZNEJ - ARCHITEKTURA I HISTORIA
20 NOVEMBER 2025 / 20 LISTOPADA 2025

MARIUSZ ŁYSIEŃ1,
1 Cracow University of Technology,

SUSTAINABLE DEVELOPMENT IN CONTEMPORARY URBAN DESIGN

Analyses and solutions based on the example of the Czyzyny area in Cracow.

Contemporary urban planning is focused on sustainable development, the concept of a compact city, and the so-called 15-minute city. Conventional spatial solutions, including the clear delineation of functions, monumental-scale architecture, and the preeminent role of the automobile as the predominant form of transportation, have been the subject of critique and have consequently been superseded by proposals advocating for enhanced integration of functions at the local level.

In the context of dynamic urban transformation and mounting environmental pressures, the quality of green spaces has emerged as a critical component of urban planning. This concern stems not only from the need to enhance the aesthetic quality of the urban landscape, but above all from the need to counteract the effects of climate change and improve the quality of life of residents. In this context, blue-green infrastructure (BGI) is playing an increasingly important role and is beginning to be regarded as a key infrastructure, comparable to transport, energy, and waste systems. The importance of BGI is also growing in planning documents at the local and national levels, which increasingly include provisions for its protection and development. The NZI exerts a substantial influence on the functional and spatial configuration of urban areas, fostering the development of sustainable residential districts, curtailing carbon dioxide emissions, and enhancing living conditions within metropolitan regions. Within many European nations, its constituent elements have become an obligatory element of new urban development initiatives.

The integration of greenery and water features into urban landscapes is not a novel concept. In antiquity, a network of infrastructure comprising aqueducts, fountains, and gardens was developed to serve a triad of functions: practical, social, and aesthetic. In many medieval European cities, sophisticated systems for managing rainwater and clean water were developed, employing canals and cisterns as critical components. These traditions, which have been cultivated over the course of centuries, indicate that the concept of NZI is deeply rooted in spatial planning models originating from various cultural circles. In the urban composition of Renaissance and Baroque cities, greenery and water also played an important role. The integration of systems comprising canals, parks, and fountains served dual purposes: it enhanced the aesthetic appeal of the environment while concurrently fulfilling regulatory functions, including the moderation of temperature and the enhancement of the comfort experienced by urban dwellers. The historical practices of ecological construction were founded on the principle of adapting to the local climatic and natural conditions. Contemporary NZI, as an element of sustainable architecture, draws on these solutions and develops them thanks to modern technologies. This approach constitutes not merely a reference to historical values, but also a critical reinterpretation of them. Contemporary solutions must address the requirements related to the resilience of cities to extreme weather events, biodiversity protection, energy efficiency, and mobility.

The illustrations below present analyses and concepts developed by master's degree students as part of the course Architectural and Urban Design in the Context of Planning and Environmental Protection. The project's objective was to develop environmentally friendly solutions with the aim of improving the quality of the natural environment in the Czyzyny district of Cracow. One of the stages in the project was the formulation of a Local Spatial Development Plan that incorporated the previously developed concepts.

MEDIA PATRONAGE / PATRONAT MEDIALNY :

KWADRAT 2.0
ARCHITECTURAL CONCEPT OF STUDENT CENTER INTEGRATED WITH ITS SURROUNDINGS

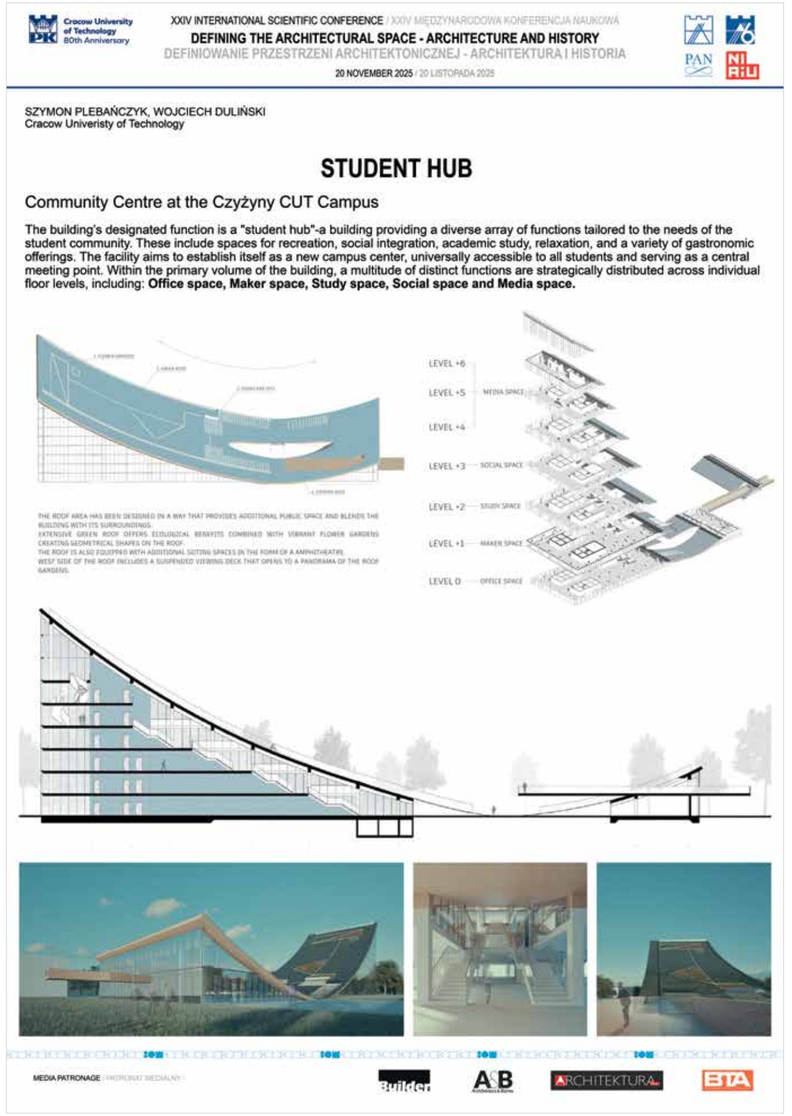
SZYMON MROWIEC
Third-year architecture student at the Cracow University of Technology and an active member of the Faculty Student Council.

