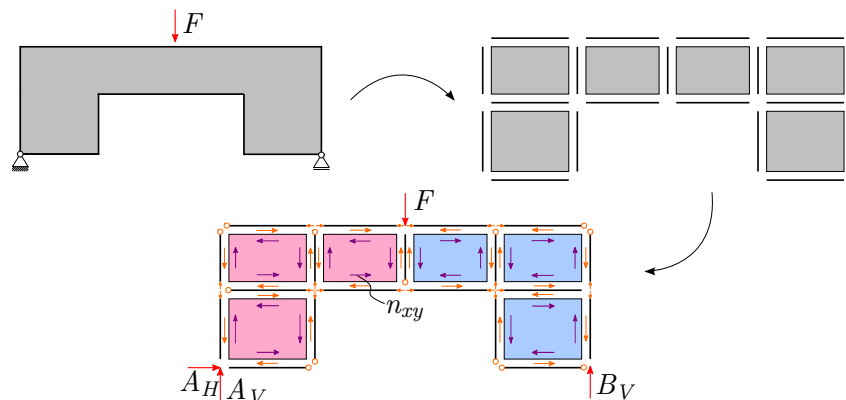


## Development and implementation of a user-friendly application for the solution of statically determined shear field systems

The shear wall theory is a method for the approximate calculation of the stress distribution in shear wall structures, which is mainly used in steel and timber engineering. It enabled the dimensioning of shear wall structures long before computer-based methods were developed and is still used today for the initial dimensioning of wall-like structures. The shear wall structure is divided into so-called bars and shear walls. This division is not unique; certain rules must be followed depending on the boundary conditions.

The aim of this thesis is to develop and implement a user-friendly program that allows the automated solution of statically determined shear wall problems. The application is supposed to use a calculation method according to the shear wall theory and to allow the input of data in a clearly structured format. The results of the calculation shall be displayed graphically in an automated way. The program is to be verified and validated by means of hand calculations.



### The specific tasks are

- Familiarization with the shear wall theory.
- Development of a concept for the automated solution of shear wall tasks according to shear wall theory.
- Implementation of the concept in a software program.
- Verification and validation of the developed software.
- Summary and evaluation of the results.

### Recommended fields of interest

Structural analysis, programming, shear wall structures.

### Literature

Petersen, Christian. Stahlbau: Grundlagen der Berechnung und baulichen Ausbildung von Stahlbauten - Stahlleichtbau. Springer-Publishing, 2012.