GDAŃSK UNIVERSITY OF TECHNOLOGY

FACULTY OF ARCHITECTURE

Student's name and surname: [redacted]
ID: 176799
Cycle of studies: master's degree studies
Mode of study: full-time studies
Field of study: Architecture
Specialization/profile: -

MASTER'S THESIS

Title of the thesis: Second Spirit. Regeneration of historical objects

Title of the thesis (in Polish): Drugi Duch. Rewitalizacja obiektów zabytkowych

Supervisor: dr inż. arch. Ksenia Piątkowska

GDAŃSK UNIVERSITY OF TECHNOLOGY | FACULTY OF ARCHITECTURE

DECLARATION regarding the diploma thesis titled: Second Spirit. Regeneration of historical objects

First name and surname of student: [redacted]
Date and place of birth: 07.09.1999, Toruń
ID: 176799

Faculty: Faculty of Architecture
Field of study: Architecture

Cycle of studies: master's degree studies
Mode of study: Full-time studies

Type of the diploma thesis: master's thesis

1. Statement of authorship

Aware of criminal liability for violations of the Act of 4th February 1994 on Copyright and Related Rights (Journal of Laws 2022 item 2509 with later amendments) and disciplinary actions set out in the Act of 20th July 2018 on the Law on Higher Education and Science (Journal of Laws 2024, item 1571 with later amendments),[1] as well as civil liability, I hereby declare that the submitted diploma thesis is my own work.

This diploma thesis has never before been the basis of an official procedure associated with the awarding of a professional title.

All the information contained in the above diploma thesis which is derived from written and electronic sources is documented in a list of relevant literature in accordance with art. 34 of the Copyright and Related Rights Act.

2. Statement on the Use of GenAI Tools

I used tools with a potentially low degree of interference

I hereby declare that I have critically analyzed and verified the content generated using GenAI.

02.06.2025, [redacted]

Date and signature of the student or authentication on the university portal Moja PG

**) The document was drawn up in the IT system, on the basis of paragraph 15 clause 3b of the Decree of the Ministry of Science and Higher Education of 12 May 2020, amending the decree concerning university studies (Journal of Laws of 2020, item 853). No signature or stamp required.*

[1] The Act of 20th July 2018 on the Law on Higher Education and Science:

Art. 312, section 3. Should a student be suspected of committing an act referred to in Art. 287 section 2 items 1–5, the rector shall forthwith order an enquiry.

Art. 312, section 4. If the evidence collected during an enquiry confirms that the act referred to in section 5 has been committed, the rector shall suspend the procedure for the awarding of a professional title pending a judgement of the disciplinary committee and submit formal notification on suspicion of committing a criminal offence.

ABSTRACT

This master's thesis presents a design proposal for a sports and recreation center housed in a former Catholic church, along with a small service building located in the northeastern part of the project site. Other buildings situated on the northeastern edge of the block serve residential and commercial purposes, but are not included in the scope of this detailed design. The church of St. Nicholas is located between Basztowa Street and Adama Mickiewicza Street.

To meet the needs of Frombork's residents, the building accommodates a multifunctional sports and cultural space designed in a flexible and universal manner, ensuring its adaptability to the expectations of both the town and the Frombork municipality.

In order to preserve the building's authenticity and enable potential functional changes in the future, the design was guided by the principle of reversibility. The most significant intervention—the main hall—is located on a mezzanine at ground floor level, built on an independent structure that does not connect with the original church fabric.

To strengthen the structural system weakened by fire damage in 1945, the first floor is located in the attic and acts as a structural clamp, reinforcing the load-bearing walls and ensuring rigidity of the historical construction.

The upper part of the building houses a meditation room, while the attic also functions as a dance studio. The main hall on the mezzanine level contains gym equipment in the side aisles and a fitness room in the central nave. The open layout also allows for cultural events and film screenings. The ground floor beneath the mezzanine is fully dedicated to the facility's service zone, comprising locker rooms with toilets and showers, a reception area, equipment storage, and a staff room. A vertical circulation core with a glazed staircase is located within the preserved church porch.

The project is based on data gathered during my analytical research regarding the increasing number of churches deteriorating after losing their original function. International case studies of adaptive reuse in former churches across Europe served as both inspiration and a source of insight regarding the potential long-term viability of the project.

Keywords: second chance, regeneration, adaptive reuse, welcoming space, gym, recreation.

STRESZCZENIE

Praca dyplomowa magisterska obejmuje opracowanie projektu centrum sportu i rekreacji w byłym budynku kościoła katolickiego oraz niewielkiego budynku usługowego zlokalizowanego na północno-wschodniej części działki projektowej. Pozostałe budynki usytuowane od strony północno-wschodniej kwartału pełnią rolę mieszkalno-usługową, ale nie są one przedmiotem szczegółowego opracowania. Budynek kościoła Św.Mikołaja zlokalizowany jest pomiędzy ulicą Basztową a ulicą Adama Mickiewicza.

Obiekt w celu dopasowania się do potrzeb mieszkańców Fromborka mieści w sobie przestrzeń sportowo-kulturową, która została zaprojektowana w uniwersalny sposób aby jak najlepiej wpisywała się w potrzeby mieszkańców miasta oraz gminy Frombork.

W celu zachowania jak największej autentyczności obiektu oraz umożliwienia zmiany funkcji, projekt prowadzony był zgodnie z zasadą odwracalności, największa zmiana - sala główna, jest zlokalizowana na antresoli parteru, która wzniesiona jest na niezależnej konstrukcji, nie przylegającej do oryginalnej struktury kościoła.

W celu wzmocnienia konstrukcji naruszonej pożarem w roku 1945, pierwsze piętro zlokalizowane jest na poddaszu i stanowi konstrukcyjnie klamrę, wzmacniającą ściany nośne oraz zapewniając usztywnienie konstrukcji historycznej zabudowy.

Górna część opracowywanego obiektu mieści w sobie salę medytacji, poddasze pełni również funkcję sali tanecznej. Na antresoli parteru zlokalizowana jest sala główna, która mieści wyposażenie siłowni w nawach bocznych oraz salę fitness w nawie głównej, otwarta przestrzeń sali zapewnia również możliwość organizacji spotkań kulturowych oraz projekcji filmów. Parter pod antresolą w całości zagospodarowany jest przez część serwisową obiektu. Mieszczą się tam szatnie z toaletami i prysznicami, recepcja, magazyn sprzętów oraz pomieszczenie socjalne. W zachowanej kruchcie kościoła zlokalizowany jest pion komunikacyjny w oszklonej klatce schodowej.

Projekt został stworzony w oparciu o dane zebrane przeze mnie w części analitycznej, dotyczącej coraz częstszych przypadków niszczejących po utracie oryginalnej funkcji kościołów. Przeanalizowane przeze mnie przykłady zmian funkcji w dawnych kościołach w innych państwach europejskich stanowiły inspirację oraz wskazówki w kwestii przyszłej rentowności projektu.

Słowa kluczowe: druga szansa, regeneracja, zmiana funkcji, przyjazna przestrzeń, siłownia, rekreacja.

TABLE OF CONTENTS

I. **INTRODUCTION AND OBJECTIVE OF THE THESIS**

The subject of this master's thesis is the adaptive reuse of the existing Church of St. Nicholas in Frombork, located between Basztowa Street and Adam Mickiewicz Street, by assigning it a new function. The work addresses the issue of deteriorating sacred buildings that have lost their original purpose. As part of the project, the introduction of an additional building is proposed, along with the expansion of the church's usable space through the addition of a mezzanine and a new upper floor. The aim of the proposed changes is to ensure the profitability of the building while simultaneously responding to local needs in the field of sports and recreation, thus addressing the shortage of such facilities in the municipality of Frombork.

II. STUDY OF DESIGN PROBLEM

1. Functional transformations of Sacred Buildings – Sale and context of the phenomenon

1.1. Introduction

The problem of abandoned buildings affects every country; most of them are demolished without reflection, which risks losing valuable structures and places that often form an important part of local identity. The loss of function by a building is usually dictated by development, changes in the geopolitical situation, or shifts in social attitudes. Most commonly, these are old halls, bunkers, or churches. As a result, we can observe many dilapidated buildings that, despite their potential, fail to attract investors due to the lack of solutions. In my humble opinion, this is more often an excuse for a lack of ideas rather than, as is often claimed, a "lack of possibilities." The scale of this problem is growing and increasingly becoming a point of reference for many works and articles. However, my focus will be on religious buildings located in Poland, which, based on my observations, I consider to be at high risk in the coming years. Following the principle that prevention is better than cure, I believe that exploring this topic and its related possibilities may help prevent the loss of identity in many valuable places in Poland in the future.

1.2. Objectives and aims of thesis

The aim of my thesis is to bring back to public life dilapidated buildings that have lost their original function while preserving their identity. To achieve these goals, it is essential to adapt the building to its newly chosen function while maintaining its spirit. The decisions and solutions should preserve the character of the building rather than change it beyond recognition. This is very important and represents the main challenge in design. Therefore, this task is a compromise and balance between the old structure and new solutions, which, when intertwined in the right way, will bring the expected result. To achieve this and gain a better understanding of the problem, it is necessary to analyze the root of the problem, the possibilities associated with it, as well as examine similar projects and their outcomes. Based on the analyses presented later, my work focuses on religious buildings in Poland and the possibilities of changing their function depending on the situation and social attitudes.

1.3. Causes

The main observation that motivated me to undertake the topic of my thesis is the declining number of people declaring Christianity in Europe, particularly in Poland. Analogical situation has happened before in the past, and although the reason for the decline in the number of believers was different, the effect was very similar. I am, of course, referring to the decline in the number of members in the Evangelical Church in Poland in the post-war period. Currently, Poland has one of the highest proportions of people professing Christianity (Figure 1), while simultaneously exhibiting a high rate of secularization. According to some sources, Poland ranks among the top countries globally in this regard (Figure 2). This means that a significant number of churches may quickly lose their followers and profitability, leading to the loss of their original function, despite their social and historical value. It is important to consider this issue because the number of secular institutions will always follow the number of believers. The number of churches, according to the Institute of Statistics of the Catholic Church SAC, was estimated at 10,260 parishes in 2020. The scale of this is well illustrated by a map of Poland overlaid with parishes (Figure 3). It is hard to imagine a town in Poland without at least one church. GUS statistics from 2022 also does confirm that problem, it doesn’t look very sharply but since 2015 we can see only a decrease in number of believers and people combined with religion. Another problem which may speed up the process is number of diocesan alumni, who are students preparing to become priests one day (Figure 4,5).

