

# Adaptation student halls of residence as temporary homes for displaced: the case of the Lodz University of Technology

## Abstract

The authors addressed the issue of adapting selected Lodz University of Technology dormitories to serve as temporary residences for both university students and refugees from Ukraine with individual needs. This study aimed to determine whether the analysed buildings, which play an essential role in the organizational and functional structure of the academic community, are prepared for situations such as the urgent need to provide housing for people in a crisis.

Furthermore, the article seeks to ascertain whether the initiatives undertaken as part of grant projects financed by the European Social Fund to enhance the existing approach to conducting architectural audits could potentially contribute to the formulation of a rational spatial policy by Polish municipal governments. It should be acknowledged that these municipalities have a significant role to play in the reception of refugees. They provide accommodation for longer-term stays in public and private buildings, which may have an impact on not only population density but also its cultural dimension.

**Keywords:** temporary home, refugee housing environment, architectural accessibility, migration policy, housing provisions, community transformation

## INTRODUCTION

The geopolitical situation in the countries of the North Atlantic Treaty Organization's eastern flank requires the provision of accommodations for individuals who are victims of political repression or who are displaced due to hostilities in their regions. According to the report 'Ukraine Situation: Regional Refugee Response Plan' issued on the 1st of March 2022,<sup>1</sup> the most vulnerable groups in conflict-affected populations are children, persons aged over fifty with specific needs, persons with disabilities and persons with severe/chronic medical conditions resulting from conflict-inflicted injuries. The aforementioned groups are characterised by specific protection needs, which extend to fundamental requirements such as accommodation. In acknowledgement of the prevailing crisis and the increasing recognition of the necessity to construct more functional and comfortable housing for all, the authors focused on the architectural accessibility of selected student dormitories at the Lodz University of Technology, which could serve as temporary residences.

The research comprised the following elements:

1. A thorough review of technical documentation for a selection of student residences.
2. Two original surveys to validate theoretical assumptions about the needs of users, including Ukrainian refugees.
3. Architectural accessibility audits.

The audits were prepared using a new analytical tool, in conjunction with an inventory and photographic documentation. This made it possible to check both the current level of space availability and the effectiveness of the new audit method in terms of the benefits and potential risks of its application, which is

particularly important in relation to the planned introduction of the tool for general use. So far, in Poland obligatory standards in this area have not been developed, which results in inconsistencies in the estimation of the accessibility level and the inability to introduce certification for buildings that may become a place of temporary stay.

## THEORETICAL BACKGROUND

Dormitories of Poland's public universities are mainly temporary places of residence for students. It is notable that some of the buildings were utilised during the initial stages of the Russian invasion in Ukraine as temporary accommodation for refugees. The majority of cases in which assistance was provided involved individuals who were particularly vulnerable, including women with children or the elderly, as well as groups who are dependent on institutional care, resulting from, among others, a disability. It is noteworthy that there are currently numerous organisations worldwide that provide support and undertake initiatives related to, among other things, meeting the needs and housing of refugees in analogous crisis situations. The United Nations High Commissioner for Refugees (UNHCR) is the principal organisation tasked with the protection of refugees on a global scale. The creation and coordination of refugee camps and temporary shelters, such as tents and residential containers, is a key component of the programme.

The International Committee of the Red Cross (ICRC) is responsible for the provision of temporary accommodation, particularly in regions experiencing active conflict. Furthermore, the organisation provides relief packages, which include items such as

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tents, building materials and hygiene kits. The establishment of connections with the commons is of paramount importance, and the construction of temporary accommodation centres is a key component of this process. ACTED and other non-governmental organisations operating in the humanitarian sector are engaged in the development of innovative shelter models. These include prefabricated houses and mobile housing units. Agencies often engage in collaborative endeavours with governments and local communities.

It is apparent that all these organisations share common features in terms of their international activities, which can be categorised as follows:

- a. The implementation process is very quick, with the system being configured within a matter of hours or days. The arrangement's provisional nature is not, however, an insurmountable obstacle, and it is frequently possible to make it more permanent.
- b. The financial outlay is negligible, and there is the potential for large-scale manufacturing.
- c. The primary concerns are the safety and privacy of residents.
- d. The capacity to adjust to the prevailing climatic conditions and cultural norms of a given locale is of paramount importance.

As a consequence of the partnership between the National Assembly of Persons with Disabilities of Ukraine (NAPD) and a number of international organisations, including the World Health Organization (WHO), the Office of the High Commissioner for Human Rights (OHCHR) and the aforementioned UNHCR, a range of reports produced by these agencies and others is now accessible. The necessity to guarantee the security and prevention of marginalisation for individuals with diverse disabilities and health conditions, including women and children with disabilities, was underscored in these reports. This is to be achieved as part of the overall humanitarian response. In February 2022, 'Humanitarian Needs Overview Ukraine'<sup>2</sup> was published. The document is consolidated by United Nations Office for the Coordination of Humanitarian Affairs (OCHA), and it states that older persons and persons with disabilities faced increased barriers in accessing healthcare and other social services, food, employment and education during the conflict in Eastern Ukraine. UNHCR report, updated in April 2022, presented needs and requirements for refugee hosting environment since the beginning of the conflict in Eastern Ukraine till the end of December 2022.<sup>3</sup>

