



Impact of seismic retrofit on interwar RC housing

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1933 the Charter of Athens was proclaimed, which put the basis for the functional zones cities, a principle applied largely for rebuilding of urban areas after the Second World War. However, although the Charter of Athens never found a home in Athens, in Bucharest, just one year after its proclamation, a Master Plan was elaborated following its principles. The elaboration of the 1934 Master Plan for Bucharest had direct consequences for the design of buildings in the interwar time. First, it stipulated high ground occupancies which lead to the planimetric irregularity of buildings raised on the irregular parcels which resulted from the tracing of the N-S Boulevard in Bucharest in haussmannian tradition. Second, it raised the permitted height, since in the zone 'circulation' the importance of streets was to be defined by their fronts, and not so much by their width. A typical shape with set-back upper lever floors appeared to solve neighbourhood and shadow regulations in this context Third, it stipulated mixed use in the central zone, and encouraged this by additional ground occupancy permits. A building was designed respecting the template provided by the 1934 Bucharest Master Plan. It presents recesses on the two last floors, mixed use giving her a higher importance category than residential. But it was chosen from the category which densified the zone around the main boulevard, so it has 6 floors, like the typical Greek interwar buildings, and, also like these, a regular span between columns. Suitable retrofit systems and strategies for this model building were investigated. The strategies concerned phased retrofit, splitting in employment with a time-lag of retrofit elements close and respectively far from the centre of the building. The systems investigated were based on the principle of 'retrofit elements', an interaction basis for the interest groups involved in retrofit interventions on existing buildings, and encompassed FRP wrapping of existing elements, replacement with new elements of higher concrete strength provided with FRP wrapping and finally jacketing with higher strength concrete with FRP wrapping. The study revealed the usefulness of the method to determine the best retrofit systems and strategies.