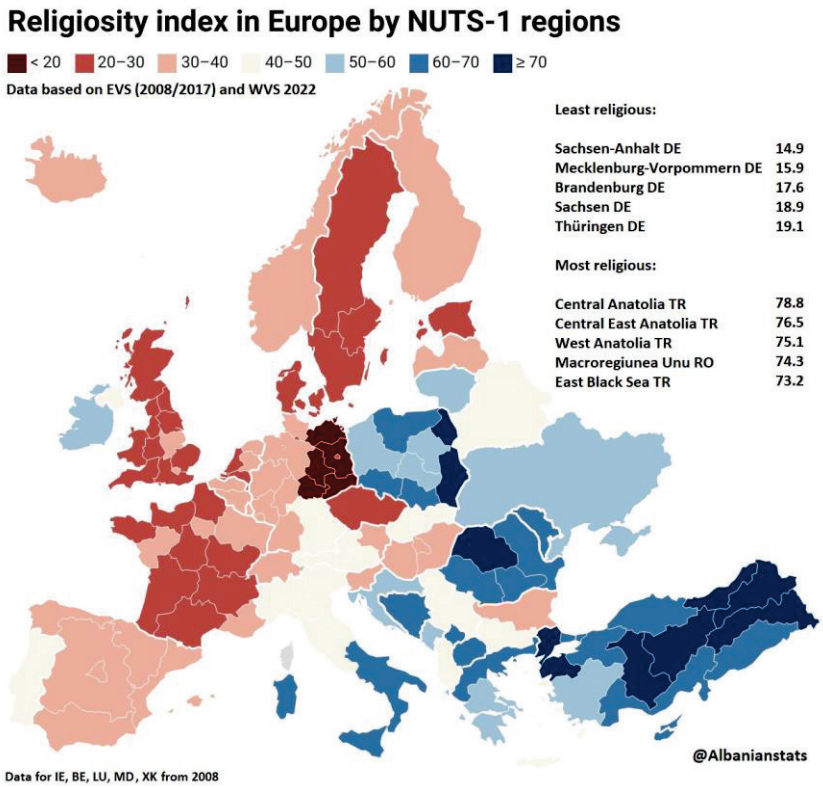


Figure 1 Map of Europe with religiosity index

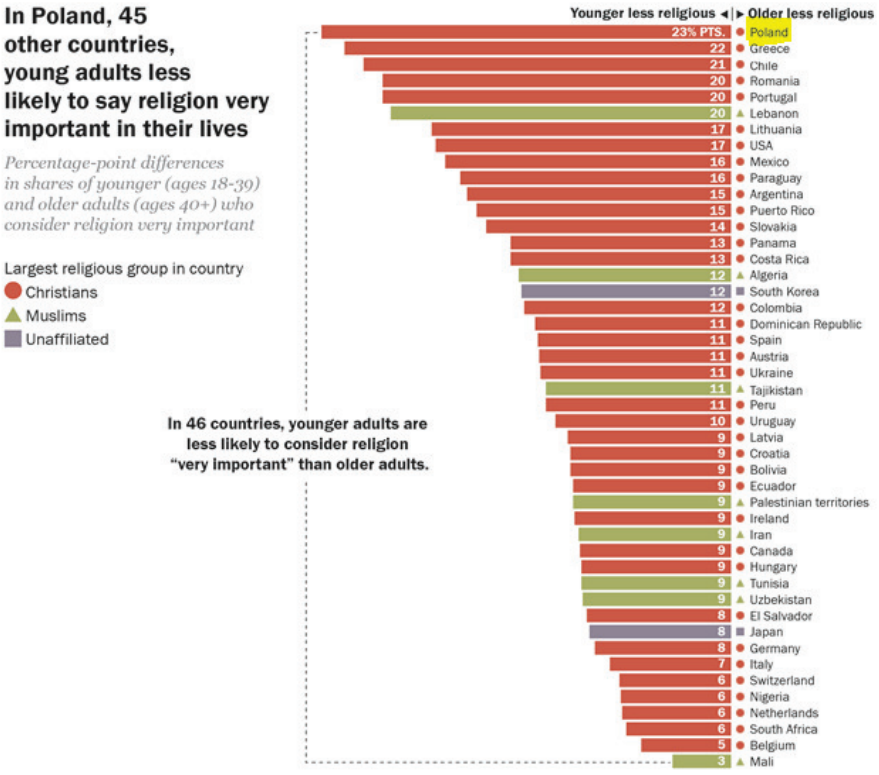


Figure 2 Chart of secularisation process in 46 countries

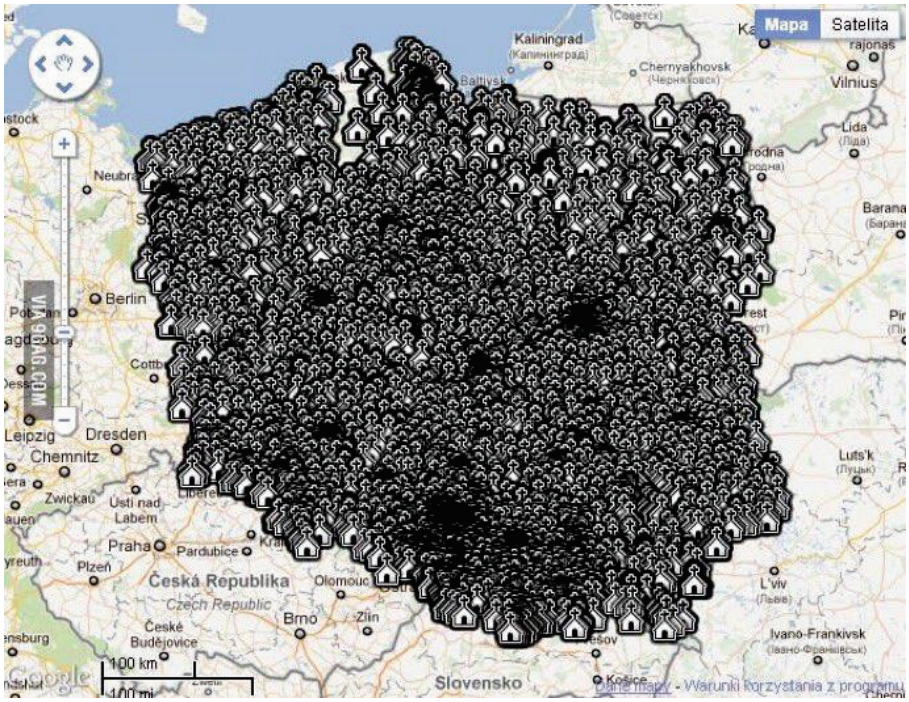


Figure 3 Map of churches in Poland

Lata Archidiecezje/Diecezje Years Archdioceses/Dioceses		Wierni w % ogółu ludności Adherents in % of the total population	Dekanaty Decanaters	Parafie Parishes	Księża[a] Priests[a]	Siostry zakonne Professed women religious	Bracia zakonni Professed religious men	Alumni diecezjalni Diocesan Alumni
Ogółem Total	**2000**	**95,7**	**1099**	**9950**	**27933**	**23926**	**1393**	**4718**
	2005	**95,6**	**1131**	**10016**	**29490**	**23300**	**1375**	**4497**
	2010	**95,9**	**1153**	**10156**	**30266**	**21830**	**1058**	**3352**
	2015	**94,3**	**1146**	**10248**	**30925**	**20008**	**1014**	**2545**
	2019	**92,7**	**1149**	**10256**	**30489**	**18715**	**970**	**1711**
	2020	**92,6**	**1150**	**10260**	**29927**	**18225**	**973**	**1603**
	2021	**92,2**	**1150**	**10263**	**29638**	**17786**	**963**	**1325**

Figure 4 Number of archdioceses and dioceses over thew years

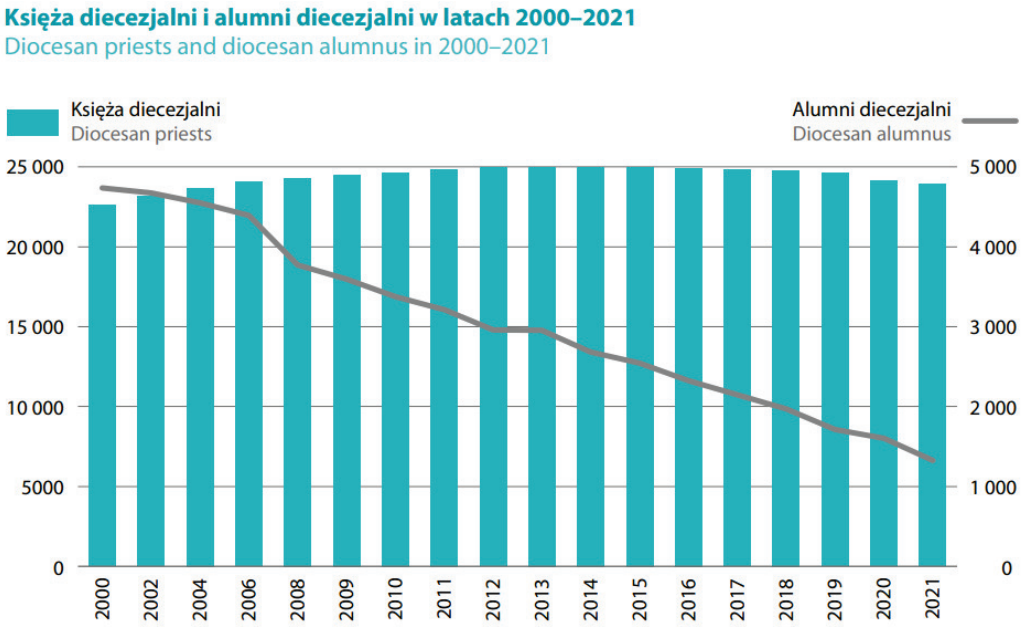


Figure 5 Chart with number of diocesan priests and alumnus in 2000-2021

1.4. Possible solutions

It is obvious that when a building is abandoned due to the loss of its original function, we cannot focus on trying to restore that function - it is a vicious circle.

Another solution in such a situation is to change the purpose of the building; we can repurpose it to serve a different function. To implement such a strategy, it is essential to first consider what we have, what we can do with it, and what we can afford. The possibility of selecting a new function depends on many factors. For example, we cannot consider turning the building into a nightclub or restaurant if it is surrounded by a cemetery. This scenario is entirely possible, considering how church grounds have been used throughout history. Public opinion is also crucial since local residents will be the potential users of the building.

The unused building can also be demolished, which is a very convenient solution for city authorities and investors because it is the simplest option. Clearing the land for a completely new investment is a pattern that is seen far too often. However, demolishing an old church could lead to an irreversible change in the identity of the place and the loss of historical value. This action carries destructive consequences for the neighborhood, which is why I do not consider this decision as a solution to the problem—such actions can result in more losses than gains.

It is worth looking at how churches that have already experienced a lack of congregants are dealing with this problem. A step towards tourism is the most common and straightforward solution, but it is not feasible in every case and has its limitations. Many churches abroad charge an entrance fee to maintain the historical site, but not every building has such a possibility due to

the potential of both the structure and the country. In the case of a church with significant historical value in countries where the economy heavily relies on tourism, the matter seems obvious. However, this is not the case everywhere. Churches in Poland do not have the opportunity to sustain themselves through tourism like those in Italy or Croatia. The number of tourists in Poland is significantly lower, as reflected in the contribution of tourism to GDP, which ranked second to last in Europe in 2019 (Figure 6). Therefore, the solution must be found elsewhere.

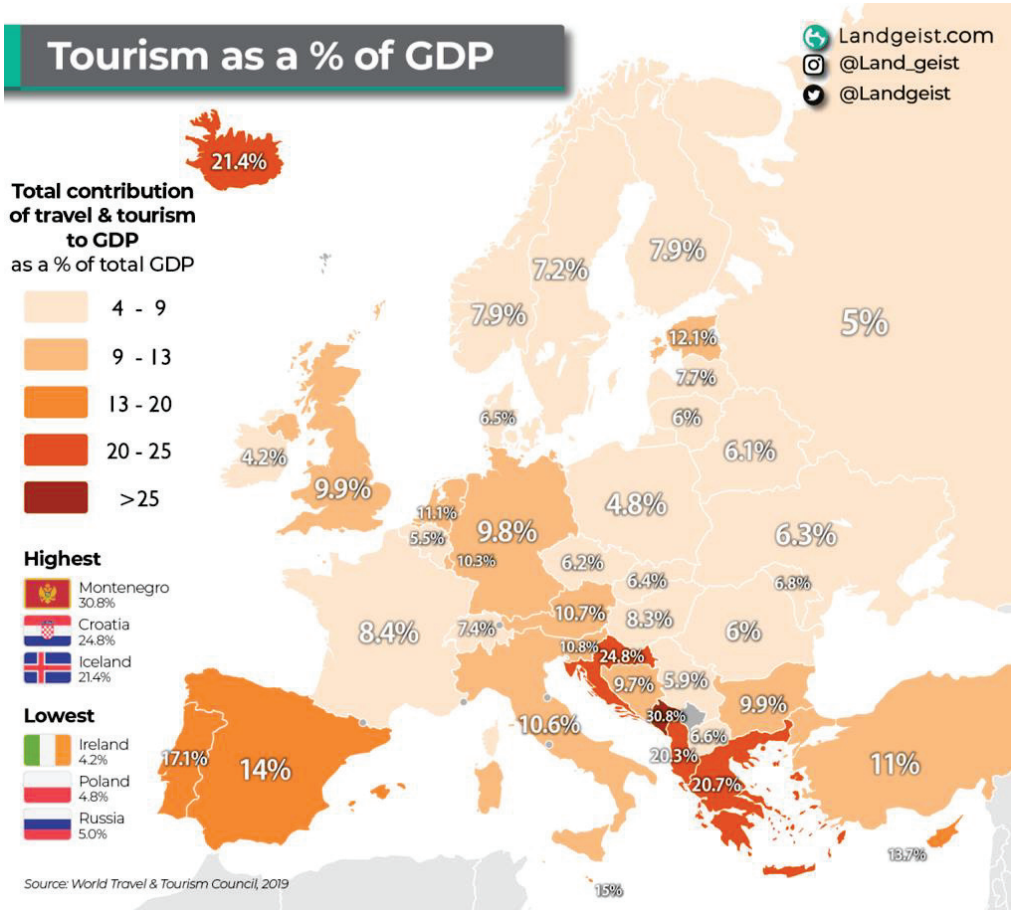


Figure 6 Tourism as a % of GDP on the map of Europe

1.5. My stance

Reusing existing buildings often proves to be a better option than demolition, which I see as a lack of sufficient creativity. Imagination and a good idea are the keys to success, which should not be lacking in Poland. Currently, the problem mainly concerns Evangelical churches, and it is clear that there is a lack of preparation and its consequences. Since the Catholic Church is larger and has more churches, considering previous analyses discussed in version 3.0, the scale of the second (catholic) wave may be greater. Therefore, I would like to demonstrate in my work that these buildings are not problematic, but rather very interesting investment targets. This is especially important because, unlike the situation with the Evangelical Church, there will not be a similarly functioning successor, as happened in the 1950s. The departure from Christianity is just part of a broader trend of moving away from religion. Today, we are the successors, which is why it is so important that we know what to do with this fact.

Examples from many countries demonstrate that existing structures can serve new purposes through adaptive reuse, which, when skillfully executed, brings financial and social development. Actions aimed at preserving existing buildings contribute to maintaining local culture, as ecclesiastical heritage is an integral part of the landscape in Polish towns and villages. Such solutions also attract investors who are waiting for lucrative opportunities. The examples I have studied confirm high public interest, as people, driven by curiosity, are eager to use such spaces. The most attention-grabbing places are often those that are historically significant or modern, featuring architecture and solutions previously unseen. Combining these two aspects in the right way allows for distinction, drawing interest not only from residents and visitors but also from investors. This is crucial because financial considerations play a significant role in decision-making for projects, with larger budgets offering greater possibilities. It is also worth noting that reusing buildings is better for the environment, as "the greenest building is the one that is already built," as stated in the 2005 campaign by the National Trust for Historic Preservation, reflecting the amount of energy and resources required to construct new buildings. Therefore, we are dealing with an investment that is not only original and attention-grabbing through curiosity and interest but also aligns with global trends, ensures financial stability and self-sufficiency, while simultaneously contributing to environmental protection. This combination demonstrates the great potential of buildings that many might dismiss without much reflection. Finally, adaptive reuse strengthens the sense of community by positively connecting a city's past with its future and offering affordable and solid infrastructure to meet emerging needs, which can initiate healthy revitalization processes in deteriorated neighborhoods.The unfavorable situation in which the Evangelical Church found itself should also serve as an important lesson and warning in my work.

