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**ROBERT BUCOŃ**

Lublin University of Technology, Poland

**MICHAŁ TOMCZAK**

Lublin University of Technology, Poland

## **MULTICRITERIA OPTIMIZATION OF BUILDING RENOVATION**

### **Abstract:**

The choice of the right technologies for the repair of a residential building is a difficult and complex decision-making problem, which requires from a manager extensive knowledge, skills and experience. Nowadays, due to the variety of available repair technologies and because of the need of taking into account the increasing number of requirements to fulfill for residential buildings, including technical, economic, functional, etc., the choice becomes more difficult. Bearing in mind also financial constraints, the choice of repair technology of a building deals with the implementation of two opposing objectives, ie. the building's renovation providing an adequate ( assumed) level at the lowest possible performance cost. Searching for repair technology that enables optimal renovation of a building requires the application of appropriate computational tools. The authors proposed a method to support a manager in making renovation decisions. It will allow assessing repair technologies as well as their selection (for accepted assumptions regarding cost and building's use value). It is based on such computational tools as, for example, multi-criteria decision support methods and linear programming. The proposed approach is an understandable and comprehensive tool that can be useful for managers at the maintenance stage of multi-family residential buildings.

### **Keywords:**

renovation, repair technology, maintenance, residential building, decision-making, multicriterial methods, linear programming

**JEL Classification:** L74, C61, R31