

**FINAL PROJECT**

**Structural Steel Analysis And Design Of Commercial Factories  
For Loading And Earthquake Resistance**



**Arranged by :**

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**PRO PATRIA**

**CIVIL ENGINEERING STUDY PROGRAM**

**FACULTY OF ENGINEERING**

**NAROTAMA UNIVERSITY SURABAYA**

**2019**

## FINAL PROJECT

### Structural Steel Analysis Design Of Commercial Factories For Loading And Earthquake Resistance

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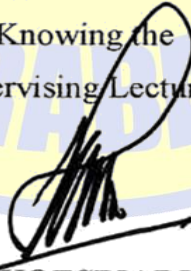
Submitted to meet the requirements  
to obtain a Bachelor of Engineering (S.T)  
degree in the Civil Engineering Study Program

Faculty of Engineering  
Narotama University Surabaya.

PRO PATRIA

Surabaya, 29th July 2019

Knowing the  
Supervising Lecturer,



**Dr. Ir. KOESPIADI, M.T**

**.NIDN. 0701046501**

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**This final project has fulfilled the requirements and agreed to be tested.**

Surabaya, 29th July 2019

Knowing the  
Supervising Lecturer,



**Dr. Ir. KOESPIADI, M.T**  
**NIDN. 0701046501**

**THIS FINAL PROJECT**

**HAS BEEN TESTED AND MAINTAINED TESTING THE TESTING TEAM  
ON MONDAY, DATED JULY 29, 2019**

**Title of thesis : Structural Steel Analysis Design Of Commercial  
Factories For Loading And Earthquake Resistance**

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## STATEMENT LETTER

The undersigned, I:

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Title of thesis : Structural Steel Analysis Design Of Commercial  
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I, the undersigned, declare below that in this Final Project no work has ever been submitted to obtain a bachelor's degree in any tertiary institution and to my knowledge there is also no written work / opinion written by others, except as a reference in the work write this that is mentioned in the Bibliography.

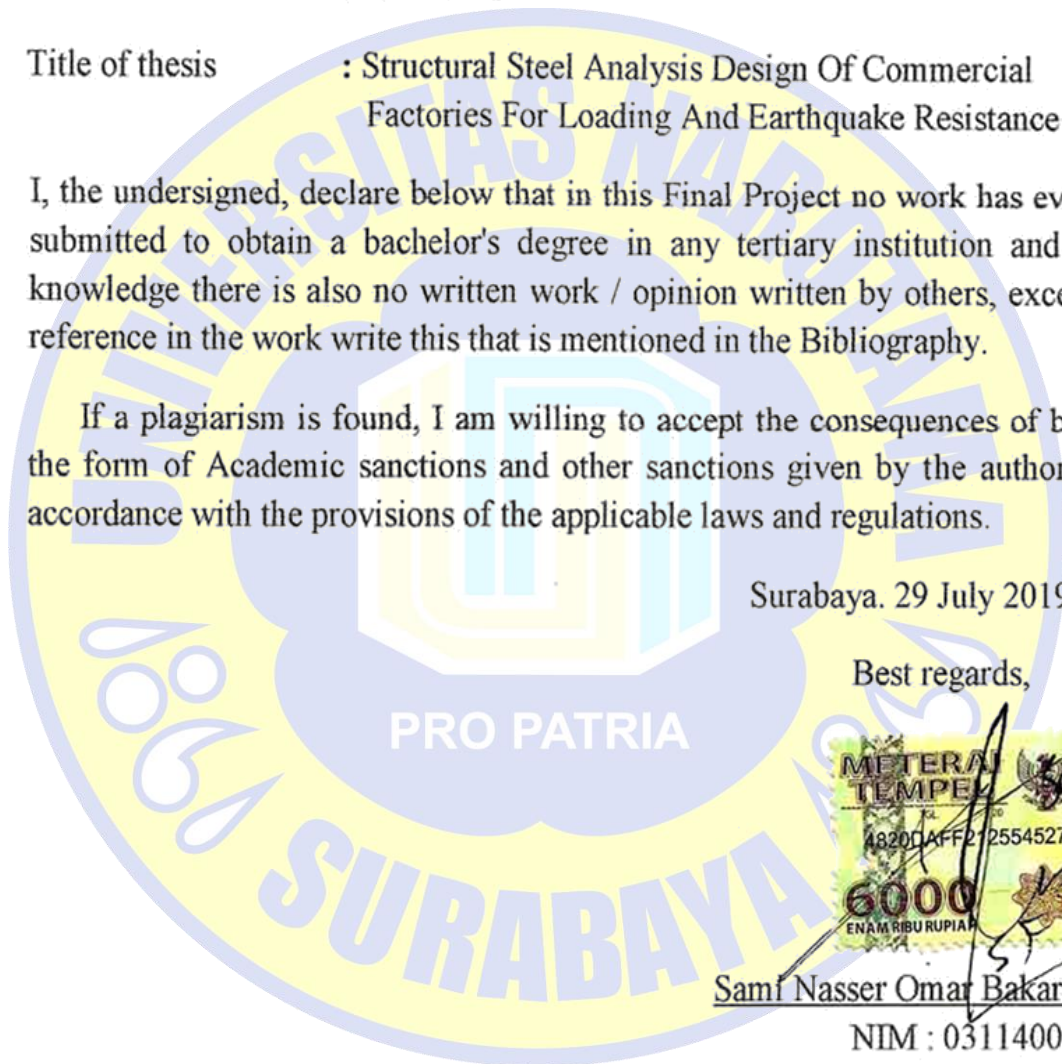
If a plagiarism is found, I am willing to accept the consequences of being in the form of Academic sanctions and other sanctions given by the authorities in accordance with the provisions of the applicable laws and regulations.

