Structural Engineering Documents 16

Characteristic Seismic Failures of Buildings

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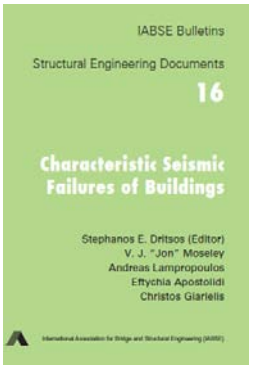

Summary: Earthquakes can cause considerable fatalities, injuries and financial loss. The forces of nature cannot be blamed, as the problem lies with the structures in seismic regions that may not have been designed or constructed to a sufficient degree to resist earthquake actions or they may have design flaws. This Structural Engineering Document (SED) concerns reinforced concrete and masonry buildings together with geotechnical aspects and presents in a concise and practical way the state of the art of current understanding of building failures due to earthquakes. It classifies the different types of seismic failure, explains the reasons for each failure, describes good practices to avoid such failures and also describes seismic retrofitting/upgrading procedures for pre-earthquake strengthening and post-earthquake repair and/or strengthening techniques for deficient buildings. Carefully selected photographs and diagrams illustrate the different failure types. This document could be considered as quite unique, as this is the first time such material concerning characteristic seismic failures of buildings has been presented together in one single document. It is intended to be a valuable educational reference textbook aimed at all levels of experience of engineers. It provides background information, ideas, guidance and reassurance to engineers in earthquake regions faced with the task of building a safer future for the public and to protect lives.

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