

Aluminum Circular Hollow Sections: Buckling Behavior and Stability Analysis

Record number : OPR-949

Overview

RESEARCH DIRECTION

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INFORMATION

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ADMINISTRATIVE UNIT(S)

Faculté de génie
Département de génie civil et de génie du bâtiment

LEVEL(S)

3e cycle

LOCATION(S)

Campus de Sherbrooke

Project Description

The research project aims to investigate the buckling behavior of aluminum circular hollow sections in structural engineering, focusing on various loading conditions, section dimensions, and alloy types. This study is crucial for understanding the resistance and stability nuances of aluminum components under different stresses like compression, bending, torsion, and shear. By exploring a range of buckling modes and conditions, the project seeks to develop comprehensive design guidelines and optimization strategies. These findings will not only enhance the structural application of aluminum but also contribute significantly to sustainable infrastructure development, underscoring aluminum's growing importance in modern engineering solutions.

Required Skills:

- Master's degree in civil engineering, Structural Engineering, or a related field
- Proficiency in numerical analysis techniques and finite element analysis
- Strong programming skills (MATLAB, Python, VBA or similar)
- Excellent analytical and problem-solving skills
- Excellent written and verbal communication skills in English (or French)
- Ability to work independently and collaboratively within research team

Preferred Skills:

- Experience in conducting experimental programs related to structural engineering
- Experience in aluminum structural analysis
- Experience in working with machine learning, especially deep-learning and neural networks

Discipline(s) by

Funding offered

To be discussed

sector

Sciences naturelles et génie

Génie civil

The last update was on 13 March 2024. The University reserves the right to modify its projects without notice.