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## **RETROFITTING OF SCHOOL BUILDING TO PROTECT SCHOOL CHILDREN FROM EARTHQUAKE**

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### **Abstract**

Indonesia is located in earthquake zone. It has experience of more than twenty earthquakes of magnitude 6,5 or higher during the past five years, including 2004 Indian Ocean Earthquake and 2006 Java Earthquake. As a result, there are still many school buildings in Indonesia damaged by recent earthquakes due to inadequate structural design and construction. An unsafe school in a seismic region can incur the loss of the lives of hundreds of school children in addition to the potential damage to the property. On the other hand, a safer school can save valuable lives of children, provides a safe haven for the local community, serves as a temporary shelter in times of disaster. Therefore, a need assessment of school buildings was carried out in Bandung city which was also struck by an earthquake in February 2005. The assessment showed that there is an urgent need to retrofit of school buildings for protection of school children from next earthquakes. One of the school buildings that need to retrofit is SDN Cirateun Kulon in Bandung City. Prior to conducting any physical work to the structure, the locations and building layouts were checked to ensure that the buildings could be retrofitted. The existing structures were investigated to determine the type and quality of materials used, as well as the existing lateral resisting system. Then, the retrofitting was designed based on the structural deficiencies/weak parts and their accessibilities, weighing in factors of retrofit on buildings' life time, earthquake resistance capacity, buildings' function, and appropriate retrofit strategy/techniques. The design of retrofit strategy also considered factors of continuation of normal function, availability of materials and skilled construction workers, needs of upgrades for non structural components, and total costs.

Keyword: retrofitting, school building, earthquake, children