

Representative of quality modernist architecture.

Renovation of a modernist architectural building in Kaunas.

Type of intervention

Restoration Rehabilitation / Renovation

Concerned elements on the intervention project

- 1. Foundations and underground structures
- 2. Vertical structures
- 3. Horizontal structures and vertical connections
- 4. Roof and terraces
- 5. Façade and building envelope
- 6. Finishes and completion elements
- 7. Integrate services
- 8. General strategies for building recovery

Site Radvilėnų pl. 19, Kaunas

Objectives Restoration of the Research Laboratory of the Armaments Board of the Ministry of National Defence in Kaunas (now KTU Faculty of Chemistry).

Property Public

Designer Vytautas Landsbergis-Žemkalnis

Date 1933 – 1935. Repair 2020-2021



Background to the intervention

The interwar period (1918–1940) is one of the most significant periods in the history of Lithuanian architecture. The dense concentration of modernist buildings in the city, which has emerged in just over a decade, is a unique phenomenon throughout Europe. Combining quality modernity with the style of searching for nationality, Kaunas' interwar architecture is unique in the European context. More than 40 objects of Kaunas interwar modernism architecture are included in the list of European heritage objects. In 2017 Kaunas was given the name of a UNESCO city of design.

The laboratory of applied science installed in the interwar period in Kaunas is called the brightest in Lithuania in the 20th century. An example of the architecture of the first half of modernism??? (nebaigtas sakiny). In 1930 in the young state of Lithuania (independence was declared in 1918), it was decided to establish an Armaments Laboratory for military purposes. The project of the building was selected through a competition, which was won by Vytautas Landsbergis-Žemkalnis. The laboratory was designed for the military industry and was equipped with the most modern equipment, it was the most innovative in the Baltic States at that time. This building of classical modernist architecture is designed so that the walls of the building do not suffer even in the event of an explosion. The quality of the building ensured the functionality of the building during the years of Soviet occupation. In 1940 the laboratory was transferred to Kaunas University, it is still operating and is a part of the complex of the Faculty of Chemical Technology of Kaunas University of Technology.

In 1973 the building was granted the status of an architectural monument. In 2005 this building was recognized as a state-protected immovable cultural property, and in 2015 awarded the European Heritage Label. In order to protect and update the cultural heritage object and adapt it to the needs of the society, KTU has prepared an investment project

“Adaptation of a cultural heritage monument to a public service”. The project is funded by the European Union Structural Funds. In 2020-2021, the building was repaired based on detailed research.

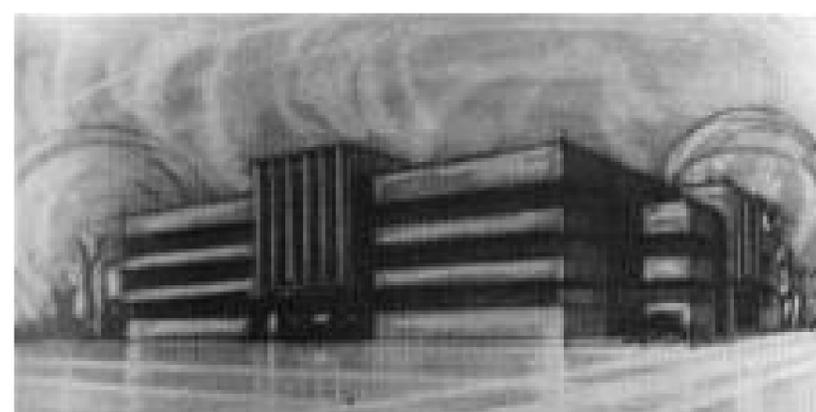
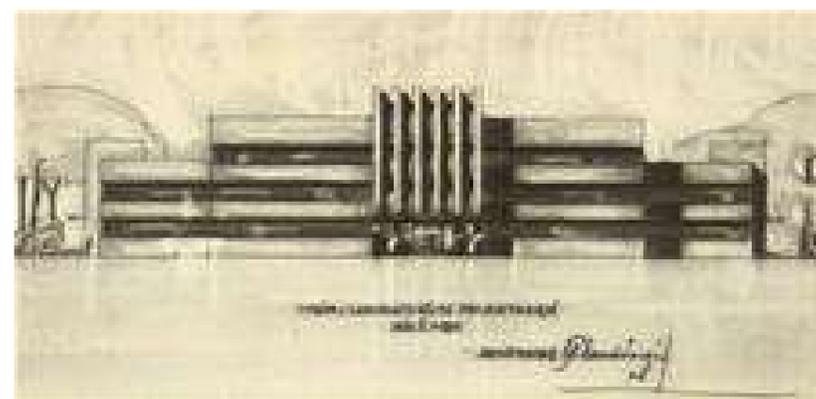