JAKUB TURBASA
Ph.D. Eng. Arch., an architect and assistant professor at the Chair of Architecture of Workplaces, Sport and Services at the CUT. Founder of architectural studio Jakub Turbasa Architektura. Award and prizes winner. Significant works: The Chapel of the Last Farewell in Rychwałd (co-author Bartłomiej Pyrzyk), Townhouse under the Golden Shears in Krakow (co-author Wojciech Zagórski). Author of numerous articles on religious architecture.

STUDENT HUB
COMMUNITY CENTRE AT THE CZYŻYNY CUT CAMPUS

SZYMON PLEBAŃCZYK
Third-year architecture student at the Cracow Univeristy of Technology in Kraków studying architecture. His academic work mainly focuses on industrial architecture and the technical and material aspects of buildings. In his designs, he aims to create aesthetically refined spaces that harmonise with their surroundings. He prefers using modern materials and technologies that allow for original shapes and innovative solutions. He draws particular inspiration from the monumental works of Oscar Niemeyer and the visionary housing concepts of Le Corbusier. In 2025, he was awarded in a student competition for the best housing project. Outside of academics, Szymon enjoys traveling and exploring architecture and art from around the world, using these experiences to expand his architectural perspective

WOJCIECH DULIŃSKI
Ph.D. Eng. Arch., he graduated with honours from the CUT. His diploma project "International Airport in Tianjin, China" received the first prize in the "Diploma of the Year – WA PK" and an honorable mention in the SARP Zawistowski Award. He also received the main prize for the best student of the faculty. He took part in exchange programmes at the University of Tennessee (USA) and the National University of Singapore. In 2014, he completed postgraduate studies in Sustainable Architecture and Construction at CUT. In 2023, he earned a Ph.D. for his dissertation on the architecture of European low-cost airport terminals. Since 2016, he has been a licensed architect with MPOIA RP. He has co-authored over 70 architectural projects, leading over 30 of them. He is a partner at AKE Studio, overseeing the building design department, and a member of the Competition Jury Board of SARP, Kraków branch.



ARCHITECTURE AND URBAN PLANNING DESIGN

KINGA RACOŃ-LEJA
Ph.D. D.Sc. Eng. Arch., Assoc. Prof., an urban designer and architect, Head at the Chair of Urbanism and City Structure Architecture at the CUT. She published over 95 scientific and popular science papers, including the monograph entitled "Miasto i Wojna..." ("City and a War"), 2019. She gained professional experience in Germany and US, and participated in fellowship programs in the US, IUAV Venice, TU Vienna/CEEPUS and UPC Barcelona. She is a research and grant team leader in international cooperation involving urban processes, urban reconstruction, urban transport and climatic sustainability, shrinkage, involved in social participation in urbanism. Member of: ISUF Poland Board, Society of Polish Town Planners, TUP Kraków Board, Małopolska Spatial Planning Commission, Association of Polish Architects SARP, Polish Chamber of Architects MOIA.

KRZYSZTOF BARNAŚ
Ph.D. Eng. Arch., a researcher and architect, operates his own Krakow-based design practice. He is academically affiliated with the CUT, where he has worked since 2020. His research interests cover sustainable architecture and regenerative architectural and urban design, as well as their implementation in heritage-rich environments, as well as their integration into decision problems.

EWA SZYMCZYK
Ph.D. Eng. Arch., an urban researcher and qualified architect with a Ph.D. in Urban Studies from CUT. Her work explores urban shrinkage, urban form, spatial justice, and sustainable urban development, bridging architectural thinking with spatial analysis, statistical modelling, and data-driven planning. She has conducted research stays at Frankfurt University of Applied Sciences and the Leibniz Institute of Ecological Urban and Regional Development in Dresden, supported by DAAD fellowships. Ewa has published on compactness, urban shrinkage, and participatory planning, with her research funded by the National Science Centre (NCN) in Poland. Alongside academia, she has professional experience with international organisations (e.g. GIZ, Médecins Sans Frontières) and design consultancies in Europe and beyond, contributing to projects from community infrastructure in the Global South to large-scale urban developments in Europe.

