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Synergistic incorporation of the features of psychological support architecture into emergency architecture as an effective response to living condition emergencies

Streszczenie

Podjętym problemem badawczym jest pożądana synergia architektury awaryjnej i cech budynków pomocy psychologicznej. Celem jest wypracowanie modelu funkcjonalnego obiektu, łączącego cechy obu tych koncepcji dla pełniejszej odpowiedzi na tymczasowe potrzeby poszkodowanych, szczególnie dzieci, z uwzględnieniem potrzeb psychologicznych. Postawiono tezę, że uwzględnienie aspektów psychologicznych w architekturze awaryjnej może znacząco podnieść jakość ochrony osób znajdujących się w sytuacji kryzysowej takiej jak wojna czy katastrofy naturalne oraz przyczynić się do znacznej redukcji stresu i traumy. Zastosowano metodę wielokrotnego studium przypadku oraz metodę research by design. Architektura awaryjna jest słabo rozpoznana w literaturze. Obiekty pomocy psychologicznej, choć szerzej badane, nie zostały dostatecznie przeanalizowane pod względem mobilności i tymczasowości. Przeprowadzone porównanie ośrodków doraźnej pomocy w sytuacjach awaryjnych i obiektów opieki zdrowotnej ujawniło istotne podobieństwa funkcjonalne, takie jak zapewnienie schronienia, poczucia bezpieczeństwa i możliwości interakcji społecznych. Wnioski z badań wskazują na potrzebę elastycznego projektowania, które łączy wsparcie materialne i psychospołeczne, co umożliwi skuteczniejsze reagowanie na sytuacje kryzysowe. W odpowiedzi na zidentyfikowaną lukę badawczą opracowano modelowy "Ośrodek doraźnej pomocy dla najmłodszych ofiar wojny". Wyniki badań stanowią wytyczne projektowe do odpowiedniej infrastruktury możliwej do wykorzystania w ekstremalnych warunkach. Wypracowane rozwiązania potwierdzają możliwość włączenia cech budynków pomocy psychologicznej do koncepcji ośrodka doraźnej pomocy. Szczególnie znaczenie mają: zapewnienie prywatności użytkowników, stworzenie przestrzeni sprzyjających kontaktom i integracji, możliwości przeżywania cierpienia oraz udzielania wsparcia i prowadzenia elementów terapii w formie i warunkach dopasowanych do aktualnej kondycji psychofizycznej. Istotne jest zapewnienie prywatności i jednocześnie możliwości wyboru formy przebywania w zależności od aktualnej kondycji psychofizycznej. Integracja architektury awaryjnej z funkcjami budynków pomocy psychologicznej pozwala nie tylko zapewnić schronienie, ale także wspiera procesy adaptacyjne i terapeutyczne poszkodowanych dzieci. Jest to szczególnie ważne w ujęciu długofalowym, gdzie skutki sytuacji awaryjnych, szczególnie dla dzieci, rzutują na całe ich dalsze życie.

Abstract

The research problem addressed is the desired synergy of emergency architecture and features of psychological support buildings. The aim is to develop a functional model of a facility that would combine the features of both concepts for a fuller response to the temporary needs of victims, especially children, taking into account their psychological needs. It was hypothesised that the inclusion of psychological aspects in the emergency architecture can significantly improve the quality of protection for people in an emergency such as war or natural disasters and contribute to a significant reduction in stress and trauma. The multiple case study method and the research by design method were used. Emergency architecture is poorly recognised in the literature. Psychological support facilities, although more widely studied, have not been sufficiently analysed in terms of mobility and temporariness. The conducted comparison between emergency relief centres and healthcare facilities revealed significant functional similarities, such as providing shelter, a sense of safety, and opportunities for social interaction. Research findings point to the need for flexible design that combines material and psychosocial support, which will enable a more effective response to emergencies. In response to the identified research gap, a model Emergency Assistance Centre for the Youngest Victims of War was developed. The results of the research constitute design guidelines for appropriate infrastructure, that can be used in extreme conditions. The developed solutions confirm the possibility of including the features of psychological support buildings into the concept of an emergency relief centre. Of particular importance are ensuring the privacy of users, creating spaces conducive to contacts and integration, ensuring the possibility to experience suffering, providing support, and carrying out elements of therapy in a form and conditions adapted to the current mental and physical condition. It is also important to ensure the privacy of users and the possibility of choosing the form of stay depending on the current mental and physical condition. The integration of emergency architecture with the functions of psychological support buildings not only provides shelter but also supports the adaptation and therapeutic processes of the affected children. This is particularly important in the long term, where the effects of emergency situations can impinge on the entire future lives of the victims, especially children.

Słowa kluczowe: synergia funkcji, architektura awaryjna, ośrodki pomocy psychologicznej, doraźne zakwaterowanie, obiekt uniwersalny, sytuacja kryzysowa
Keywords: synergy of functions, emergency architecture, psychological support centres, emergency accommodation, universal facility, emergency situation

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1. INTRODUCTION

Emergencies are part and parcel of socio-economic and environmental realities throughout the world. They cover a wide range of events, including natural disasters (e.g. earthquakes, hurricanes, floods, droughts, forest fires, tsunamis, volcanic eruptions), armed conflicts, pandemics, humanitarian emergencies, famines, mass migrations, and economic destabilisation. These crises threaten human life and health, destruction of infrastructure and loss of living conditions while having a long-term impact on the mental and social condition of individuals and entire populations.

