

## Testing the glued connection between recycled rubber strips and bricks/concrete for masonry walls

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**Beneficiary Institution:** Faculty of Civil Engineering, University of Belgrade, Serbia

**Hosting Institution:** Center for Wind and Earthquake Engineering, RWTH University, Germany

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**Relevant Working Groups:** WG4

### Objectives / Description / Main outcomes

In order to improve the performance of infilled RC frames under earthquakes, the decoupling of the infill from the frame looks as a promising approach. For this purpose a system based on recycled rubber connection was developed. Rubber strips are applied at infill/frame connection. Rubber strips are glued to the bricks using thin-layer mortar (Fig. 4), thus making this bonded connection a key element in providing in-plane decoupling and at the same time a restrain for out-of-plane loads. Main objective of the work during this STSM was to investigate the capacity of glued connection between rubber and concrete/masonry. In order to test the glued bond and its load bearing capacity, an experimental campaign on small specimen tests was conducted. Rubber strips were glued on both sides of the bricks and subjected to the shear load using a loading plate (Fig. 1 and Fig. 2). In none of the tests a failure of the mortar glued joint appeared, as the failure always occurred in the clay bricks before. It is important to note that all the forces reached (Fig. 3) are higher than maximum expected for the highest peak ground acceleration that can appear in all over the world. Performed experiments on small specimen tests on the glued connections clearly show the potential of the newly developed frame/infill connection to ensure a load transfer under combined in-plane and out-of-plane loading. The results of the tests planned to be carried out will serve as a basis for the design of this composite connection in such a way that these forces can be safely transferred to the circumferential RC frame. This present a step forward from the previous work done using epoxy glues.

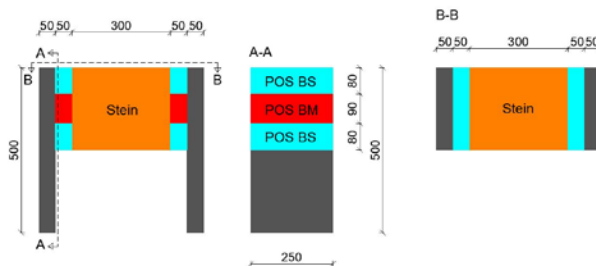


Figure 1: Test setup



Figure 2: Test specimen

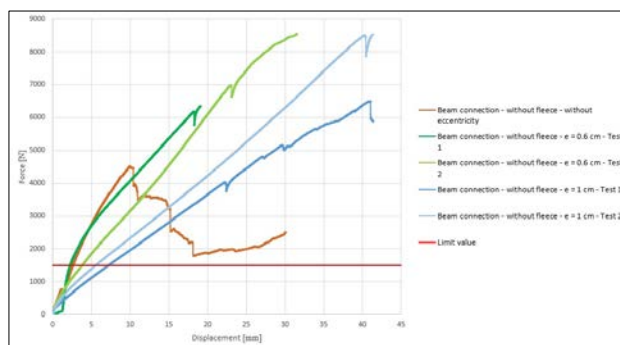


Figure 3: Force-displacement results



Figure 4: Adding mortar on the