There are many factors contributing to exclusion of people with disabilities from the socio-cultural and economic environment e.g., inaccessibility of built environment.<sup>4</sup> The discussed effects of exclusion in the field of architectural space can be prevented by the education of participants in real-estate development processes based, among others, on the knowledge of good practices and knowledge about applying proper solutions while designing not only public and commercial buildings but also residential buildings.<sup>5</sup>

In the context of the situation of refugees and people who are internally displaced or stateless and their right to a decent standard of accommodation, the study 'The Right to Adequate Housing for Persons With Disabilities Living in Cities',<sup>6</sup> that refers to the Sustainable Development Goal 11, is of particular interest. Publications of The Inter Agency Standing Committee (IASC) and in particular Guidelines for shelters and settlements introduced by IASC Task Team on inclusion of Persons with Disabilities in Humanitarian Action are an important source of information about international activities to ensure the safety of people

with disabilities in a humanitarian crisis. They indicate shelter as a critical determinant of survival and its essential role in reducing vulnerability in communities, along with water supply, sanitation, food and healthcare in the early and subsequent stages of emergency during humanitarian action.

A shelter is defined as a 'habitable covered space providing a secure and healthy environment with privacy and dignity for those residing in it'.<sup>7</sup> In the context of humanitarian relief, the classification of shelters can be approached in a number of ways. A rudimentary categorisation may be based on four key factors: size, legitimacy, condition and duration of the shelter. Over time, habitable space may evolve from an emergency to a durable shelter.<sup>8</sup> International guidelines on carrying out a humanitarian action in its different stages suggest a list of a 'must do' actions, including settlement programming, consisting of reviewing international and regional policy in this area, developing instructions and recommendations to guarantee the rights of persons with disabilities to access and inclusion. This also applies to the development of audit tools, which is related to the recommendation of The Inter-Agency Standing Committee (IASC) Task Team on Inclusion of Persons with Disabilities in Humanitarian Action on identifying architectural barriers that prevent vulnerable groups from accessing temporary settlements and other critical services. Therefore, different methods of accessibility audits, which go beyond mandatory requirements to guarantee minimum physical accessibility standards as a part of the strategies that could improve a design in the direction of equity in the buildings for temporary or longer stay, are under consideration.<sup>9</sup>

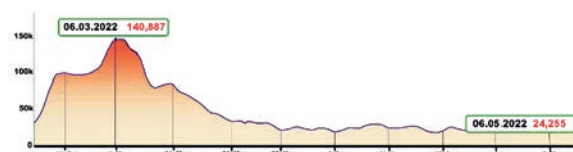
## METHODS: DATA COLLECTION AND ANALYSIS

The research, which was preceded by the collection and analysis of the available archival materials and the research of the relevant literature on the subject, was carried out using the method of observation during field interviews, on the basis of a prepared questionnaire, an inventory of selected dormitories of the Lodz University of Technology and photographic documentation prepared by the authors of the work.

In the neighbouring countries, which during the initial phase of the conflict in Ukraine became the primary reception points for refugees, specialised buildings were established at border crossing points to receive new arrivals and provide essential assistance, including life-saving care, as well as onward transportation for refugees, the majority of whom were relocating to urban centres. This was particularly evident in Poland. A review of the chart illustrating the number of refugees who have entered Poland since the onset of the conflict (24.02.2022) revealed that the largest influx of migrants occurred on 6 March 2022, necessitating the provision of temporary accommodation with urgency (III. 1).

As illustrated by OCHA Services on a map posted on 3 May 2022, Polish municipalities have borne the largest brunt of refugee reception.<sup>10</sup> They have offered places of accommodation for

III. 1. Number of Refugees fleeing Ukraine by date starting from 06.03.2022 to 06.05.2022. Based on: <https://data.unhcr.org/en/situations/ukraine/location/10781>. Author: J. Borowczyk, 2022





III. 2. View of the dormitories as seen from Politechniki Avenue in Łódź, Poland. Source: photos by R. Przewlocka-Sionek, 2024

temporary stays in public and private buildings, thereby altering population density in specific areas.

Nationally 'referral services are being scaled up, focusing especially on case management and protection of unaccompanied children and those evacuated from boarding schools, institutions and other alternative care arrangements, survivors of gender-based violence (GBV), victims of trafficking, persons with disabilities and other vulnerable groups'.<sup>11</sup>

In the context of the mass displacement of the Ukrainian population, Polish universities in the capital cities of voivodships provided dormitories as temporary accommodation for refugees. This was due to the fact that the major urban areas experienced the largest influx of displaced people, with the number of refugees often exceeding the adaptive capabilities of the shelter sector.

According to the data published on 5 May 2022, 12,440 individual applications for the UKR status were registered in the city of Łódź.<sup>12</sup> In the entire, Łódź Voivodeship 63,620 applications were received, of which 60 820 are minors and females and 30,728 are children. This resulted in a 0.5 increase in the number of inhabitants.<sup>13</sup>

It is important to note that Ukraine has consistently been represented as the largest national group among foreign students in Poland, with a consistent annual influx of students over a significant period of time. In the academic year 2020/21, there were nearly 38.5 thousand of them – over 45% of all foreigners study at Polish universities, while according to the data of the Ministry of Education and Science published in November 2022, since the beginning of Russia's invasion on Ukraine, over 13,000 students have applied to Polish universities (in the Łódź Voivodeship this number was 372).<sup>14</sup> The relevant authorities provided guidance to educational institutions, advising them to implement a tuition fee settlement scheme for Ukrainian students, encompassing the abolition or deferral of such fees. In response to a reported requirement amongst some Ukrainian students to bring their families to Łódź, the University of Łódź has offered to accommodate them in the university dormitories. Furthermore, the university has initiated educational and medical support services for those adversely affected by the Russian invasion of Ukraine. In the initial phase of the crisis, approximately 300 individuals sought refuge in the dormitories of the University of Lodz, the largest university in the city, which, along with Lodz University of Technology, was established by the Ministry of Education on 25 May 1945.<sup>15</sup> In contrast to the University of Łódź, the Lodz University of Technology did not provide any such facilities in its dormitories.