The unpredictable nature of emergency situations requires effective crisis management and appropriate response strategies that include both preventive actions and emergency support. It is crucial to integrate physical and mental protection measures, which include not only securing the basic life needs but also providing conditions conducive to the recovery of the mental and physical well-being of people affected by an emergency (Davis, 2015). In this context, emergency architecture is one of the key tools for responding to contemporary humanitarian challenges. The contemporary approach to emergency architecture is evolving towards multidimensional design that not only addresses the needs for immediate protection but also engages in research into modern technologies, uses recycled materials, and considers aspects of long-term community recovery (Piątek, Cygan, 2025). In the context of the dynamic and complex challenges of the modern world, emergency architecture is becoming an interdisciplinary area that combines technical, social, and psychological aspects. Its development is not limited to providing shelter but also includes designing spaces that support mental well-being and social inclusion, making it an important element of long-term strategies for the reconstruction and stabilisation of crisis-affected regions.

The aim of this article is to analyse the synergy between emergency architecture and characteristic features of psychological support buildings and to identify existing gaps in this area. Particular emphasis was placed on the possibilities of integrating solutions supporting mental health within emergency facilities, which can be an important element of an effective response to crisis situations. The article also presents model architectural solutions, showing the potential for adapting the features of psychological support buildings in the design of emergency infrastructure.

The undertaken research problem focuses on finding synergies between the physical protection function and the psychological support function in emergency facilities. In practice, many temporary buildings and shelters organised in emergency situations on an ad hoc basis do not take into account psychological aspects, which significantly reduces their holistic effectiveness in protecting the health and well-being of users. A particularly important issue is the impact of insufficient consideration of therapeutic spaces on the mental condition of children, who are one of the most vulnerable groups affected by emergencies.

It was hypothesised that the inclusion of psychological aspects in the emergency architecture can significantly improve the quality of protection of people in a crisis situation and contribute to the reduction of stress and trauma. The use of spatial solutions inspired by psychological support buildings, such as access to natural light, relaxation areas, private spaces, and elements of nature, can positively affect the mental state of users and improve the effectiveness of interventions. The integration of these solutions into the design of emergency architecture should become standard in the context of global humanitarian challenges.

The research questions were as follows:

- Which psychological functions are most often implemented in emergency facilities?
- Which of the features included in support centres are most often omitted in emergency architecture?
- What is the simplest way to take care of psychological needs in the design of emergency architecture?

2. PSYCHOLOGICAL SUPPORT CENTRES AND EMERGENCY ARCHITECTURE

The authors analysed the literature to identify contemporary challenges and developments in emergency architecture, especially in the context of emergencies such as natural disasters, armed conflicts, and humanitarian disasters (Sanderson, Burnell, 2013). The research identified key strategies and concepts used in emergency architecture through the analysis of executed case studies. Particular attention was given to issues related to the adaptive use of building materials, recycling strategies, and adaptation of space to the specific needs of communities affected by disasters. The analysis of the literature identified the main challenges in integrating the functions of emergency architecture and therapeutic spaces, which provided a starting point for further research (Davis, 2011). In light of the rather scarce theoretical and research output the architecture diploma theses that address the topic of emergency architecture by exploring various design approaches and innovative solutions adapted to crisis situations are noteworthy. They address the topic of emergency architecture, exploring various design approaches and innovative solutions adapted to crisis situations. They add to the body of scientific knowledge, pointing to the growing interest of architects in creating spaces that respond to the challenges of disasters and humanitarian crises (Archamowicz, Kielb, 2024; Kielb, 2024; Maciejczyk, 2023; Skorupa, 2024).

2.1. Psychological support centres: Definition and meaning

Psychological support centres are institutions or facilities that provide psychological assistance, therapy, and counselling for people struggling with various emotional, psychological, or life problems. Their primary goal is to provide specialised help in dealing with mental health problems, stress, trauma, depression, anxiety, interpersonal challenges, and other mental health risks.

2.2. Psychological support centres: Role and functions

The main function of psychological support centres is to provide comprehensive psychological support, including diagnosis, therapy, counselling, and patient education. These centres work closely with psychotherapists, clinical psychologists, and other professionals to develop individual treatment plans tailored to the needs and problems of each individual. In addition, these centres often act as the first point of contact for people seeking help, enabling early detection and intervention for mental disorders. In the social dimension, psychological support centres also perform an educational function, promoting knowledge about mental health, prevention of disorders, and stress management techniques. Through workshops, training, and educational campaigns, these centres contribute to raising public awareness of the importance of mental health care. In summary, psychological support centres are a key institution in the field of mental health, offering therapeutic, emotional, and educational support to people struggling with mental health difficulties. Their role encompasses a wide range of activities aimed at improving the quality of life of patients and promoting mental health in society.

2.3. Design guidelines for psychological support centres

In the face of the growing demand for mental health support, psychological support centres play a vital role in providing care

and therapy to people struggling with emotional and mental health difficulties. The spaces of these centres have a significant impact on the effectiveness of therapeutic processes and the overall well-being of patients. Crews sets out design guidelines for architects that address key aspects of designing psychological support centres (Crews, 1999; From, Lundin, 2009):

A. **Spatial configuration:**

- Design the space to create an atmosphere of calm and safety, supporting the therapeutic process.
- Use appropriate acoustic insulation and strategically place windows to minimise external stimuli and noise, promoting patient focus and relaxation.
- Design individual group and therapy rooms taking into account the diverse needs of therapy sessions.

B. **Natural lighting and materials:**

- Maximise access to natural light to positively impact patient mood and the comfort of the space.
- Select materials with aesthetics conducive to healing processes while taking into account ease of cleaning.