AUTHORS OF THE PRESENTED WORKS:
1. Marta Lorek, Uliana Medvid, Oliwia Mędlowska, Aleksandra Monasterska, Agnieszka Święs; 2. Natalia Adamiak, Dominika Bekier, Aleksandra Hamala, Karolina Heil, Gabriela Ryba; 3. Sylwia Dąbek, Kasia Mroczek, Paweł Młynarczyk, Agnieszka Łeptuch, Natalia Fleites-Jończyk;
4. Martyna Budzyńska, Antoni Brzozowski, Julia Cielecka, Aleksandra Czekaj, Kinga Dulęba

CZYŻYNY CAMPUS 20.25 – FUTURE VISION

KINGA RACOŃ-LEJA
Ph.D. D.Sc. Eng. Arch., Assoc. Prof., an urban designer and architect, Head at the Chair of Urbanism and City Structure Architecture at the CUT. She published over 95 scientific and popular science papers, including the monograph entitled "Miasto i Wojna..." ("City and a War"), 2019. She gained professional experience in Germany and US, and participated in fellowship programs in the US, IUAV Venice, TU Vienna/CEEPUS and UPC Barcelona. She is a research and grant team leader in international cooperation involving urban processes, urban reconstruction, urban transport and climatic sustainability, shrinkage, involved in social participation in urbanism. Member of: ISUF Poland Board, Society of Polish Town Planners, TUP Kraków Board, Małopolska Spatial Planning Commission, Association of Polish Architects SARP, Polish Chamber of Architects MOIA.

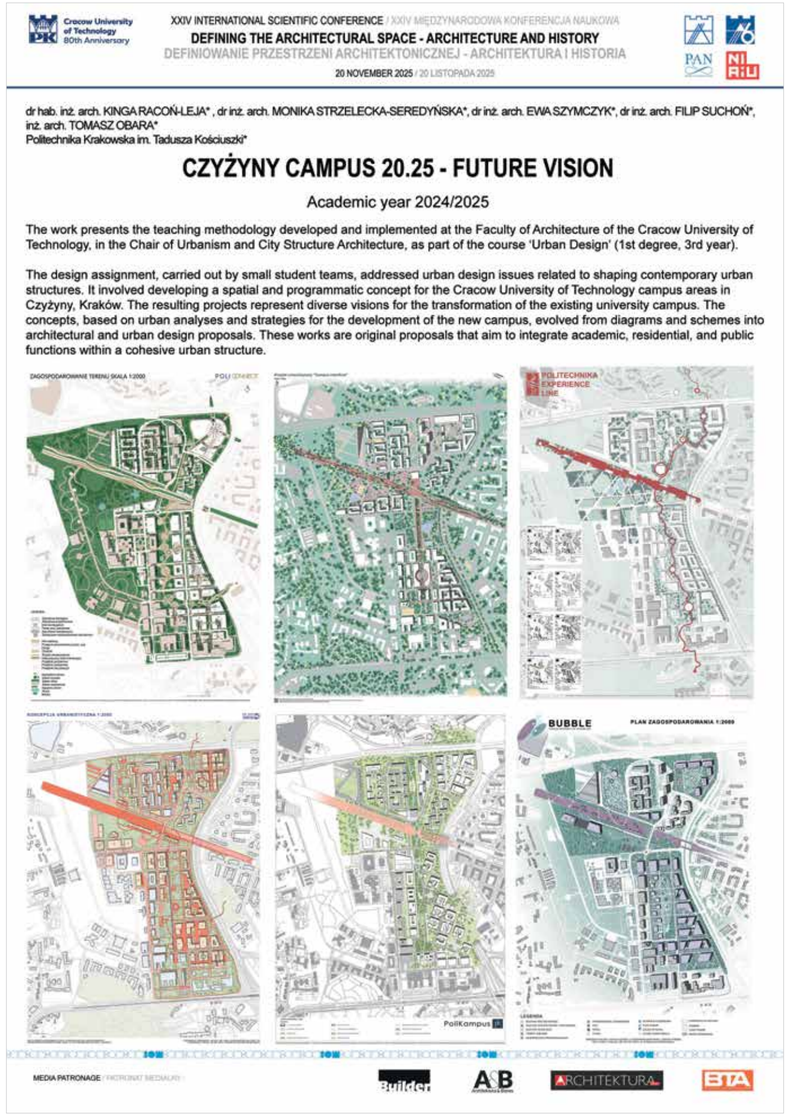
MONIKA STRZELECKA-SEREDYŃSKA
Ph.D. Eng. Arch., an urban planner and architect with a Ph.D. in Architecture and Urban Planning, holds the position of a assistant professor at the Chair of Urbanism and City Structure Architecture, Faculty of Architecture, Cracow University of Technology. She is the author of numerous scholarly works, including monographs as well as articles published in both national and international journals. Her research focuses on issues related to urban and architectural design, the shaping of urban space, with particular emphasis on the implementation of the concept of a universal and age-friendly city.