The three university halls of residence selected by the authors, i.e., Student Dormitory No. I, Student Dormitory No. III and Student Dormitory No. IV, are situated along al. Politechniki, in close

proximity to the city centre, with convenient access to public transport (III. 2). In the context of a potential increase in the number of individuals with disabilities or refugees from Ukraine who might rely on these accommodations in the future, this consideration assumes particular significance. Consequently, it is imperative that the designated student residences are in close proximity to healthcare facilities, such as the Laser Diagnostics and Therapy Centre, the Vaccination Centre of the Technical University of Łódź Foundation and the Medical Clinic.

In the course of the investigation, the authors of the study also took the location of the student dormitories into account, noting that they are situated in close proximity to the teaching and organisational units of the Technical University of Łódź, which are crucial for inter-university and international cooperation. The distance of the student accommodation to the International Cooperation Centre and Language Centre at Lodz University of Technology was identified as a pivotal factor in the evaluation. The aforementioned centre offers complimentary Polish language courses. The analysis also included the fact that the social affairs departments, including the Private Kindergarten of the Lodz University of Technology, were located in close distance. Social services provide both psychological and educational support, as well as being a place of learning for foreign residents.

The above-mentioned institutions could serve to activate and integrate the student community and immigrants, including families and people with many different individual needs, living in university residences.

Consequently, the most strategically situated dormitories were analysed in terms of their usability for students and refugees from Ukraine, as previously discussed. The study placed particular emphasis on architectural accessibility for people with special needs due to disabilities. This is in accordance with the report on the Right to Adequate Housing for Persons with Disabilities Living in Cities. This report states that people with disabilities should be guaranteed the right to choose the best place of temporary stay in new environments, both in refugee camps and in urban areas.<sup>16</sup> This means accessibility to buildings and premises adapted to their special needs.

### 1. Technical documentation

The research methodology employed by the authors involved the aggregation of technical documentation pertaining to the selected student dormitories, incorporating archival materials and contemporary construction and architectural designs. This was examined to determine the direction and dynamics of changes in the functional and spatial structure of the buildings made to ensure architectural accessibility.

The designated student halls of residence were constructed between 1955 and 1968. The collected documentation included designs for the extension and renovation of these buildings, which were carried out between 2010 and 2017. The necessary materials were obtained from the administrator of the Lodz University of Technology campus.

## **2. Accessibility pre-audit questionnaire**

The subsequent phase of the research involved the conception and delivery of two diagnostic surveys with the use of a questionnaires. The respondents completed the questionnaire voluntarily and anonymously.

The primary questionnaire explored the perceptions of individuals who lived in and visited the buildings regarding their comfort and safety. The instrument was implemented for the purpose of validating the theoretical assumptions pertaining to the users' needs. This study was supported by data provided by the University administration on the number of people with disabilities studying at the Lodz University of Technology in the years 2021/2022. The second survey concerned the opinions of Ukrainian women currently residing in Łódź on their housing and financial situation and related expectations. The survey included questions regarding the potential for residing in a student dormitory.

The initial survey focused on the architectural accessibility of TUL student residences, and was completed by fifteen architecture students from Lodz University of Technology who resided or frequently visited the dormitories. The survey comprised fifteen open-ended questions.

The primary section of the questionnaire comprised six wide-ranging inquiries concerning the respondents' personal demographics. Subsequent to this was a segment containing eight questions aimed at ascertaining the respondents' subjective assessments of the accessibility levels of TUL student dormitories. The questionnaire was further augmented by the inclusion of an open-ended question inviting respondents to identify the three most significant architectural barriers in the analysed buildings. In the final phase of the survey, respondents were invited to provide a general evaluation of the accessibility standard of TUL student residence halls. The evaluation focused on the dormitories' suitability for individuals with diverse needs and requirements resulting from disabilities in terms of moving, seeing, hearing, communication, understanding and others.

The second survey comprised a group of ten women of Ukrainian origin who are currently residing in Łódź. The survey was conducted on a voluntary and anonymous basis, and consisted of eight questions. The study population included six women who were accompanied by children, and four women who were not. The conclusion of the survey assessed the feasibility of utilising the rooms of student dormitories and adapting them to accommodate the need for temporary housing for refugees from Ukraine.

## **3. Statistics**

The collection of BON (the TUL Office for Persons with Disabilities) data concerning students with disabilities, as well as information regarding their potential needs while residing in dormitories of the Lodz University of Technology, became an integral component of the research. The data was collated and updated in the form tables that contained information regarding the number of students with disabilities enrolled at the various faculties, along with the nature of their disability. The resulting documentation provided a comprehensive overview of the current needs of students in terms of solutions to improve the degree of architectural accessibility of university buildings. It also highlighted fluctuations in the proportion of students with individual needs over recent years.