1.6. Implementations in Western Europe

The topic of reusing former churches in Central and Eastern Europe is relatively new, with few realizations that can be analyzed. This may be related to the conservatism of society, which is often reluctant to embrace such changes. Another factor is the higher percentage of believers in our part of Europe. The problem I am analyzing is much more evident in Western Europe, where the decline in church attendance occurred years earlier. It is therefore not surprising that more examples of adaptive reuse of buildings that once served religious functions can be found there. However, this does not mean that Poland is not at risk—on the contrary, the wave caused by secularization may only be approaching, and without proper preparation, many buildings that form part of our country's history will be at risk. In fact, Protestant (Evangelical) churches in Poland have already been affected by this phenomenon, and although the examples are few, there are some interesting adaptations to be found here as well. It is therefore important to find solutions and create as many successful projects as possible before the problem escalates and its scale increases. The following examples illustrate the possibilities associated with introducing new functions.

1.6.1. Selexyz Dominicanen Bookstore, Maastricht, Netherlands

The building that houses the store is a Gothic church constructed in 1294 in Maastricht. The church has not hosted a religious function since 1794, when the church was confiscated by Napoleon’s army for military purposes. Since then, the space has been used as a town archive, warehouse and even an inglorious site for bike storage.

After 708 years, in 2005 city authorities decided to bring the Church back into a public space, Boekhandels Groep Nederland (BGN) gave new life to the building by transforming it into bookstores (Figure 7). To satisfy the need for 1,200 m2 of selling space and given that the church’s floor area is of only 750 m2, Evelyn Merkx and Patrice Girod inserted an over-sized walk-in bookcase. Adding additional floors in the main part of the interior created needed space with new modern design (Figure 8).

The lighting, which is an integral part of the store’s design, manifests itself in the chorus by way of a traditional chandelier above the crucifix-shaped table located in the café area. Here, with the left side housing the bar area, a series of tables, poufs and armchairs mimic the curved line of the chorus to a raised platform. Each year, the bookstore welcomes about 700,000 visitors and showcases 25,000 books all stored into an old church. The project of Selexyz Dominicanen bookstore, was awarded the Lensvelt de Architect prize in 2007.

Construction	Stone
Date of construction	1294
Date of loosing function	1794
Date of revitalisation	2007
New function	Comercial (bookshop)
Architects	Evelyne Merkx, Patrice Girod

Figure 7 Interior of the Selexyz Dominicanen Bookstore

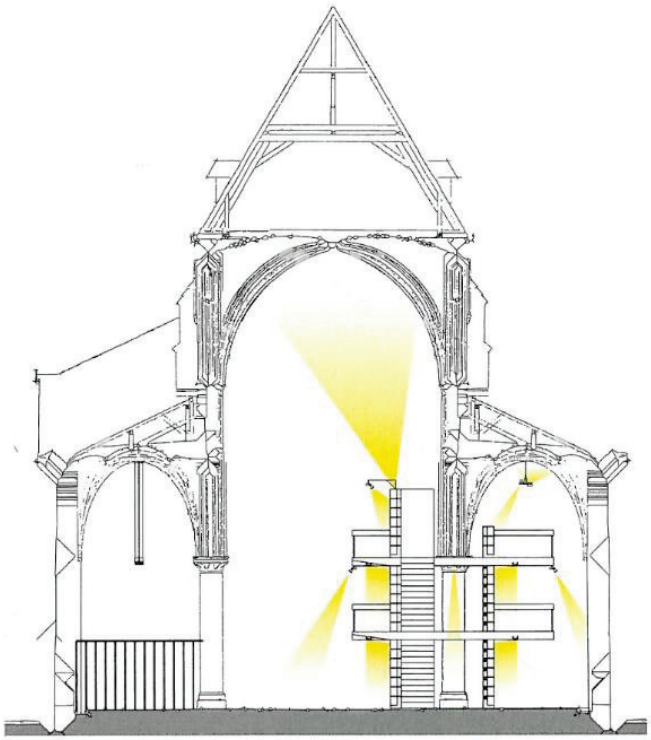


Figure 8 Section of the Selexyz Dominicanen Bookstore

1.6.2. Kruisherenhotel, Maastricht, Netherlands

The history of this site dates back to the late 15th century, when it became the residence of the religious order of the Canons Regular of the Holy Cross. From the very beginning, the history of the monastery was marked by numerous adversities. In 1579, Spanish troops, on the orders of their general, murdered all the monks except one, and the plague also affected the monastery. In 1673, Maastricht was besieged during the Dutch War, causing the monastery to suffer heavy losses once again. Just over a hundred years later, in 1797, the monks were expelled during the French Revolution, marking the end of the monastery's religious history (although from 1985 to 1990, it briefly served as a substitute church).

From the end of the 18th century, this beautiful Gothic complex frequently changed its function, often driven by necessity or occupation. In the late 19th century, it housed the National Agricultural Research Station (Rijkslandbouwproefstation), and during World War II, the buildings were used by the German army for ammunition production and as a storage facility for confiscated copper. After the war, the Allies used the monastery as a warehouse, and in 1979, it was again occupied by the National Agricultural Research Station. For a time, it also housed the Ziud Opera and the

Academy of Visual Arts. However, all these changes had one thing in common: minimal financial investment and a lack of significant intervention.

Only after the site was taken over by a private investor in 2000, with the decision to create a luxury hotel, did noticeable changes occur (Figure 9). Externally, the building did not undergo a revolution, although the futuristic entrance made of copper-coated steel stands out (Figure 10). This addition not only draws the eye of passersby but also suggests that the building no longer serves a religious function (it may also reference the building's past, when copper was stored here during the war).

The interior, designed by architects, was created in such a way that any alterations or added staircases remain independent of the original structure. This is consistent with the principle of reversible interventions. Noteworthy is the way the added structure contrasts with the original design, ensuring a clear distinction between the historic part and the newly added hotel facilities. The interior designers and architects opted for a strong contrast in the choice of materials (e.g., corten steel) to highlight the difference. The hotel is now advertised as a "Designer hotel between heaven and earth" and is the most recognizable building of its kind in Maastricht.

Construction	Stone
Date of construction	1495
Date of loosing function	1797
Date of revitalisation	2005
New function	Commercial (hotel)
Architects	Bart Vos

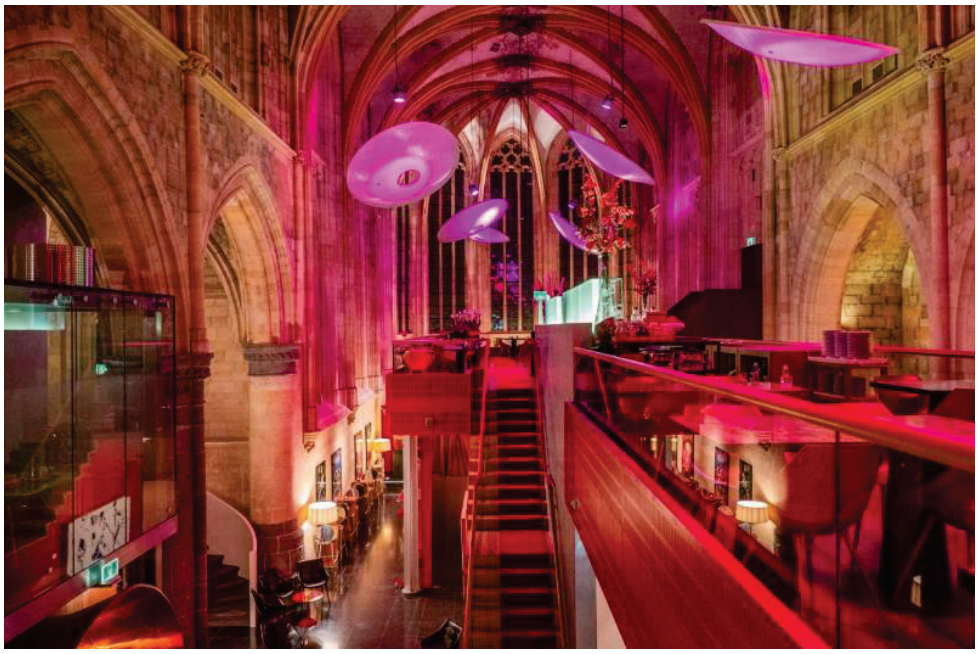


Figure 9 Interior of the Kruisherenhotel

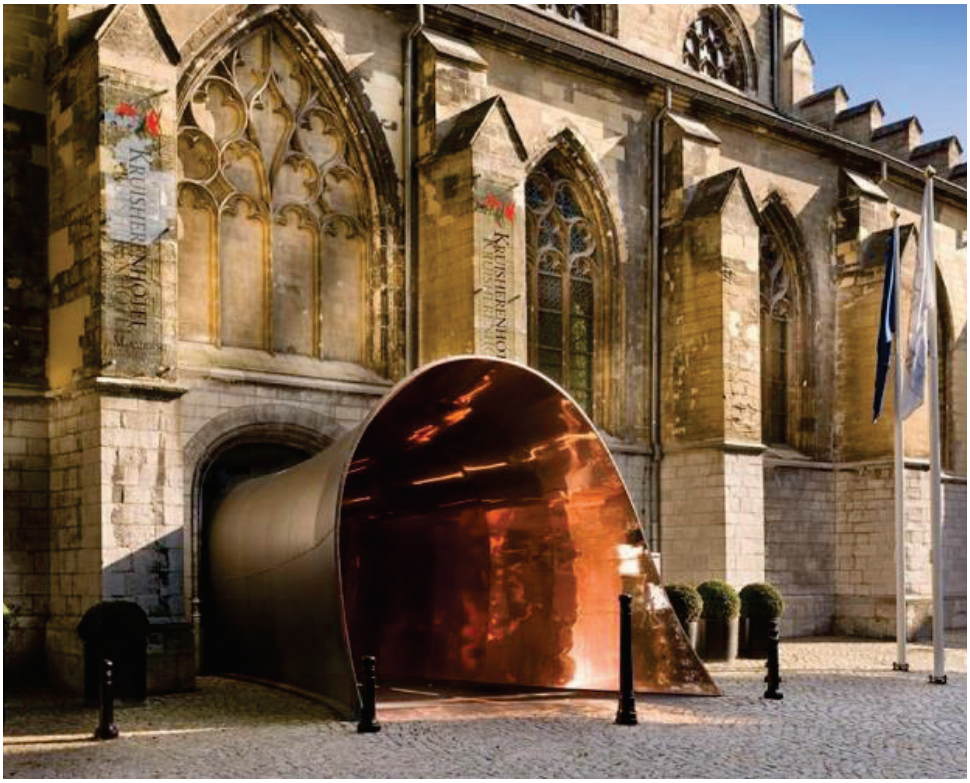


Figure 10 Entrance to the Kruisherenhotel

1.6.3. Norwich skate park, Norwich, England

The church is medieval and was rebuilt in 1486. The church closed in 1980 when the congregation moved to St Julian's Church, Norwich. In 1994 the vestry was leased by the Norwich Historic Churches Trust to the Magdalene Group. In 2005, the church became the Norwich Centre for Martial Arts. In 2019 it reopened again as a medieval combat training arena.

New owners decided to keep as many original elements as possible, outside it's hard to see that the church is adapted for other purposes (Figure 11), nothing changed, even the cross was kept on the top of the roof. What is interesting, changes inside are also very small, the most important value to adapt the building as a skatepark is open space (Figure 12), so the main part of the former church was perfect and didn't need many changes. A skateboard shop has also been installed alongside other parts of the building, ramps now sprawl across the nave giving the new, unseen function in this type of building.

In an interview, one participant mentioned that adapting a church into a skatepark is particularly intriguing, as such functions are typically assigned to post-industrial sites. "Once you've walked into a medieval church and had a look with a view to putting a skate park in, you don't really want to go and look at industrial units anymore".

Construction	Stone
Date of construction	15th century
Date of loosing function	1980
Date of revitalisation	2020
New function	Commercial (skate park)
Architects	xxx

Figure 11 Norwich church adapted as skate park

Figure 12 Interior of the Norwich skate park with happy user

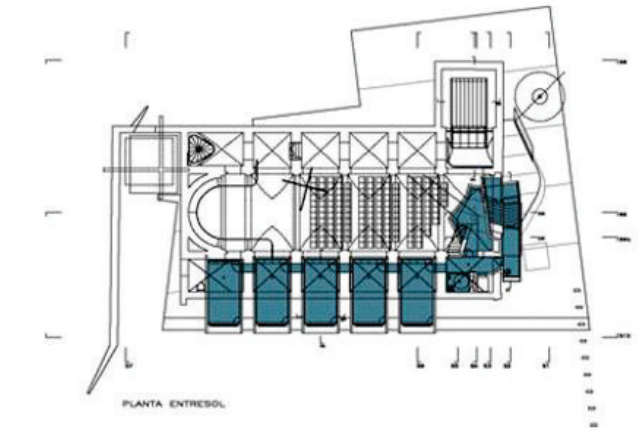
1.6.4. Saint Francis Auditorium, Santpedor, Spain

The church was originally constructed by Franciscan monks at the beginning of the 18th century in the town of Santpedor. With Mendizabal's 1836 disentailment of church property, it was abandoned and plundered, to degrade with time until almost total demolition in 2000. The only part of the complex that remained standing was in a very bad state. The church, and a project to transform it into an auditorium and cultural facility started in 2003, first phase was ended in 2008. Final form of the project was executed in 2011 (Figure 13).

