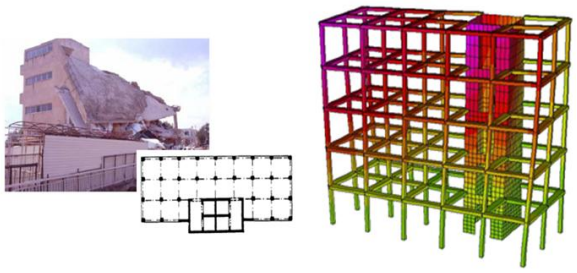
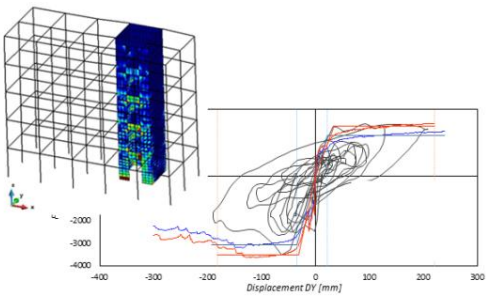
Valutazione sismica di edifici irregolari a bassa duttilità

La valutazione sismica degli edifici irregolari e nello specifico degli edifici detti "a nucleo" risulta di particolare interesse socio-economico in quanto si tratta di una tipologia edilizia tipica italiana degli anni '60-'80 nella maggior parte dei casi progettata per i soli carichi gravitazionali senza adeguati criteri antisismici.



La scarsa conoscenza del comportamento in campo plastico porta le normative a penalizzare questi edifici con fattori di struttura bassi, non fornendo inoltre chiare linee guida per i progettisti.



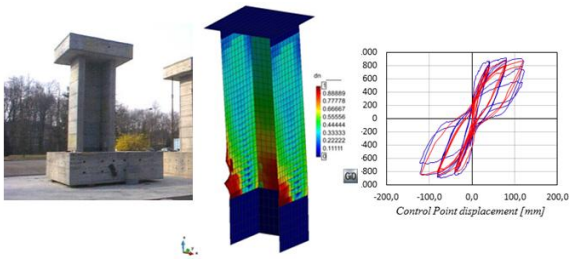
Lo studio numerico, condotto su un campione di edifici rappresentativi del costruito esistente, ha portato ad importanti conclusioni sul comportamento dinamico in campo non lineare e sulle reali capacità dissipative.

Seismic evaluation of irregular buildings with low ductility capacity

Seismic evaluation of torsionally deformable buildings (i.e U-core buildings) results of particular Socio-Economic interest. Examples of U-core buildings are, in fact, the typical multi-storey apartment blocks built in Italy between 1960s and 1980s with a rigid central staircase, i.e. the R/C U-core, in most cases designed only to withstand static actions, in accordance with the design code of those year.

The lack of knowledge of the non-linear behaviour is translated by standard seismic codes in quite low values of the behaviour factor 'q'.

A numerical study, conducted on a sample of existing buildings, has led to important conclusions about the dynamic non-linear behaviour and the real dissipative capacity.



The validation of the adopted non-linear numerical model (developed by researchers of DICEA) has first been conducted through the reproduction of three experimental tests on complex RC walls found in literature.

Ricercatori - *Researchers:* PhD.-Eng. Roberto Scotta – Ph.D. Eng. Paolo Giorgi

Periodo di svolgimento - *Research period:* 2011-2013

Pubblicazioni rilevanti – *Most relevant papers:*

P. Giorgi, R. Scotta, (2013). Validation and improvement of N1 method for pushover analysis, Soil Dynamics and Earthquake Engineering, 55: 140-147;
R. Scotta, P. Giorgi, L. Tesser e D. A. Talledo (2014). Nonlinear analysis of r/c shear walls subjected to cyclic loadings, 11th World Congress on Computational Mechanics (WCCM XI), 20-25 July, Barcelona, Spain