Utilising the collated materials, a simplified statistical analysis was formulated. This analysis incorporated the total number of students at TUL, the number of rooms adapted for people with special needs in terms of architectural accessibility, and the total number of beds available in student halls of residence, including places in single and multi-person rooms. This allowed us to assess whether there existed sufficient capacity within the dormitories to provide adequate temporary accommodation not only for students but also for other persons with disabilities.

## **4. Tools for carrying out an accessibility audit**

The selection of the methodology for conducting the accessibility analysis was a pivotal element of the research, given the inherent complexity of the investigation, arising from its multi-disciplinary nature. In light of the challenges posed by the complexity of the investigated problems, and the absence of widely accepted instruments for architectural audit, it was essential to devise a methodology for conducting an accessibility survey that would facilitate the following:

- verifying the implementation of the principles of accessibility and universal design in the buildings under analysis;
- evaluating the efficiency of the rational adjustments that had been introduced in recent years, in accordance with the designs for the extension and renovation of dormitories, as outlined in the available design documentation.

Following a thorough evaluation of available options, it was determined that the most suitable approach for conducting the analysis would be to utilise the most advanced tool that has been developed to date in accordance with the current state of knowledge in this field. This tool has been created by experts and organisations that work in collaboration with individuals living with disabilities as part of the Accessible Architecture Support Centre (OWDA), a pilot advisory project that has been implemented under the Knowledge Education Development Operational Program (POWER).

The evaluation method involved the collection of accurate data on the physical characteristics of the built environment and its immediate context. This included the following parameters:

- the distance of the dormitories from public transport stops and parking lots both on the premises of the property and outside;
- the standard of access roads leading to different buildings within a radius of at least 150 m, including the parameters of pedestrian crossings, pedestrian traffic gauge within sidewalks, the quality of Tactile Surface and street equipment;
- the accessibility of entrance areas to buildings, paying particular attention to potential barriers that could prevent individuals with motor disabilities from accessing them, such as stairs;
- properties of internal entrance zones (vestibules) and halls with information/reception points;
- parameters and equipment of horizontal communication routes and vertical communication in the analysed buildings;
- the availability of useable spaces, including living spaces, bathrooms, showers, and public spaces such as kitchens and laundries;
- the potential for the evacuation of individuals with special needs in the event of a fire or other situations necessitating the urgent removal of the occupants from the building.

The inventory also comprised a photographic documentation of approximately 500 images captured by the authors. This documentation was instrumental in initially recording the





III. 3. Illustrative exemplar of the documentation prepared within the scope of the research project. The figure depicts a student dormitory located at 3a Politechniki Avenue in Łódź, Poland. Access to the building is facilitated either via stairs or a lift, as indicated in the image. Source: photos by R. Przewłocka-Sionek, 2024

measurement process and subsequently verifying responses in the questionnaire (III. 3, 4).

## RESULTS

### 1. Design documentation test results

The State Archive of the City of Łódź does not hold any original designs of the student dormitories that were the subject of the present study. Consequently, the only available documentary material related to these buildings is a set of archival photographs taken during their construction, which were obtained from the Museum of the Lodz University of Technology, complemented by technical documentation of the alterations implemented between 2010 and 2017. Following a thorough examination of the architectural drawings, it was possible to initially ascertain the most significant barriers faced by students and refugees with special needs, including women with children and older adults. This analysis also enabled the selection of those elements of their structure that required particular attention during the subsequent audit works.

The oldest of the selected buildings was the 5-storey student dormitory no. III, located at 7 Politechniki Avenue, which was completed in 1955. The dormitory underwent a two-stage renovation, which was completed in late 2017 and early 2018. The scope of the works included current repairs and adaptation to the applicable fire protection regulations. During the refurbishment, the dormitory was equipped with a sound fire alarm system. The renovation works encompassed the modernisation of staircases and corridors, and the conversion of sixty three-person rooms into dual occupancy rooms. Additionally, nine rooms of various functions, including study and recreation rooms, were created. Despite these improvements, the building remained entirely inaccessible to individuals with a disability requiring a wheelchair. A thorough review of the relevant documentation identified the following elements that significantly constrained the utilisation of the dormitory by users with special needs:

- the entrance area was not adapted to accommodate individuals with disability in terms of mobility;
- the building has not been supplemented with a lift or any



III. 4. Illustrative exemplar of the documentation prepared within the scope of the research project. The images depict the measurement-taking process, as follows: a – measurement of the handle of an external door in a student dormitory I; b – measurement of the height of the threshold in the entrance to a room in a student dormitory III. Source: photos by R. Przewłocka-Sionek, 2024

other solution to enable wheelchair users to transfer between floors;

- the building was not equipped with toilets and bathrooms meeting accessibility standards;
- the building does not provide living spaces suitable for families of more than two persons.

Another dormitory, the eleven-storey Hall of Residence No. IV, was originally constructed in 1968 at 9a Politechniki Avenue. To date, the structure has undergone only minor renovation works, the aim of which was to enhance its aesthetic appeal and general standard of use. A significant measure that increased the accessibility of the dormitory was the construction of a ramp in the main entrance area that met the required standards. This development significantly enhanced the accessibility of the building for individuals with physical disabilities. Additionally, one of the ground-floor apartments, which contains a sanitary room, has been adapted to meet the requirements of people with mobility impairments. However, a concern was raised during the review of the documentation regarding the potential future utilisation of rooms on the remaining floors by people with disabilities. Consequently, it was determined that particular emphasis should be placed on the following aspects during the audit:

- the exact dimensions of the lifts in the building;
- the possibility of creating accessible toilets on floors other than the ground floor.

