

履歴型ダンパーを用いた既存建築物の耐震改修
～制振補強建物のエネルギー法による耐震性評価法の提案、及び
外付けダンパー接合部の設計・施工法（案）～

概要

履歴型ダンパーを用いた耐震改修方法を普及促進させるため、RC造建物をダンパーで補強する場合の実験的研究を行うとともに、ダンパーで補強した建物の性能評価方法に関する解析的な研究を行った。実験的研究としては、RC造フレームの外側にダンパーを取り付けた架構の載荷実験とダンパーとRC梁部材の接合部の載荷実験を実施した。一連の実験結果に基づいて、RC造フレームに外付けでダンパーを取り付ける場合の接合部設計方法を提示した。解析的検討としては、エネルギー法による耐震性評価方法について、時刻歴解析との比較によって検討を行った。また、ダンパーにより補強された建物の換算 I_d 値の計算方法について検討し、提案した。

これらの研究結果に基づいて、本資料では、第 編として「履歴型ダンパーを用いた制振補強建物の簡易性能評価法と計算事例」を、第 編として、「枠なし外付け履歴型ダンパー補強工法における接合部設計・施工法（案）」を掲載している。

Seismic Retrofit of Existing Buildings Using Hysteretic Dampers

~ Proposal of Seismic Performance Evaluation of Retrofitted Buildings Adapting the Energy Balance Method,
and Design and Execution Method for Dampers Connected from Outside of Buildings (Draft) ~

Summary

In order to promote seismic retrofit of existing buildings using hysteretic dampers, the experimental study on seismic reinforcement method of RC building structures by hysteretic dampers and analytical study on seismic reinforcement evaluation method of buildings were conducted. As for the experimental study, cyclic loading test of one-bay one-story RC frame specimens retrofitted by damper and test of damper to existing beam connections were carried out. From the result of these tests, connection design method for seismic retrofitted building by hysteretic dampers connected from outside of building was presented. As for the analytical study, seismic reinforcement evaluation adapting the energy balance method was investigated through the earthquake response analysis. New conversion I_s index for building retrofitted by dampers was also discussed, and presented.

Based on the results of these experimental and analytical studies, this Building Research Data consists of two volumes. The first volume is “Seismic performance evaluation method and calculation example of building retrofitted by hysteretic dampers”, and the second volume is “Design and execution method for damper to existing beam connections in the seismic reinforcement method by hysteretic dampers connected from outside of buildings (Draft)”.