During the construction additional floors were added, which increased the level of functionality and increased the usable area of the building (Figure 14). The added part was designed in such a way as to keep the main nave as spacious as possible, it was decided to hide the new floors in the side parts of the building. Extending these floors halfway beyond the building's outline made it possible to significantly increase the area and hide the size of the intervention in the development from the interior's perspective. The attributes of the church ruins have been maintained while expanding the building's capabilities.

Construction	Stone
Date of construction	18th century
Date of loosing function	1836
Date of revitalisation	2008 (1st phase), 2011 (2nd phase)
New function	Cultural (auditorium)
Architects	David Closes

Figure 13 Interior of the Saint Francis Auditorium



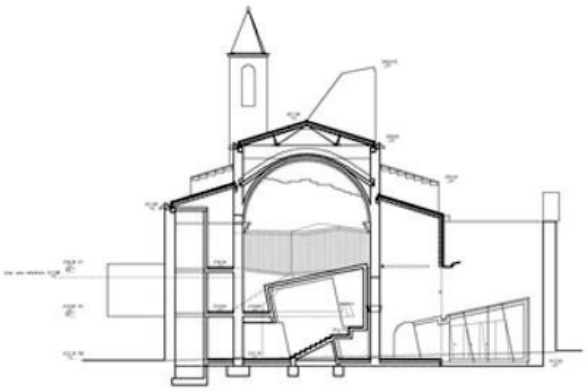


Figure 14 Schema and section of the Saint Francis Auditorium

1.6.5. Brigittines Chapel, Bruksela, Belgium

The history of the chapel dates back to the 17th century, when it was built for the Catholic order of the Brigittines. It served a religious function, to a greater or lesser extent, for many years. Since 1976, the building, in its unchanged form, has functioned as a public space, serving as a cultural forum.

The concept proved to be such a success that in 1999, a decision was made to expand the building to meet the growing functional and artistic needs of its users. The municipality decided to announce an architectural competition for the expansion, which was won by the SumProject office. To avoid interfering with the original structure while meeting the needs, it was decided to add a new volume that would harmonize with the long-standing part of the building. The new structure, with a form referencing the color and shape of the original (Figure 15, Figure 17), was placed symmetrically so that the two parts of the facility complement each other. Since the expansion, the building has gained significant recognition and has become a popular location in Brussels. The vertical circulation of the building is located in the connector, the central part of the new design (Figure 18).

In its current form, the former chapel with its new wing functions as the Contemporary Art Center for Movement and Voice (Figure 16). The new space includes reception rooms for the public, a restaurant, offices, a small theater for 100 spectators, a rehearsal room, an artist residence, and all the technical facilities for both buildings.

Construction	Brick
Date of construction	1663
Date of loosing function	1920
Date of revitalisation	2007
New function	Cultural
Architects	Andrea Bruno

Figure 15 Front side of the Brigittines Chapel

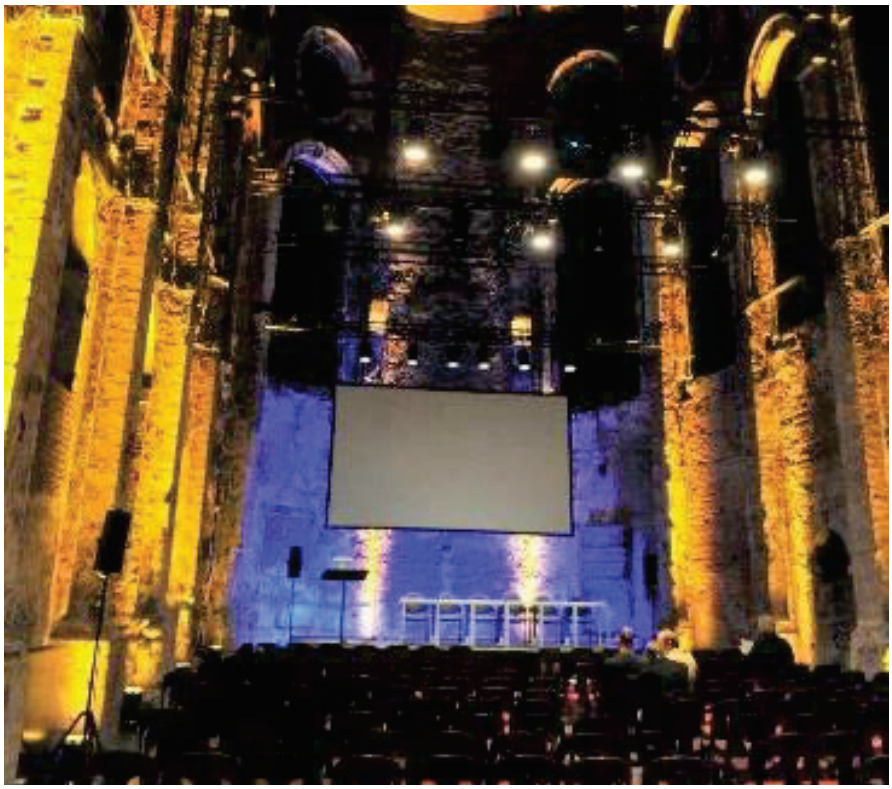


Figure 16 Interior of the Brigittines Chapel

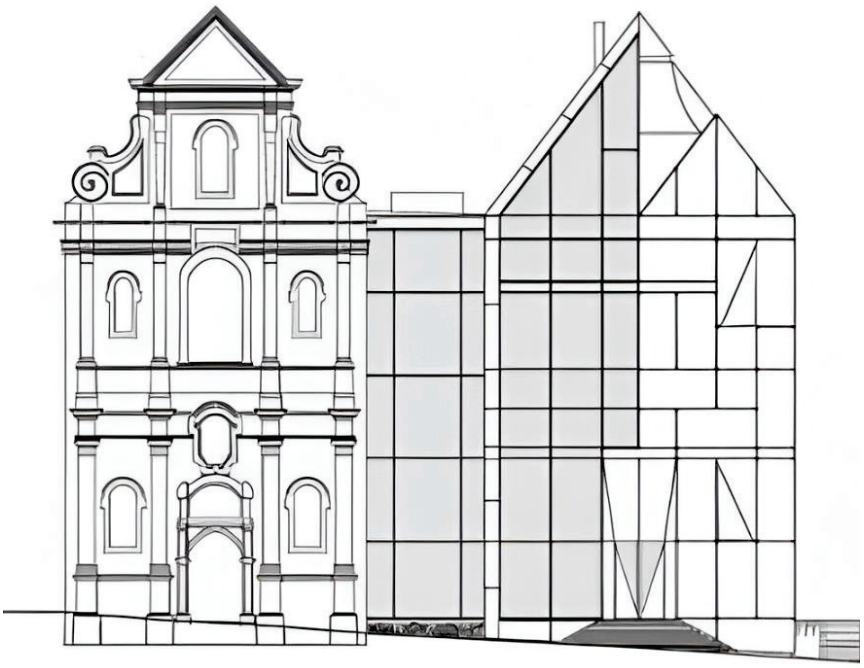


Figure 17 Design of the front side of the Brigittines Chapel

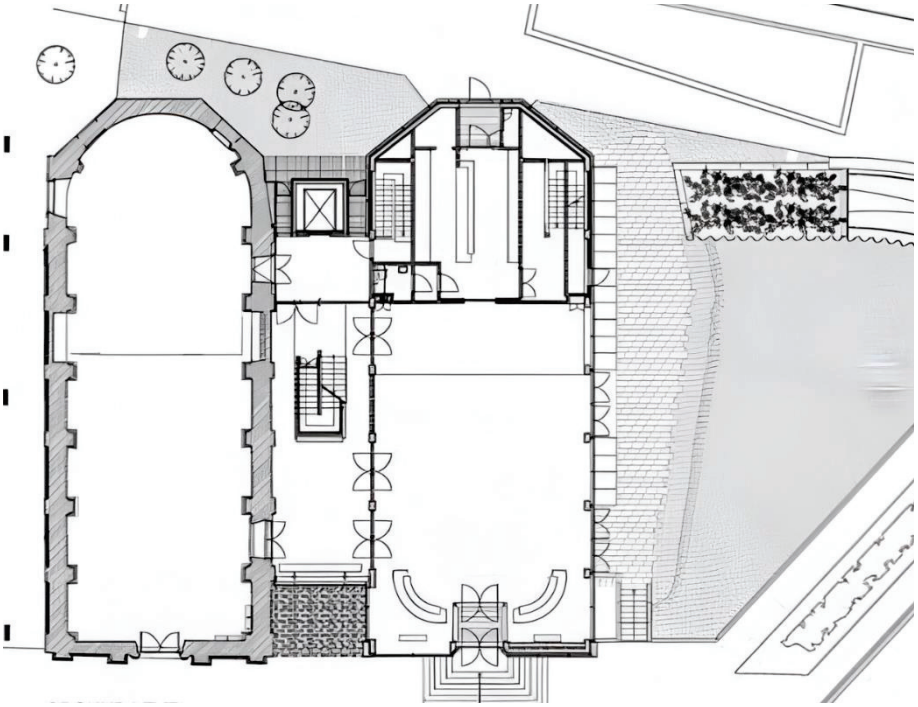


Figure 18 Plan of ground floor of the Brigittines Chapel

1.6.6. Evangelik, Ziębice, Poland

The former Evangelical church in Ziębice, built in a Neoclassical style, was constructed on the foundations of a former ducal residence between 1796 and 1797. The building was designed by the Brzeg-based architect von Gneisenau, who clearly drew inspiration from structures created by the renowned Carl Gotthard Langhans. The church served the local Evangelical parish until the end of World War II. Afterward, it was abandoned, and its interesting and valuable furnishings were destroyed. Between 1964 and 1967, the building was renovated, with significant alterations made to its interior. During this time, it was repurposed as a gymnasium. Later, the building was abandoned again and gradually fell into ruin.

As part of the revitalization efforts, the building was equipped with drainage and waterproofing insulation. A comprehensive renovation of the former church's facade was also carried out, including the application of a new coat of paint (Figure 19). The preserved Neoclassical architectural details were meticulously restored. The church roof was repaired, and a new spire for the tower was constructed and installed at its peak on August 12, 2020. The church's interior also underwent extensive renovations: the former sports hall was adapted for exhibition and concert purposes, creating a modern facility with updated utility and technical infrastructure (Figure 20).

Currently, the former Evangelical church is managed by the Ziębice Cultural Center. The building is used as an additional space for artistic and cultural activities. It hosts events such as classes conducted by the "Aktan" Ballroom Dance Club.

Construction	Brick
Date of construction	1796
Date of loosing function	1945
Date of revitalisation	2021
New function	Cultural
Architects	XXX

Figure 19 Front side of the Evangelik

Figure 20 Interior of the Evangelik

1.6.7. House in neo-gothic church, La Martre, France

The church on the edge of the village of Ancienne was built in 1884 and had issues with the number of visitors from the very beginning. Shortly after its construction, a parasite infected nearly all the vineyards in the region, which were the primary source of employment for most of the residents, leading to a rapid depopulation of the surrounding villages. For many years, the church struggled with financing until 1980, when it officially lost its religious function and was put up for sale.

The building was purchased by a private investor who decided to renovate it and change its function. While the exterior appearance was preserved (Figure 21), the interior underwent significant changes. The main nave and transept were adapted for residential use by adding a mezzanine, which disrupted the original symmetry (Figure 22). Some of the windows were extended to ground level to improve natural lighting. The old bell tower was converted into a terrace, providing a unique space for relaxation with a view of the surrounding area.

Construction	Stone
Date of construction	1884
Date of loosing function	1980
Date of revitalisation	2024
New function	House
Architects	XXX

Figure 21 Neo-gothic church adapted as a house

Figure 22 Interior of the house in neo-gothic church

1.6.8. House in neo-gothic church, St John's Church, Letty Green, England

The Protestant church was built in the first half of the 19th century in the small village of Letty Green. After officially losing its religious function in 2001, it quickly found a buyer who decided to convert the church into a home. The building is currently up for rent and awaiting new tenants.

The exterior structure of the building has been preserved in its original form (Figure 23). During the conversion, a large loggia was added, which, in terms of shape and proportions, reflects the existing historical section, blending seamlessly with the style and avoiding drawing attention to itself. The interior has been finished in a light manner to ensure sufficient sunlight and brightness for its residential function while maintaining the existing windows (Figure 24).