Fig.2: Architect V. Landsbergis-Žemkalnis made sketches of the building facades and a plan of the first floor.

Description of the building

It is one of the classic buildings of Lithuanian interwar modernism, which has retained its authentic appearance to this day. The harmony of function and aesthetics is manifested both in the overall architectural solution and in the details. Although the plan of the building is symmetrical (this is typical of Kaunas modernism), the new style is evidenced by the horizontal windows surrounding the facades and even the corner windows, which at the same time correspond to the function: that the air wave destroys only the windows and not the walls. Flat roof, unadorned facade, reinforced concrete frame, white speaks of modernity. Classical symmetry, monumental, compositionally accentuated and not always functional entrances testify the Lithuanian interpretation of the “international style”. Inside, the atmosphere of the construction period is evident by stair railings, elevators, chandeliers, authentic furniture and small laboratory elements. Even hidden details such as ventilation ducts are still used somewhere. The brightest and most important detail for the laboratory is the chimneys of the fume cupboards rising above the flat roof. These playful looking copper towers are perfectly preserved and serve their purpose.



Fig.3: Satellite image of the building.



Fig.4: East façade.



Fig.5: West façade.



Fig.6: View from the Southeast.



Fig.7: South façade.



Fig.8: Central part of the west façade.



Fig.9: View of the windows.



Fig.10-11: Interior of the research laboratory.

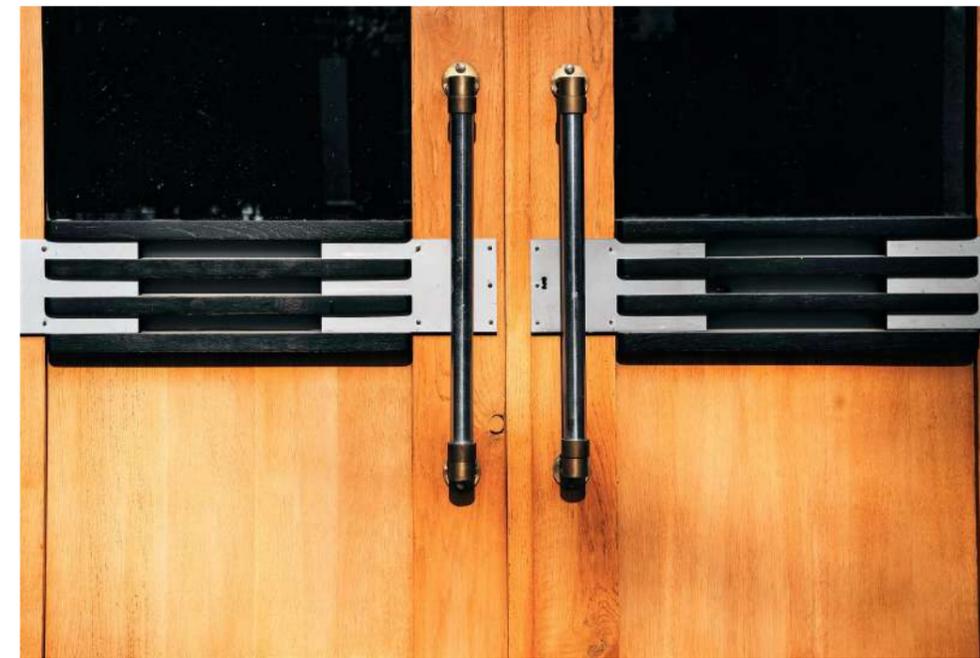


Fig.12-13: Details of the corridor of the building: stairs and doors.



