

## Application of non-load-bearing walls using a mixed earth technique with recycled thermoplastic

### Summary

Earth is an ancient material for building, as it allows a variation of construction techniques to be used in housing architecture, assimilating practical knowledge of construction systems with knowledge from years of evolution. The relationship between earth and other materials is aimed at enhancing its value and increasing the possibility of application in architecture.

This investigation relates the mixed soil techniques used in Ibero-American countries, with the contextualization of their use in the State of Mato Grosso do Sul, Brazil, as well as their use in Portugal. Plastic recycling aims at sustainable development, following the circular economy process, which allows hypotheses about the applications that these materials can offer. This investigation proposes the creation of non-load-bearing walls, using a mixed earth technique, using recycled thermoplastic as support structures.

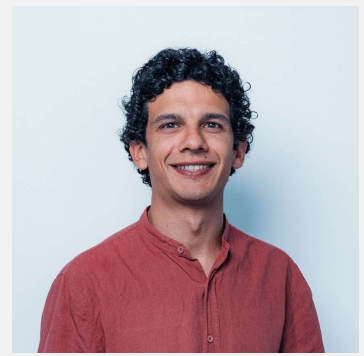
The conformation capacity of rigid thermoplastic structures allows the hypothesis of its use as a support structure, constructive technologies that aim to present processes with greater precision in the production. Practical investigations are carried out on the process of blocking thermoplastic prototypes, with quantitative and qualitative analysis of the materials. Theoretical investigations and experimental practices, with laboratory applications, underlie the analyzes for the characterization of the materials and the responses to the tests carried out.

### Keywords

Earth architecture, earth technique, constructive innovation, recycled thermoplastic, sustainable development.



*Design of the structural system of the Tekoha o Habitar Indígena project. (Source: Valdomiro).*



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### Period

2022-2026

### Funding

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