



Research Article

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# Construction materials using auxetics for building protected structures

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## Keywords:

Auxetic Materials; Metamaterials; Energy Absorption; Protective Structures; Impact Resistance; Seismic Protection; Negative Poisson's Ratio; Mechanical Properties; Auxetic Brick

## Abstract:

**The object of research** is auxetic materials and their application in the creation of structures for protected buildings and facilities. **Method.** The study is based on a review and analysis of modern research in the field of auxetic metamaterials. The main focus is on evaluating their mechanical properties, particularly their ability to absorb and dissipate energy under various loads and impacts. **Results.** Promising directions for the use of auxetic materials in the design of protective structures (e.g., impact-resistant elements, protective barriers, seismic protection systems) are described. A novel concept for a brick with an auxetic structure is proposed as a result of the analysis.

## 1 Introduction

## 2 Materials and Methods

## 3 Results and Discussion

## 4 Conclusions

## 5 Fundings

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## References

References must meet the requirements <https://unistroy.spbstu.ru/en/references/>.