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PHD AND INNOVATION: THE EDILTECO–UNIVERSITY SYNERGY FOR THE CONSTRUCTION OF THE FUTURE

EDILTECO Group is proud to share an important milestone achieved by our **Eng. Nicolò Lo Presti**, Head of Applied Research, Technical Innovation and Certifications, who has obtained a **PhD in Structural Engineering**.

The doctoral journey, supervised by Prof. Giovanni Castellazzi, concluded with a thesis entitled “Experimental and Numerical Investigations on Traditional and Bio-Based Porous Building Materials: Durability as a Key to Sustainability”, at the end of a three-year programme supported by a **PNRR PhD scholarship**, co-funded by **EDILTECO S.p.A.**, within a collaboration with the **Alma Mater Studiorum – University of Bologna**.

PNRR scholarships represent a key driver for the development of **innovative PhD programmes**, designed to effectively address companies’ innovation needs and strengthen the link between **academic research** and the **industrial world**. In this context, Nicolò carried out his activity between university and industry, working in the laboratories of the Alma Mater, **EDILTECO**, and the prestigious **École Normale Supérieure Paris-Saclay**.

The research focused on understanding **degradation phenomena in building materials** and on developing **advanced tools** to predict their behaviour over the long term. The objective was to identify **strategies and solutions** capable of **extending the service life of materials**, while contributing to the **sustainability of the sector**.

During his PhD, Nicolò developed **finite element models** to analyse **damage caused by salt crystallisation** in traditional porous materials such as **concrete, bricks and mortars**. At the same time, he carried out **experimental activities** on **sustainable bio-based materials** at the **Laboratoire de Mécanique Paris-Saclay**, and used **advanced technologies**, such as **micro computed tomography** at the **DMEX of the University of Pau**, to analyse in detail the **microstructure of materials** and their related **degradation mechanisms**.

Based on these observations, he developed **advanced FEM models** based on **tomographic images of bio-based mortars**, capable of providing **highly reliable predictions** on the **durability** of these materials.

This achievement represents a concrete example of how the **synergy between academia and industry** can generate value, fostering the development of **highly specialised skills** and contributing to **technological innovation** in the **construction sector**.

Congratulations Nicolò on this important achievement!