

POLITECNICO DI TORINO
SECOND SCHOOL OF ARCHITECTURE
Master of Science in Architecture
Honors theses

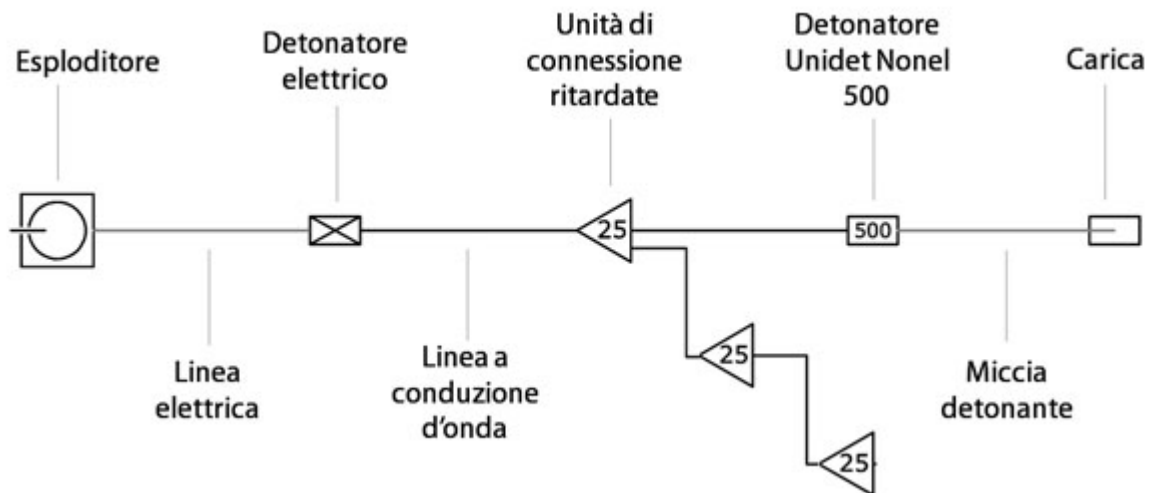
Demolition methods: applications and evaluations

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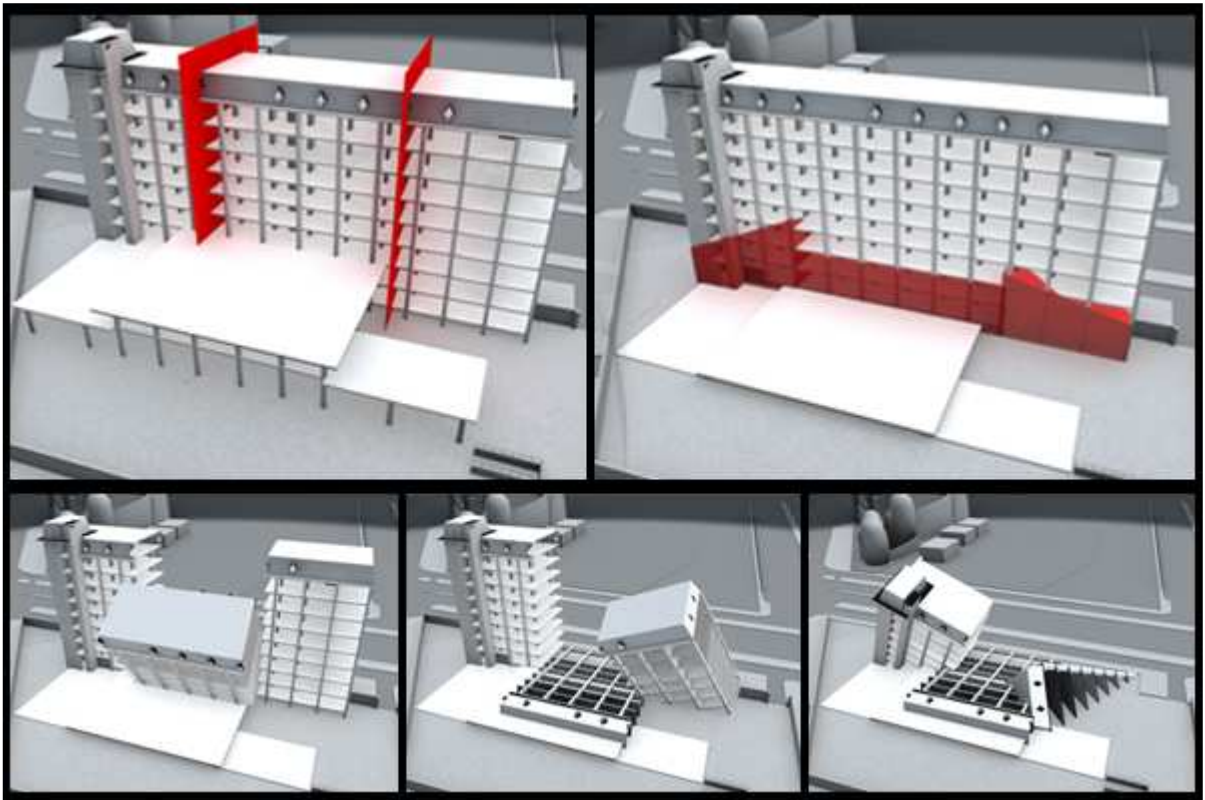
This paper was written with the intention to analyze and deepen the process of being sold the building through the study of major demolition techniques and procedures for disposal of debris. The paper consists of two parts: the first, theoretical, in which the main techniques were analyzed and the main instruments for reducing buildings either mechanical or through the use of explosives. Among the instruments of mechanical demolition were analyzed in order: mechanical expansive agents, chemical agents expansive Smash shooting, demolition by cutting tools, hammers, shears and grapples, demolition aerial systems (FDS), a pull-and demolition pushing, milling machines, metal ball, hydro-demolition. Concerning the use of explosives, the study explain the working principles, system components (types of explosives, fuses, detonators, exploders) and the types of demolition (fall off, fall in place, demolition of structures with unique characteristics) and the issues involved in the demolition of this type (distribution debris ejected fragments, generation of excessive pressure, noise, dust and vibration).



