
The historical centers and the seismic risk prevention. The analysis of Colla Micheri in the Western Liguria

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The thesis is a part of a research line that involves the conservation of historic centers in a view of seismic risk prevention. Following the recent earthquakes, observed in our country, it's necessary pay attention to preserve the old towns that are seen not like the central core of the settlements, but like cities that, in their entirety, represent the identity and cultural heritage of the population.

The survey starts from the "*Studio propedeutico all'elaborazione di strumenti d'indirizzo per l'applicazione della normativa sismica agli insediamenti storici*" n. 7547 (20.04.2012) and from the "*Linee Guida per la valutazione e riduzione del rischio sismico del patrimonio culturale. Allineamento alle nuove Norme Tecniche per le costruzioni*" (02.12.2010), it has the aim to find a new experimental methodology for the definition of a cognitive framework able to assess the seismic vulnerability of an urban aggregate.

The branch of research, starting from a general view of the urban aggregate, analyses every single building solving the gap between the need to conserve the original urban compose and the need to achieve appropriate security level, with the aim to spread the idea of restoration as a preventive action and not like a following one.

It is chosen like research case the village of Colla Micheri in the Western Liguria, located in the seismic zone 3s, which becomes a survey sector appropriate for its geographic position, for its urban and architectural peculiarities: in fact there are still many artifacts in traditional masonry.

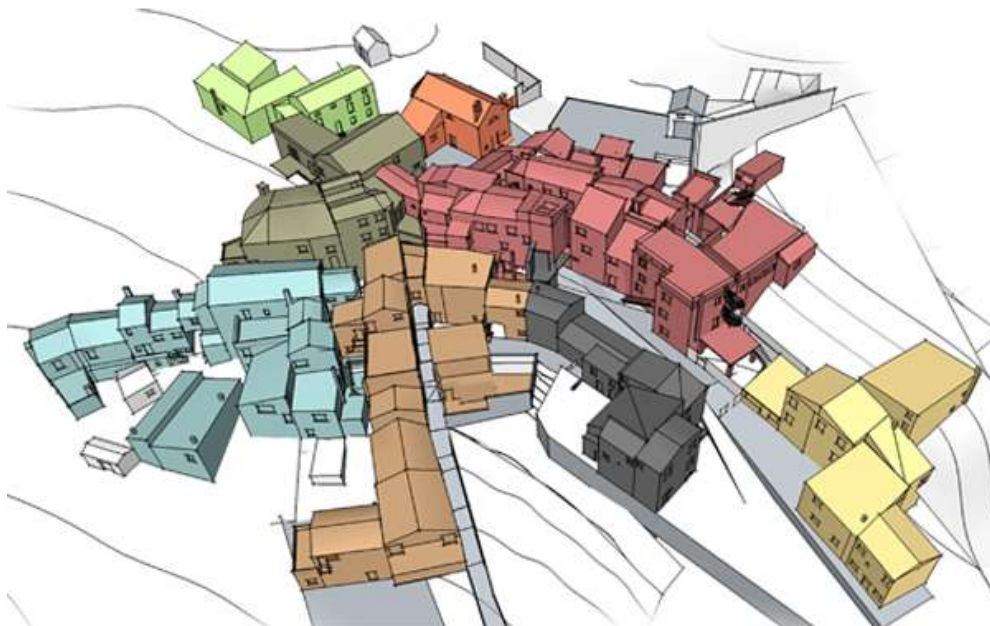


Image.1 Colla Micheri consistency with underlined the aggregate analysis

The first part of the thesis consists in the research phase that includes the step of knowledge through a territorial and a historical analysis and a local seismic memoir collection.

The second part considers the definition of a knowledge framework through the production, at different scales, of a cartography for the qualitative seismic evaluation and for the identification of functional systems in the village.

Moreover it is made an architectural analysis to find the morphological, the construction and the structural elements of the buildings and the intrinsic critical situations.

