

Development of lifting devices technology on the Polish territory from 19th to the half of the 20th century.

The primary purpose of the research is to compile the chronological typology of technical solutions and specific mechanisms used in historical lifts in Poland.. The devices selected to study are the passenger and passenger-freight elevators with electric drive, installed in today's Poland area, from the end of the 19th century and the first half of the 20th century. Those devices will be analysed against the background of stylistic and functional trends in architecture. Research carried out during this project will fill the gap in the current state of knowledge about the history of lifts in Poland. The obtained results will be used in the preparation of the doctoral dissertation.

The lifting devices were invented and were used already in antiquity. They were also known in the Middle Ages. In the 17th century, in English and French palaces were installing devices, which could now be considered as a prototype of modern lifts. It is not an invention from the Industrial Revolution period as one might assume. But the truth is, that there were three groundbreaking innovations in this field and were invented right in the nineteenth century. First, the invention of a steam engine. Initially, lifting devices with this kind of drive were used to transport goods in factories and mines. Next crucial innovation was the first safety brake invented in 1853 and patented in 1861 by Elisha Graves Otis. This solution made safe and convenient vertical transport of people in buildings possible. Next significant step in the development of these devices was made in 1880 by Werner von Siemens. He constructed the first lift driven by an electric motor and presented it during the Mannheim trade exhibition. Thanks to this improvement elevator machine room became smaller, and devices themselves became more popular in multi-storey residential and office buildings. Currently, construction law in Poland imposes an obligation to install these devices in multi-storey buildings. It applies to residential, office, industrial and public buildings. They are already common today. But at the turn of the 19th and 20th centuries, they were luxurious furnishings, symbolising material wealth of owners.

For the last two decades, many valuable historical lifts in Poland have been removed and destroyed. Administrators have replaced them with new ones, with higher safety standards and modern technologies. Preserved elevators from the beginning of the 20th century are already unique objects. They are just works of art set in motion, a result of fruitful cooperation of engineers, blacksmiths and joiners. Decorative, openwork elevator shafts have great artistic value. Often they are a piece of art, presents rich forms of Art Nouveau or Art Deco. Using, preserving and protecting them is still possible. However it is necessary to start dialogue and cooperation between The Heritage Conservator's Offices and The Offices of Technical Inspection. Due to the specificity of the devices, interdisciplinary thinking is necessary here. The methodology of historiography has to be used together with an understanding of the basics of mechanics and the construction of machines. The planned research will be the scientific contribution of the Poznań University of Technology in this dialogue.

Data collected as a result of this project will help in the elaborating corrected history of the development of the lifting devices in today's Polish area. Manufacture date of the oldest preserved lift in the research area will be known. Thanks to this, it will be possible to determine the approximate year when electric elevators started to be installed in Poland. Moreover, a catalogue of historical lifting devices preserved in Poland will be created. Based on that it will be possible to answer the question of how big is their number and what percentage of them are still allowed for use? Particular attention will be paid to the analysis of construction solutions and mechanisms used in the historic lifts. It will help to research the characteristic solutions for individual parts of Poland and perhaps also to determine the reason for these differences. Knowledge about them could help to understand better the development of general technical awareness at the beginning of the 20th century. The research results will be also helpful in finding the best solutions for assessing heritage values for this group of devices. It will be possible to use them as an auxiliary material for heritage conservation offices in making decisions about what to protect, how to conserve, and how to handle conflicting interests.