C. **Easy navigation:**

- Provide clear signs for the reception, waiting rooms, and treatment rooms to ensure a clear and legible space.
- Use of simple signage to help patients navigate the building, thus supporting their sense of confidence and orientation.

D. **Communal and relaxation areas:**

- Create public communal spaces, where patients can rest, meditate, and read in silence.
- Choose colours and decorative elements conducive to tranquillity and relaxation.

E. **Access to outdoor areas:**

- Consider access to a garden or green areas that support the healing process through contact with nature.
- Use indoor vegetation to improve air quality and overall ambience.

F. **Safety and privacy:**

- Ensure adequate safeguards and privacy protection so that patients feel comfortable expressing their feelings.
- Use modern technologies to protect patient data and maintain the confidentiality of information.

G. **Disabled:**

- Design keeping in mind the needs of people with disabilities, allowing easy access and free movement around the building (Design Guidance for Psychiatric Intensive Care Units, 2017).

2.4. Emergency architecture: Definition and meaning

Emergency architecture is a design approach that aims to create buildings and infrastructures capable of providing safety and protection in the event of threats such as natural disasters, industrial accidents, terrorism, or health disasters (Matelowska, Szczerek, Franta, et al., 2025). The basic principles of emergency architecture are structural durability, rapid adaptation, and minimisation of losses (Gomes, 2014). On the one hand, it is a reaction to emergencies and harm, on the other hand, it is a field of exploration of new solutions in unforeseen circumstances (Gonzalez-Milea, Peña, 2023).

2.5. Emergency architecture: Role and functions

The role of emergency architecture involves a comprehensive design process that takes into account a variety of aspects, such as resistance to external loads, inclusion of safety and security systems, ensuring access to energy, water, and food sources, and the efficient use of space to minimise the risk of panic and evacuation congestion. Architects working in the field of emergency design

try to integrate both technical and psychosocial elements in their designs, taking into account both the physical needs of users and their behaviour in crisis situations (Karpińska, Idem, 2024).

Emergency architecture involves the design of buildings that can act as emergency shelters, evacuation points, and logistics centres in the event of natural disasters or various types of attacks (Świerzawski et al., 2023; Jörgen, Łątka, Tarczewski, et al., 2025). In addition, emergency architecture emphasises the planning of public and traffic spaces in cities to ensure efficient evacuation and facilitate access for emergency services. The integration of modern technologies, such as monitoring systems, emergency communication systems, and intelligent building management, also affects the effectiveness of emergency operations. In summary, emergency architecture plays a key role in creating spaces that not only adapt to extreme conditions but also actively contribute to protecting people's lives, health, and safety in the face of unexpected events and crises.

2.6. Approaches to the design of Emergency architecture in terms of production

The need to produce an emergency architecture is usually linked to institutions and entities associated with public administrations, supranational entities, or non-governmental organisations which in general develop their production with two primary approaches:

- **Predetermined Emergency Architecture:** It refers to models developed by institutions prior to the emergence of a conflict or natural disaster that necessitates the displacement of populations. Its condition of temporality largely dominates the design, envisioning a structure that is both assemblable and disassemblable. Naturally, it primarily addresses the functionality and is developed in an abstract manner, with transportability as a fundamental attribute.
- **Purposefully Developed Emergency Architecture:** This typically aligns with sustained permanence. The condition of temporality is not the primary design parameter, resulting in a form of architecture generally more attuned to the specific contextual conditions of its environment.

3. MATERIALS AND METHODS

The research was conducted using qualitative multiple case study (Yin, 2017, pp. 415-424; Groot, Wang, 2013, pp. 415-424; 215-261) and the research by *design* method. This allowed for the analysis and comparison of functions between emergency architecture and psychological support buildings, while also enabling the identification of existing deficiencies and development of model design solutions using the synergies of these functions.

3.1. Case study

The case study involved the collation and comparison of two groups of facilities: psychological support centres and emergency facilities, narrowing the comparative analysis to three selected emergency architecture designs and three psychological support centres in order to:

- identify key features of psychological support facilities that should potentially be included in the design of emergency architecture and
- identify key deficiencies in emergency architecture facilities in terms of psychological aspects.

The selection of research facilities was based on their importance for architectural practice and their innovative character. With regard to psychological support buildings, the analysis covered spatial features of the following facilities:

- Centre for Psychosocial Rehabilitation.
- Children's Centre for Psychiatric Rehabilitation, and
- Shelter for Victims of Domestic Violence.

They were then contrasted, in the form of a comparative analysis, with (often different) architectural solutions used in selected emergency architecture facilities:

- Paper Partition System,
- Container Temporary Housing ('Container Temporary Housing', n.d.), and
- Re:Ukraine Housing System for internally displaced persons (IDPs) designed by balbek bureau ('Re:Ukraine', n.d.).
- The following basic data were presented for each of the studied facilities:
- location,
- designer, and
- design idea / design strategy.

The comparative analysis allowed us to identify deficiencies in the design of spaces that integrate the functions of emergency architecture with the psychological needs of users, as well as to indicate the directions of development of the theory of emergency architecture. In order to compare the examined facilities (psychological care buildings and emergency architecture) and to determine the extent to which they meet the desired characteristics, the following research criteria were adopted for the studied groups of facilities:

- provision of shelter after an emergency situation,
- emergency assistance provided immediately after a crisis situation occurs,
- provision of temporary accommodation,
- provision of psychological care,
- establishment of a sense of safety,
- possibility of interpersonal contacts between victims,
- provision of supporting infrastructure, i.e. public facilities, and
- speed and ease of building construction.

