



COMPARISON OF ANALYSIS AND ASSESSMENT ASSUMPTIONS FOR SCHOOL BUILDINGS

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Since the establishment of Istanbul Project Coordination Unit in 2006, close to 2000 school buildings have been assessed and close to 600 school buildings have been retrofitted using current Turkish Earthquake Code with minor modifications set forth in the ISMEP Guidelines. The general procedure for these works include many assumptions and simplifications that are an integral part of the current practice.

This study aims to summarize the current analysis and design practice with reference to construction issues and to compare the effects of nonlinear analysis methods versus linear analysis methods, fixed based assumption versus explicit modelling of foundation elements and exclusion of infill panel walls versus explicit modelling of these elements. For this purpose a typical school building is selected. The plan layout of the structure is given in figure 1. In order to cover different building heights, all analyses have been repeated for 3 and 5 story structures with the same layout given in figure 1. For concrete parameters, the median strength values, obtained from CB1.2/A, EIB-CB.1.3/D and AF-CB1.3 lots have been used. Finally for soil parameters, 3 different sites have been established.

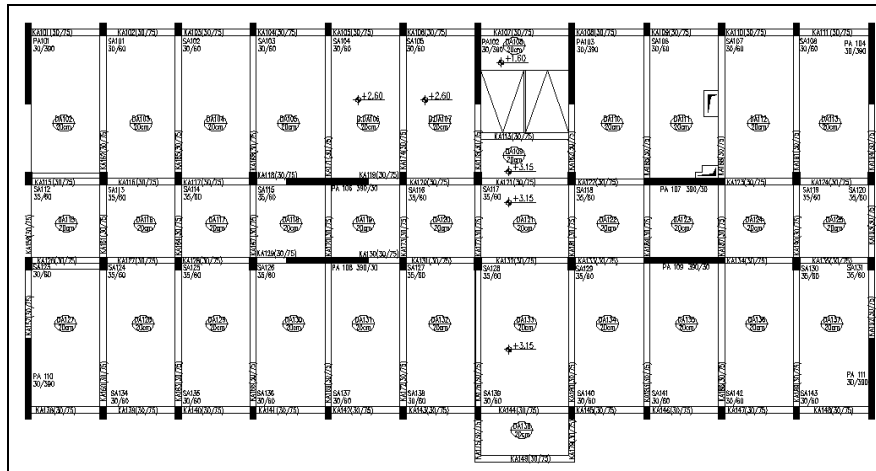


Figure 1. Structural layout plan

Since in current practice, due to time and budget constraints most assessment and retrofit analyses are being done using linear procedures, in addition to the effects of analysis assumptions, the performance evaluation criteria defined for linear analysis procedures both in ASCE 41 and in TEC 2007 have been compared with the nonlinear performance evaluation criteria.

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