THE EFFECT OF ARALDITE, COAL TAR, AND EPOXY RESIN SURFACE COATING ON BAMBOO REINFORCED BEAM

Final Project Report

As one of the requirements to recieve a bachelor degree

from Universitas Atma Jaya Yogyakarta

By :

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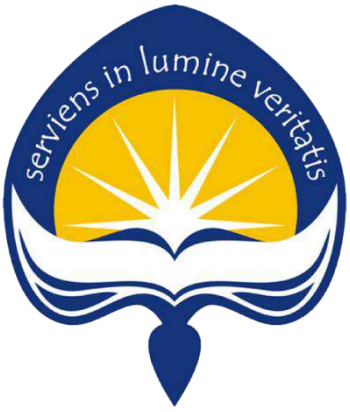

INTERNATIONAL CIVIL ENGINEERING PROGRAM

FACULTY OF ENGINEERING

UNIVERSITAS ATMA JAYA YOGYAKARTA

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APPROVAL SHEET

Final Project

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Yogyakarta, July 2021

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Final Project

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STATEMENT

Author, the one whom sign below:

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Declare that the research which title is written below is original and does not a copy or refer to any plagiarism action:

"THE EFFECT OF ARALDITE, COAL TAR, AND EPOXY RESIN SURFACE COATING ON BAMBOO REINFORCED BEAM"

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Yogyakarta, July 2021

Author,

Xenia Adelynn Satmoko

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First, I would like to thank God Almighty for His mercy, I was able to complete this final project smoothly. The purpose of the final project entitled "The Effect of Araldite, Coal Tar, and Epoxy Resin Surface Coating on Bamboo Reinforced Beam" is to complete the graduation requirements for the undergraduate program at the International Civil Engineering Program, Department of Civil Engineering, Faculty of Engineering, Atma University. Jaya Yogyakarta. I realized that the final project could not be completed without the help of others. For that, I would like to thank these people mentioned below:

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3. Agustina Kiky A., S.T., M.Eng., Dr.Ing. as my examiner lecturer when I conduct a seminar on results and final defense.
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Finally, as the author of this report, I realize that this report contains many mistakes. I hope that this final project that I am working on can bring benefits to all sides and readers.

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ABSTRACT

THE EFFECT OF ARALDITE, COAL TAR, AND EPOXY RESIN SURFACE COATING ON BAMBOO REINFORCED BEAM, Xenia Adelynn Satmoko, Student Number 171317119, the Year 2021, Structural and Material Engineering, International Civil Engineering Program, Faculty of Engineering, Universitas Atma Jaya Yogyakarta.

Steel is one of the main materials that are often used for reinforced concrete, but lately, steel has had an expensive price. Also, the use of steel is very limited in the construction industry. Therefore, the selection of alternative materials was carried out. One of the interesting materials to use is bamboo. Bamboo is one of the natural materials that is often used as a construction material in developing countries. With low prices and the availability of bamboo which is easily found in Indonesia, bamboo can be an alternative to reinforced concrete.

For make bamboo stronger, admixture or special treatment for bamboo can be done. One of the methods used in this research is to apply a surface coating to bamboo. The surface coating that is used for this research consists of araldite, coal tar, and epoxy resin. In this research, a flexural strength test was carried out for each bamboo reinforced beam.

From the test, the result obtained for the deflection and the loads up to the first crack, for bamboo reinforced beams without surface coating or plain can withstand 43.145 kN with a deflection of 165 mm, for bamboo reinforced beams with araldite surface coating can withstand 54.912 kN with a deflection of 192 mm, for bamboo reinforced beams with epoxy resin coating can withstand 49.028 kN with a deflection of 165 mm, and for bamboo reinforced beams with coal tar coating it can only withstand 25.495 kN with a deflection of 64 mm.

Keywords: Bamboo, Bamboo Reinforced Beam, Surface Coating, Flexural Strength