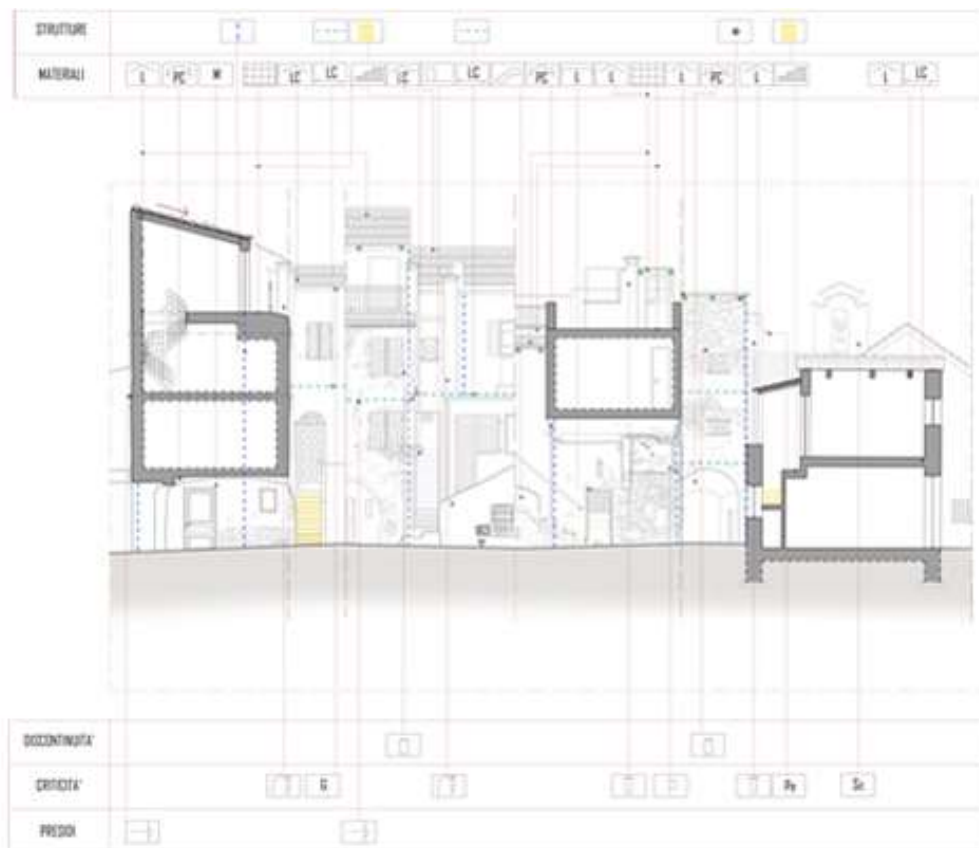


Image.2 Urban section with the qualitative analysis

The considerations emerged from the qualitative analysis were integrated with a quantitative and a structural investigation. For this last phase it is used the model LV1 deduced from the “*Linee Guida per la valutazione e riduzione del rischio sismico del patrimonio culturale.*” that defines a ranking of risk of the aggregates analyzed.

The application of the model LV1 underlines how the traditional architecture, due to its constructive peculiarities derived from the “rules of art”, is seismic -resistant and it doesn’t need massive and extended interventions to make safe the cities: some focused actions would be enough for the recoverability of the city centers, in the compliance with the dictates of conservation.

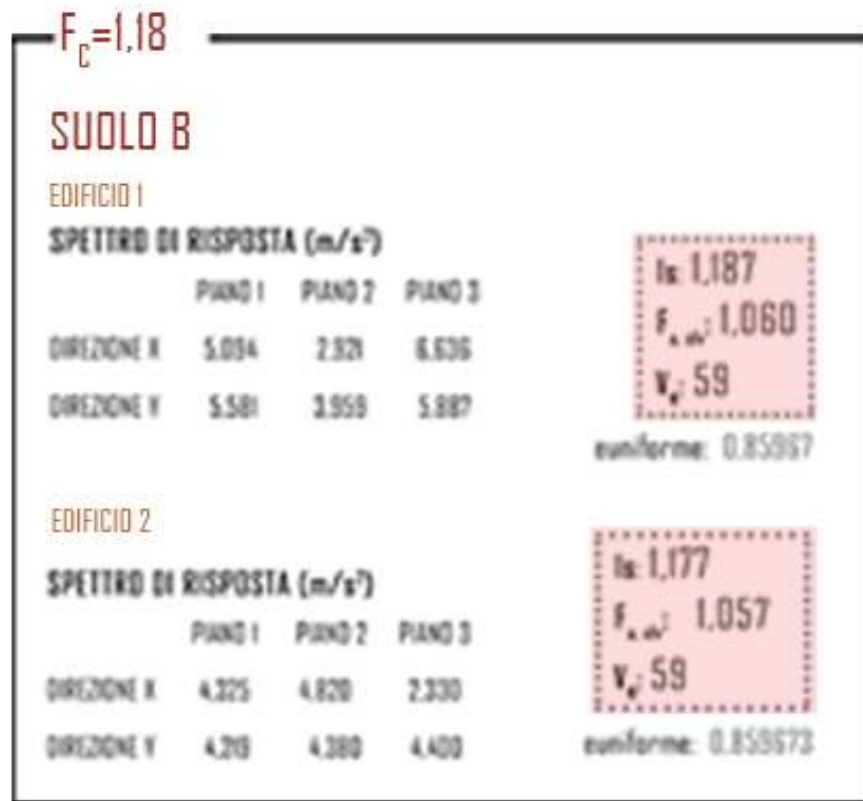


Image. 3 Security index of each building by the application of LV1 model

The security and the conservation are not two antithetical concepts, but two sides of the same aspect, these two disciplines contribute to the prevention and the protection of architectural heritage: there can't be conservation without security, as well security without conservation.

The research study shows that this experimental methodology can and should be extended and applied to all historical city centers in a operative procedure and with the aim to involve the local population and the public authorities in a land management through a preventive planning of the area.

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