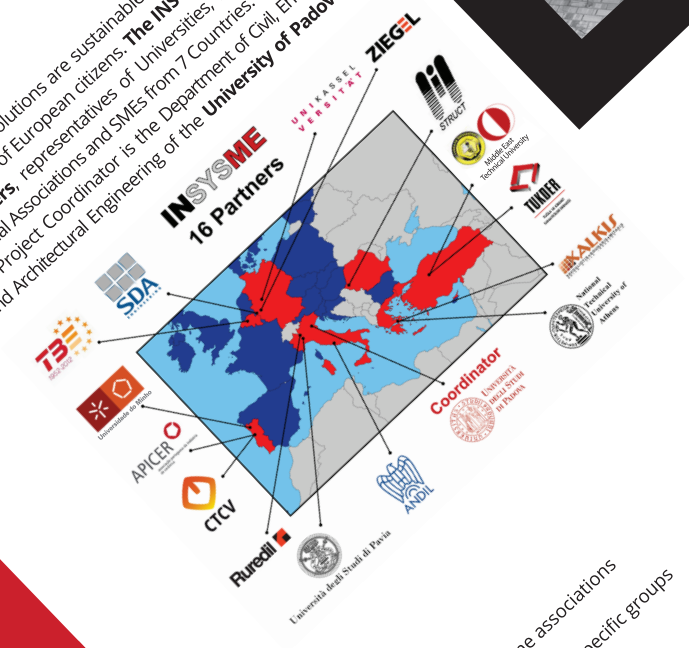
The proposed solutions are sustainable and improve safety and quality of life of European citizens. **The INSYSME project** clusters **16 Partners**, representatives of Universities, Research Centres, Industrial Associations and SMEs from 7 Countries.
The Project Coordinator is the Department of Civil, Environmental and Architectural Engineering of the **University of Padova, Italy**.



AT A GLANCE
GA 606229
Call: sme-2013-2 - research for sme associations
Funding scheme instrument: capacities - research for the benefit of specific groups
Starting date: 01/10/2013
Duration: 36 months
Total cost: 2.697.131 €
Ec funding: 1.827.000 €
Coordinator: University of Padova (IT)
Contact: francesca.daporto@unipd.it

www.insysme.eu

Graphic project • www.amisfero-destro.it •

Coordinated By **University Of Padova**

This project has received funding from the European Union's Seventh Framework Programme for Technological Development and Demonstration under Grant Agreement Nr. 606229

INSYSME

Innovative Systems for Earthquake Resistant Masonry Enclosures in R.C. Buildings

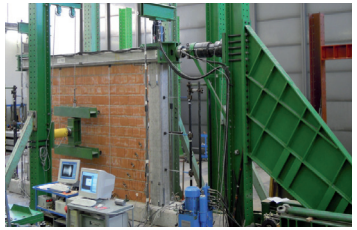
www.insysme.eu

PROJECT FRAMEWORK

INSYSME is a Research Project for the benefit of **SME Associations** with a budget near to 2,7 million Euros, co-funded for about 1,8 million Euros by the European Commission under the 7th Framework Programme "Capacities". The project started on October 2013 and, with a three-year duration, aims at developing innovative systems for earthquake resistant masonry enclosures in RC buildings. The research will offer **novel solutions** to scientific and technological problems that have a broad-spectrum impact, creating new opportunities **for the masonry industry** and the construction sector.

THE CHALLENGE

The project aims at reconsidering the structural role of **masonry enclosure walls**, developing **innovative construction systems** and deriving sound and **efficient methods** for their **design** in the everyday engineering practice. Indeed, masonry enclosure systems already have excellent performance with respect to healthy indoor environment, thermal and acoustic insulation, moisture control, fire resistance and durability. The improvement of their structural performance will **increase** also **safety** and quality of life and **reduce**, at the same time, **economic loss** related to improper behaviour during service life and extreme events.



MOTIVATION AND OBJECTIVES

The use of masonry enclosures is widespread, especially in reinforced concrete frames. However, when enclosure walls subjected to seismic actions are not properly designed, they may affect strongly the global behaviour of the structure, increasing repair costs and casualties. Most of codes have indeed recognized that masonry enclosures, as other **non-structural elements**, need sound design procedures for earthquake actions.

The INSYSME project *will tackle the above listed shortcomings, through the achievement of the following objectives:*

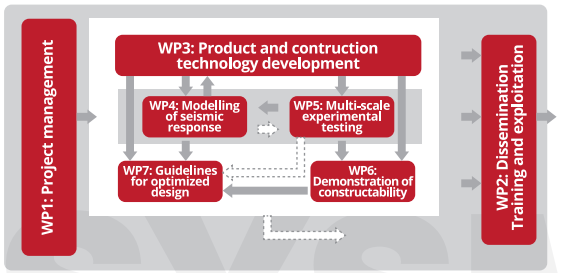
- Development of **innovative materials, technologies and building process** for masonry enclosure systems, diversified according to seismic risk level, regional construction traditions and environmental conditions;
- Definition of **structural performances and design methods**, from experimental tests and numerical simulations that take into account the mutual influence of the behaviour of RC frame and masonry enclosures;
- Implementation of design **procedures and construction process** of masonry enclosure systems into software, guidelines and codes.

PROJECT STRUCTURE

To reach its objectives, the project is structured into two main steps:

- Creation of new construction systems for enclosure walls and their technical and economic assessment by means of experimental and numerical studies;
- Development of design methods for the envisaged solutions, and complete validation by construction of prototype walls in real buildings. Procedures for quality assessment through on-site testing, software for design and guidelines for end-users, will ensure full usability of the developed knowledge and technologies.

The technical program has been organized according to this research approach in **7 interactive Work Packages** (WP), where the RTD core foresees the definition of a set of technological constructive combinations (WP3), that will be tested on multi-scale levels (WP5) and on which various modelling strategies and types of analysis will be applied (WP4). Technical and economic feasibility of the innovative systems will be demonstrated (WP6) and tools for design and guidelines will be provided (WP7).



INSYSME