



RESEARCH
FUND FOR COAL AND STEEL

DISSIPABLE

BRINGING SUSTAINABILITY TO THE EARTHQUAKE
RESISTANT STEEL STRUCTURES

FINAL WORKSHOP

DISSIPATIVE AND EASILY REPAIRABLE COMPONENTS
FOR RESILIENT BUILDINGS WITH COMPOSITE STEEL-CONCRETE STRUCTURES

This project has received funding from the Research Fund for Coal and Steel
under grant agreement No 800699 - DISSIPABLE - RFCS 2018-2022

23 February
2022



SCHEDULE

TIME (CET)

- 10:00** Welcome and introduction
Alper Kanyilmaz, Politecnico di Milano, Italy
RFCS state and future
Emanuela Flora, Project Adviser at European Research Executive Agency (Future low emission industries)
- 10:30 – 11:15** Dissipative and repairable components for steel buildings with increased sustainability
Carlo A. Castiglioni, Politecnico di Milano, Italy
Luis Calado, Jorge Proenca, Instituto Superior Tecnico, Portugal
Michalis Sofras, Sofman, Greece
C O F F E E B R E A K
- 11:30 – 12:30** Shaking table tests and results
Harris Mouzakis, Lydia Panoutsopoulou, Ioannis Psycharis, NTUA Greece
Hybrid test & simulation results
Nicola Tondini, Giulia Giuliani, University of Trento, Italy
Roberto Andreotti, Alessio Bonelli, University of Trento, Italy
- 12:30 – 13:00** Design guidelines and worked examples for steel buildings with dissipative and repairable components
Alekssei Kondratenko, Alper Kanyilmaz, Politecnico di Milano, Italy
Giuliana Zilli, RINA Consulting, Italy
Silvia Caprili, Francesca Mattei, Università di Pisa, Italy
Pavlos Thanopoulos, Konstantinos Papavasileiou, NTUA, Greece
Benno Hoffmeister, Marius Pinkawa, Cristian Vulcu, RWTH Aachen, Germany
L U N C H B R E A K
- 14:00 – 14:30** Life cycle assessment and cost analysis at the product and building levels
Elena Rocco, Loredana Napolano, RINA Consulting, Italy
- 14:30 – 15:00** Instructions for use and post-earthquake repair
Michalis Sofras, SOFMAN, Greece
C O F F E E B R E A K
- 15:15 – 16:30** Roundtable discussion together with:
European Convention for Constructional Steelwork (ECCS), Brussels
Promozione Acciaio, Italy
FUNDEC, Portugal



UNITRENTO



The construction industry is the primary reason for resource consumption and CO₂ emissions worldwide. Post-earthquake resiliency is a key to reducing such impact. However, repairing a damaged building is still too expensive and, in most cases, unpractical after a strong earthquake. There is a large body of research related to dissipative systems (and repairable in a few cases), claiming good structural characteristics. However, there has not been yet major evidence in putting the research findings into practice, increasing the reliability of the technical and economic data needed for industrial and commercial use. EU-RFCS DISSIPABLE (2018-2022) is a pilot/demonstration project that aimed to improve the steel building industry's long-term sustainability and resource efficiency by increasing the post-earthquake resiliency of steel-concrete composite structures. The project focused on dissipative and repairable components made of steel elements (pins, plates, short beams) that any steel manufacturer can easily reach.

In this workshop, the following results will be presented and discussed with the participants:

- Full-scale hybrid tests based on numerical/physical simulation.
- Shaking table tests of 3D building specimens under natural seismic excitations.
- Benefits of high strength steel and stainless steel for seismic resistant steel structures
- Embodied CO₂ and cost comparisons between the tested and conventional buildings based on the life cycle inventory collected during the 4-year project.
- Design guidelines and instructions for use showing a systematic assembly, removal, repair and reassembly procedures of the dissipative elements.

WORKSHOP SECRETARIATAT

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ORGANISING COMMITTEE

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REGISTRATION

<https://forms.office.com/r/4vAarX4s79>

WEBEX LINK WILL BE SENT AFTER REGISTRATION