Surabaya. 29 July 2019

Best regards,

  
Sami Nasser Omar Bakarman

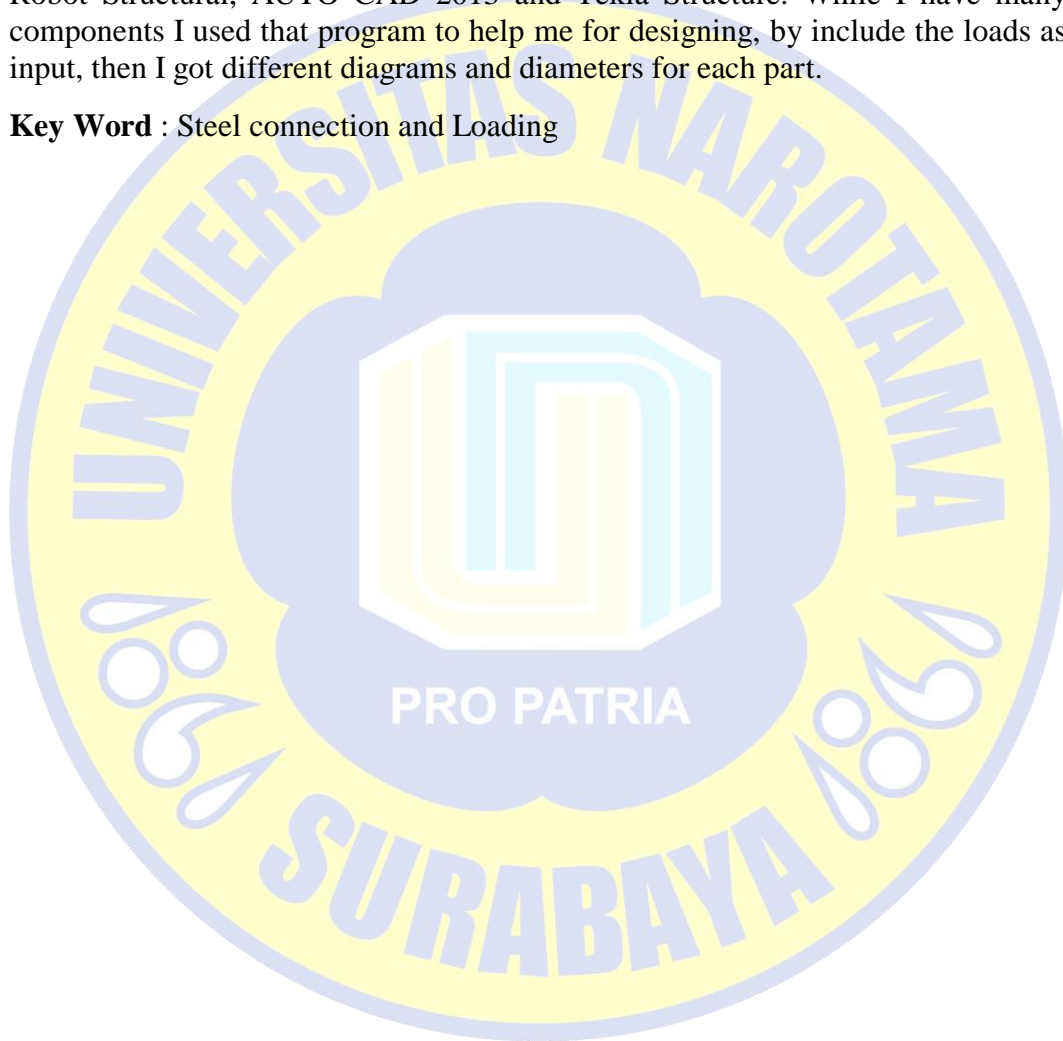
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## ABSTRACT

In the university my courses According to the widely used of "Steel buildings " in these days which taught us to analyze and design this flooring system that can achieve the requirements of this structure. Also use several programs like (ETAB, SAP, ROBOT and TEKLA etc), beside that I used different combinations for earthquake resistance. It analysis and design according to the eurocode AISC 14.0 , in addition to that I used the program of Autodesk Robot Structural, AUTO CAD 2013 and Tekla Structure. While I have many components I used that program to help me for designing, by include the loads as input, then I got different diagrams and diameters for each part.

**Key Word** : Steel connection and Loading



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## Conclusion

- 1) I got analysis it respects to applying earthquake

TABLE: Case - Static 1 - Load Assignments			
Case	LoadType	LoadName	Load SF
			Unitless
earthquake	Load pattern	earthquake	1 t/m <sup>2</sup>

So now I got earthquake resistant.

- 2) I use the material ASTM A36 steel Plate, ASTM A36 Beam and ASTM A36 Channel.
- 3) I got Design of fixed beam-to-column connection is 0.26, Design of fixed beam-to-beam connection is 0.98, Calculation of the beam-column (web) connection is 0.54, Fixed column base design is 0.87.
- 4) And I got analysis it respects to applying load is Live load on slab = 3.0 t/m<sup>2</sup>, Dead load = 0.15 t/m<sup>2</sup>, Super Dead Load = 2.00 t/m<sup>2</sup>, Snow load = 0.56 t/m<sup>2</sup>.

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