EWA SZYMCZYK
Ph.D. Eng. Arch., an urban researcher and qualified architect with a Ph.D. in Urban Studies from CUT. Her work explores urban shrinkage, urban form, spatial justice, and sustainable urban development, bridging architectural thinking with spatial analysis, statistical modelling, and data-driven planning. She has conducted research stays at Frankfurt University of Applied Sciences and the Leibniz Institute of Ecological Urban and Regional Development in Dresden, supported by DAAD fellowships. Ewa has published on compactness, urban shrinkage, and participatory planning, with her research funded by the National Science Centre (NCN) in Poland. Alongside academia, she has professional experience with international organisations (e.g. GIZ, Médecins Sans Frontières) and design consultancies in Europe and beyond, contributing to projects from community infrastructure in the Global South to large-scale urban developments in Europe.

FILIP SUCHOŃ
Ph.D. Eng. Arch., an architect, serves as a research and teaching assistant professor in the Chair of Urbanism and City Structure Architecture at the CUT. His research focuses on urban transformations and fortification heritage, culminating in his 2019 doctorate on "The Role of Forgotten Post-fortification Structures in Shaping the City's Spatial Development". He has authored 20 scientific publications. He is an active member of professional organisations: Lesser Poland Regional Chamber of Architects, Society of Polish Town Planners, Committee on Urban Planning and Architecture of the Polish Academy of Sciences, and Austrian Society for Fortification Research. Since 2023, he has participated in the COST CA18137 program. His practical experience spans over 25 years, specialising in public buildings and heritage conservation.

TOMASZ OBARA
An architect with a full architectural design licence. He graduated with distinction from his Master's (2019–2020) and Bachelor's (2015–2019) studies in architecture at the Cracow University of Technology. Since 2019, He has been working at the architectural firm URBA Architects. His responsibilities include architectural design, project coordination, and BIM workflow management. His work has been recognised with individual awards, such as the Annual Award of the Association of Housing Builders (2020) or the SARP Creative Scholarship (2019). He has also participated in award-winning team projects in national and international competitions.

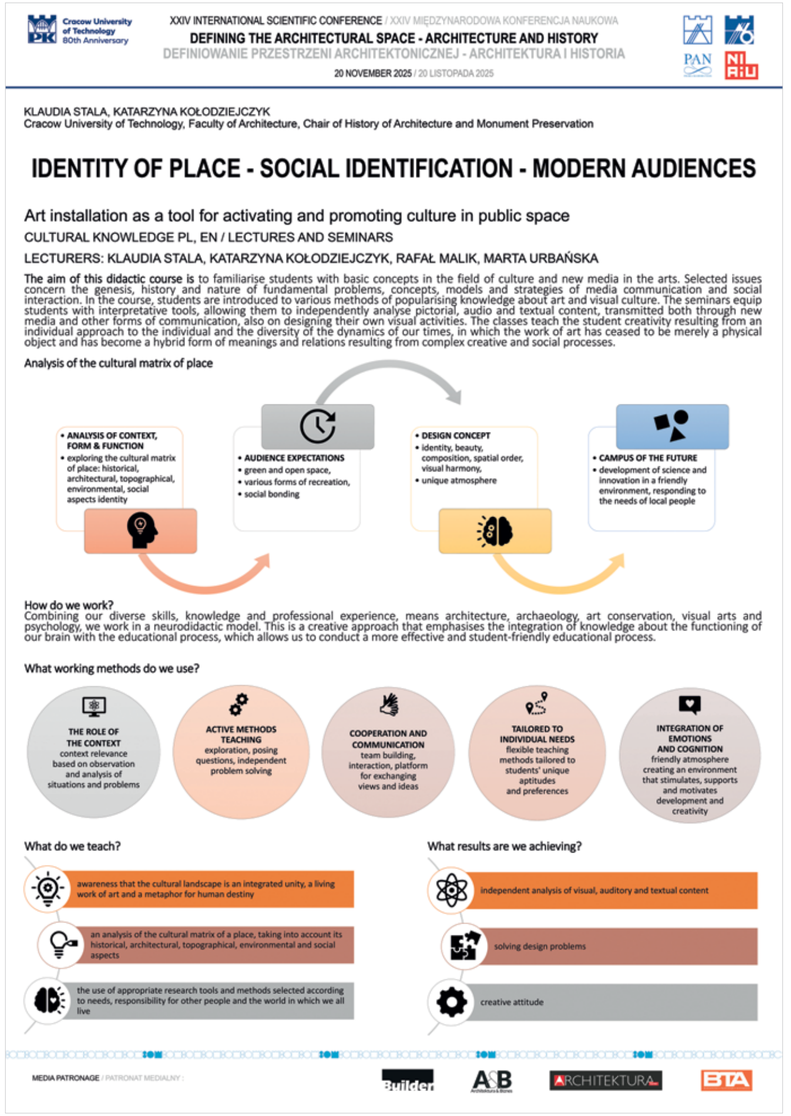
AUTHORS OF THE PRESENTED WORKS:
1. Kinga Dzięgiel, Jakub Gorczyca, Ewelina Gryziecka, Andżelika Grzywa, Anna Klimowicz; 2. Anna Michalik, Karolina Świdzińska, Klaudia Walczyk, Natalia Pitala, Małgorzata Wandzel; 3. Jakub Szczurek, Klaudia Brewczyńska, Gabriela Kubas, Anna Tręgowska; 4. Alicja Drozd, Aleksandra Jucha, Zuzanna Kaletka, Anna Rymarczyk; 5. Aleksandra Grabowska, Anna Satel, Anna Topa, Patrycja Stec, Antonina Kaczorowska; 6. Weronika Cięciwa, Natalia Guszpil, Oleksandra Martyniuk, Jadwiga Poręba