3.2. The research by design method

The *research by design* method was used in the field of architecture to develop the concept of *Emergency Assistance Centre for the Youngest Victims of War*. The research process involved developing a design concept based on the findings of the literature review and case study analysis. *Research by design* was carried out as a master's thesis project in architecture at a university and

the graduate is the co-author of this article. The research stages included the following:

- Context and needs analysis – identifying key user requirements and constraints arising from the emergency;
- Creation of design variants – experimenting with different spatial systems, structures, and adaptation strategies;
- valuation of solutions – assessing the effectiveness of the designs in terms of ergonomics, functionality, spatial atmosphere, and impact on the mental well-being of users; and
- finalisation of the concept – developing a target model of a centre that integrates the functions of emergency architecture and psychological support.

4. RESEARCH RESULTS

4.1. Case Study – psychological support centres

Based on the research criteria, an analysis was carried out of the selected psychological support buildings. Table I contains the characteristics of the selected cases, taking into account their location and design concept. This summary allows for the analysis the key architectural objectives of the studied facilities.

The studied examples of psychological and health care designs reveal important aspects that are consistent with the principles of emergency architecture. The priority given to patients in the design of the Centre for Psychosocial Rehabilitation in Spain illustrates the importance of considering different patient groups and adapting the space to their specific needs in order to provide comfortable conditions in healthcare facilities. Community therapy, as seen in the Children's Centre for Psychiatric Rehabilitation in Japan, expresses a therapeutic approach that is consistent with the idea of an emergency architecture, focusing on creating favourable conditions in crisis situations. Creating a community in such an environment can positively influence the process of healing and regaining mental health. Cooperation with users, as seen in the design of shelters for victims of domestic violence in Israel, underscores the crucial role of taking into account the specific needs and requirements of users. This is consistent with an principles of an emergency architecture that aims to design facilities flexibly so as to increase their functionality and effectiveness in achieving goals.

Based on the analysis, common elements were identified between healthcare architecture and the principles of emergency architecture, such as patient priority, therapy through community

Table I. Summary of psychological support centres and their architectural features

No.	Analysed facility	Location	Designer	Design idea / design strategy
(1)	(2)	(3)	(4)	(5)
1.	Centre for Psychosocial Rehabilitation	Alicante, Spain	Otxotorena Arquitectos	In accordance with the objectives, the building meets the needs of two groups of patients: those with mental disorders who do not require hospitalization and those with serious mental disorders who require hospitalization. A single-storey building with a basement for parking and with auxiliary rooms, connected to a space intended for a large well-kept garden.
2.	Children's Centre for Psychiatric Rehabilitation	Japan	Sou Fujimoto Architects	This is a treatment centre for children with mental disorders, where they live together to regain their mental health.
3.	Shelter for Victims of Domestic Violence	Tel Aviv-Yafo, Israel	Amos Goldreich Architecture, Jacobs-Yaniv Architects	This facility is one of the few that was designed and built in consultation with the staff who will occupy and run it. It is led by pioneering human rights activist Ruth Rasnic, who works for the international charity 'No To Violence'. The centre will provide shelter for victims of domestic violence in Israel.

Author: J. Maciejczyk.

Table II. Summary of the studied emergency architecture facilities and their architectural features

No.	Analysed facility	Location	Designer	Design idea / design strategy
(1)	(2)	(3)	(4)	(5)
1.	Paper Partition System	Fukushima, Japan	Shigeru Ban	After a natural disaster and until temporary housing is built, victims find shelter in public buildings or large facilities such as sports centres. To solve the problems of lack of privacy and overcrowding that arise in such situations, the Paper Partition system was created. This concept allows the designation of a space for each family in need of shelter using paper tube frames and textile partitions.
2.	Container Temporary Housing	Onagawa, Japan	Shigeru Ban	The housing units were arranged in a chequerboard pattern, creating open living spaces between the containers. Depending on how the containers were combined, three types of accommodation were created, housing one or two, three, or four people. The housing units were placed in three-storey rows, freeing up space in the centre of the plot for public facilities, including a community centre, a workshop, and a market. These facilities were also erected from shipping containers covered with textile and wooden roofs supported by paper tubes.
3.	Re: Ukraine Housing System for IDPs designed by the Ukrainian studio balbek bureau	-	Slav Balbeka	The idea for the settlement arose as a result of hostilities in Ukraine, during which citizens lost all their possessions. The architects designed several building layouts, from a small enclave for 520 people to a small town for over 800 residents.

Author: J. Maciejczyk.

building, and collaboration with users. These aspects indicate the possibility of creating facilities that not only provide care in difficult circumstances but also effectively respond to changing needs and situations, which is characteristic of emergency architecture.

4.2. Case study – emergency architecture

Similarly to psychological support facilities, the studied emergency architecture facilities were analysed with the results shown in Table II.

In the context of natural disasters and catastrophes, temporary architectural solutions such as the Paper Partition System can effectively provide quick and immediate shelter for victims. This innovative approach to architecture, based on the sustainable use of materials, can contribute to an effective response to emergencies, providing humanitarian support and protection in difficult situations.

Containers provide a favourable solution for the rapid creation of temporary housing, as demonstrated by the Container Temporary Housing project. Their versatility allows for tailoring the sizes and layouts of the accommodation to individual needs of families as well as creating public facilities. In the context of social problems, such as refugees resulting from conflicts, architects play an important role. The project of the Re: Ukraine Housing System for IDPs shows the architects’ commitment to creating appropriate living spaces adapted to the different needs of the refugee community through diverse development layouts. All of these examples illustrate how innovative architecture can be an effective tool in responding to emergencies, providing both functionality and decent living conditions in difficult circumstances.

