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### Abstrak

#### **ABSTRAK**

The use of fiber reinforced polymer (FRP) composites for the seismic retrofit of columns and piers, flexural strengthening of beams and girders, and strengthening of slabs has been fairly well established on a structural basis. However, aspects related to materials selection and use, design detailing, fracture and failure mechanisms, and durability are still not well understood. The functional efficiency of the rehabilitated structure is largely dependent on materials-related issues, which are highlighted in this paper, emphasizing effects pertaining to constituent materials, interfaces, and overall systems response. Major implications of processing and fabrication schemes are highlighted focusing on materials use efficiency, potential of defect formation, and effects on durability. Examples of the importance of detailing are shown, and design guidelines pertaining to materials are discussed.