

BuildingAdapt – Pioneer study to analyse the resilience of university teaching buildings to climate change

Summary

This study focuses on the growing concern about how university teaching buildings can adapt to climate change and how environmental comfort conditions for their occupants can be guaranteed in future scenarios.

Building A of Lusófona University – Lisbon University Centre will be used as a case study, considering the urgent need for its rehabilitation and maintenance of its character.

This project includes an experimental study to monitor the current indoor climate conditions. In this context, environmental comfort sensors and a data acquisition system will be installed to monitor different compartments of the case study, to record in detail, the variation in its indoor climate conditions.

Also, a computational model of the building will be developed for environmental comfort analysis of the case study considering the current construction characteristics of Building A. This model will be analysed according to current climatic conditions and future climate scenarios. Several analyses will be carried out including

adaptation measures to improve the environmental comfort and well-being of the building occupants. These adaptation measures will be selected to improve the building's thermal insulation and reduce energy consumption, including carbon-negative solutions that capture greenhouse gases during the building's lifetime. The effectiveness of these measures will be analysed for current climate conditions and future climate projections.

A cost-optimal methodology will be applied to the selected rehabilitation measures to identify which solution guarantees the best relationship between the building's energy efficiency and the overall cost of the intervention.

This study also aims to boost collaboration between researchers at Universidade Lusófona and the collaboration of international researchers, with the ultimate objective of encouraging the creation of new research themes and applications for national or international projects.



Figure 1. Building A, Lusófona University– Lisbon University Center.

BUILDINGADAPT

Project Reference

ILIND/F+/EI/01/2021

Leading Institution

Lusófona University (Portugal)

Partners

-

CERIS Principal Investigator

Maria Manso
(maria.manso@ulusofona.pt)

CERIS Research Team

Elói Figueiredo, Vítor Antunes

Funding

Lusófona University (Portugal)

Period

2023-2024

Total

20 885.00€

CERIS

-

Project Website

<https://civilresearchgroup.ulusofona.pt/buildingadapt/>