The Student Dormitory No. I, with 9 above-ground floors and an observation deck on the roof, was built in 1968 at 3b Politechniki Avenue.<sup>17</sup> A thorough investigation of the technical documentation from 2012 was undertaken by the authors. It revealed a commendable degree of adaptation exhibited by the building in addressing the contemporary needs of the academic community. This adaptation included the selective provision of facilities for individuals with disabilities. The main entrance had been equipped with a vertical platform lift. A further key element was the presence of public toilets supplied with equipment designed for utilisation by individuals with motor disabilities. Subsequent to the refurbishment, the dormitory has been augmented to include 107 rooms, of which 92 are designated double rooms, 15

as single rooms, 8 as apartments comprising private bathrooms and kitchens, and 4 as rooms equipped with accessible bathroom facilities.

The adapted rooms were located on the first four floors in close proximity to the emergency exit staircase, with barrier-free access to the lifts in the central corridor. On the upper floors, double rooms were provided. The ground floor and the three floors directly above it were designated as a hotel for external guests, while the subsequent floors were allocated for students. A comprehensive analysis of the design documentation revealed that public toilets are located on each floor, while shared kitchens are present on all levels of the building, with the exception of the ground floor. Despite the fact that the analysis of the documentation indicates the accessibility of the building, the researchers concluded that accurate measurements had to be taken to verify the following:

- utility parameters of rooms and bathrooms intended for people with disabilities,
- parameters of passenger lifts, including standard and location of control panels inside elevators.

It was discovered by the authors that at the end of the emergency exit stairway, there are steps which lead directly outside. This is a matter of significant concern, as it is impossible for individuals using wheelchairs to leave the building in an emergency without assistance.

## 2. Results of the questionnaire

The initial segment of the first survey revealed that 10 out of 15 respondents disclosed various disabilities. In the second part of the questionnaire, which concentrated on the individual assessment of the degree of accessibility of student dormitories at the Lodz University of Technology, the most frequently indicated architectural barriers were:

- uneven surface of pedestrian routes on the access roads to the buildings (10 respondents);
- no parking spaces for individuals with disabilities available (3 respondents);
- heavy swing doors in the entrance areas to buildings (14 respondents);
- no lift or ramp in the entrance areas of the dormitories (2 respondents);
- no legible information boards in the hall areas and no signposts to the apartments designated for people with disabilities (8 respondents);
- stairs inside the building that are difficult to climb (8 respondents).

The answers referred to touch call panels for inaccessible lifts for individuals with impaired eyesight. The absence of buttons in the vicinity of two people became a glaring concern that underscores the necessity for immediate attention. The lack of public bathrooms adapted to the needs of people with disabilities was a recurrent issue that demanded urgent resolution, as highlighted by nine respondents. The absence of rooms adapted to people with disabilities was equally concerning, underscoring the need for dedicated spaces that are inclusive and accommodating. The lack of single rooms also became a matter of concern, as it limits the autonomy and privacy of individuals, as noted by seven respondents. The insufficient floor space of living quarters and accompanying toilets as a recurrent concern that highlights the need for enhanced spatial planning, was mentioned by three respondents. The lack of quiet rooms and other solutions intended for people with mental, developmental, or other cognitive

disorders was a significant oversight that must be addressed promptly, as emphasised by two respondents.

One of the respondents pointed out that heavy, glass, swing fire doors in buildings have no actuators.

The respondents had the opportunity to assess the general degree of accessibility of dormitories for guests and residents with individual needs and disabilities on a scale of 1–5. Ten out of fifteen respondents rated the architectural accessibility of student houses at 3 points, three of them gave 2 points and two interviewees gave 4 points, thus confirming the insufficient standard of adaptation of the buildings. Upon studying the health conditions and individual needs articulated by respondents, along with the answers they provided, it became evident that despite their declared comprehension of 'architectural accessibility', none possessed significant degree of disability, which hindered, or in certain instances precluded, the accurate identification of all barriers within the buildings.

The initial section of the second survey indicates that 70% of the female respondents arrived in Lodz due to Russian aggression on Ukraine.

The other three women had already been to **Łódź** to attend the University of **Łódź** and the Lodz University of Technology. Finding a place to reside was not an issue for any of the ladies questioned. Four females reside in student residence halls: one in the UŁ dormitory (a respondent with a child) and three in the TUL dorms (students). The remaining interviewee either rent a flat (4) or reside with their relatives (3). Every respondent stated that she would be open to going back to her home country.

Two females said 'no' when asked if they would like to live in a dorm for students, but eight respondents replied positively, providing the following justifications for their response:

- the affordability of the accommodation;
- international integration;
- convenient location (near the university, clinic, and kindergarten, among other institutions).

When questioned about the requirements for the convenience of residing in a student dormitory, the following answers were most frequently provided:

- double or triple rooms with kitchens and bathrooms
- dormitory quarters for all Ukrainians on one level.
- a larger room designated for community meetings, children's play, meetings, and events.

