

## Dissipate&Recentre – Energy Dissipating and Recentring Seismic-Resistant Fibre Polymer Composite Frames

### Summary

GFRP composites are being increasingly regarded as a promising alternative material to face the demand for more durable structures with lower maintenance needs. However, their brittle failure modes, which contrast with current design philosophies, have raised well-founded concerns about their use in seismic areas. This proposal aims at investigating the sway behaviour of 3D GFRP frames comprising innovative beam- and bracing-to-column connections, able to provide ductility and energy dissipation capacity, through the judicious use of stainless steel parts. The main objective is to develop GFRP frame structures with improved seismic behaviour, able (i) to dissipate energy through those connections, and (ii) to recentre after seismic events, owing to the elasticity and high deformability of GFRP materials. The results will be used to develop seismic design guidelines, to be presented to CEN/TC250 and incorporated in the future Eurocode for fibre-polymer composite structures (prEN 19101).



Figure 1. Bracing connection test.

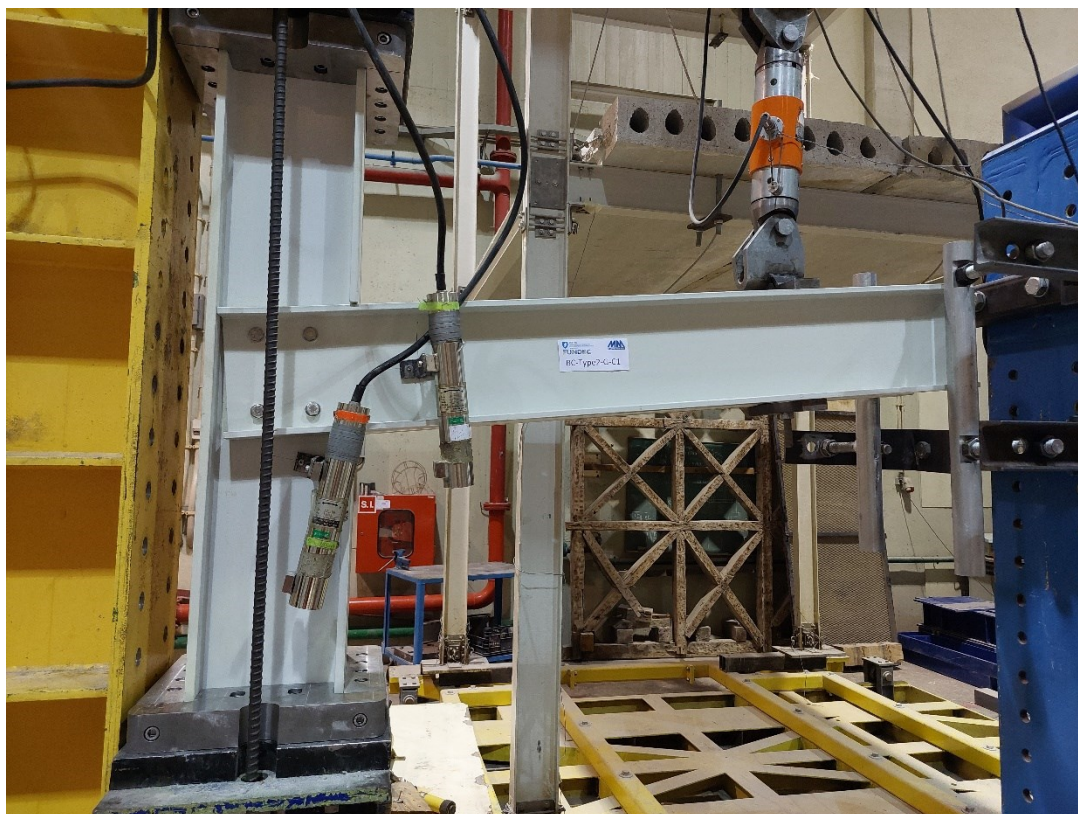
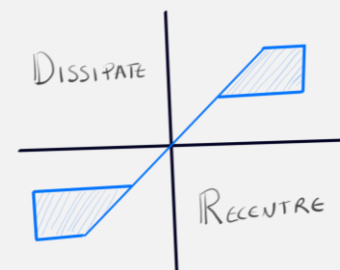


Figure 2. Beam-to-column connection test.



### Project Reference

36506-2/2021-1-RD-ELSA-  
ReactionWall

### Leading Institution

IST – Instituto Superior Técnico  
(Portugal)

### Partners

MM Grigliati, srl (Italy)

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JRC – European Commission Joint  
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2023-2024

### Total

370 100.00€

### CERIS

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(no direct funding)

### Project Website

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