



PRESS RELEASE

Reusing rubble in new constructions, the innovative recycled concrete of SARCOS

A prototype of steel–concrete composite slab developed by researchers at the University of Cagliari and Politecnico di Milano

Cagliari, 05 May 2026 – **Steel & recycled concrete composite slabs with equivalent, and in some cases superior, performances compared to traditional ones:** this is the outcome of the **SARCOS (Steel And Recycled COncrete Slab)** project, conducted by a **joint research team from the University of Cagliari and Politecnico di Milano**, funded by the PRIN2022 call of the Italian Ministry of University and Research.

The core idea behind the project is to **replace natural aggregates in concrete with recycled materials, rubble from the demolition of abandoned buildings**, thus reducing dependence on natural resources by applying a circular economy model. **Construction sand is typically extracted from riverbeds and alluvial deposits:** the development of new techniques that encourage recycling makes it possible to preserve natural environments by avoiding further excavation.

Recycled concrete is a material already used in several countries around the world, but **the researchers took the innovative step of combining, in slabs, the properties of concrete with those of high-strength profiled steel sheeting, thus creating a quite innovative product.**

The entire solution is **designed to be fully recyclable:** in addition to the concrete, the steel can also be melted down and reused on the next construction site.

«Concrete obtained from recycled material may offer lower performance than conventional concrete, also depending on how it is produced. With our project, however, **we demonstrated, through full-scale tests, that in composite slabs the performance remains unchanged or in some cases it actually increases:** we carried out tests using recycled concrete in various percentages, from 30% to 100%, and the results remained unchanged», explained **Flavio Stochino**, professor at the Department of Civil, Environmental and Architectural Engineering of the University of Cagliari, lead institution of the project. Alongside Stochino, head of SARCOS, other colleagues from the Sardinian university joined the team: professor **Monica Valdes** and researchers **Giovanna Concu and Marco Zucca**.

«Few people realize it, but the sand used in construction doesn't come from the desert, but from river or alluvial quarries; therefore, in this way it would be possible to avoid further excavation, helping to preserve the original natural environments. **Sand is among the most widely used materials in construction, and its extensive use has contributed to what is now referred to as a global “sand crisis”**», commented **Marco Simoncelli**, researcher at the Department of Architecture, Built Environment and Construction Engineering (DABC) and coordinator for the Politecnico di Milano within the project. «**With our solution it would therefore be possible to replace sand in construction**, and to use instead rubble deriving from the demolition of “ecomostri”, that is environmentally damaging buildings», Simoncelli concludes. For the Milanese university, professors **Claudio Bernuzzi and Marco Andrea Pisani**, both from DABC, also took part in the study.

The publication of several articles in specialized journals about the results of the research helped the team gain international recognition. **The latest article was published in December 2025 in “Materials and Structures”**, a magazine on the performance of construction materials belonging to the **Springer Nature portfolio**. Given the positive response, the researchers are working on new funding proposals, such as the one that will be submitted to the European programme RFCS– Research Fund for Coal and Steel in September 2026.

[LINK TO THE PUBLICATION](#)

[LINK TO SARCOS’ OFFICIAL WEBSITE](#)

[LINK TO THE PHOTOGALLERY](#)

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