Schematic diagram of wire connection of explosives

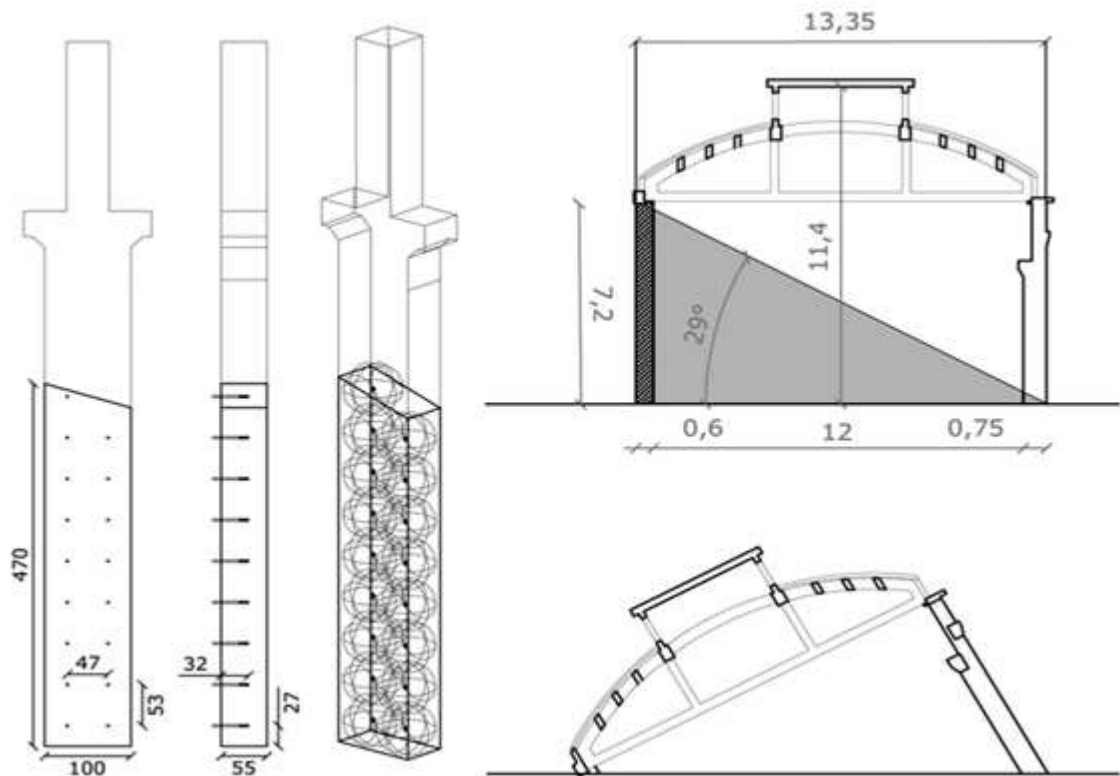
The crowning of the first part was written a study on the disposal of construction waste and demolition. Depending on the type of waste has been analyzed the legislation in force, the composition of the waste and how to reuse / recycling or disposal.

In the second part of the elaborate we selected two examples which have been applied theoretical knowledge acquired earlier: the first is building "ex-FS" of course in Turin (Corso Peschiera n. 83) and the second area of the former foundry located in disused industrial area between Via Bologna and Corso Novara, Via Padova, Via Como, in Turin.



Scheme of demolition of the ex-Fs building using explosives

After analysis of the status quo, we did a structural analysis and critical intervention for each of these two types of demolition by mechanical means and with the use of explosives. You have defined the modes of operation (machining, times, costs of operations, the remediation of asbestos, the methods and costs of disposing of the debris).



Scheme of positioning of charges in a pillar of an industrial building (ex-foundry Nebiolo)

Given the lower cost of the demolition with explosives we thought to reinvest the savings achievable with this instrument in a more selective demolition of the building components according to their constituent material in order to obtain the environmental benefits and reduce the cost of landfill.

In conclusion, it performs a comparison between the costs of mechanical demolition costs of non-selective and selective demolition using explosives to the abbot of the structure showing in this case the cost to implement the latter. Based on the data collected was also carried out a study to determine what the cost of landfill that would make a better economic system rather than the other.

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