The above examples of innovative architectural solutions are aimed at responding to crisis situations, such as natural disasters or helping refugees from conflict countries. The analysis of these designs shows that while they are important for providing shelter and assistance in difficult circumstances, they lack the functions characteristic of traditional psychological support centres. The main purpose of the presented examples is

to provide shelter, temporary housing, and social spaces. They do not directly emphasise the psychological and therapeutic aspects that are characteristic of traditional institutions of this kind. This highlights the need to develop new architectural concepts that will combine the functions of psychological support centres with flexible and adaptive solutions capable of effectively responding to diverse emergency situations. A key finding is that there is currently a shortage of multifunctional buildings capable of adapting by changing the main function of the facility in response to changing needs.

4.3. Case study – comparative analysis: convergences and main design priorities

A multiple-case study identified common features of emergency architecture facilities and psychological support centres. The analysis of these features allows for a better understanding of the similarities between the two types of facilities and the identification of the key aspects that connect them in the context of their functioning and social significance. Table III summarises the similarities and characteristic features (according to the research criteria) of the studied psychological support buildings and emergency architecture.

The purpose of such a comparison is to show the degree of compatibility and potential similarities in terms of spatial organisation, functionality, and usability aspects, which may have important implications for the design of facilities supporting people in crisis. A scale of 0 to 5 was adopted, where 0 means that a given criterion is not met or is met only marginally, and 5 means that a criterion is fully met. The following table also presents a comparative analysis of the common features between emergency architecture facilities and psychological support centres. The green colour indicated the facilities that perform the largest number of functions identified in previous analyses. They have the most similarities in terms of the functions fulfilled by these sites.

The analysis of emergency relief centres and healthcare facilities reveals many similarities and potential common points that can inspire further development of designs in these areas. The results of the analysis indicate important conclusions resulting

Table III. Comparative analysis of similarities and characteristic features in psychological support buildings and emergency architecture

No.	Type of facility	Studied facility	Research criteria							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
			provision of shelter following a crisis situation	emergency assistance provided immediately after a crisis situation occurs	provision of temporary accommodation	provision of psychological care	establishment of a sense of safety	possibility of interpersonal contacts between victims	provision of supporting infrastructure, i.e. public facilities	speed and ease of building construction
1	psychological support buildings	Centre for Psychosocial Rehabilitation	0	3	5	5	5	5	0	0
2		Children's Centre for Psychiatric Rehabilitation	0	3	5	5	5	5	0	0
3		Shelter for Victims of Domestic Violence	5	3	4	3	5	5	5	0
4	emergency architecture	Paper Partition System	5	5	5	0	5	5	0	5
5		Container Temporary Housing	5	0	5	0	5	5	5	5
6		Re: Ukraine Housing System for IDPs designed by the Ukrainian studio balbek bureau	0	0	5	0	5	5	5	4

Author: B. Buława, J. Maciejczyk.

from the duplicate functions of the facilities:

- provision of shelter following a crisis situation,
- provision of temporary accommodation,
- establishment of a sense of safety, and
- the possibility of interpersonal contacts between victims.

It is worth noting, however, that this analysis also shows significant differences between psychological support centres and emergency architecture facilities. In the case of the latter, the priority is to satisfy basic physical needs and provide means of survival in crisis situations, which may lead to insufficient consideration of the psychosocial needs of the users. Psychological support centres, on the other hand, focus on the therapeutic and psychological aspects, which does not always go hand in hand with the speed and ease of erecting such facilities.

4.4. Case study – comparative analysis: diagnosed deficiencies

Emergency architecture and the design of psychological support facilities share many common features and can serve as mutual sources of inspiration. In both cases, there is a need for flexible design, consideration of users' specific needs, and the creation of conditions that support treatment and assistance in crisis situations. However, there is also a growing demand for further development of projects that actively integrate psychological and therapeutic aspects. Advancement toward a more holistic approach that addresses both material and psychosocial needs is essential to provide comprehensive care and support in challenging circumstances.

It can also be concluded that both in architectural and sociocultural terms the studied architecture suffers from a lack of consideration for the environment it seeks to support. It often only satisfies the basic need for shelter, overlooking the fact that the sense of safety and protection is also closely linked to the psychological dimension and integration of the users facing an emergency.

In this regard, architecture plays a crucial role as a discipline responsible for shaping the cultural environment in which the inhabitants of these facilities should feel comfortable. Whether in

terms of typology, construction methods, scale, or morphology, this aspect has generally been overlooked in the development of proposed emergency architecture. This approach also appears to contradict recommendations set forth by some of the most prominent institutions involved in the development of emergency architecture.

4.5. Research by design on the example of the diploma thesis titled 'Emergency Assistance Centre for the Youngest Victims of War: Architecture in the Face of War'

4.5.1. Project of Emergency Assistance Centre for the Youngest Victims of the War

The topic of the diploma thesis concerning the creation of an emergency architecture facility – design of an emergency assistance centre for the youngest victims of the war – forced the authors to conduct a series of deep reflections on emergency construction and the need to quickly erect such a facility. The design work was confronted with many guidelines and various ideological concepts, which ultimately contributed to the development of an optimal solution for the mobile Emergency Assistance Centre for the Youngest Victims of War. The design is the result of a response to the ongoing military situation that has persisted in Ukraine since 2022, with a particular focus on the growing problem of post-traumatic stress disorder in children (PTSD) (Resick et al., 2017). The main goal of this project is to create a model mobile emergency centre, which will be specially dedicated to children in a country affected by conflict. During the implementation of this project, the focus was on adapting the facilities to the unstable and critical military situation.

