

AdaptHouse – Design and development of modular houses with the possibility of adaptation to different levels of expansion and comfort

Summary

AdaptHouse project aims to develop an innovative modular construction concept by integrating design, functionality, customization, ecoefficiency and adaptability features in one product which will go beyond what's currently available in both national and international markets.

In order to adapt to varying user requirements, the construction system developed in this project is modular, prefabricated and flexible. Inspired by the concept of versatile modules connecting with each other, the construction system is able to assume various architectural shapes, adjust to different sizes, and blend with both urban and natural environments through careful selection of the construction materials.

The prefabricated modules and submodules ought to integrate all technical infrastructures, including those associated with implementing centralized, predictive and intelligent house management systems through mobile devices for remote control (SMART). The structural solution must allow for the establishment of

these homes in different locations subject to different wind, snow and seismic loads.

Furthermore, the chosen constructive solutions must ensure the attainment of the desired architecture, as well as of the intended comfort levels, particularly in terms of energy efficiency and acoustical performance - through the integration of solar technology and high acoustic performance materials.



Figure 1. Built prototype in public display.



Figure 2. Idealized T3 house built-up of 5 modules.



Project Reference

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Leading Institution

FORCEFER – Engenharia Metalomecânica, S.A. (Portugal)

Partners

Itecons – Instituto de Investigação e Desenvolvimento Tecnológico para a Construção, Energia, Ambiente e Sustentabilidade (Portugal)

CERIS Principal Investigator

António Tadeu
(tadeu@itecons.uc.pt)

CERIS Research Team

João Almeida, Inês Simões, Rosário Fino, Michael Brett, Miguel Esteves, Enrico Zacchei

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CERIS

Coimbra Hub: 309 432.38€

Project Website

<https://www.adapthouse.pt>