

## Investigation of the bonded connection for decoupled masonry infill walls in RC frames

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

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**Relevant Working Groups:** WG4

### Objectives / Description / Main outcomes

Poor performance of reinforced concrete (RC) frames with masonry infill walls has been observed after many earthquakes. Brittle behaviour of the masonry infills in combination with the ductile behaviour of the RC frames lead to an often damage of infills, sometimes followed with their out-of-plane collapse. In order to avoid these negative aspects decoupling of the infill wall from the frame can be done. This can be done by applying elastomeric strips at infill/frame connection. Elastomers are glued to the bricks, 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 elastomers and RC frame as well as between elastomers and masonry infill wall. In order to test the glued bond and its load bearing capacity, an experimental campaign on small specimen tests was conducted. The elastomers in a shape of a U profiles 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 glued joint or the U-Profile appeared, as the failure always occurred in the clay bricks before (Fig. 4). 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.

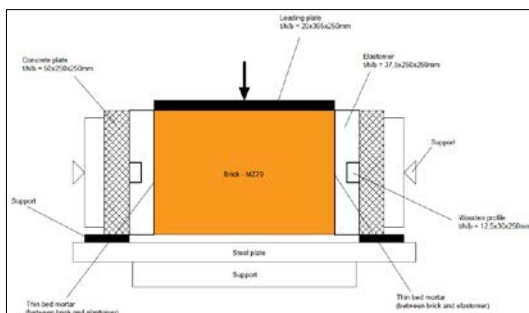


Figure 1: Test setup



Figure 2: Test specimen

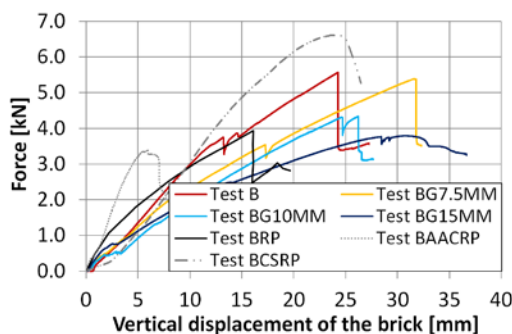


Figure 3: Force-displacement results



Figure 4: Specimen at the end of the test