

POLITECNICO DI TORINO
SECOND SCHOOL OF ARCHITECTURE
Master of Science in Architecture Heritage Preservation and Enhancement
Honors theses

The assesemet of the urban seismic hazard in the historical town areas: case study of Garzigliana

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The purpose of our thesis was the identification of an experimental methodology for the definition of a cognitive framework able to assess the seismic vulnerability, on an urban scale, of historical settlements present in the areas defined as "seismic risk." The Piedmont is not a highly seismic region: the area closest to Turin, with a classification of seismic risk 3S average, is the area of Pinerolo, where the historic settlement that would meet as many requirements identified from the initial stage of knowledge was Garzigliana.

The route took as its starting point the reading and understanding of the regulations and the University Preparatory within the seismic: the "Studio" of CSLP n. 7547 of 20.4.2012 and the UNI 7310 applied to the urban fabric of seismic risk.

Through the first phase of urban survey of the historical and reprocessing of data collected during several inspections, the information collected have been also integrated with the search in the historical building and the municipality. It has also been developed a parallel investigation into the history of earthquakes that have hit the area over Pinerolo with the aim to identify the frequency of these events and how the country has reacted.

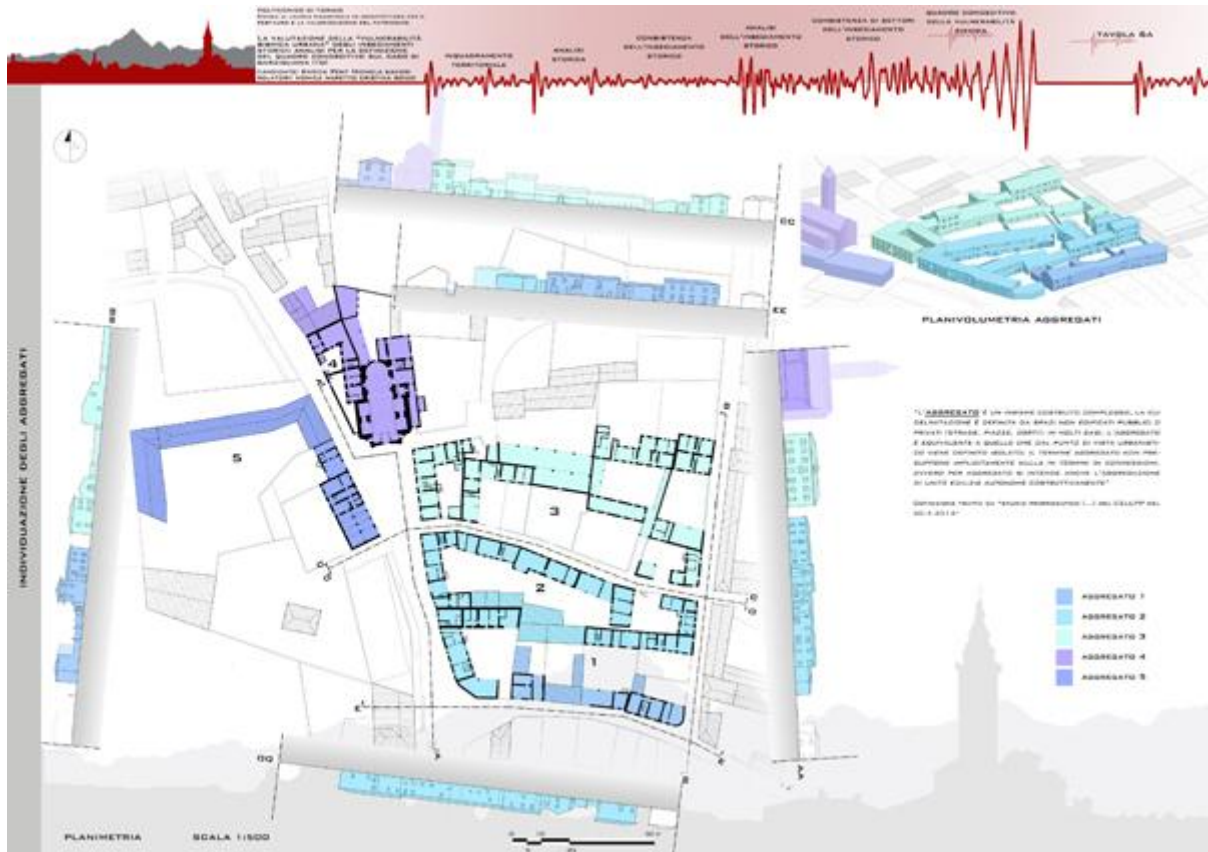
Before coming to the definition of the cognitive framework of Garzigliana we have developed a series of historical analysis on the setting, such as the process of diachronic transformation of the historic fabric of the building from the eighteenth to the twenty-first, the analysis of the properties and the intended use and current finally, the strategic elements of the urban fabric and infrastructure.

It is important in this analysis to have a clear transition from a survey on an architectural scale, which implies greater sensitivity to the details, to a survey on a scale of urban type, which has the function to detect and identify not only the criticality of the single artifact but also the context in which such building is located.



Analysis of the properties and the intended use current

Finally, from the analysis of the historical settlement and its fabric we have passed to the identification of urban aggregates on which the study for the evaluation of seismic risk is concerned: *for aggregate is intended a set built complex, whose boundary is defined by not built on public and private spaces (streets, squares, courts, etc..), in many cases, the aggregate is equivalent to that from the urban point of view is called isolated, the term aggregate does not implicitly assumes nothing in terms of connections, or to aggregate also means the aggregation of building units autonomous constructively.*



Identification of aggregates

Later, within an aggregate sample were identified structural units, *designed as portions of the three-dimensional fabric formed from the aggregation of cells linked together in elevation and in plan from a common and identifiable process settled and constructive*, critical elements were analyzed and drawn our conclusions of principle on the elements and portions vulnerable in case of an earthquake in the historic fabric.



Identification of the structural units

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