IDENTITY OF PLACE – SOCIAL IDENTIFICATION – MODERN AUDIENCES ART INSTALLATION AS A TOOL FOR ACTIVATING AND PROMOTING CULTURE IN PUBLIC SPACE – PART I

KLAUDIA STALA
Ph.D. D.Sc., Assoc. Prof. CUT, archaeologist, she investigates medieval architecture in Poland and protecting the archaeological heritage and the cultural landscape. Interested in contemporary methods of popularizing archaeological-architectural heritage in the context of sustainable protection (public archaeology, community archaeology). She takes an active part in a fieldwork and applies non-invasive methods in her research – mainly GPR with 3D scanning. An expert of the Association of Monument Conservators. Author and co-author of scientific expertise, reviewer of many scientific works including Polish and foreign monographs, articles, doctoral and postdoctoral theses, supervisor of doctoral theses. She has published about 50 academic articles. Lecturer at the Cracow University of Technology in the field of protection of monuments and architectural research, cultural knowledge and art history.

KATARZYNA KOŁODZIEJCZYK
Ph.D., she graduated from the Jan Matejko Academy of Fine Arts in Crakow: in 2002 at the Faculty of Conservation and Restoration of Works of Art and in 2005 at the Faculty of Painting. In 2011 she defended her doctoral thesis at the Academy of Fine Arts in Gdansk. She works as an assistant professor in the Chair of History of Architecture and Conservation of Monuments at the CUT. She is the author of several academic publications about art in public space, considered as a timeless communication tool in the historical urban fabric. She participates in research conferences and exhibitions of her paintings in the country and abroad. She cooperates with culture and art institutions. Since 2012, she has served as Curator of Gallery A-1 in Krakow. In 2015, she was awarded the badge of honour "Meritorious for Polish Culture".



IDENTITY OF PLACE – SOCIAL IDENTIFICATION – MODERN AUDIENCES ART INSTALLATION AS A TOOL FOR ACTIVATING AND PROMOTING CULTURE IN PUBLIC SPACE – PART II

KLAUDIA STALA
Ph.D. D.Sc., Assoc. Prof. CUT, archaeologist, she investigates medieval architecture in Poland and protecting the archaeological heritage and the cultural landscape. Interested in contemporary methods of popularizing archaeological-architectural heritage in the context of sustainable protection (public archaeology, community archaeology). She takes an active part in a fieldwork and applies non-invasive methods in her research – mainly GPR with 3D scanning. An expert of the Association of Monument Conservators. Author and co-author of scientific expertise, reviewer of many scientific works including Polish and foreign monographs, articles, doctoral and postdoctoral theses, supervisor of doctoral theses. She has published about 50 academic articles. Lecturer at the Cracow University of Technology in the field of protection of monuments and architectural research, cultural knowledge and art history.

KATARZYNA KOŁODZIEJCZYK
Ph.D., she graduated from the Jan Matejko Academy of Fine Arts in Crakow: in 2002 at the Faculty of Conservation and Restoration of Works of Art and in 2005 at the Faculty of Painting. In 2011 she defended her doctoral thesis at the Academy of Fine Arts in Gdansk. She works as an assistant professor in the Chair of History of Architecture and Conservation of Monuments at the CUT. She is the author of several academic publications about art in public space, considered as a timeless communication tool in the historical urban fabric. She participates in research conferences and exhibitions of her paintings in the country and abroad. She cooperates with culture and art institutions. Since 2012, she has served as Curator of Gallery A-1 in Krakow. In 2015, she was awarded the badge of honour "Meritorious for Polish Culture".

MATERIALS STRUCTURES FORMS

JADWIGA STOCHEL-CYUNEL
Ph.D. Eng. Arch., a graduated of the CUT. In 2023, she earned a Ph.D. in technical sciences. She completed Postgraduate Studies in the Sustainable Architecture and Construction. Architect, designer, and trainer with experience in project management, integrated design, and the implementation of BIM and BEM technologies in projects. She specialises in the design of sustainable architecture, focusing on ecological standards for buildings and interiors that promote environmentally friendly and energy-efficient solutions. Since 2016, she has been affiliated with Cracow University of Technology and the Academic Entrepreneurship Incubator. She is a member of the Polish Green Roof Association and the Polish Committee for Standardisation. She is the author and co-author of numerous architectural projects and academic publications.

WIOLETTA KOZŁOWSKA
M.Sc. Eng. Arch., an architect and educator specialising in concrete and historic architecture. Graduate of the CUT. In her professional work, she is particularly interested in concrete construction and interwar architecture. She completed Postgraduate Studies in the Conservation of Architectural and Urban Heritage at the Institute of Architectural History and Monument Preservation at the CUT. In 2003, she obtained a full architectural design license. She works at the Department of Architectural and Construction Design at the Faculty of Architecture of the Cracow University of Technology. Scientific achievements: Participant in the Back2Future grant project, participant in the HiBiWood grant project, author of 3 scientific publications, participant in national and international scientific conferences.