The final survey question exclusively addressed respondents who were currently living in student dormitories. They were asked whether, in their opinion, rooms in student dormitories could be used as temporary accommodation for their families. The responses of those surveyed were relatively consistent. In an emergency, such as the current crisis, any safe shelter appear appropriate for a brief period. However, expectations regarding the standard of residence were not consistent and were influenced by the projected length of stay in a certain location. The number of individuals, their financial capacities, age, and individual needs are all factors taken into consideration while planning a prolonged stay. According to the respondents, residences were not adequately equipped to such scenarios, particularly if the dormitory was intended to be inhabited by elderly people or parents with more than one child. In accordance to the responses, the living spaces were undersized, with the majority of units having communal restrooms and kitchenettes.

## 3. Statistical analyses

The documentation and numerical data received from the BON of the Lodz University of Technology, including information on

Table 1. List comprising a selection of questions and answers derived from the questionnaire that was specifically formulated for the audit of the accessibility of the potential hosting environment in student Hall of Residence I.

No.	Questions	I
1	Is there a car park near the building?	
2	Are there clearly indicated areas designated for people with disabilities and women with children in the car park?	
3	Is there free of architectural barriers public transport stop near the building?	
4	Does the public transport stop have perceptible information for the blind, people with low vision, hearing impairment, or learning difficulties?	
5	Does the public transport stop have perceptible information in a language other than Polish?	
6	Is access to the building from the public transport stop free of significant architectural barriers?	
7	Is the entrance to the building devoid of architectural barriers for people with locomotor disabilities?	
8	Is the entrance area to the building clearly indicated for the blind, people with low vision or hearing impairment, and other disabilities?	
9	Is the entrance area to the building clearly indicated with the information in a language other than Polish?	
10	Is there an information desk/reception desk in the entrance area of the building?	

No.	Questions	I
11	Is a sign language translator provided at the information desk?	
12	Is Polish-Ukrainian translation provided at the information desk?	
13	Is there perceptible information on the doors in the building about the purpose of each room?	
14	Are there public toilets for people with disabilities inside the building?	
15	Are there accessible apartments for people with disabilities in the building?	
16	Are there accessible single-bed apartments with individual toilets provided?	
17	Are there accessible double-bed apartments with individual toilets provided?	
18	Are there accessible multi-bedroom apartments with individual toilets provided?	
19	Are there accessible silent rooms and psychotherapy consultation rooms available in the building?	
20	Are there accessible multifunctional rooms that can be used as integration spaces available in the building?	

I- Hall of Residence No. 1

■ yes ■ no

Table 2. List comprising a selection of questions and answers derived from the questionnaire that was specifically formulated for the audit of the accessibility of the potential hosting environment in student Hall of Residence III.

No.	Questions	III
1	Is there a car park near the building?	
2	Are there clearly indicated areas designated for people with disabilities and women with children in the car park?	
3	Is there free of architectural barriers public transport stop near the building?	
4	Does the public transport stop have perceptible information for the blind, people with low vision, hearing impairment, or learning difficulties?	
5	Does the public transport stop have perceptible information in a language other than Polish?	
6	Is access to the building from the public transport stop free of significant architectural barriers?	
7	Is the entrance to the building devoid of architectural barriers for people with locomotor disabilities?	
8	Is the entrance area to the building clearly indicated for the blind, people with low vision or hearing impairment, and other disabilities?	
9	Is the entrance area to the building clearly indicated with the information in a language other than Polish?	
10	Is there an information desk/reception desk in the entrance area of the building?	

No.	Questions	III
11	Is a sign language translator provided at the information desk?	
12	Is Polish-Ukrainian translation provided at the information desk?	
13	Is there perceptible information on the doors in the building about the purpose of each room?	
14	Are there public toilets for people with disabilities inside the building?	
15	Are there accessible apartments for people with disabilities in the building?	
16	Are there accessible single-bed apartments with individual toilets provided?	
17	Are there accessible double-bed apartments with individual toilets provided?	
18	Are there accessible multi-bedroom apartments with individual toilets provided?	
19	Are there accessible silent rooms and psychotherapy consultation rooms available in the building?	
20	Are there accessible multifunctional rooms that can be used as integration spaces available in the building?	

I- Hall of Residence No. 1

■ yes ■ no

students with disabilities and their potential needs during their stay in the halls of residence of the Lodz University of Technology, enabled the design of a general analysis with the following objectives:

- determination of the current percentage of accommodation demanded by students with disabilities currently studying at the Lodz University of Technology;
- identification of the practical possibilities of making the remaining architecturally accessible rooms available for

vulnerable individuals as temporary accommodation.

According to data obtained from the university office responsible for disability-related matters, quoted on 31 December 2021, the total number of students at Lodz University of Technology was 10,978, including 155 individuals who had declared a disability confirmed by a legal ruling, constituting 1.4% of the entire student body. It is noteworthy that the proportion of registered students with motor dysfunction, among all persons with declared disability, was 35.07%. In 2022, a total of 134 individuals with

Table 3. List comprising a selection of questions and answers derived from the questionnaire that was specifically formulated for the audit of the accessibility of the potential hosting environment in student Hall of Residence IV.

