BE S²ECURE
Built Environment Safer in Slow and Emergency Conditions through behavioUral assessed/designed Resilient solutions
Grant number: 2017LR75XK

WP5–Strategies for improving/designing resilience of BET

T5.2 Evaluation of BETs resilience-improving solutions through simulation and in terms of safety/functionality/application impacts and feasibility

D5.2.1 – Report on the comparison of BETs resilience before and after applying selected strategies

ABSTRACT. Built Environment Typologies (D3.2.1) are a useful abstraction of real case studies that can support resilience assessment and design phases in rapidly identifying the potential general criticalities of the built environment and its users to single and multi-risks. Typologies of resilience-improvement strategies can be recognized for each of them, depending on their main composing features, but a validation of their effectiveness on the BE(T) and its users is needed through holistic and simulation-based methods including the human behaviors in case of emergencies. This deliverable compares the resilience levels of BETs before and after the application of the different strategies and their combinations as defined in D5.1.1. The comparison is performed by applying the agent-based simulation model developed in D4.1.1, and then comparing KPIs and metrics on BETs resilience. In particular, simulations results concerning BET scenarios before the selected strategies application are based on D4.2.1 activities and reorganized according to D4.2.2 and D4.2.3 KPIs and then D4.2.4 B-based metrics. Simulation of retrofitted BET similarly organize the outputs according to the same rationale. Results demonstrates differences in KPI-to-KPI values increasing resilience, and in the overall comparison by the metrics, which also depends on the selected strategies and implementation levels. From this point of view, the comparison results can be also used to trace trends in resilience improvement depending on the BET and on the implementation level, and constitute a first basis for the selection of best strategies as in D5.2.2. At the same time, the BET-based assessment can supply local administrations and safety designers with preliminary and quick-to-apply tools for evaluating the effectiveness of strategies in their context, providing bases for D6.2.5. Then, they could move towards the application of the methods in view of their BE specificities, as better pointed out by D6.2.3 activities.