ABSTRACT

Many countries like Indonesia are seismically active nations with a high risk of earthquakes, with five of the twenty most powerful earthquakes occurring. Reinforced concrete (RC) columns in bridges and buildings are vulnerable to earthquakes due to design standards updates, aging materials, erosion, and construction errors. Various retrofit and repair methods have been studied to address this issue, including concrete-filled steel tube (CFST) jacketing techniques. The RC column strengthened with the CFST jacketing technique offers advantages over ordinary steel or RC systems, such as high strength, good ductility, and outstanding seismic performance. However, this technique often faces corrosion problems when exposed to harsh environments. This final project presents a comprehensive review and classification of different strengthening techniques using CFST for RC columns. It emphasizes its performance, such as improved load-bearing capacity, ductility, and energy dissipation. In addition, this final project also shows the challenges and case studies of this technique in earthquake-prone regions. The aim of this final project is to provide a comprehensive review that many researchers have suggested over the past seven years. The final project identifies potential research gaps and outlines future research directions for utilizing CFST to enhance and repair existing RC columns.

Keywords: *Strengthening, RC column, CFST jacketing, Seismic performance*