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The KnowRISK project: Tools and strategies to reduce non-structural damage

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The project KnowRISK (Know your city, Reduce seISmic risK through non-structural elements) is financed by the European Commission to develop prevention measures that may reduce non-structural damage in urban areas. Pilot areas of the project are within the three European participating countries, namely Portugal, Iceland and Italy. Non-structural components of a building include all those components that are not part of the structural system, more specifically the architectural, mechanical, electrical, and plumbing systems, as well as furniture, fixtures, equipment, and contents. Windows, partitions, granite veneer, piping, ceilings, air conditioning ducts and equipment, elevators, computer and hospital equipment, file cabinets, and retail merchandise are all examples of non-structural components that are vulnerable to earthquake damage. We will use the experience gained during past earthquakes, which struck in particular Iceland, Italy and Portugal (Azores). Securing the non-structural elements improves the safety during an earthquake and saves lives. This paper aims at identifying non-structural seismic protection measures in the pilot areas and to develop a portfolio of good practices for the most common and serious non-structural vulnerabilities. This systematic identification and the portfolio will be achieved through a "cross-knowledge" strategy based on previous researches, evidence of non-structural damage in past earthquakes. Shake table tests of a group of non-structural elements will be performed. These tests will be filmed and, jointly with portfolio, will serve as didactic supporting tools to be used in workshops with building construction stakeholders and in risk communication activities. A Practical Guide for non-structural risk reduction will be specifically prepared for citizens on the basis of the outputs of the project, taking into account the local culture and needs of each participating country.