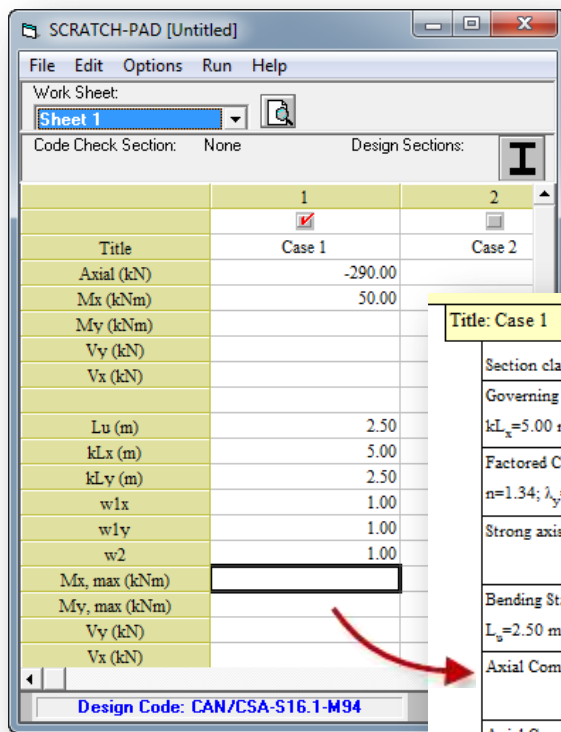




Are you tired of using capacity look-up tables in this day and age? Do you need to quickly check a column or beam capacity but don't have time to build a complete detailed model, or you already have dimensions and forces? Do you wish you had a simple utility to run that check or, even better, an auto-design to identify an optimum section?

The **Scratch Pad** is such a utility. The Scratch Pad can be run in stand-alone mode, as well as inside **S-STEEL**. Thus it can be used entirely on its own (known as **S-PAD**) for rapid checking and design and also within S-STEEL (known as **Scratch Pad**) to allow the engineer full, interactive control of all design parameters. **S-PAD** and **Scratch Pad** refer to the same program and we'll use the two names interchangeably. What's more? If you have S-STEEL, then you already have the Scratch Pad! To view a video on the use of the Scratch-Pad, click here.

In stand-alone mode, simply input design loads and effective lengths of a steel element - be it beam, column or brace - then run that quick check or auto-design in seconds. The Scratch Pad has a simple, intuitive spreadsheet layout which allows up to 20 design cases to be checked simultaneously. Input can be pasted in from external spreadsheet programs such as Microsoft Excel.



**Simple input of design forces and effective lengths**

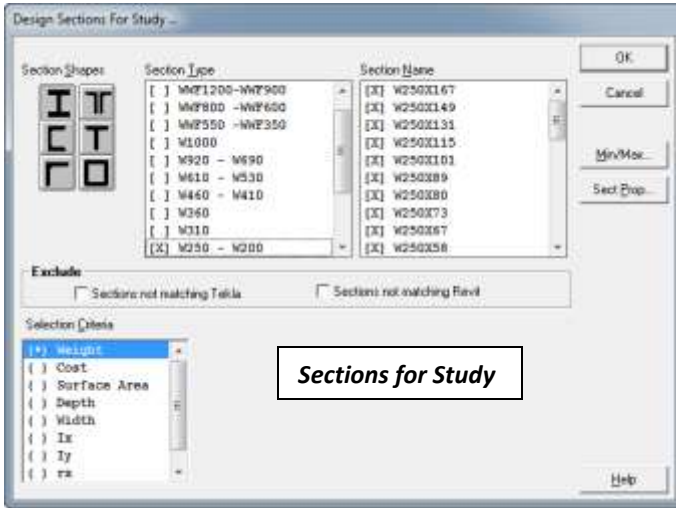
**Title: Case 1 (Bending + Compression)**

Section classification ( $f_y=350$ MPa);	Section Class = 1
Governing geometrical slenderness ratio	$\frac{k_y L/r_y}{200} = \frac{71}{200} = 0.357$
$kL_x=5.00$ m; $kL_y=2.50$ m; $k_x L/r_x=44.8$ ;	
Factored Compressive Resistance Check	$\frac{C_f}{\phi A F_y (1+\lambda^2)^{1.5}} = \frac{C_f}{\phi A (219 \text{ MPa})} = \frac{290}{1129} = 0.257$
$n=1.34$ ; $\lambda_y=0.950$	
Strong axis section capacity in bending	$\frac{M_{fx}}{M_{rx}} = \frac{M_{fx}}{\phi F_y Z_x} = \frac{50}{190} = 0.264$
Bending Stability Check	$\frac{M_{fx \max}}{M_{rx}} = \frac{50}{182} = 0.275$
$L_y=2.50$ m; $\omega_2=1.000$ ;	
Axial Compression and Bending cross-sectional Strength Check	$\frac{C_f}{\phi A F_y} + \frac{0.85 M_{fx}}{\phi Z_x F_y} = 0.385$
Axial Compression and Bending overall member Strength Check	$C_f + 0.85 U_1 M_{fx}$
$\omega_{1x}=1.00$ ; $U_{1x}=1.05$ ;	
Axial Compression and Bending lateral torsional buckling stre	$\frac{C_f}{C_{ry}}$
$\omega_{1x}=1.00$ ; $U_{1x}=1.05$ ;	