Fig.14: Stair's details.



Fig.15: Laboratory's windows.



Fig.16: Details of the original electrical equipment.



Fig.17: Corridor.



Fig.18-20: Original cabinets and cabinet for explosion testing in the basement of the building..



The Diagnosis of the building (values and state)

The value of Kaunas' modernist architecture is determined by its contextual identity, which also reflects the global trends and national features of modernist architecture. Just as the exterior of this building was innovative (the construction of a monolithic reinforced concrete frame, a continuous strip of windows, a flat roof, an unadorned façade), the interior was modern, starting with the laboratory equipment and ending with the interior details.

Today, the building is one of the ten most valuable buildings in the Republic of Lithuania. In 2019, the international organization The Getty Foundation recognized the building of the Research Laboratory in the 20th century. important architectural object and provided funding for its consistent research and management plan. The Research Laboratory found itself near the brightest nuggets of modern architecture in the 20th century.

In 2015, the Research Laboratory building, which is among the top ten most valuable buildings in the Republic of Lithuania, was awarded the European Heritage Label.



Fig.21-22: Entrance before and after restoration.

Rehabilitation works

During the implementation of the project “Keeping It Modern” of the Getty Foundation program, the building of Kaunas University of Technology (KTU), the pearl of modern technology, received detailed research conducted by a team of scientists from various fields.

During the repair of the building of the former Research Laboratory, its facade was renewed, other external elements, some of the windows and doors were restored, and others were replaced with new ones. The restoration of the authentic details of the building was carried out with such precision that the dimensions and materiality of the bolts and nail heads were specified in the design to the nearest millimetre. For example, when restoring the main entrance door of a building that stands out for its decorativeness, it is recommended to use brass wood screws with a semicircular 6 mm head and

decorative nails with square 20x20 mm heads.

Modern materials, products and technologies have been selected for the repair works, but they are compatible with authentic materials and the authors' architectural solutions.

An exclusive detail of this building is that the green chimneys of the fume cupboards on the roof shone with copper after the renovation, 8 chimneys had to be replaced with new ones.



Fig.23: Renovation of the building's façade.



Fig.24: Old ventilation pipes used in conjunction with new details.



Fig.25: Original ventilation chimneys before and after renovation.

Assessment of the results

The old building has been preserved at both the structural and detail level.

The building is adapted to a function close to the original.

New elements and materials are used only where necessary.

References

<https://www.geoportal.lt/map> (Fig. 2)

<https://sa.lt/lietuvos-modernizmo-perlu-vadinamas-ktu-korpus-as-sulauke-issamiu-tyrimu/>

<https://autc.lt/architekturos-objektas/?type=1&page=1&rt=3&contGeo=Radvil%C4%97&id=1019>

<https://www.delfi.lt/miestai/kaunas/paslaptina-tarpukario-kau-ne-veikusi-tyrimu-laboratorija-pastatytu-sienusugriauti-negale-tu-net-sprogimas.d?id=83963673> (Fig. 19 Photo by Gintaras Česonis)

<https://www.delfi.lt/en/culture/lithuanian-modernist-architecture-awarded-grant-from-getty-foundation.d?id=81919219>

<https://www.lrt.lt/naujienos/lietuvoje/2/1243390/paveldosaugininkai-susikibo-su-ktu-tvarkant-paveldo-objekta-nupjauti-autentiski-tureklai> (Fig. 17)