Construction	Stone
Date of construction	19th century
Date of loosing function	2001
Date of revitalisation	2003
New function	House
Architects	XXX

Figure 23 Front side of the house in neo-gothic church

Figure 24 Interior of the house in neo-gothic church

1.7. Conclusions and summary

It is hard to deny the incredible value of sacred buildings, often accompanied by unique style and history. These are places of great importance to the local population, and therefore their preservation should be a priority. The reluctance to invest in a freestanding, empty building is understandable, which is why finding a solution that guarantees the profitability of such a building is key to its survival. This means that action towards change must be taken, as churches and chapels left to their own fate will have little chance of survival. Only a fraction will receive heritage status and funding for renovations with the right efforts. However, this process must be controlled, and all design decisions should be based on thorough analysis and dialogue with the local community to ensure that preserving the identity of the place is the priority. It is also crucial that the city takes interest, as it is in the local authorities' best interest to organize appropriate oversight and guidelines to protect the monument from poor decisions and unauthorized alterations.

Churches are not simple buildings when it comes to renovations or changes in function. Many people consider repurposing a church for another function to be unethical, and the structure itself is not suitable for many tasks. Their layout, construction, and character are unique and unlike typical urban buildings. Therefore, there are challenges both in selecting a new function and in adapting the building itself. However, this does not mean that changing the function of sacred buildings is impossible or unprofitable. On the contrary, the examples I have described from various European countries show how potential can be unlocked and problems turned into successes. It is these costly investments, driven by the idea of function change, that provided the means for conservation, which is the first step in such projects.

When working with an existing building that has such an interesting historical and social background, an individual approach is essential, due to the many issues on various levels (disconnection from society, damaged materials, structural problems, contamination, etc.).

1.8. Interpretation of the data

The conducted analysis reveals a series of interesting conclusions that can significantly influence decisions regarding the adaptation of sacred buildings. The data analysis highlights the diversity of new functions that converted churches can serve, underscoring their flexibility and adaptive potential. These findings could be crucial for planning future transformations.

The data analysis from the table indicates that the process of adapting churches to new functions can proceed in various directions, such as commercial, public, or residential spaces. In each of these cases, the appropriate modification of the building's structure, both internally and externally, allows for a successful transformation. These changes may involve the addition of new structural elements, the division of main spaces, or the construction of new sections. The completed adaptations demonstrate that the successful conversion of sacred buildings into new functional forms is possible, regardless of the new purpose, as long as the project considers the building's specific characteristics and historical context.

An intriguing aspect of the change in function is the removal of crosses from churches, including historically significant ones from both the tops of towers and the interiors. This suggests that the symbol of the cross is too strong a declaration of sacred function, and its retention is not always welcomed in non-religious contexts. This is a particularly important observation, as it pertains to all of the cases analyzed, even those where efforts were made to preserve as much originality as possible. The original symbolism was only retained in the case of murals and stained glass windows. This may be because certain symbols can be relocated—removing a cross does not necessarily mean destroying it, which would be unacceptable. Murals and stained glass, however, present a different scenario; they cannot be moved, and removing them would mean their destruction, which would be an unacceptable act that contradicts the core values of working with historical monuments.

The analysis also reveals an interesting correlation between location and the building's new function. Sacred buildings located in suburban and rural areas are more frequently adapted for residential purposes, while those in city centers typically serve commercial or public functions. This is understandable from an urban and social perspective. City center buildings, due to their visibility, historical significance, and easy access, are more suitable for public functions, such as hotels, auditoriums, or shops.

Adapting such buildings for residential use in central locations would encounter difficulties related to maintaining the residents' privacy. It is hard to imagine that someone would agree to open private residences to visitors, which might be expected in buildings of high historical and touristic value. Through our investment, we cannot deprive the local community of the opportunity to visit their heritage. Therefore, buildings in city centers are more often designated for functions that not only preserve their public character but also emphasize their cultural and

social significance.

	Date of construction	Former denomination	New function	Country	Location	Change in structure
Selexyz Dominicanen	1294	Catholicism	Commercial	Netherlands	City center	-New interior structure added with independent construction, -Crosses were removed
Kruisherenhotel	1495	Catholicism	Commercial	Netherlands	City center	-New interior structure added - New entrance added -Crosses were removed
Norwich skate park	15th century	Protestantism	Commercial	England	City center	-Small changes in the main nave
Saint Francis Auditorium	18th century	Catholicism	Public	Spain	City center	-New interior structure added, the structure extends beyond the outline of the building -Crosses were removed
Brigittines Chapel	1663	Catholicism	Public	Belgium	City center	-New part of the building added, symmetrical design -Original part of the building adapted as conference zone -Crosses were removed
Evangelik	1796	Protestantism	Public	Poland	City center	-Making the main nave as one open space for exhibitions and social events
House in St. Maria Church	1884	Catholicism	Housing	France	Countryside	-New interior structure added -Division of the main nave -Crosses were removed
House in St. John's Church	19th century	Protestantism	Housing	England	Countryside	-Small structure added outside the building -Small changes in interior -Crosses were removed

1.9. Values and observations

1.9.1. Style

It is crucial to preserve the character of these places, as churches often possess a unique charm that blends into their surroundings and "adorns" neighborhoods, serving as a sort of "time capsule" around the world. Many of them have a distinctive history that dates back hundreds of years, which is reflected in their design, often featuring exceptional craftsmanship and style. Buildings from that era were much more ornate, which sets churches apart from their surroundings. Many also feature bell towers and steeples, serving as dominant landmarks and creating recognizable points on village and city skylines.

Along with their style, the construction methods of churches, due to the period in which they were built, often differ significantly from modern techniques and can be quite rare. When properly highlighted, these methods can become decorative elements and a testament to the building's originality. The history of these structures has evolved over centuries, meaning each one requires an individual approach, especially in terms of construction. Churches that have stood for hundreds of years often require the interventions I've mentioned, due to their unique structure and specific maintenance needs.

1.9.2. Location

Their location is often unique and well-considered, as many were prioritized during construction and thus placed in central or significant locations to maximize accessibility for the largest number of people (Figure 26). Therefore, these churches have considerable potential that should be leveraged when introducing a new function. At the same time, a location on the periphery, in smaller towns or rural areas, can also be attractive, provided an appropriate function is found that fits the area's specific characteristics and needs.

Given the increasing density of urban development, their locations are becoming more attractive to investors, particularly those situated in city centers. While it is difficult to imagine a scenario where an old church in a central urban area loses its function, it is a plausible situation that has already occurred, even in Poland. A notable example is the Evangelical Church of the Holy Trinity in Toruń (Figure 25), which relinquished its original function in 1929 to serve as an Orthodox church. It ultimately lost its sacred function during World War II and has since served various roles, including storage, cinema, and conference rooms, while remaining a prominent landmark in the center of Toruń's New Market Square.

Figure 25 Evangelical church of the Holy Trinity in Toruń

Figure 26 St. Patrick's Cathedral in New York

1.9.3. Volume

Church buildings have layouts that depend on their style and the period in which they were constructed, but they also share common features such as the expansive open space of the nave and an elongated shape, which allow for various solutions (although there are exceptions and unique designs, emphasizing the need for an individual approach to each case). For example, knowing that we are dealing with a large space, we can utilize it effectively. This space can be adapted and used as a large auditorium, as seen in the Brigittines Chapel and Saint Francis Auditorium, where the public function required a significant amount of space. Alternatively, additional floors can be added to increase usable area, as not all functions require large open spaces; the specifics depend on the architects' approach.

1.9.4. The Church's approach

The Catholic Church indeed adopts a more conservative approach to the use of its sacred buildings, stemming from the Catholic understanding of the sanctity of space and the associated requirements. In Catholic theology, a church is more than just a gathering place for the faithful – it is considered the house of God, a place of God’s real presence, especially through the sacraments. This sanctity of space requires that any sacred building that ceases to serve a religious function must undergo a formal process of deconsecration before it can be repurposed for other uses.

Protestant churches, especially Evangelical ones, take a more flexible and pragmatic approach because the building itself is not considered sacred; instead, the primary focus is on the community of believers and the delivery of the Word of God, rather than on the physical space. Thus, Evangelical churches allow for a wider range of adaptations of church buildings for secular purposes, and the process of transformation is less formalized and less restrictive.

1.10. Success of the investments

The success of a new function for a church building depends solely on our decisions. For instance, if the suburban location makes a commercial function unfeasible due to a potential lack of customers, we can opt for a residential function. The example of the luxury villa in La Martre demonstrates how a church that had long stood abandoned and unwanted has become a coveted and prestigious property. Once an abandoned building, it is now a luxurious home with a tower offering views over the Provencal countryside. There are many such examples, and they all seem to confirm a rule: a well-chosen function can end years of silence and vacancy for buildings that are part of the local community's heritage.

Moreover, the transformation of these buildings often ensures necessary renovations to maintain them in good condition. It's also worth noting the price aspect; churches are increasingly chosen by private investors and converted into luxury properties for profit. This phenomenon should be monitored to avoid situations similar to those seen in the real estate market, but it does not change the essence of the matter: buildings that were once problematic and sold at a loss are now listed on the property market for prices even three times higher than the purchase cost. Their original price in the Western market is also rising, indicating growing interest in investments that were once largely avoided.

In all examples, modifications were made to prepare the building for a new function, but these were implemented in a way that did not overshadow the original parts of the building and its historical character. The most common modification is adding floors to the main nave, which is quite a logical move given the impressive heights of churches designed to awe the faithful. If the new function does not require large open spaces, adding extra floors is a reasonable and practical way to utilize unused space. Another common feature in the analyzed examples is minimal intervention in the building's volume and facade, preserving its artistic and sacred value.

The examples from the Netherlands are particularly interesting due to their high level of architectural culture. For years, changes and experiments with various functions have been introduced based on -the principle of reversibility of interventions. The result is impressive: despite numerous renovations and functional changes, the original architecture remains intact. This means that even after the loss of religious functions by buildings from several centuries ago, we can still admire their original appearance. Cases from the Netherlands also show that the transformation of sacred buildings is not a new phenomenon and has been occurring for many years. Historically, this primarily involved monasteries, which, due to epidemics and political upheavals, saw monks leaving, being murdered, or being expelled, and the monasteries being adapted for roles such as lazarettos, military barracks, or municipal warehouses. Currently, churches are at risk, and although the reasons are not as brutal as those faced by monasteries in the past, they create the same problem of losing the function of a building with significant historical value, which is something we need to be prepared for.

2. Analysis of Frombork

2.1. City and its needs

Frombork is a small town in the Warmian-Masurian Voivodeship (Figure 27), which, due to its location and the number of monuments, is a must-see on the map when visiting the region. Most services are dedicated to tourism, because it is the main source of income in the city during the summer season. The tourist season is therefore dependent on the weather, which, due to its location, allows for profits from tourism for less than half of the year. Frombork belongs to the group of cities that are depopulating.

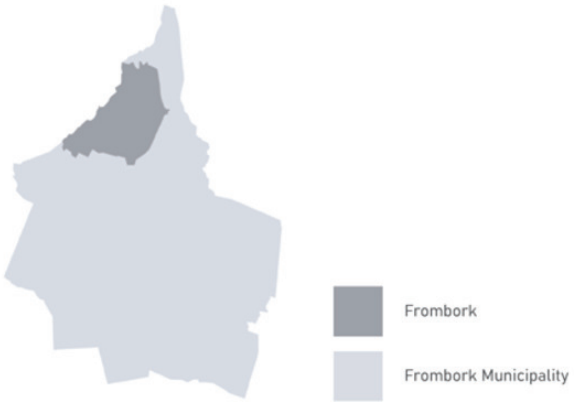


Figure 27 Map of municipality Frombork with Frombork city

2.1.1. Citizens

The Frombork commune has 3,555 inhabitants as of 2019, of which the number of inhabitants of the city of Frombork itself is about 2,000. In 2013, the declared number of inhabitants of the city itself was 2,475 people, which indicates the depopulation of the city. The population of the commune is distributed more or less equally by gender: 1,736 men and 1,819 women (Figure 28). The population by age, visible in the diagram below, indicates a diverse cross-section of society.

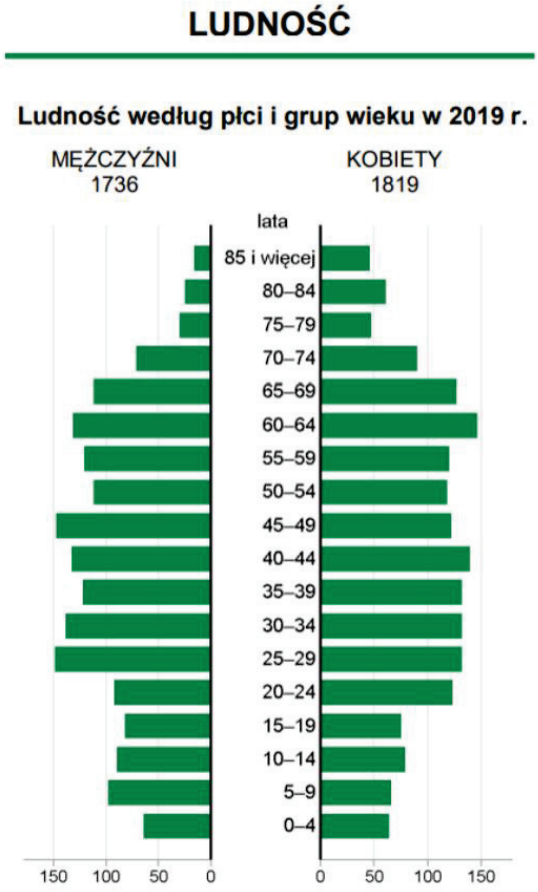


Figure 28 Number of citizens in municipality Frombork

2.1.2. Development strategy for the town and municipality Frombork

Like every city in Poland, Frombork has a development plan. From the document Development Strategy of the City and Commune of Frombork 2016-2026, we can learn that the factors determining the competitiveness of the region are: the natural environment and tourism. In fact, these are the pillars of the city's economic aspects, the inflow of capital from outside the region is crucial, but it does not provide a solution to every problem. The tendency to decrease the number of residents, noticeable for years, is caused by other problems that have not been solved to this day. The further part of the document shows that when analyzing the state of development and equipment of the city in 2016, investment activities aimed at increasing the importance of the residential function are recommended. The first point given in this document is the proposal for further development and modernization of sports and recreation infrastructure in order to encourage active spending of free time. This is a very important tip, because it may be one of the points influencing the demographic problems of the city. And although it is certainly not the only reason, the fact that the document is from 2016, and the situation with sports and recreation facilities has not changed much gives a lot to think about. Both the city and the commune of Frombork constitute deserts on the map of sports facilities in the Warmian-Masurian Voivodeship.

