

**STRUCTURE ANALYSIS AND FABRICATION COST ANALYSIS OF
BTS 3 LEG 2nd TENANT SST45M TELECOMMUNICATION TOWER
AT PT. KRAKATAU STEEL SUBHOLDING
PT. KRAKATAU BAJA KONSTRUKSI**



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**INTERNATIONAL CIVIL ENGINEERING PROGRAM
DEPARTMENT OF CIVIL ENGINEERING
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UNIVERSITAS ATMA JAYA YOGYAKARTA
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JANUARY, 2024**

ABSTRACT

The growth of telecommunications in Indonesia in the recent decade has been very rapid, marked by the construction of telecommunications towers spread throughout Indonesia.

A self-supporting telecommunications tower is a telecommunication building structure that uses a combination of steel frames as its construction material. Telecommunications towers function as support for telecommunications equipment to transmit signals that support the communication systems that we frequently use today.

Many technology developers build or re-plan towers to expand networks or communication signals. In tower planning, the load that has a dominant influence is the wind load because wind is a lateral load which has a high sensitivity to steel construction buildings which tend to have low mass. The height of the tower that is made depends on the location of the tower itself.

The calculation of the structure of telecommunications towers in Indonesia currently refers to the regulations of the Telecommunications Industry Association and Electronic Industries Association or better known as TIA/EIA-222-F which was officially issued in 1996. Then in early 2006 TIA/EIA-222-G was officially issued which is a revision of TIA/EIA-222-F. Furthermore, in 2018 the new Standard of TIA/EIA-222-H is governed until nowadays. All this regulation is still not used as a reference or being standardized in planning telecommunications towers in Indonesia and has additional new detail feature to be considered into the analysis.

Based on the results of the structural analysis, with reference to the TIA/EIA-222-H:2018 Standard, the writer conducted an analysis of the structure, the writer considered an additional new standardized earthquake lateral load applied to the structure and determining the Maximum Stress Ratio at a wind speed of 89.48 mph [40 m/s]. Furthermore, the writer estimated the fabrication cost, limited to the structure, to be approximately Rp548,694,670.29.

Keywords: *Cost Estimation, Structure Analysis, Self-Supporting Tower, Telecommunication Tower, TIA-222-H:2018.*

STATEMENT LETTER

I, the undersigned,

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Student ID : 201318132

Truly declare that the Final Project with the title:

STRUCTURE ANALYSIS AND FABRICATION COST ANALYSIS OF BTS 3
LEG 2nd TENANT SST45M TELECOMMUNICATION TOWER AT PT.
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is an original work and not the result of plagiarism from the work of others.

I make this statement as a complement to this Final Project document.

Yogyakarta, January 4th, 2024



Handwritten signature of I Dewa Gede Ananda Kusuma.

I Dewa Gede Ananda Kusuma

VALIDATION SHEET
INTERNSHIP REPORT
PT. KRAKATAU STEEL SUBHOLDING
PT. KRAKATAU BAJA KONSTRUKSI

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VALIDATION SHEET

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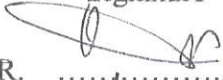

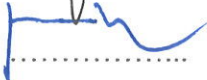
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**INTERNSHIP EVALUATION SHEET
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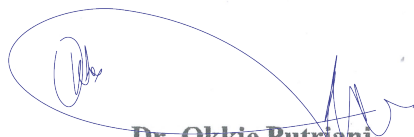
Please provide a numerical assessment based on the given range of values in the column below:

Evaluation Aspect	Very Good (85-100)	Good (80-84)	Sufficient (75-79)	Less Sufficient (65-74)
<i>CPL Measurement</i>				
The ability to apply mathematical principles in solving civil engineering problems	86			
The capability to apply engineering knowledge for designing, implementing, or evaluating in accordance with applicable regulations	88			
Adaptability to technology	86			
Effective communication skills both orally and in writing (working in groups, understanding given instructions)	87			
Possessing professional ethics in the field of civil engineering	86			
Capable of completing tasks on time and being responsible	89			
Having initiative and creativity	87			
(Can be filled with other achievements obtained during the program)	90			
Summary of grades (to be filled in by the lecturer)				
Total Grade				
Average Grade = Total Grade divided by 5				

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PREFACE

We give thanks for the presence of Almighty God. By his grace and grace, the author has put together a Work Practice Report and finished the Civil Engineering Internship Program in good time without any difficulties.

This Internship Report was made for the continuing Civil Engineering Internship and to support the company in PT. Krakatau Steel This report also for the requirement of graduation Atma Jaya University, Yogyakarta.

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as the author of this Internship Report hopefulness this report can be useful for everyone. Criticisms are welcome to make this Internship Report improved.

Yogyakarta, January 3rd, 2023

Writer

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