Non-Linear Analysis for Seismic Assessment and Retrofitting of Column using Minimum RC Jacketing Wrapped by CFRP on Existing Low Occupancies Restaurant Building in Indonesia

Final Project Proposal

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INTERNATIONAL CIVIL ENGINEERING PROGRAM

DEPARTMENT OF ENGINEERING

UNIVERSITAS ATMA JAYA YOGYAKARTA

2020

STATEMENT

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APPROVAL

Final Project Report

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By:

Peter Cantona Astinaputra Johan

Student number: 16 13 16436

Has been checked and approved to be presented

Yogyakarta, ……..

Supervisor,

Dr.Ir Junaedi Utomo, M.Eng.

Department of Civil Engineering Chairman,

A.Y. Harijanto Setiawan, Ir., M.Eng., Ph.D.

APPROVAL

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Has been examined and approved by:

Name	Signature	Date
Chairman: FX. Junaedi Utomo, Ir .,M.Eng.Dr	……	……
Member: AM. Ade Lisantono, Ir., M.Eng., Dr.Prof.	……	……
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Finally, as the author of this report realized that this report is far from perfect, there are still many flaws and mistake due to limited skills, experience, and knowledge of the author. Therefore, any suggestions and critics from the reader will be appreciated and accepted.

Thank you very much from my deepest heart.

Yogyakarta, October 26, 2020

Author

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ABSTRACT

For the past decades, engineers all over the world are having a rapid progress for enhancing and reinforcing the existing structure all over the world and the technique is called retrofitting. In Indonesia, many structures are designed with the old code and even without the earthquake detailing design. This might cause a huge damage impact and loss for a crowded structure in low occupancies building such as restaurant. Seismic assessment is conducted to prevent the seismic hazard in the future.

This research is conducted to study about the applied retrofitting to an existing building and analyzed using the non-linear analysis method provided by a software. In this paper, the role of column damage and collapse in the seismic response assessment of existing reinforced concrete buildings are monitored and retrofitted using the methods of RC Jacketing with CFRP Wrapping. By analyzing the increased capacity of the member with the retrofitting by using a detailed non-linear analysis software to prevent the failure and loss in the future.

The result of this mixed retrofitting method is proven to significantly increase the capacity and performances of the column while effectively using the minimum space for the retrofitting process. By doing non-linear analysis the structure is proven to have a detailed assessment that cannot be spotted by the other modeling program.

Keywords: Column; Retrofitting; RC Jacketing; FRP;Non-Linear