2.1.3. Recreation and sports places

Sports and recreational facilities available to all residents in the city of Frombork are not a long list:

Orlik pitch – built in the southern part of the city, mainly used by the school

basketball court – located next to Orlik

outdoor gym – built in the western part of the city with the help of EU funds gym

Apart from the small gym in the school building, which only students have access to, we have quite an interesting situation, in Frombork, where due to its geographical location there is rainfall and relatively low temperatures most of the year, we have only 3 public sports and recreational facilities at our disposal and all of them are outdoor. This means that we can comfortably use these places about 3 out of 12 months, 25% (Figure 29).

Both strength training and other exercises must be performed and trained regularly to be effective and to be able to take care of your physical and mental health all year round, because routine is extremely important in sports. So what alternative do the residents of Frombork have for seasons such as autumn, winter and early spring? Unfortunately, as I wrote in point 2.1.2. The Frombork commune is a desert on the map. The nearest sports and recreation services are located in

Braniewo, which can be reached in 10 minutes by car. However, this is a travel time only for car owners and it is a psychological barrier and an additional cost, the dependence of access to physical activity on having your own means of transport excludes many residents. Additionally, the lack of local sports infrastructure could become an important place of social integration, which is especially important in smaller towns, where such spaces are often lacking.

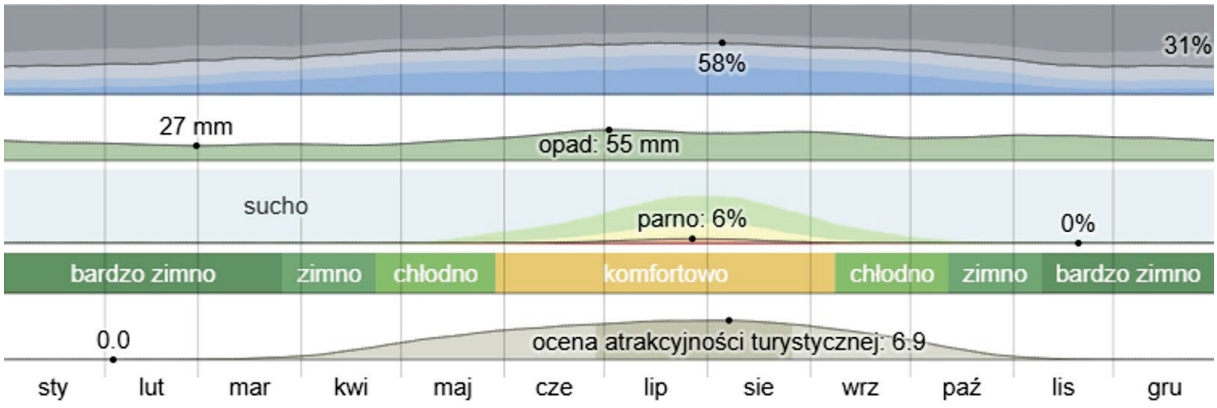


Figure 29 Weather ratings for Frombork

2.2. Historical analysis

Frombork - A City of Science, Faith, and Architectural Heritage Romantically located on the Vistula Lagoon, Frombork is one of the most culturally and historically abundant towns in northern Poland. It is best known as the home of Nicolaus Copernicus, where he lived, worked, and died. For many centuries, Frombork was one of the most important religious and intellectual centers in the region of Warmia.

The city was advertised following the Warmian Chapter being relocated here from Braniewo in 1278. Not long after that, the magnificent Assumption of the Blessed Virgin Mary and St. Andrew Cathedral was constructed, which, together with the canonical houses and defenses, forms today's characteristic Cathedral Hill - the city center and very important element of Frombork history.

In the shadow of the cathedral, stands the Church of St. Nicholas, placed in the center of the old part of the town. The building of the St.Nicolaus Church is the second highest structure in Frombork (right after Cathedral Hill with whole complex), and is surrounded by buildings of maximum hight 15m what. It makes it a local dominant, a monument whose origins extend back to the late 14th century. This Gothic three-nave hall church was originally the city's parish church. The building was successively destroyed and rebuilt during the course of its existence - by fires, sieges, and finally, during the 1945 war. The roof and the entirety of the Baroque interior were

completely lost, although the outer perimeter walls remained standing, facilitating later reconstruction.

Between 1970 and 2002, the church was used as a municipal boiler house, an enterprising but utilitarian re-use of a redundant sacred building. Today, no longer in its original religious use, the building is of enormous potential for re-use in contemporary terms - as a location of social integration, culture, sport, and community activity.

Frombork is thus not only a site of retained heritage but also a site in which history opens up to potential futures - specifically, in the case of the conversion of old buildings to meet the needs of a changing society in the present.

2.2.1. St. Nicolaus church

St. Nicholas Church in Frombork, which dates back to the late 14th century, is a key piece of the town's medieval sacred complex, built in the middle part of Frombork city centre, making him local dominant (Figure 30). Its history is a tale of destruction and rebuilding, yet somehow, the original charm of the building has managed to survive through these all years. Allowing us to admire great peace of the gothic architecture in the very middle of the city centre.

The church faced significant damage from fires and military conflicts, in the years 1414, 1440, and 1454. A major collapse occurred in 1461 when the western wall and a row of pillars collapsed during a siege, leading to reconstruction efforts that continued until 1507. Bigger damage followed in 1520 and 1574, nevertheless the church was reconsecrated once more, in 1582. After a fire around 1680, extensive restoration took place between 1691 and 1694, which included adding vaults and a western porch. In 1703, the freestanding bell tower was also reconstructed.

The 20th century brought its own challenges - during World War II in 1945, the roof and Baroque interior were destroyed by fire, leaving only the outer walls standing as we can see on the old pictures. By 1960, the ruins were secured and cleared, and between 1972 and 1973, the church was reconstructed and adapted as a municipal boiler house, which functioned until 2002.

From an architectural point of view, the church showcases the Brick Gothic style and features a three - aisled hall design without a separate presbytery. It boasts classic Gothic elements like pointed - arch windows, niches, buttresses, decorative gables, and intricately profiled portals. Inside, octagonal pillars - some original and others dating back to the 16th century - divide the space. Whole interior gives monumental feeling as well ass the structure of the church from the outside, standing right next to small, residential buildings. The sacristy still holds remnants of 14th - century ribbed vaulting, while the western porch and gallery display features from the late 17th century.

Situated at the heart of the former cemetery, the church is partially surrounded by an 18th -century wall. In the southwest corner, we can find find a square bell tower with a sturdy brick base and a timber upper structure, topped with a four - sided tiled roof. Close to the tower, there used to be a stone statue of St. John of Nepomuncen (circa 1750), which is now stored and displayed at the Hospital of the Holy Spirit.

Figure 30 St.Nicolaus church, view from Radziejowski tower

2.2.2. Commentary

There's a cemetery that's recognized as a historic site on plot number 42. Although no visible remains of the cemetery exist within the boundaries of the plot, it must be taken into account that the area is officially listed as a heritage site. If there's any kind of disturbance, expansion, or work that could impact the plot's structure, it should be considered to think about exhumation and archaeological efforts.

2.2.3. Tower

In the western part of the plot, there is a tower that once served as the church's bell tower (Figure 31). The tower is an integral part of the historical fabric of the site and is listed in the register of historical monuments. From the old photographs we can see that tower survived 2nd world war without damage. It may be repurposed for exhibition or recreational purposes — for instance, a climbing wall, whose function could harmoniously correspond with the vertical character of the historic structure.

Figure 31 Old tower on the project plot

2.2.4. Flèche

According to archival data and old photographs, the church roof was once topped with a fleche (roof turret) (Figure 32). It was destroyed during the war and was not reconstructed during the restoration of the roof. Due to the change in function, any added elements or modifications should be introduced in a way that clearly distinguishes them in both style and execution, ensuring there is no confusion between the original structure and necessary additions required for the new use.

However, in the case of the turret, this approach conflicts with the provisions of Frombork's Local Development Plan (MPZP), which places strong emphasis on preserving the town’s historical skyline. If reconstructed in a contemporary form, the turret would become the second tallest structure in Frombork, after the Cathedral on the hill. Such a solution would therefore contradict the guidelines aimed at maintaining the town's historic silhouette.

Figure 32 Picture of the St. Nicolaus church, early 20th century

2.2.5. Wall

A plastered brick fence separates the church grounds from Mickiewicza Street. Opposite the church is the entrance gate between two square-section posts (Figure 33). The posts are topped with hipped roofs. The fence on both sides of the gate is covered with Dutch roof tiles from above, with a slope towards the street. The baroque fence of the church from the 18th century is entered in the register of historical monuments.

Figure 33 Picture of the wall located on the project plot

2.3. Site analysis for the project plot

2.3.1. Location:

Plots no. 40/3, 40/4, 41, 42 are subject to detailed development and are located in the area covered by the Local Spatial Development Plan with resolution number XI/68/2007 of the Frombork Municipal Council of 27 September 2007. The area is located in Frombork, between Basztowa Street and Adama Mickiewicza Street.

2.3.2. Public transport

In the immediate vicinity there is a market square, which is a starting point for tourists and a meeting place for Frombork residents. Within a radius of 150m, there is a main bus stop, providing communication between Frombork and the surrounding cities.

2.3.3. Close neighbourhood

The development in the immediate vicinity of the project area includes mainly residential buildings with gable roofs covered with ceramic tiles; the height of the surrounding buildings does not exceed 3 storeys.

2.3.4. Terrain

The majority of the plot is flat at an altitude of approximately 3 m above sea level, with height variations not exceeding one metre.

2.3.5. Existing plot situation

The plot is fenced and undeveloped, in the middle of the plot there is an abandoned church building and an old belfry, on the north-eastern side the area is built up with garages made of corrugated steel sheeting.

2.3.6. Existing greenery

The plot is covered with grass and low bushes. No trees or organized greenery.

2.4. Current MPZP directions

The area is covered by the local spatial development plan no. XI/68/2007 and is divided into UK and MW-U1-v zones.

2.4.1. Directions for UK zone

Fragmentary data and guidelines. The entry in the MPZP card refers mainly to respect for monuments and full cooperation with the conservator due to the area covered by its protection. The building line in accordance with the applicable regulations. The MPZP allows for the adaptation of existing development and the implementation of related technical infrastructure and parking lots.

2.4.2. Directions for MW-U1-v zone

Areas marked with the MW/U symbol are designated for residential and service functions, including the adaptation of existing buildings and the construction of new multi-family and service buildings, along with technical infrastructure, garages and parking lots. The share of the service function may not exceed 50% of the development area, and the development must be frontage or compact. In the MW/U1 area, buildings with a maximum of 3 storeys are permitted, made of natural materials and covered with ceramic roof tiles with a slope of 30–45°. The maximum height of the development is 12.5 m to the ridge, and the development intensity has been set at 0.5–1, whereby up to 70% of the plot is permissible, without the requirement of a biologically active area. Due to the date of the issue of the document, not all of the directions were considered as mandatory.

	MPZP guidlines	Class Assignments
Mandatory building line	compact development	mandatory provision
Maximum building coverage	70%	mandatory provision
Mandatory floor area ratio	0,5-1	mandatory provision
Minimum green area	0%	mandatory provision
Maximum building height	12,5 m above ground lvl (maximum 3 storeys)	mandatory provision
Building form	compact	mandatory provision
Roof shape	High-pitched roof covered with traditional ceramic tiles, slope angle 30-34°	non-obligatory - based on the findings regarding the date of issue of the document
External appearance	natural minerals: fine plasters, wood, stone, brick	non-obligatory - based on the findings regarding the date of issue of the document
Service area share	max 50%	mandatory provision

2.5. Conclusions based on analyses of the plot situation and MPZP

Based on the above analysis, we can conclude that the development to be built on the plot covered by the UK zone may be an adaptation of existing development, while changing the function of this facility. The facilities must be maintained in good technical condition, and newly constructed facilities should not dominate the landscape.

The part covered by the MW-U1-v zone includes more regulations and specifies the materials that should be used in the facade.

The plot is located next to the city center, and within 150m from the main communication hub of the city of Frombork, which ensures good communication for residents of the surrounding villages.

The main concentration of people is located on the south side (the market square), and is within 50m from the church building.

