PRECASTEEL (PREfabriCAted STeel structurEs for low_risE buiLdings in seismic areas)

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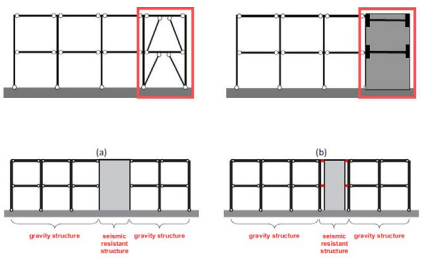
Period:	2007 - 2010
Coordinator:	ILVA S.p.A.
Position of Ferriere Nord:	Partner
Other partners:	Ilva S.p.A. (Italy); University of Camerino (Italy); Rheinisch-Westfälische Technische Hochschule Aachen (Germany); University of Thessaly (Greece); Shelter SA (Greece); University of Pisa (Italy); University of Navarra (Spain); Instituto de Soldadura e Qualidade (Portugal); Technical Research Centre of Finland VTT (Finland)

The objective of this European research was to define standardised solutions using steel and steel-concrete composites for one floor industrial buildings and commercial buildings in earthquake-prone areas. Some innovative solutions were also proposed, including the replacement of steel bracing by reinforced concrete cross walls made of double lattice girder plates, which were both dissipative and isolated by means of suitably positioned dissipators.

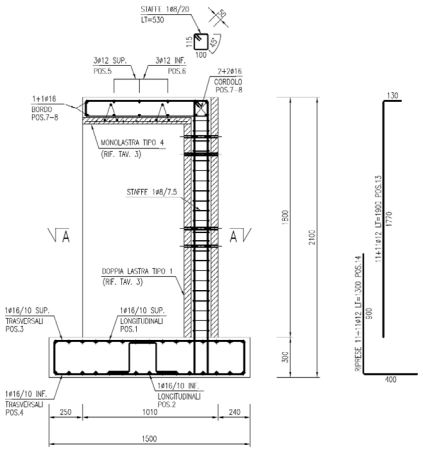
Finally, an engineering software application was designed, including a calculation tool that can perform a cost benefit analysis of various modular solutions made of steel or steel-concrete composites. These solutions include those made of reinforced concrete prefabricated elements (lattice girder plates and double lattice girder plates). This software can have a significant impact on engineers both when dealing with pre-sizing and when calculating innovative solutions.

Ferriere Nord focused on the use of reinforced concrete prefabricated elements (use of electro-welded reinforcements such as meshes and lattice girders) in metal frameworks.

Building on the results obtained from a previous European research project, PRECIOUS, which dealt with the use of lattice girder plates in decks as a replacement for zigzag sheets with casting in situ, PRECASTEEL investigated the use of double plate walls as reinforced concrete walls to absorb seismic action in reinforced concrete buildings.



Module with metal braces and RC walls



Box element with lattice panels and double-wall lattice

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