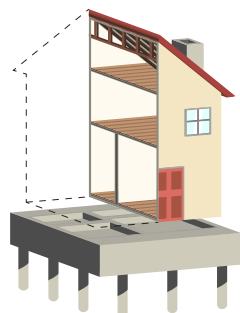
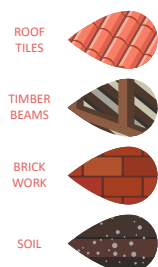
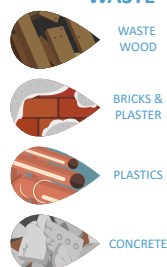




REUSABLE MATERIALS



CONSTRUCTION & DEMOLITION WASTE

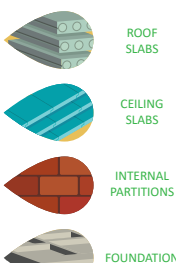
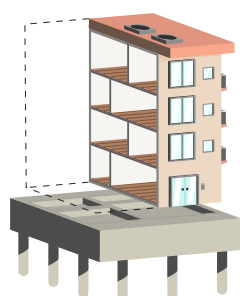
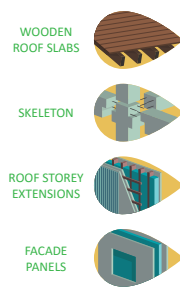


RE⁴ SORTING SYSTEM



PREFABRICATION OF ELEMENTS FOR BUILDINGS
REFURBISHMENT & CONSTRUCTION

Up to 65% in weight of recycled materials
from CDW in the final products



**Up to 80-90% of reusable structures for
RE⁴-prefabricated building concept**

Partners



ROSWAG ARCHITEKTEN



RE⁴

Project Coordinator:

Alessandro Largo (CETMA)

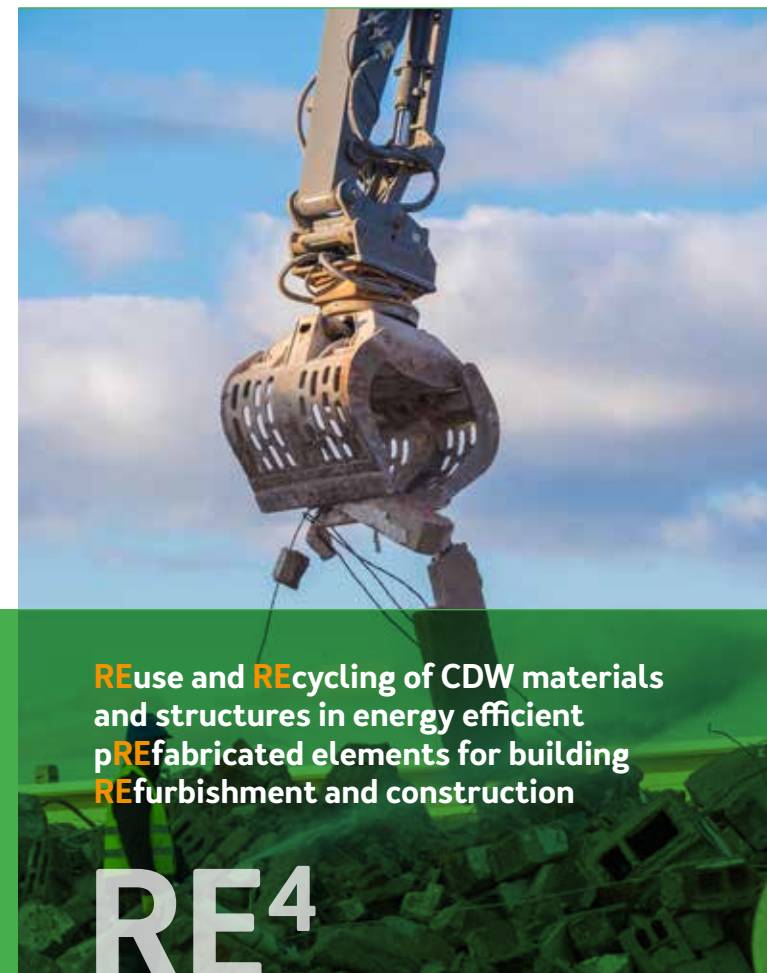
✉ alessandro.largo@cetma.it

☎ +39 0831449406

Please visit our website www.re4.eu

🐦 @RE4_project ✉ info@re4.eu

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**REuse and REcycling of CDW materials
and structures in energy efficient
pREfabricated elements for building
REfurbishment and construction**

RE⁴



This project has received funding from the European
Union's Horizon 2020 research and innovation
program under grant agreement No. 723583



The RE⁴ project aims to radically modify the construction process and off-site production by promoting new technological solutions for the design and development of structural and non-structural pre-fabricated elements with:

- a high degree of recycled materials from construction and demolition waste (CDW) and,
- reused structures from the partial or total demolition of buildings.

The scope of the project is to develop an innovative concept of pre-fabricated energy-efficient building that can be easily assembled and disassembled for future reuse, containing up to 65% in weight of recycled materials from CDW and reusable structures.

Demonstration

A demonstration of the RE⁴ solutions will take place in two specifically constructed mock-ups (residential or non-residential demo buildings) in two different climatic regions (UK and Spain). A strategy for the disassembly of reused materials and structures from dismantled buildings will be either demonstrated in a suitable existing building (if available) and/or in the Acciona demo park. A demonstration of the high replication potential of the developed solutions outside EU will be achieved through the construction of a further demo building in Taiwan.

Outputs

During the project lifetime several intermediate but self-standing industrial results will be achieved, such as:



a number of pre-fabricated building components (including connections) based on the use of recycled materials and reused structures;



an innovative RE⁴ CDW sorting system based on an automated robotics system equipped with advanced sensors;



the definition of related production processes and equipment, in order to make the RE⁴ concept possible;



a BIM-compatible tool (Building Information Modelling) for the management of types and quantities of generated CDW, in order to maximize their recycling and reuse.