PAWEŁ MIKA
Ph.D. Eng. Arch., a graduate of the CUT. In 2009, he completed Postgraduate Studies in Conservation, Architectural Design, and Interior Arrangement of Sacred Buildings, organized by CUT and the Pontifical University. His area of specialization is architectural and building design. Since 2017, he has been working as a research and teaching assistant professor, holding a Ph.D. degree. His teaching subjects Landscape Architecture: Architectural Construction and Architecture: Construction System and Detail Design of Building. He is the author of articles published in scientific journals and conference proceedings. Alongside his academic work, he is also active in architectural practice. His portfolio includes co-authorship of several residential and public utility buildings and interiors.

PAWEŁ FILIPEK
M.Sc. Eng. Arch., an architect and educator specializing in solar technology in architecture. Graduate of the Faculty of Architecture at the CUT. He is currently a Ph.D. student at the Doctoral School of CUT. Professionally active as a practicing architect collaborating with the academic community of CUT. He has been working at the Department of Architectural and Construction Design at the CUT. Since 2022, he has been teaching the course Introduction to Architectural and Building Design, Arch, & Urb, Design. Holds a full architectural design license. Member of the Lesser Poland Regional Chamber of Architects. Author of academic publications, participant in national and international scientific conferences

SABINA KUC
Professor, Ph.D. D.Sc. Eng. Arch., an architect and a Professor of CUT. She is a researcher and academic specializing in architecture and landscape architecture. She received her Ph.D. degree in architecture in 1997 and the DSc degree in Landscape Architecture in 2012 from the Faculty of Architecture CUT and full professor in 2021. She is working on ISE TCU and CUT. She was a Visiting Professor at Eurasian National University (Astana, Kazakhstan, from 2013 and 2021). Her current research interests include: technocreation, construction and building technologies in landscape architecture, and landscape water objects. Since 2020, she has served as Head of the Chair of Architectural and Construction Design. She is the author or co-author of 105 publications. She is also a practicing architect, responsible for numerous architectural projects.

AUTHORS OF THE PRESENTED WORKS:
Wiktoria Bagińska, Amelia Brzoskwinia, Dalila Czarnecka, Amanda Galiszewska, Oliwia Górniak, Wiktoria Gruszka, Joanna Jakubas, Julia Jara-Leszczyńska, Paula Kaczmarczyk, Ewelina Kapusta, Nell King, Aleksandra Klag, Wiktoria Kłeczek, Nina Kuciel, Karolina Maj, Helena Małachowska, Beata Michoń, Amelia Murowana, Martyna Pszonak, Zofia Sojka, Dominika Szczerba, Maja Świerczyńska, Olga Tyrańska, Anna Wilczkiewicz