The centre was designed for children who have lost their parents or guardians as a result of conflict – who have been orphaned or who have lost contact with their parents (hopefully only temporarily) – offering them accommodation, therapeutic spaces and full sanitary and communal facilities. At the same time, the facility can accept children from neighbouring areas who require short-term assistance, primarily in the form of psychological



III. 1. Development concept for the study area. Author: J. Maciejczyk

support and social integration. Due to the universal nature of the concept, the centre can be used not only in situations of armed conflict, but also during natural disasters such as earthquakes or floods. As a result, the project is an example of emergency architecture that provides children with a sense of security and psychological support in a range of different crisis situations. It is worth noting that the concept of a mobile emergency relief centre is a universal project that aims to provide rapid assistance to children affected by more than just military activities. This centre can also be used in the case of natural disasters such as earthquakes or floods, which was taken into account during the work on the diploma thesis. Therefore, this project can be considered an example of emergency architecture that responds to the need to provide a sense of safety, including mental well-being, to children around the world affected by various disasters.

The first stage of the design work was to thoroughly examine the potential locations for the temporary facility. It was assumed that a typical urban/residential car park provides a reasonable location. It is a repeating potential location in the city, with repetitive modular dimensions, which facilitates quick adaptation of ready-made interchangeable elements to multiple locations. After analysing various options, an existing car park was ultimately chosen as the optimal location, meeting the guidelines for car parks. The selected location was advantageous in terms of location and proximity to housing estates and educational centres. The design included a variant with 24 parking spaces (III. 1).

A modular system of facilities was proposed, which were designed to meet the requirements of an unstable and critical military situation. The mobility of the designed facility is based on a system of prefabricated wooden container modules that are manufactured off-site. These modules will be transported by lorries. One type of module was determined for production, but it was divided into four categories: sanitary, residential, technical, and temporary residence. The erection technology allowed the creation of a module measuring 2.5 x 5.0 meters, which will be repeated many times. Thanks to the use of this module

dimension, three different module layout schemes were created, consisting of 12, 24, and 36 modules.

The design aims to provide children with a safe and stimulating environment in which they can learn, play, develop, and receive psychological support and medical care. An important aspect during the design work was to understand the impact of architecture on the mental health of the users of the facility. The design was based on guidelines set out by psychology professionals and their conclusions on the conditions that the designed facility should meet. The analysis indicated that the design should provide children with a sense of safety and security as well as create stimulating and friendly spaces that encourage interaction and exploration. Based on treatment methods for PTSD (Resick et al., 2017), design solutions were identified supporting specific PTSD treatments. The proposed solutions for children are summarised in Table IV and for adolescents in Table V (based on the diploma thesis).

Table IV. Summary of architectural design solutions supporting treatment methods for PTSD in children

No.	Method of treatment	Design solution
(1)	(2)	(3)
1	Conversation	Setting aside a space that provides a sense of safety allowing for conversations about traumatic experiences
2	Play	A space that allows the child to play safely. Safe and friendly toys: toys should be safe and age-appropriate and should help develop the child's skills and creativity.
3	Storytelling	Setting aside a quiet and peaceful space, without noise and unnecessary stimulation so that the child can fully relax and be able to develop their imagination. (a relaxation corner)
4	Drawing	Setting aside a space that will allow the child to convey emotions on paper (a drawing corner)

Author: J. Maciejczyk.

Table V. Summary of architectural design solutions supporting treatment methods of for PTSD in adolescents

No.	Method of treatment	Design solution
(1)	(2)	(3)
1	Individual therapy	Setting aside a space to conduct individual therapy. Setting aside rooms to conduct one-on-one therapy.
2	Group therapy	Setting aside spaces in the form of group rooms furnished with tables and chairs to conduct small group therapy for up to 15 people
3	Combined groups	Setting aside a public recreational space serving as a community room to conduct combined individual and group therapy. A space created to provide opportunities to get to know and interact with other children. This space should also allow the child to isolate themselves from the rest of the group if necessary

Author: J. Maciejczyk.

Table VI. Typology of functions of the facility

No.	Type (nature) of the area	Function	Requirements
(1)	(2)	(3)	(4)
1	Public	Reception	• Access to daylight • Sense of safety • Control of visitors
2	Semi-public	Open to the public	• Access to daylight • Sense of safety • Possibility of isolation
3	Semi-public	Traffic	• Access to daylight • Sense of safety • No mobility barriers
4	Semi-private	Group therapy room	• Access to daylight • Sense of safety • Adequate lighting • Quiet peaceful atmosphere
5	Semi-private	Psychologist's office	• Access to daylight • Sense of safety • Adequate lighting • Quiet peaceful atmosphere
6	Private	Sanitary facilities	• Sense of privacy • Lack of barriers for people with disabilities
7	Private	Accommodation facilities	• Access to daylight • Sense of safety • Possibility of isolation
8	Private	Technical rooms	• Easy access to all installations • Provision of water storage tanks • Storage space

Author: J. Maciejczyk.

