

MASTER'S DISSERTATION AT STRUCTURAL MECHANICS

DEPARTMENT OF CONSTRUCTION SCIENCES | FACULTY OF ENGINEERING LTH | LUND UNIVERSITY



CARL HOLMGREN

vov14cho@student.lu.se

CARL-MICHAEL BJÄLKENSÄTER

vov14cbj@student.lu.se

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SUPERVISOR

Professor **KENT PERSSON**
Div. of Structural Mechanics, LTH

DEPUTY SUPERVISOR

ANDREAS GUSTAFSSON Lic Eng
WSP

EXAMINER

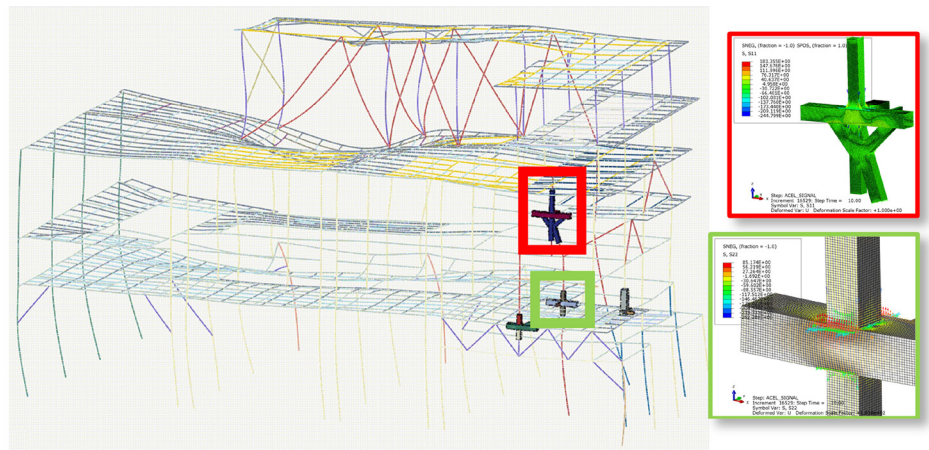
Dr **PETER PERSSON**
Div. of Structural Mechanics, LTH

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COMPUTATIONAL METHODS FOR ADVANCED STEEL CONNECTIONS



BACKGROUND

During the design stage of complex steel structures such as truss bridges, off-shore structures and heavy equipped industrial buildings, numerical analysis methods are always utilized to some extent. Today the simulation technologies have reached very far and with a detailed analysis it is possible to capture the response accurately.

In order to perform a detailed analysis, extensive work is needed during the modelling stage as well as large computer capacity. For most projects it is not reasonable to have such time consuming analyzes and more simplified models are used with elastic theory. However, on a regular basis there is need for more detailed analyzes of advanced steel connections that deviates from the conventional cases.

AIM AND METHOD

This master thesis aims to optimize the modelling process of non-conventional steel connections by finding a balance between accuracy and time efficiency with the use of finite element software. Models of different levels of detail will be evaluated and compared to more accurate models. Included in the process is to find a detailed model of a connection where results can be transferred to from a conventional beam model with enough accuracy.

DIVISION OF STRUCTURAL MECHANICS

Faculty of Engineering LTH, Lund University, Box 118, SE-221 00 Lund, Sweden

• Tel: + 46 (0)46-222 73 70 • Fax: + 46 (0)46-222 44 20 • www.byggmek.lth.se