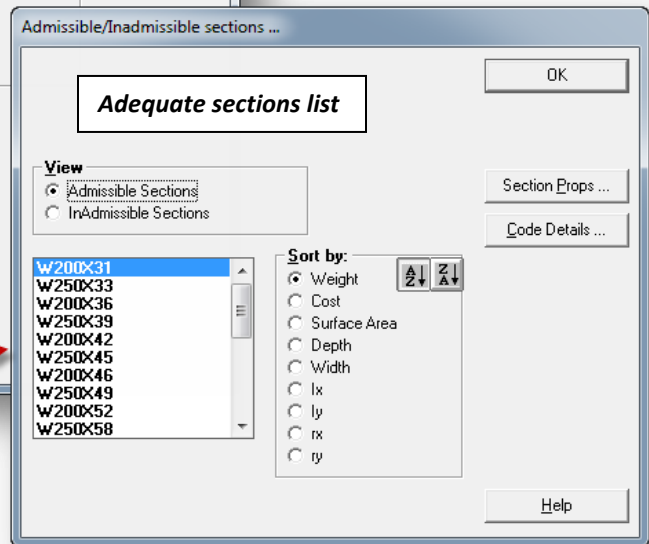
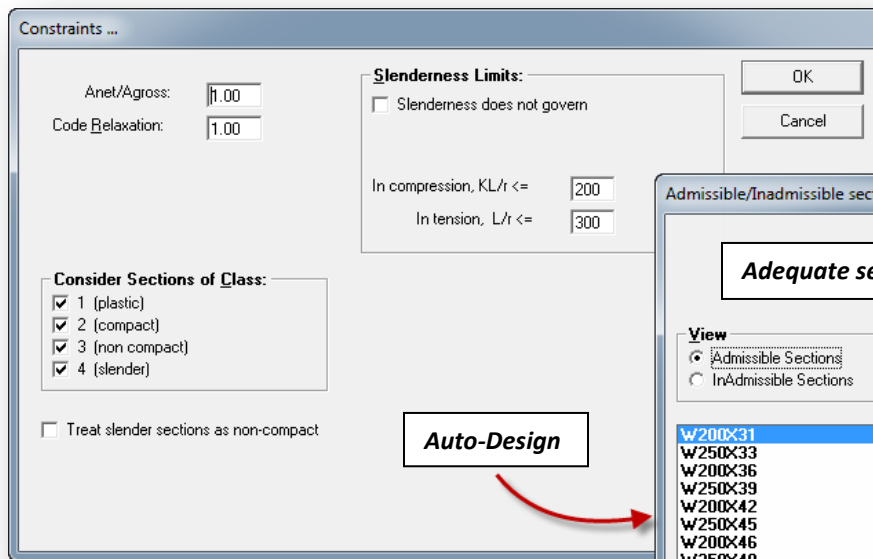
**S-STEEL's class-leading output showing; detailed code equations, intermediate results, capacities and clause references**

- [Clause 11](#)
- [Clause 10.2.1](#)
- [Clause 13.3.1](#)
- [Clause 13.5\(a\)](#)
- [Clause 13.6\(a\)](#)
- [Clause 13.8.2\(a\)](#)
- [Clause 13.8.2\(b\)](#)

Within S-STEEL, S-PAD can be used to design any member individually, offering more control over effective lengths. S-STEEL will automatically transfer forces from analysis and user-inputted design constraints by simply right-clicking on a member, then choosing "Send to Scratch Pad."



The Scratch Pad features exactly the same superb output as S-STEEL, as well as the same comprehensive set of design constraints giving the engineer full control of **ALL** design parameters. Input files can be saved and can contain multiple worksheets. For auto-design, an automatically sorted list of adequate sections is produced to easily identify optimum sections from those within a user specified range or shape type. Admissible sections can be sorted based on weight, surface area, depth, width and more. Detailed design calculations can be viewed for all sections.



**Comprehensive Design Constraints**