



STRUT

STEEL MEMBERS SUBJECT TO AXIAL STRESS
DESIGN | S01

Summary

Strut is used to optimise and design steel members subject to axial stress.

The module primarily acts as a post-processor for **Sumo** and **Frame**, but also has an interactive mode for quick design checks of individual members without first performing an analysis.

What makes this module special?

- Post-process analysis data
- Optimise members
- Interactive input mode
- Detailed calculations

Detailed Description

Strut is used to design axial force members in steel frames. These members are typically found in trusses with pinned joints where loads are applied at nodes. The result is a tensile or compressive force in each member and no bending moment. The design process is a simplified one that is easy to understand and can be applied to batches of elements.

The module primarily acts as post-processors for **Sumo** and **Frame**. A model is built and solved in the analysis program and **Strut** reads the output file.

The interactive mode is used to perform quick design checks of individual members without the need to first perform an analysis.

In **Strut** you can set up design tasks. Each task lists the members to be designed, their parameters such as effective length factors, slenderness limits and the design approach. Tasks can be saved and recalled later.

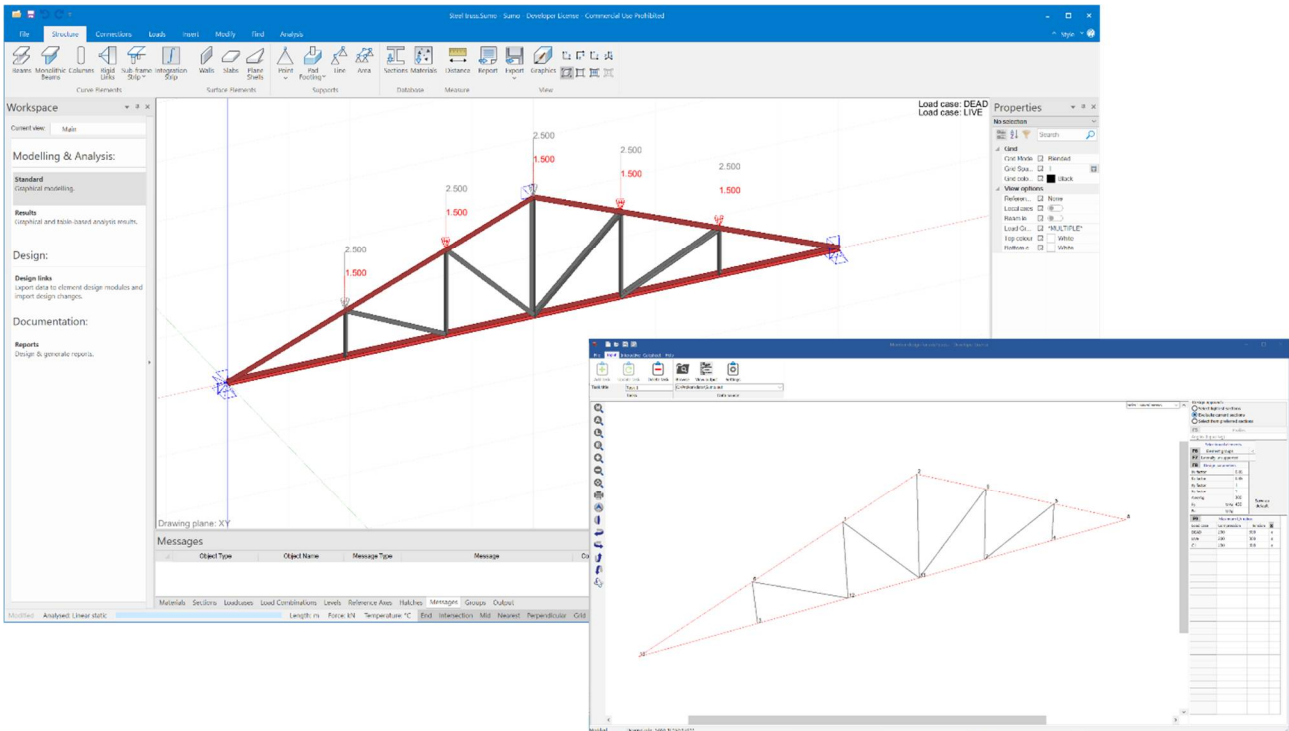
There are three design approaches:

- Select from preferred sections
- Evaluate current section
- Select lightest section



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The output includes a summary of each member and a Pass/Fail result displayed in the sidebar. Detailed equations can be viewed for selected design codes.

Element	Length (m)	L.C. Force (kN)	L/R	Crit Axis	Section	Pc (MPa)	σ_c (MPa)	Result
GROUP 1 Angles (Equal leg)								
1-12	1.429	C1 -3.44	89	V	70x70x6	0.0	0.0	Fail
4-5	0.784	C1 -0.16	49	V	70x70x6	0.0	0.0	Fail
3-6	0.769	DEAD -0.16	48	V	70x70x6	0.0	0.0	Fail
5-7	1.793	C1 7.28	111	V	70x70x6	121.6	9.0	OK
7-9	1.429	C1 -3.50	89	V	70x70x6	0.0	0.0	Fail
1-11	2.020	C1 9.17	125	V	70x70x6	99.9	11.3	OK
2-11	2.000	C1 -13.36	124	V	70x70x6	0.0	0.1	Fail
9-11	2.020	C1 9.22	125	V	70x70x6	99.9	11.3	OK
6-12	1.820	C1 7.39	113	V	70x70x6	118.7	9.1	OK

Group mass = 89.8 kg



For more information contact info@prokon.com



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Supported Design Codes

Design Codes

- AISC - 1989 ASD
- AISC - 1999 LRFD
- AS4100 - 1998
- AS4100:2020
- BS 5950 - 1990
- BS 5950 - 2000
- CAN/CSA-S16.1-94
- CSA S16:19
- CSA S16-01 2001
- CSA S16-09 2009
- CSA S16-14 - 2014
- Eurocode 3 - 2005
- GBJ 17-88
- IS:800 - 1984
- IS:800 - 2007
- NZS 3404 - 1997
- SABS 0162 - 1984
- SABS 0162 - 1993
- SANS 10162 - 2005
- SANS 10162-1: 2011