On this basis, a typology of the facility's functions was developed taking into account the nature of space, conventionally defined as public, semi-public, semi-private, or private (Table VI). Based on the developed typology of functions and their attributes (Table VI), a typology was developed of the resulting variants of building arrangement (from modules), depending on the demand resulting from a specific emergency situation (Ill. 2):



Ill. 2. Diagrams of the changing functional layout of the facility in the event of increased demand for a particular function. Author: J. Maciejczyk

- Type 1 – basic functional layout providing accommodation units, therapy rooms, sanitary facilities, kitchen, dining room, and public space.
- Type 2 – functional layout based on providing only therapeutic space with the supporting infrastructure, i.e. sanitary facilities, kitchen, dining room, and public space.
- Type 3 – basic functional layout providing a smaller number of accommodation units, therapy rooms, sanitary facilities, kitchen, dining room, and public space.
- Type 4 – functional layout based on providing only accommodation space with the supporting infrastructure, i.e. sanitary facilities, kitchen, dining room, and public space.

It should be emphasised that children with PTSD often need a private and intimate space where they can calm down and recover. For this reason, the design provides specially designated spaces that offer children a place for a moment of isolation and relaxation when needed. Another important aspect was the attention to natural lighting in the facility and the use of nature elements such as plants.

When creating the design concept, a number of guidelines were defined to which the facility must conform. One of the main objectives was to provide users with a sense of safety and security,



III. 3. Visualisation of the building from the outside. Author: J. Maciejczyk

which is why the concept of a building closed to the outside world was proposed (III. 3), with the entire infrastructure of the facility concentrated inside to create an impression of isolation from external activities (III. 4).

4.5.2. Summary of research by design

The main goal of the design was to create a mobile emergency centre that would be specially dedicated to the needs of children in a country affected by conflict. The design focused on providing a safe and stimulating environment, psychological support, and medical care while also taking into account the impact of architecture on the mental health of the facility's users. The project of Emergency Assistance Centre for the Youngest Victims of War exemplifies a modern approach to the creation of mobile and fast-response facilities that can provide support in various crisis situations, whether related to military operations or natural disasters. Conclusions from the development of the project:

- The project responds to the urgent need to help children affected by war and PTSD. The situation in Ukraine and the growing psychological problem among children require quick and effective action.
- The project takes into account both the safety aspects and the psychosocial needs of children. It creates a stimulating environment that encourages interaction and development, while providing private spaces for relaxation and regeneration.
- The value of the project goes beyond the military situation. The concept of a mobile emergency relief centre can also be used in the event of natural disasters, which increases its applicability and importance.
- The design is based on a modular facility layout, which allows for quick installation and adaptation of the centre to different needs. This is an innovative approach to emergency construction.
- The project is an example of a modern approach to the creation of emergency architecture facilities that can provide support in various crisis situations, including military conflicts and natural disasters.

The application of the *research by design* method made it possible to create a model flexible and adaptable space that can function as a psychological support centre and, if necessary, can be transformed into a shelter for victims of disasters or conflicts.

5. DISCUSSION

Contemporary humanitarian challenges, such as armed conflicts, natural disasters, and climate change, require an innovative approach to the design of emergency spaces. The integration of emergency architecture with psychological support facilities opens up new possibilities for comprehensive crisis response. The synergy of these two perspectives allows for the creation of multifunctional facilities that not only provide physical safety and security but also support the therapeutic and adaptive processes of people affected by traumatic events.



III. 4. Visualisation of the building from the inside. Author: J. Maciejczyk

In the process of designing facilities intended to serve as emergency architecture, there is a tendency to focus mainly on technical and functional aspects while omitting issues related to the mental well-being of users (Jörgen, Łątka, Tarczewski, et al., 2025). Designers often fail to consider the need to provide psychological support to people using these spaces, which can have significant consequences for their mental health and overall emotional state. In addition, projects of this type rarely provide adequate architectural solutions allowing for immediate implementation of treatment or alleviation of symptoms resulting from the experienced crisis as soon as the emergency occurs. The lack of these elements can significantly reduce the effectiveness of the emergency architecture in the context of a comprehensive response to crisis situations.

The design of Emergency Assistance Centre for the Youngest Victims of War is an example of the application of this concept in practice. Its main goal was to create a mobile infrastructure that would provide children affected by armed conflict with a safe environment conducive to their development and mental rehabilitation. The centre is based on a modular construction system that allows for quick adaptation of the facility to changing emergency conditions (Piątek, Cygan, 2025). The design incorporates key elements supporting mental health, such as access to daylight, the presence of vegetation, and separate spaces for privacy. The use of mobile solutions enables flexible use of the centre not only in regions affected by armed conflicts but also in the event of natural disasters. In this way, the design fits into the concept of emergency architecture, combining rapid crisis response with attention to the mental well-being of users.

The synergistic incorporation of the features of psychological support architecture into emergency architecture for crisis situations can be an important factor in supporting the mental health of users in crisis situations. Although implementing such solutions in a sudden disaster response situation can be a challenge, their inclusion can significantly improve the mental state of the victims, facilitating more effective therapy under the supervision of specialists at a later time.

It is crucial to take into account aspects such as access to daylight, acoustic insulation, the use of appropriate interior colours, reducing the impact of external stimuli, and adapting the infrastructure to the needs of people with disabilities. However, of particular importance are ensuring the privacy of users, creating

a space conducive to contacts and integration, the possibility of experiencing suffering, providing support, and conducting elements of therapy in a form and conditions adapted to the current mental and physical state of a person or groups of people (including families and siblings). It is also important to ensure that users can choose form of stay depending on their current psychophysical condition while ensuring their privacy. A comprehensive approach to the design of crisis architecture can enhance its effectiveness by supporting the process of mental recovery and improving the quality of life of its users.