3. Project guidelines

The aim of the project is to prevent the destruction of the unused St. Nicholas Church in Frombork by giving it a new function. The new function is to respond to the needs of the residents of the city and the Frombork commune due to the lack of indoor sports facilities and is to be implemented by creating a high-quality space inside the historic building. Additionally, in order to focus people's attention, it is worth creating a meeting place in the form of a café, which would attract the curiosity of passers-by with its appearance. The added structures and buildings should not dominate the historical development of Frombork. The main entrance to the church is from the north, the main concentration of people from the south (market), the project plot should lead people in a clear way to the other side to the main entrance (no possibility of breaking through and creating a new entrance due to conservation protection). In order to provide sufficient usable area for sports purposes, the area should be increased by adding a storey to the church building, this procedure should be in line with the principle of reversible interference. The reinforcement of the structure damaged by the fire will be done by adding a storey in the attic, which will allow for the use of the opportunity to increase the area and expand the range of functions offered. In order to improve the quality of use, the main usable space will be raised by 4 m by creating a mezzanine on an independent structure. Raising the level close to the lower edges of the ground floor window openings to the level of the windows will allow for the best possible sunlight inside. The quarter from the north-east side is covered with corrugated sheet metal garages, which negatively affect the city center and do not fit into the local landscape. In order to create a rational-looking background for the project and use the opportunity to improve the situation of the city, it is necessary to propose an alternative development of the plot from the side of Szkolna Street.

4. Description of the idea

4.1. Project idea

The idea was created based on analyses of the implementation of changes in the function of the church in Western Europe, where the problem of abandoned churches has been widely known for a long time. Western implementations proved that leaving empty buildings without care is not a solution, and indicate a clear direction for alternative solutions.

4.2. Main design assumption

Following solutions that have been successful and recognized in the international environment, the project assumes emphasis on introducing changes inside the church in accordance with the principle of reversible intervention. Changes introduced in the historical buildings should be introduced with the possibility of their removal in the future, without leaving a trace, as in the Dutch implementations, which, with their culture of respect for historic structures, are a model for this type of intervention. The new function in the form of sports and recreation, requires a larger usable area of the facility, due to the nature of the hall church, its advantage is the height in the light, therefore the need to add space was solved by introducing a mezzanine on an independent structure. The need to strengthen the original walls also provides an opportunity to improve the profitability of the investment in the form of increasing the area inside the church. The roof with a 30-degree slope at a spacing of 18.5 m creates a huge space that must be used, therefore the stiffening of the structure will be combined with the creation of an additional floor. The additional floor extends from the southern wall to half the length of the main nave, so that after entering on the ground floor the scale of the interior is still legible. The purpose of such a procedure is to preserve the monumental character of the hall church.

A significant change related to the development of the attic is the change of its structure, currently it is a light steel structure, introduced after the fire in order to cover the preserved part of the church. The new structure will be made of glued wood in a form referring to the original roof truss. The communication section will be implemented in the form of a glazed staircase, made on an independent structure, located in the outline of the eastern porch of the church.

The planned change of function will be complemented by a small volume on the eastern side, referring in its architecture to the elements introduced in the church of St. Nicholas. The form is to be intriguing and visible from strategic places in Frombork (market square, Radziejowski Tower) to mark the introduced change with its presence.

III. DESIGN PART

1. Main informations

1.1. Subject and scope of the study

The subject of this study is the Church of St. Nicholas, along with a small adjacent structure, located at the intersection of Basztowa Street and Adama Mickiewicza Street in Frombork, on plots no.: 40/3, 40/4, 41, and 42. The project is supplemented by a simplified design proposal for plots no.: 37/1, 37/2, 37/3, 38, 39, and 40/2, located within the same urban block, closer to Szkolna Street. The aim of the project is to restore this degraded part of the city to the residents of Frombork - an area that, aside from old garages, includes a church that has served for years as a key architectural landmark in the heart of the town.

1.2. General informations

The church building houses a sports and recreational function, which is distributed across two levels: a ground floor with a mezzanine and a first floor located in the attic. Additionally, within a newly constructed, independent volume, there is a social and cultural space in the form of a café.

Design plot area: 5004.93 m2

Design development area: 8709.26 m2

Total area: 1569.45 m2

Development intensity: 0.29

Total area of the above-ground part: 1569.45 m2

Maximum building height: 31.6 m (existing)

Biologically active area: 2438.16 m2

Percentage of building plot coverage: 14.84 m2

1.3. Legal basis of the study

Design guidelines

- Building standards and regulations:

Journal of Laws 1994 No. 89 item 414 Act of 7 July 1994

Journal of Laws 2020 item 471 Act of 13 February 2020 amending the Act

- MPZP land card:

No. XI/68/2007

- Journal of Laws 2002 No. 75 item 690b - Regulation of the Minister of Infrastructure of 12 April on the technical conditions that buildings and their location should meet

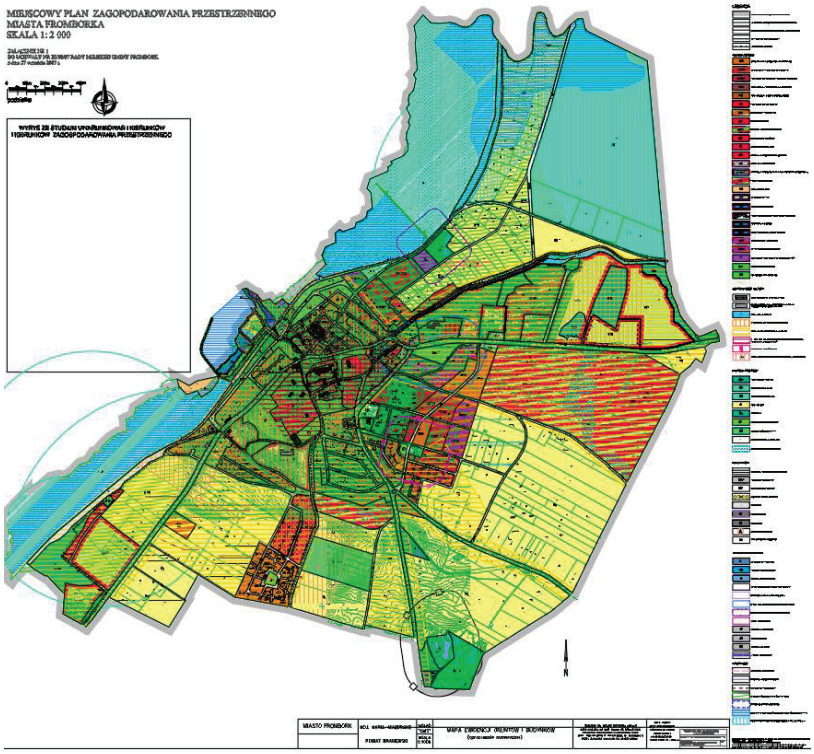


Figure 34 No. XI/68/2007 MPZP map

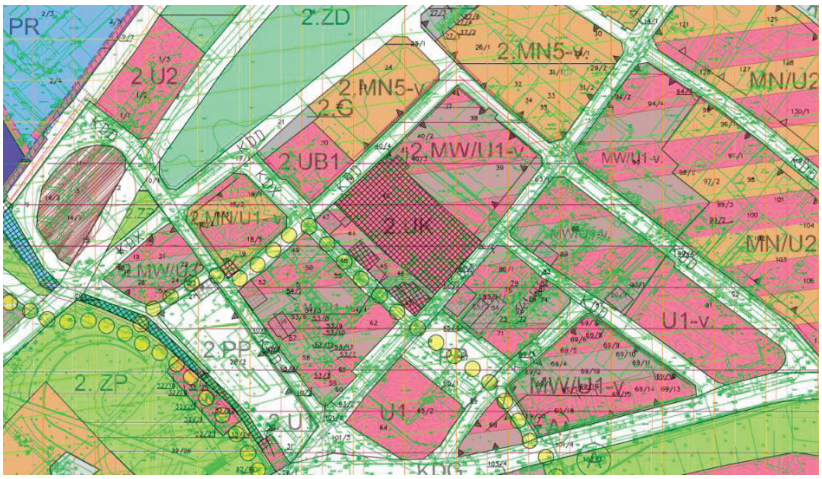


Figure 35 Closer look at the project plot on the MPZP map

2. Site development description

2.1. Site development plan description – existing site conditions

The project plot in Frombork at Basztowa, Adama Mickiewicza and Szkolna streets is located in the city center. On the plot there is an abandoned building, which was once the church of St. Nicholas with a tower with a belfry. The plot is built up with sheet metal garages on the north-eastern side. The plot area is 2438.1 m2. The plot has access to connections such as: power connection, water connection, telecommunications connection and sanitary sewage. The buildings of the former church are located on the south-western part of the plot and are under conservation protection.

2.2. Site development plan description – proposed site development

The redesigned former church building has 2 floors (and one mezzanine). The entrance to the building is located on the north side. The main staircase is located in the eastern porch of the church and has a separate entrance. The designed supplementary building is located on the eastern side of the project plot, it is a reflection plane for the main route leading to the main entrance of the building. The new volume houses a cafe and is connected to a designed depression in the area, connected by a ramp to the playground, which is located on the north side. The main pedestrian route on the project site is designed in such a way that, using the

principle of mirror reflections, it directs pedestrians from the market square, straight to the entrance from the north. The first reflection is the wall of the cafe, made of reflective glass, the second surface is a mirror, located on the wall in the northern part of the plot. The same wall on the other side is part of a photographic exhibition devoted to the history of the building, which has often fallen victim to wars. In the north-western part of the plot, an outdoor gym has been placed, available to residents all year round. It is intended to emphasize functions and promote sports. A parking space for people with disabilities is located in the eastern part of the project plot.

2.2.1. Impact zone

The project does not have a negative impact on neighboring plots, the added volume is low enough that its shadow does not reach neighboring plots. The added staircase in the church building does not affect the screening of neighboring plots by the historical object.

2.2.2. Geodetic division

The design plot is divided into plots numbered: 40/3, 40/4, 41, 42. The scope of the entire design study also includes plots numbered: 37/1, 37/2, 37/3, 38, 39, 40/2.

Figure 36 Project plot with administrative division

2.2.3. Topography

The plot has small differences in height, not exceeding 1 m. A point of 0.00 m was adopted for the foundation of the ground floor at a height of 3 m above sea level.

3. Technical description of the designed church building

3.1. Main building parameters

3.2. Building construction

The building has a mixed structural system: the upper floor has a structure based on the preserved load-bearing walls and columns of the church's main nave. The staircase and the mezzanine on the ground floor operate in cross systems on an independent structure in the slab-column system. The gable roof is based on glued timber trusses, supported on the preserved load-bearing walls and columns of the church's main nave.

3.2.1. Construction elements

The 25 cm thick monolithic reinforced concrete ceiling in the entire attic part rests on 100 cm thick structural walls made of ceramic bricks and on octagonal columns with a diameter of 82 cm. The 25 cm thick monolithic reinforced concrete ceiling of the mezzanine located directly above the ground floor rests on 12 steel columns located at the intersection of the axes of the preserved historical columns (B, C) with axes 3, 4, 6, 7, 9, 11. The columns rest on a special steel foundation slab, in order to avoid anchoring in the main part of the church. The staircase in the church porch is supported on 4 steel columns, anchored to the foundation slab in the porch. (Axes 9, 10; E, F).

3.2.2. Structural scheme

The support of the building is divided between twelve longitudinal axes (1-12) and six transverse (A-F). The stability of the building is ensured by independent structures and a monolithic reinforced concrete slab on the 1st floor, the slab is to additionally stiffen the historical structure of the preserved church.

3.2.3. Placement

The foundations of the historic building have been preserved.

3.3. Functional layout

The building houses a sports and recreation area, the ground floor has been entirely developed by the service of the function performed, there are changing rooms, toilets, showers and receptions with employee facilities and a warehouse. On the mezzanine there is the main hall, which houses a room in the main nave zone intended for all kinds of sports activities and a gym, the equipment of which is located in the side neves. On the first floor there is a glass meditation room, located directly in the attic. Vertical communication is provided by a staircase with a fire vestibule, made on an independent structure in the porch, located in the eastern part of the church. In order to make the attic zone and the mezzanine accessible to people with disabilities, a passenger lift is located in the western part. The mother and child room is located on the ground floor in the former chapel, adjacent on the western side.

3.4. Technical equipment of the building

3.4.1. Electrical instalation

Low-current electrical installations were made in the facility in accordance with the Regulation of the Minister of Infrastructure based on technical conditions. The project included shafts for electrical installations. Basic lighting without emergency lighting was provided. Detailed development of electrical installations according to the industry project.

3.4.2. Mechanical ventilation system

Building was equipped with mechanic ventilation system

3.4.3. Natural ventilation system

Mechanical ventilation in the form of smoke extraction flaps is located in the staircase and in the main surface of the gable roof.

3.4.4. Central heating system

The project involves heating the building using heat pumps and a ventilation system.

3.4.5. Sanitary sewer system

The project involves connecting to the sanitary sewage system from Adama Mickiewicza Street.

3.4.6. Hot and cold water supply system

The project assumes connection to the water supply network from the side of Adama Mickiewicza Street. The room intended for the installation of the water supply connection is planned in the underground level of the building.

3.4.7. Internal fire hydrant system

In accordance with the technical conditions, internal hydrants are provided in all fire zones. Internal hydrants DN 25 are placed in accordance with the guidelines.

3.4.8. External fire hydrants

External hydrants DN80 were placed at Adama Mickiewicza Street at the entrance to the project area from the market square and in the northern part of the project plot.

3.4.9. Building dranaige system

Drainage of the green roof is provided by gutters.