No.	Questions	IV
1	Is there a car park near the building?	
2	Are there clearly indicated areas designated for people with disabilities and women with children in the car park?	
3	Is there free of architectural barriers public transport stop near the building?	
4	Does the public transport stop have perceptible information for the blind, people with low vision, hearing impairment, or learning difficulties?	
5	Does the public transport stop have perceptible information in a language other than Polish?	
6	Is access to the building from the public transport stop free of significant architectural barriers?	
7	Is the entrance to the building devoid of architectural barriers for people with locomotor disabilities?	
8	Is the entrance area to the building clearly indicated for the blind, people with low vision or hearing impairment, and other disabilities?	
9	Is the entrance area to the building clearly indicated with the information in a language other than Polish?	
10	Is there an information desk/reception desk in the entrance area of the building?	

No.	Questions	IV
11	Is a sign language translator provided at the information desk?	
12	Is Polish-Ukrainian translation provided at the information desk?	
13	Is there perceptible information on the doors in the building about the purpose of each room?	
14	Are there public toilets for people with disabilities inside the building?	
15	Are there accessible apartments for people with disabilities in the building?	
16	Are there accessible single-bed apartments with individual toilets provided?	
17	Are there accessible double-bed apartments with individual toilets provided?	
18	Are there accessible multi-bedroom apartments with individual toilets provided?	
19	Are there accessible silent rooms and psychotherapy consultation rooms available in the building?	
20	Are there accessible multifunctional rooms that can be used as integration spaces available in the building?	

I- Hall of Residence No. 1  
■ yes ■ no

disabilities were registered (representing 1.2% of the total student population), indicating a further decline in the number of declarations concerning special needs. The ongoing conflict in Europe, instigated by Russia, has resulted in an influx of students from Ukraine. Many of these students are now reliant on financial support from relatives, which may not be guaranteed. It is therefore essential to provide them with subsidised accommodation, and while there is currently no data concerning the disabilities of incoming students, it is important to note that family members with special needs are also arriving in Poland, and they too are seeking stable accommodation. It is notable that some of the refugees who have arrived on a permanent basis have expressed a connection with the city, which was initially only a place of temporary residence for them.

4. Audit results

Subsequently, the research progressed to the application of the audit tool, which incorporates criteria designed to evaluate the availability of buildings in the most comprehensive and detailed manner. Concurrently, it seeks to identify the simplest practical selection of solutions that can be implemented to address the architectural barriers that currently hinder many individuals from utilizing the spaces of student dormitories as temporary residences.

Tables 1–3 synthesise the principal findings from architectural audit research. Tables comprises twenty questions with obtained answers, representing a fraction of the complete questionnaire. In the tables below, which illustrate the outcomes of the analytical investigation into the individual student residences, representative and most fundamental general enquiries were incorporated. Subsequent to the building audits, these enquiries were either answered in the negative or the positive.

The analyses' results have been narrowed down to the issues deemed most significant by the authors. These relate to the possibility of using university dormitories by refugees with disabilities or other individual needs. Furthermore, detailed inquiries are being made into the evolution of universal design principles

within the domain of architecture. The graphics employed in the table offer a general overview of the accessibility of selected dormitories, in terms of the basic requirements stipulated by regulations and local standards.

The study demonstrates that despite the implementation of modifications and the introduction of elements intended to enhance safety and comfort, the three analysed buildings do not fully meet the accessibility requirements of individuals with low mobility, visually impaired people, those with hearing impairment, or persons with learning difficulties.

DISCUSSION AND IMPLICATIONS

The analysis' findings indicate specific practical conclusions; however, they also raise concerns regarding the feasibility of adapting student dormitories to meet the diverse needs of individuals seeking temporary accommodation. The subsequent recommendations address designers, facility managers, local authorities, and the users of the examined residential buildings. Concurrently, the research methodologies employed and the prospective trajectory of the research outlined in the article are subjects of inquiry. The findings of this research are intended to be continued and used to create a comprehensive repository of housing buildings in the future, catering to the diverse requirements of all users in case of the next crisis.

The built environment has been identified as a key factor in the inclusion of persons with disabilities within the emergency support system. The implementation of this approach is reliant upon the availability of shelters that are devoid of architectural barriers and a settlement sector that can guarantee personal protection, privacy, safety and security for the affected population, including children, the elderly and people who are sick or injured. These requirements are explicitly articulated in the international Guidelines developed by the Inter-Agency Standing Committee.<sup>18</sup> Securing new premises can represent a substantial financial and logistical challenge. In light of this, a significant proportion of financial resources could be allocated towards adapting existing



collective accommodations. The International Federation of Red Cross and Red Crescent Societies has recommended that, in terms of preparing accessible shelter and settlement, a review of existing accommodation should be conducted, with the ultimate aim of promoting accessibility in accordance with international humanitarian law and the principles of universal design.<sup>19</sup>

It is asserted by the authors, upon the basis of comprehensive research and meticulous analysis, that the three selected dormitories can become one part of the temporary accommodation stock in the city as well as throughout the entire voivodship. Despite the research being constrained to just three dormitories due to the scope and editorial restrictions, the authors recognise the potential of the remaining halls of residence at TUL, which are located in the area.

The overarching objective of the university authorities is to establish a set of residential buildings that are universally accessible and in compliance with the prevailing sanitary and fire safety regulations. Additionally, there is a commitment to enhancing the quality of these buildings. Following the completion of the subsequent refurbishments of the buildings, the research team intends to undertake a continuous monitoring process of future projects, with a particular focus on the adaptation of dormitories and other university buildings to the principles of universal design.