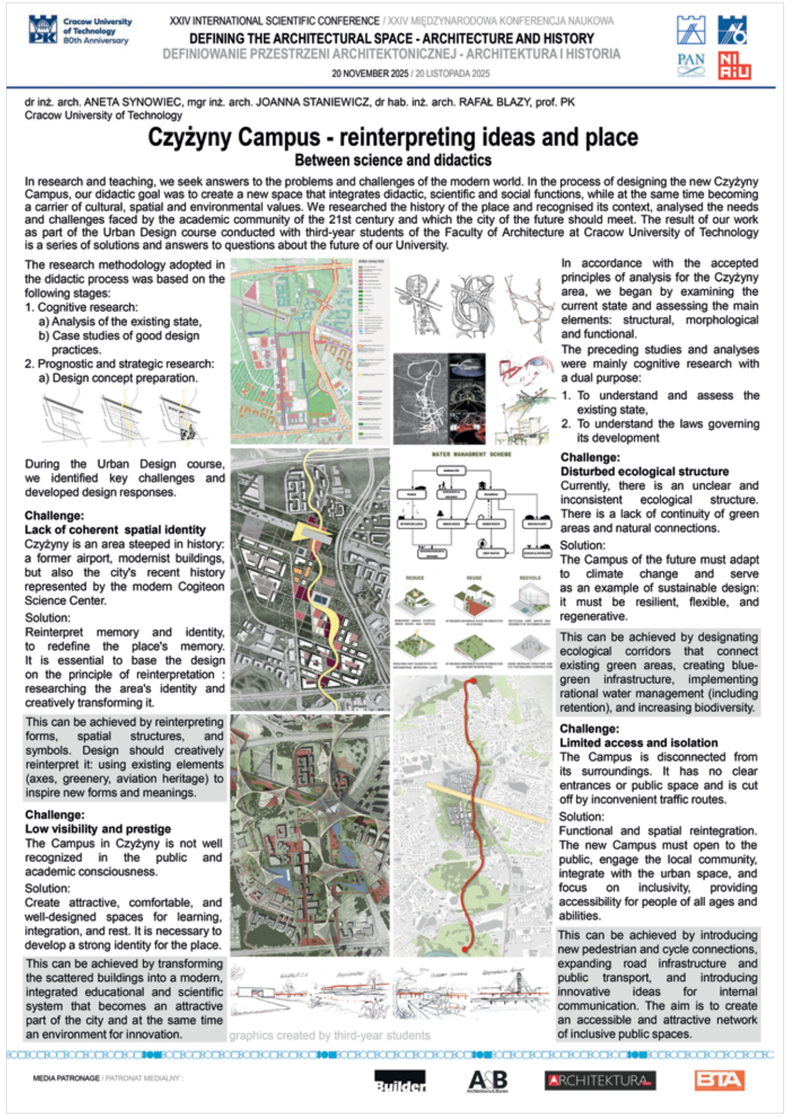
CZYŻYNY CAMPUS – REINTERPRETING IDEAS AND PLACE BETWEEN SCIENCE AND DIDACTICS

ANETA SYNOWIEC
Ph.D. Eng. Arch., an architect, urban planner, academic teacher at the Chair of Spatial Planning, Urban and Rural Design, Faculty of Architecture, Cracow University of Technology. She obtained her doctorate in 2020, defending her doctoral thesis with honours. Author of several studies and research projects in the field of spatial planning and urban development. Author and co-author of several academic publications. In her work, she addresses issues related to the role of pedestrian and bicycle bridges in the revitalisation of city centres, as well as their impact on functional and spatial changes in the context of urban construction.

JOANNA STANIEWICZ
M.Sc. Eng. Arch., an urban planner and architect with experience in both construction projects and spatial planning acts. In 2018, she obtained unlimited building licence. Fascinated by spatial planning and urban development, she shares her knowledge with students as an academic teacher at the Chair of Spatial Planning, Urban and Rural Design, Faculty of Architecture, Cracow University of Technology

RAFAŁ BLAZY
Ph.D. D.Sc. Eng. Arch., Assoc. Prof. CUT, Vice-Dean of the International School of Engineering in Tianjin, China, Head of the Chair of Spatial Planning, Urban and Rural Design at the CUT. Member of the Senate of the CUT. Author and co-author of 85 academic publications (including 5 monographs) in the field of urban design and spatial planning. He is a practising architect and urban planner. Co-author of several local spatial development plans, as well as numerous masterplans, urban and spatial concepts, land-use projects, and architectural designs. Co-author of dozens of expert reports in the field of spatial planning. Owner of a private architectural office. Member of the Polish Academy of Sciences, the Silesian Chamber of Architects, and the Society of Polish Town Planners.

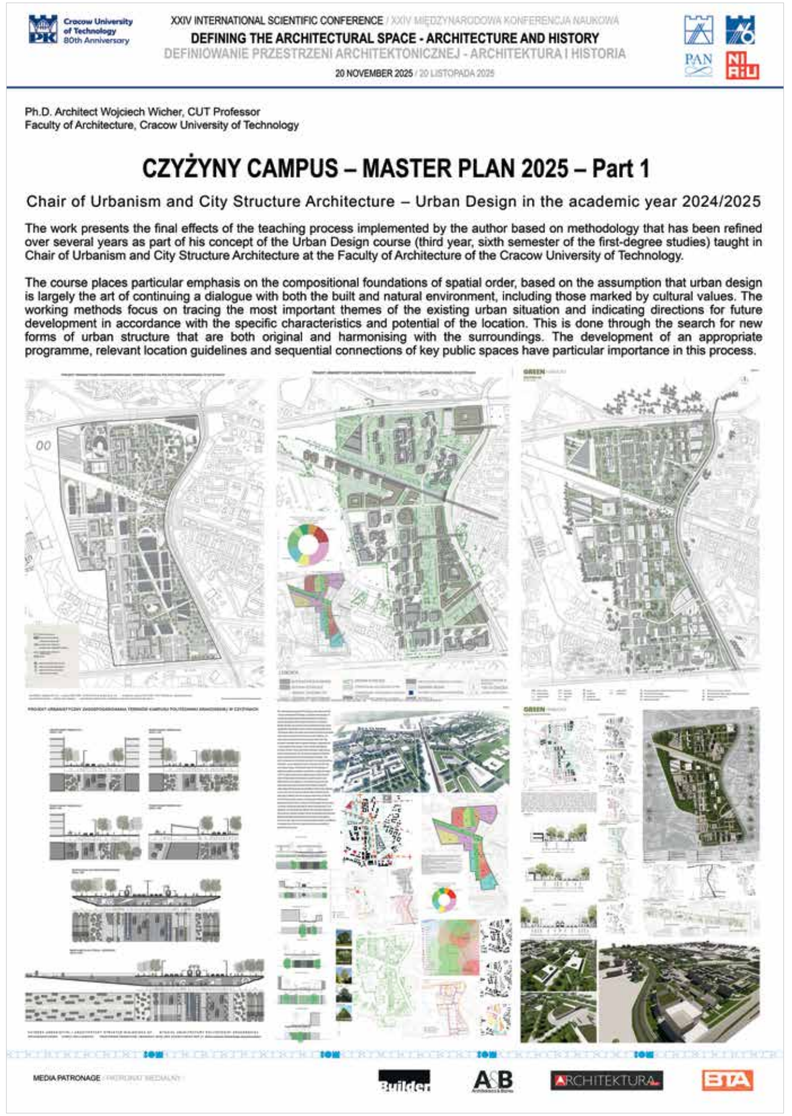
AUTHORS OF THE PRESENTED WORKS:
Wiktoria Bielska, Kacper Burek, Julia Cichy, Wojciech Duma, Paulina Gołąb, Weronika Gryzło, Aleksander Jurek, Aleksandra Kalarus, Ignacy Kielan, Alicja Klimek, Amelia Kwiecińska, Sara Natkaniec, Szymon Plebańczyk, Julia Ptak, Ewelina Sroka, Marta Toczek, Gaja Tomala, Zofia Wicher, Weronika Wiśniewska, Weronika Żak