3.4.10. Low-voltage system

The designed building was equipped with a monitoring system, DSO, and telecommunications infrastructure.

4. Technical description of the designed cafe building

4.1. Main building parameters

4.2. Building construction

The building has a mixed structural system: the inverted roof is supported by a load-bearing wall and columns.

4.2.1. Construction elements

The 25 cm thick monolithic reinforced concrete inverted roof is supported on the eastern side by a 20 cm thick reinforced concrete structural wall and by 40 cm diameter reinforced concrete columns with a circular cross-section.

4.2.2. Structural scheme

The support of the building is divided between seven longitudinal axes (1-7) and five transverse axes (A-E). The stability of the building is ensured by a monolithic structure placed on a foundation slab.

4.2.3. Placement

Całość posadowiona jest na żelbetowej płycie fundamentowej o grubości 30cm.

4.3. Functional layout

The building houses a café, the bar of which is located in the eastern part of the building, technical facilities, social room and toilets are located on the ground floor in the central part of the building. Floor -1 is intended for tables for customers and is divided into an internal and external part. Communication for people with disabilities has been provided by adding a passenger lift at the stairs in the internal part of the building.

4.4. Technical equipment of the building

4.4.1. Electrical instalation

Low-current electrical installations were made in the facility in accordance with the Regulation of the Minister of Infrastructure based on technical conditions. The project included shafts for electrical installations. Basic lighting without emergency lighting was provided. Detailed development of electrical installations according to the industry project.

4.4.2. Mechanical ventilation system

The building was equipped with mechanical ventilation.

4.4.3. Central heating system

The project involves heating the building using heat pumps and a ventilation system.

4.4.4. Sanitary sewer system

The project involves connecting to the sanitary sewage system from Adama Mickiewicza Street.

4.4.5. Hot and cold water supply system

The project assumes connection to the water supply network from the side of Adama Mickiewicza Street. The room intended for the installation of the water supply connection is planned in the underground level of the building.

4.4.6. Internal fire hydrant system

In accordance with the technical conditions, internal hydrants are provided in all fire zones. Internal hydrants DN 25 are placed in accordance with the guidelines.

4.4.7. External fire hydrants

External hydrants DN80 were placed at Adama Mickiewicza Street at the entrance to the project area from the market square and in the northern part of the project plot.

4.4.8. Building dranaige system

Drainage of the green roof is provided by gravity, by leading the roof at a constant slope to the ground level, where the water is then drained away through the drainage system.

4.4.9. Low-voltage system

The designed building was equipped with a monitoring system, DSO, and telecommunications infrastructure.

5. Greenery

The plot is dominated by low greenery in the form of grass and small shrubs. There are no trees or plants under conservation protection on the project plot. Despite the low requirement for biologically active area in the MPZT (0%), the plot is developed in such a way as to improve the current percentage of biologically active area in the center of Frombork. One of the activities that fit into this assumption is the construction of a green roof in the new cubic capacity of the cafe building. The green roof is made at an incline and connects with the ground greenery, falling directly into the ground level. In addition to improving the PBC index, it also gives the intended effect of a green ramp.

6. Impact of the investment on the enviroment

The investment does not significantly affect the surrounding environment, both the designed building and the developed area do not emit noise or pollution. The project, located within the boundaries of the impassable building line, meets the conditions of the MPZP and fits into the local landscape. The designed green roof has a positive effect on the environment of the project plot.

7. Accessibility description for people with disabilities

7.1. Horizontal circulation

Maneuvering spaces in front of the entrances to the facility have been preserved. The communication spaces are free from obstacles and local narrowings.

7.2. Vertical circulation

The building has been equipped with an external passenger lift with dimensions no smaller than 110x140 cm. The passenger lift is located in the western part of the former church building and in the central part of the cafe building.

7.3. Toilets for people with disabilities

The buildings are equipped with 6 toilets adapted for people with disabilities. Maneuvering space has been maintained in front of the entrances to facilitate access to the toilets. The doors to the toilets have a minimum width of 90 cm in the light. The floors in the toilets for disabled people are non-slip.

7.4. Access to the building

On the developed part of the plot, 1 parking space per car for a disabled person is planned. The spaces have been placed in the eastern part of the plot. All paths on the plot have been paved and are made of matt, anti-slip surfaces.

8. Fire safety considerations

8.1. Technical parameters of the church building

Total area: 1257.09 m2

Number of floors: 2

People hazard category: ZLIII

Height group: high (W)

Number of staircases: 1

Fire resistance class: B

8.2. Technical parameters of the cafe building

Total area: 312.36 m2

Number of floors: 2

People hazard category: ZLIII

Height group: low (N)

Number of staircases: 1

Fire resistance class: B

8.3. Flammable materials

The design does not include the use of flammable substances. The construction and finishing materials have been selected to reduce the risk of fire spreading.

8.4. Distance from neighboring buildings

The foundations of the buildings do not violate the regulations regarding the location of the building in relation to the neighbouring development.

8.5. Human hazard conditions

cafe: ZL III

gym: ZLIII

8.6. Fire zones

The sizes of fire zones do not exceed the parameters required in the technical conditions.

8.7. Evacuation conditions

Gym:

Two emergency exits have been designed, and additionally, you can evacuate through the mother and child room in the western part of the building. The length of the evacuation passages does not exceed 40 m. There are no local narrowings of the horizontal width on the evacuation routes.

Cafe:

Evacuation from the cafe takes place through the main cafe hall on the ground floor and directly to the external zone from the underground floor to the lower ground.

8.8. Fire access roads

The fire access road is Adama Mickiewicza Street running from the south and an internal road planned within the boundary of the design study from the eastern side of the design plot.

8.9. Fire resistance class of the building

Internal walls: EI 30

Floors: REI 60

Roof covering: RE 30

Roof structure: R 30

Main supporting structure: R 120

9. Health and Safety Plan (H&S Plan – BIOZ)

9.1. Risk register

Construction site hazards: noise, weather conditions, working with heavy machinery, falling from height.

9.2. Health and safety on the construction site

The persons responsible for supervising occupational health and safety on the construction site are the construction manager and the construction foreman. These persons are responsible for providing up-to-date instructions on occupational health and safety on the construction site.

9.3. Site preparation

Fencing off the area and designating zones

Marking the safe zone

Designating pedestrian communication

Designating the material storage zone

Designating the waste storage zone

Ensuring sewage and waste disposal

Providing equipment and containerized sanitary and hygienic rooms

Providing artificial lighting, power and water connections

9.4. Hazard zone

A danger zone exposed to falling materials from a height on the construction site will be designated at a distance of 6 m from the boundary of the construction excavation and appropriately marked and fenced.

9.5. Storage of construction equipment and materials

Materials will be stored in a covered area, limiting the impact of weather conditions. Materials will be stored in their original packaging, which will be taken to a landfill once opened.

9.6. Operation of machinery and equipment on site

Persons employed in the operation of heavy machinery should have current and required qualifications in the operation of construction machinery.

9.7. Final remarks

The above study contains information on the hazards resulting from work on a construction site. The guidelines contained in the study are consistent with Polish standards and are intended to prevent unwanted incidents during construction work. The construction foreman and construction manager are responsible for safety on the construction site during construction work.

9.8. Healts and safety conditions

Providing safe working conditions is key to preventing accidents and occupational diseases. When designing a building, attention should be paid to issues such as adequate lighting, ventilation, air conditioning, fire safety, as well as providing appropriate equipment and tools for employees. Environmental protection requirements and the use of low-emission materials should also be taken into account. All these elements are key to ensuring safe and healthy working conditions on the construction site and should be included in every construction project.

10. Bibliography

10.1. Books

- Edmunt Kurowski, Dzieje Fromborka,

10.2. Documents

- White card No.326/3 – wall on the project plot, www.zabytek.pl, 1958, https://zabytek.pl/pl/obiekty/g-238340 [online:10.01.2025]
- White card No.326/1 – St.Nicolaus church, www.zabytek.pl, 1997, https://zabytek.pl/pl/obiekty/frombork-kosciol-par-pw-sw-mikolaja [online:10.01.2025]
- White card No.326/1 – Old bell tower, www.zabytek.pl, 1997, https://zabytek.pl/pl/obiekty/frombork-kosciol-par-pw-sw-mikolaja [online:10.01.2025]
- Cementary card No.17437 – Churchyard cementary documentation, www.zabytek.pl, 1990, https://zabytek.pl/pl/obiekty/g-219650 [online:10.01.2025]
- Strategy of development of the municipality Frombork and city Frombork for years 2016-2026, 2016 https://www.frombork.pl/attch/article_attch-104-231-1682593365.pdf [online: 05.01.2025]
- Local Development Plan (MPZP), frombork.bip.net.pl, 2007, https://archiwum2-frombork.bip.net.pl/mod41_id16_more1.html [online: 05.01.2025]

10.3. Publications

- Dominika Długosz, Adaptacja zabytkowych kościołów katolickich do nowych funkcji na wybranych przykładach w Polsce oraz europie zachodniej, www.repozytorium.biblos.pk.edu.pl, Politechnika Krakowska, 2019, https://repozytorium.biblos.pk.edu.pl/redo/resources/43226/file/resourceFiles/DlugoszD_AdaptacjaZabytkowych.pdf. [online: 16.08.2024]
- Agnieszka Szuta, Jakub Szczepański, Striking elements - A lifebelt or a fad? Searching for an effective way of adapting abandoned churches, www.mostwiedzy.pl, Politechnika Gdańska, 2020, https://mostwiedzy.pl/pl/publication/striking-elements-a-lifebelt-or-a-fad-searching-for-an-effective-way-of-adapting-abandoned-churches,151295-1. [online: 15.08.2024]
- Kuśnierz-Krupa, D., Krupa, M., 2008 Nowe życie średniowiecznych kościołów z Maastricht, https://yadda.icm.edu.pl/baztech/element/bwmeta1.element.baztech-article-BPK6-0026-0032 [online: 23.11.2025]
- Ece Begum Kokudale, From the state of degeneration to regeneration: improving health and wellbeing within architectural implementations, www.open.metu.edu.tr, Middle East Technical University, 2022, https://open.metu.edu.tr/handle/11511/101224 [online: 14.08.2024]
- Serena Baiani, Paola Altamura, Superuse e upcycling dei materiali di scarto in architettura: progetto e sperimentazione, www.research.uniroma1.it, Sapienza Universita di Roma, 2018, https://research.uniroma1.it/pubblicazioni/49949 [online: 12.08.2024]
- Matteo Rebiglio, Why adaptive reuse?, www.jstor.com, German Marshall Fund of the United States, 2016, http://www.jstor.com/stable/resrep19022.5 [online: 12.08.2024]
- Garstka, B., 2012, Holy Renovations: Adaptive Re-use and Dependent Stakeholder Opinion of Converted Church Buildings. Utrecht University, Utrecht, https://studenttheses.uu.nl/handle/20.500.12932/17622 [online: 02.01.2025]

10.4. Websites

- Religiosity index in Europe by NUTS-1 regions, 2022, https://knowledge4policy.ec.europa.eu/territorial/topic/regional_en [online: 25.08.2024]
- Secularisation index, https://www.pewresearch.org/religious-landscape-study/2018/06/13/the-age-gap-in-religion-around-the-world/ [online: 09.08.2024]
- Tourism in GDP, European statistics, https://knowledge4policy.ec.europa.eu/territorial/topic/regional_en [online: 10.08.2024]
- The Savills Blog, 2018 Credit: https://www.savills.com/blog/article/250457/residential-property/6-of-the-best-converted-properties.aspx [online: 16.08.2024]
- 6 of the Best…Converted properties, 2018 Credit: - https://www.savills.com/blog/article/250457/residential-property/6-of-the-best-converted-properties.aspx [online: 16.08.2024]
- New building connection – Brigittines Chapel article, 2022 Credit: https://www.miesarch.com/work/2038 [online: 16.08.2024]
- Interior of the bookstore, 2014 Credit: https://urbnews.pl/architektoniczny-recycling-obiektow-sakralnych/ [online: 15.08.2024]
- Adaptacje i nowe funkcje użytkowe dawnych kościołów ewangelickich Dolnego Śląska na wybranych przykładach, https://samorzad.nid.pl/dobre-praktyki/adaptacje-i-nowe-funkcje-uzytkowe-dawnych-kosciolow-ewangelickich-dolnego-slaska-na-wybranych-przykladach/ [online: 17.11.2024]
- Adaptation of historical sacred objects https://www.frh-europe.org/adaptation-of-historical-sacred-objects-to-secular-functions-on-the-example-of-selected-western-european-projects-with-the-use-of-the-narrative-method/ [online: 17.11.2024]
- DePetrus Vught https://www.depetrus.nl/wp/wp-content/uploads/2018/12/DePetrus-info-English-MvdH.pdf [online: 17.11.2024]
- 10 churches around the world given amazing new life, https://www.bbc.com/culture/article/20230825-10-churches-around-the-world-given-amazing-new-life [online: 16.12.2025]
- Weather in Frombork, https://pl.weatherspark.com/y/85332/%C5%9Arednie-warunki-pogodowe-w:-Frombork-Polska-w-ci%C4%85gu-roku [online: 02.02.2025]
- History of St.Nicolaus church, https://pl.wikipedia.org/wiki/Ko%C5%9Bci%C3%B3%C5%82_%C5%9Bw._Miko%C5%82aja_we_Fromborku [online: 12.12.2025]

11. Table of Figures