The architectural audits performed resulted in a comprehensive and objective evaluation of the accessibility status. The data collected during the analysis of the documentation and site inspection clearly indicate that none of the selected dormitories of the Lodz University of Technology has sufficient solutions to guarantee fair standard of accessibility to all individuals, regardless of their physical and mental abilities. The investigation revealed that the existing structures are not barrier-free, with two of the three audited buildings being severely limited by external stairs at the main entrances, prohibiting wheelchair access to the buildings or their components. A further obstacle for individuals with mobility limitations is the absence of a lift in one of the dormitories, which restricts access to rooms on upper floors. There are also numerous difficulties both on the premises and in buildings for people with individual needs, including people with sight and hearing impairments, which limit the functionality of the buildings and require more effort and increased attention from users in order to make full use of their functions. For instance, as indicated in the article, there is an absence of information boards at the main entrances, a situation that contravenes the established requirements for accessibility. Furthermore, there is an insufficiency of Braille signage, convex letters, QR codes or typhlographic plates with plans on the routes to key-function spaces or in the case of toilets. This prevents visually impaired and the blind from independent use of the facilities. The lack of elements of orientation systems, such as consistent pictograms, can present a significant challenge for a number of potential residents, including individuals who do not speak Polish, the elderly, children, individuals with intellectual disabilities, those with mental health issues and developmental disorders.

A critical barrier is the absence or the insufficient number of rooms and sanitation facilities that meet the accessibility requirements. In considering the potential admission of Ukrainian families to the student dormitories under analysis, the issue of the inadequate usable area of the existing rooms becomes problematic, particularly in the case of families of three or more.

The actions aiming at eliminating the afore-mentioned barriers and obstacles are considered to be indispensable to provide

vulnerable groups from conflict-affected populations with specific protection, including basic needs such as accommodation, and to guarantee them all human rights and fundamental freedoms, which is the basis of the idea of universal design. The methodology employed by the authors for the assessment of the degree of availability of potential temporary accommodation, utilising a newly developed tool in the form of an application that is currently under development, enabled the verification of its effectiveness simultaneously.

The research demonstrated that the use of this novel tool made it possible to assess the extent to which the existing architectural space was adapted to the real needs of people with disabilities, and to develop specific recommendations for the introduction of numerous improvements. The result of this approach to the study is a detailed post-audit documentation with design recommendations. This is the direct and most measurable effect of the analysis aimed at identifying barriers and obstacles, together with the evaluation of accessibility priorities resulting from the idea of universal design.

It is therefore recommended that guidance based on the detailed conclusions of the assessments carried out using appropriate audit tools, such as those used in the study, should be followed for future adaptations to existing buildings. In cases where it is not technically possible to achieve full accessibility, for example at main entrances, the provision of alternative access points is both feasible and recommended, in line with the principle of providing rational improvements.

The methodology of accessibility evaluation tested by the authors, along with the recommendations derived from it, might become an important element of systemic and long-term planning of activities related, for example, to the outbreak of refugee emergencies, such as the destabilization caused by the ongoing crisis in Ukraine described in the article. The following procedure, developed on the basis of the idea of universal design, complements the activities defined by the Interagency Standing Committee, including the identification of architecturally accessible buildings belonging to government agencies and private organizations with the capacity to be used as temporary accommodation.<sup>20</sup>

## CONCLUSIONS

In view of the contemporary challenges resulting from the current and expected future migration crises, as well as the requirements related to the creation of sustainable socio-cultural development and non-discrimination of people with disabilities, it is necessary to ensure a base of architecturally accessible buildings that can serve as temporary shelters. The increasing number of migrants and refugees arriving in Poland and other European countries makes it inevitable to consider methods of programming the directions of development of the shelter sector, taking into account the fact that, over time, habitable spaces may evolve from emergency to more durable accommodation.

The rapid pace of urbanisation in Poland has so far resulted in the concentration of a large number of disabled people in cities, and at the same time the influx of refugees from Ukraine with special needs, including individuals with chronic illnesses and injuries, means a rapid shrinking of housing resources adapted to the needs of users with disabilities. During a housing crisis, which is currently being observed in large urban areas, conventional accommodation buildings, including student dormitories, have the potential to be used as temporary accommodation.

The exact number of Ukrainians residing in Łódź at present

is difficult to ascertain, however there are estimates to be approximately 70,000. Individuals and families with special needs, who were often institutionalised in Ukraine and lacked family or friends in Poland, sought refuge in improvised public shelters. Regrettably, the majority of these structures did not meet the minimum standards for accessible, safe and comfortable living conditions. Consequently, the utilisation of student residences as an accommodation solution for the Ukrainian community and other refugees arriving in significant numbers in Łódź is a potential future consideration.

Accordingly, the authors proceeded to examine the issue of adapting the student dormitories of the Lodz University of Technology as a temporary residence for refugees, including those with disabilities and other special needs. The study

demonstrated that despite the considerable challenges posed by existing barriers, there is a feasibility for the enhancement of analysed buildings through the implementation of novel planning methodologies rooted in universal design principles.

Whilst the heightened comfort of housing is not a priority during such circumstances, the most significant aspect is to ensure a sense of security. In times of crisis, student dormitories can be transformed into temporary accommodation, where refugees are granted psychological support, assistance with language acquisition, and material aid from the authorities and the academic community. These measures empower the largest possible segment of immigrants, irrespective of their limitations, to become self-sufficient, obtain employment, and consequently establish a permanent residence in Poland.

## ENDNOTES

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