

NECESSITY OF THE APPROACH TO THE SIMPLIFIED SEISMIC REHABILITATION OF ORDINARY BUILDINGS

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The promotion of seismic improvement of existing buildings with emphasis on making it easy for the citizens to improve their buildings against earthquake is of utmost significance in the implementation of earthquake risk reduction plans.

More than 10 years of experience in seismic rehabilitation of existing buildings in Iran, shows that classical rehabilitation methods are inadequate for satisfying the needs due to huge number of existing buildings requiring seismic improvement. The major reasons is process of preparation for seismic strengthening of existing buildings, including assessment of existing conditions of buildings' structure and conducting necessary experimental tests and complicated structural analysis that is not compatible with the social and economic aspects of life for most of the residents of the cities in Iran.

Furthermore, the lack of practical skills that is necessary for conducting modern, complicated and costly techniques in building seismic rehabilitation, limits applicability of classic and standard methods usage for seismic upgrading of low-rise residential buildings, as the most common building types in the cities.

Considering the above constraints, a new methodology was elaborated for ordinary low-rise buildings, named as "Relative Seismic Rehabilitation", which recommends the use of simple prescriptive guidelines, plans and schemes for seismic improvement of low-rise residential buildings. The main aim of such a methodology is to improve seismic performance level of ordinary buildings up to collapse prevention level and to reduce life and property loss in moderate earthquakes with taking into account social and poor economic conditions.

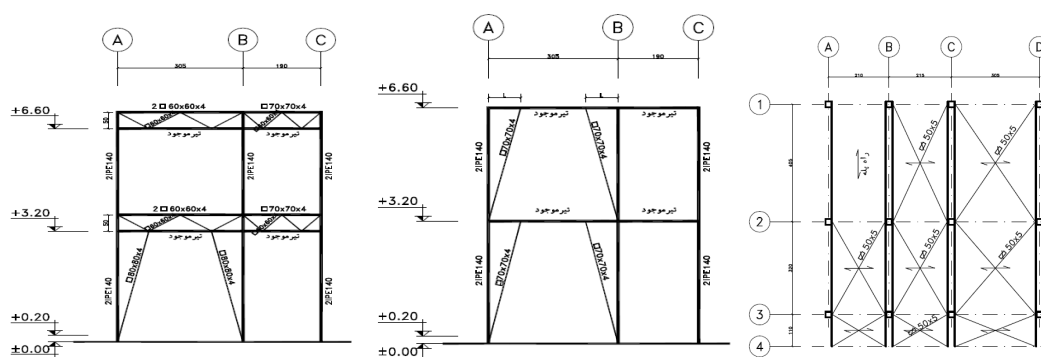


Figure 1. A sample of typical plans for seismic improvement of 2 story steel structure buildings

To achieve the guidelines and prescriptive typical simplified plans for seismic upgrading of several types of ordinary buildings, a comprehensive building typology study, as well as several experimental and analytical studies has been done.

It is expected that wide acceptance and cooperation of citizens in implementation of this methodology, would greatly reduce the seismic risks in the cities.

This paper introduces the “*Relative Seismic Rehabilitation*” methodology that has been conducted by a number of scientific centres, engineering consultant companies, advisors and professors in Iran.

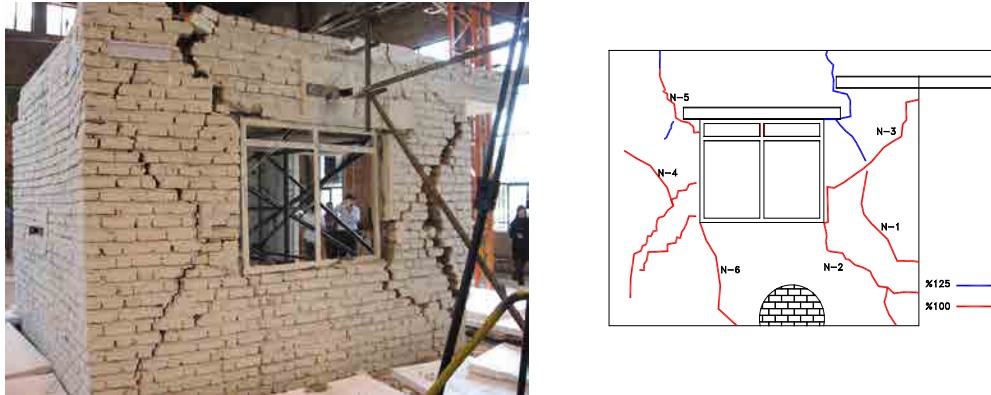


Figure 2. Shaking table test of ordinary building, full-scale model



Figure 3. Masonry walls' experimental tests

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