CZYŻYNY CAMPUS – MASTER PLAN 2025 – PART I

WOJCIECH WICHER
Ph.D. Eng. Arch., Assoc. Prof. CUT, a graduated of the CUT, doctoral thesis in 2000. Since 1987, he has been working at the CUT. He has participated in several long-term international research and educational programmes. In 2000–2006 the scientific editor of four editions of the International Scientific Conferences. Author of a number of academic publications. Since 2019, he has been primarily involved in teaching. He is the supervisor of nearly 100 Bachelor's and Master's thesis projects. Since 1988, he has been running his own design practice in the field of urban planning, architectural and construction studies and concepts, as well as interior design. He is the author of architectural and urban analyses, working independently and collaborating with other design teams. Author of studies and designs for private and institutional clients.

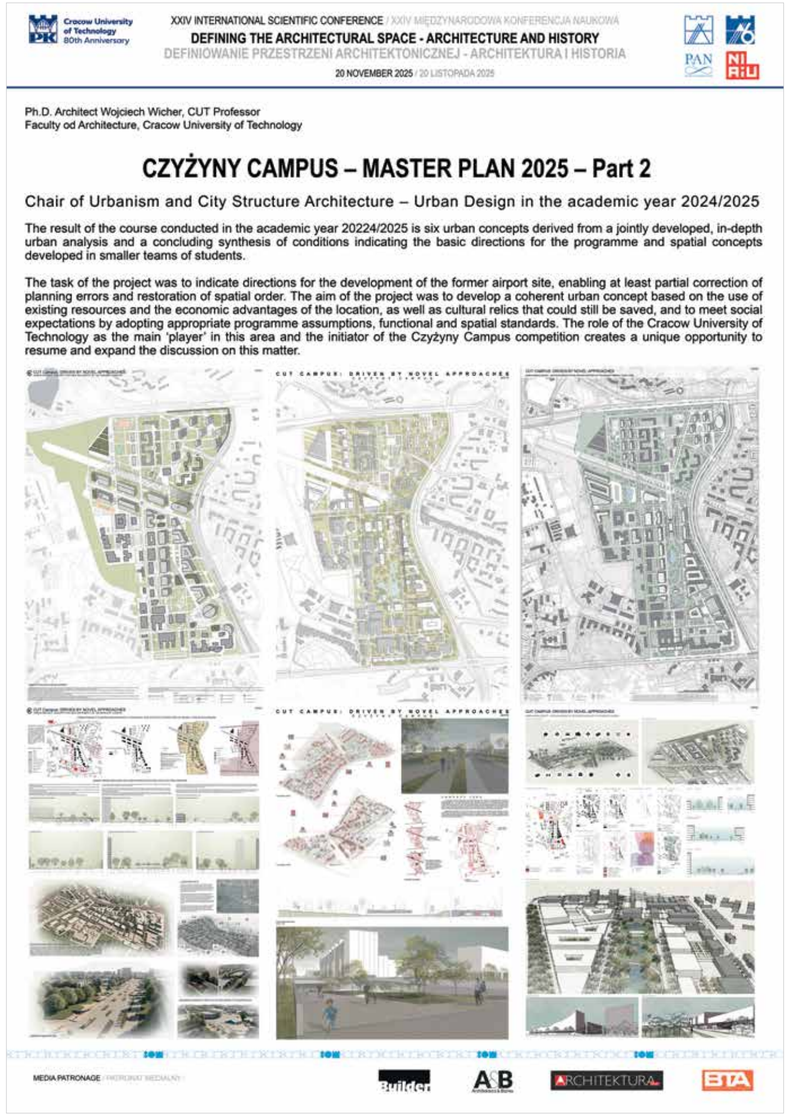
AUTHORS OF THE PRESENTED WORKS:
1. Martyna Budziwojska, Gabriela Burliga, Wiktoria Jankowska; 2. Magdalena Przywara, Olga Stodolak; 3. Oliwia Frączek, Edyta Krzyżak



CZYŻYNY CAMPUS – MASTER PLAN 2025 – PART II

WOJCIECH WICHER
Ph.D. Eng. Arch., Assoc. Prof. CUT, a graduated of the CUT, doctoral thesis in 2000. Since 1987, he has been working at the CUT. He has participated in several long-term international research and educational programmes. In 2000–2006 the scientific editor of four editions of the International Scientific Conferences. Author of a number of academic publications. Since 2019, he has been primarily involved in teaching. He is the supervisor of nearly 100 Bachelor's and Master's thesis projects. Since 1988, he has been running his own design practice in the field of urban planning, architectural and construction studies and concepts, as well as interior design. He is the author of architectural and urban analyses, working independently and collaborating with other design teams. Author of studies and designs for private and institutional clients.

AUTHORS OF THE PRESENTED WORKS:
1. Bartosz Czop, Oliwia Piotrowska, Michał Sędziak; 2. Klaudiusz Hus, Natalia Kita, Sylwia Wilk; 3. Monika Krawiec, Szymon Mrowiec



ISBN 978-83-904874-2-7