Fondo Sociale Europeo Plus 2021/2027

FSE+

Sportello 2025 P.S. 20/24

Sostegno alla realizzazione di dottorati di ricerca

With Decree No. 9526/GRFVG of February 28, 2025, the Friuli Venezia Giulia Region published the Notice regarding the submission of operations for Specific Program No. 20/24, which aims to support higher education through the realization of PhD programs.

Specific Programme 20/24, through the funding of doctoral scholarships, contributes to the achievement of the objectives of the Sustainable Smart Specialisation Strategy (S4). It supports the development or strengthening of integration with the regional production system and/or research organisations, through coordination and collaboration mechanisms with regional enterprises or research bodies, or by leveraging the potential for technology transfer of processes, products, applications, or, more broadly, research outcomes.

- Sportello **2025**
- **Ciclo 41**
- CUP **J93C25000640008**
- Progetto **2025/6525/18**

Dottorato in **Civil-environmental Engineering and Architecture**

“Study and Development of Strategies and Non-Destructive Investigation Methods for the Diagnostic Analysis of Glass Structures"

Glass is a highly sustainable and recyclable material in the construction sector, playing a significant role in the circular economy.

Gradually, начиная from the 2000s, it was introduced into the building industry as an innovative construction material, with a structural significance comparable to that of traditional materials (wood, steel, masonry). Consequently, over the last decade, regulatory criteria have been developed for the structural design of “new” glass elements and systems.

Safety structural glass, in its basic laminated glass configuration, was developed as a product capable of taking advantage of the high stiffness and transparency of multiple glass panes, bonded together by polymeric materials (interlayers). However, these materials are affected by numerous external factors, including temperature, humidity, the type and frequency of loads to which they are subjected in buildings (e.g. floors, façades, and roofs), and the effects of time (durability).

In particular, unfavorable environmental and operating conditions are typically associated with degradation phenomena (such as interlayer embrittlement or delamination) that can severely compromise mechanical and structural performance, with significant consequences in terms of structural safety, functionality of the engineering/architectural work, and the resulting risk to users.

Although reliable analysis and calculation tools are available for the design of new structures, methodologies and strategies for the structural health monitoring and diagnostics of existing structures are still lacking.

The aim of this PhD project is to develop non-destructive strategies capable of assessing the residual load-bearing capacity and the level of damage and/or degradation of glass structural components.