6. CONCLUSION

Integrating design guidelines for the construction of psychological support centres into the design of emergency facilities enables the creation of multifunctional spaces that not only meet the standards of providing shelter but also support the mental

health of people affected by the crisis. Such design requires the use of modern architectural solutions and careful planning, but it results in the creation of universal facilities with increased effectiveness. The developed model of Emergency Assistance Centre for the Youngest Victims of War confirms that a flexible and comprehensive approach to the design of crisis infrastructure can effectively respond to both the physical and psychological needs of users.

The synergistic incorporation of the features of psychological support facilities into emergency architecture for crisis situations is a key element of effective response to emergencies. Their integration can contribute to the creation of universal and innovative facilities that will effectively support and protect people in difficult moments while maintaining the aspect of psychological support and recovery.

REFERENCES

- [1] Archamowicz, R., Kielb, P., 2024. Ewolucja szpitali polowych jako architektoniczna odpowiedź na współczesne zagrożenia. *Housing Environment*, <https://doi.org/10.2478/he-2024-0033>
- [2] Container Temporary Housing [WWW Document], URL <https://arquitecturaviva.com/works/viviendas-temporales-container-3> (accessed 3.10.25).
- [3] Crews, J.M., 1999. The planning and design of mental health treatment centres. University of Greenwich, Greenwich.
- [4] Davis, I., 2011. What have we learned from 40 years' experience of Disaster Shelter? *Environmental Hazards* 10, 193–212. <https://doi.org/10.1080/17477891.2011.597499>
- [5] Davis, I. (Ed.), 2015. Shelter after disaster [WWW Document]. International Federation of Red Cross and Red Crescent Societies. <https://sheltercluster.org/recovery-and-reconstruction-working-group/documents/shelter-after-disaster-second-editionpdf> (accessed 1.21.25).
- [6] Design Guidance for Psychiatric Intensive Care Units [WWW Document], 2017. <https://napicu.org.uk/wp-content/uploads/2017/05/Design-Guidance-for-Psychiatric-Intensive-Care-Units-2017.pdf> (accessed 1.21.25).
- [7] From, L., Lundin, S. (Eds.), 2009. Architecture as medicine – the importance of architecture for treatment outcomes in psychiatry. The Architecture Research Foundation, Göteborg.
- [8] Gomes, L., 2014. Emergency Architecture. University of Beira Interior, Covilha.
- [9] Gonzalez-Milea, A., Peña, H., 2023. Investigación y arquitectura: una introducción a los contextos de emergencia.
- [10] Groat L., Wang D., 2013. Architectural Research Methods. Wiley, New Jersey.
- [11] Jörgen, A., Łątka, J.F., Tarczewski, R., Szcześniak, Z., Pieńko, B., Morales-Beltran, M., Gromek, D., Kosztolowicz, L. 2025. Design of Shelters for Civilians in the Event of Armed Conflict: State of the Art and Contemporary Design Guidelines. *Housing Environment*, 52, 91-99, <https://doi.org/10.2478/he-2025-0019>
- [12] Karpińska, A., Idem, R., 2024. Ośrodki recepcyjne dla uchodźców w przestrzeni polskich miast – specyfika wyzwań i kryteriów projektowych. *Housing Environment*. <https://doi.org/10.2478/he-2024-0025>
- [13] Kielb, P., 2024. Architektura ratunkowa na wypadek pandemii. Politechnika Warszawska, Warszawa.
- [14] Maciejczyk, J., 2023. Ośrodek doraźnej pomocy dla najmłodszych ofiar wojny. Architektura w obliczu działań wojennych. Akademia Śląska, Katowice.
- [15] Matelowska, B., Szczerek, E., Franta, A., Kobayashi, H., Nalci, E. 2025. Emergency Housing Response for Disasters – Modular System Prototype Testing. *Housing Environment*, 50, 76-86, <https://doi.org/10.2478/he-2024-0027>
- [16] Piątek, L., Cygan, M. 2025. Anti-Crisis Mobile Dwelling: From Container Shelters to Neighbourhood Space, *Housing Environment*, 50, 57-64, <https://doi.org/10.2478/he-2025-0005>
- [17] Resick, P.A., Monson, C.M., Chard, K.M., 2017. Cognitive Processing Therapy for PTSD: A Comprehensive Manual. New York.
- [18] Re:Ukraine [WWW Document], <https://www.reukraine.org> (accessed 3.10.25).
- [19] Sanderson, D., Burnell, J. (Eds.). (2013). Beyond Shelter after Disaster: Practice, Process and Possibilities (1st ed.). Routledge. <https://doi.org/10.4324/9781315871844>
- [20] Skorupa, O., 2024. Architektura ratunkowa na wypadek pandemii [WWW Document]. Architektura i Biznes. <https://www.architekturaibiznes.pl/architektura-ratunkowa-na-wypadek-pandemii,36644.html?srsId=AfmBOoqoW7hQgdRkt6PctIAXmthaxrBcxiLkT3qMwVMhUpOfeEydTcx> (accessed 1.21.25).
- [21] Świerżawski, J., Hu, M., Kleszcz, J., Kmiecik, P., Kamate, D.M., 2023. The potential of higher education institutions as catalysts for revitalization in urban planning: A case study of a Medical Simulation Centre at the workers' housing estate of Donnersmark Ironworks in Zabrze. *Housing Environment* 44, 92–100. <https://doi.org/10.4467/25438700sm.23.023.18484>
- [22] Yin, R.K., 2017. Case Study Research and Applications: Design and Methods. SAGE Publications.