

## Tips & Tricks Scratch Pad/S-PAD

column or brace - then run that quick check or

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,

🖪, SCRATCH-PAD [Untit	iled]		auto-design in seconds. The Scratch Pad has a	
File Edit Options R	Run Help		simple, intuitive spreadsheet layout which allows	
Work Sheet:			up to 20 design cases to be checked	
Sheet 1	<b>- (</b>		simultaneously Input can be pasted in from	
Code Check Section: N	None Design S	ections:	external spreadsheet programs such as	
	1	2 🔺	Microsoft Excel.	
Title	Case 1	Case 2		
Axial (kN)	-290.00			
Mx (kNm)	50.00		17.600	
My (kNm)		Title: Case 1	(Bending + Compression)	
Vy (kN)		Section cla	assification (f =350 MPa): Section Class = 1	
Vx (kN)		oection cla		
		Governing	geometrical sienderness ratio k. L/r., 71	
Lu (m)	2.50	kL <sub>x</sub> =5.00 s	m; kL <sub>y</sub> =2.50 m; k <sub>x</sub> L/r <sub>x</sub> =44.8; $\frac{y}{200} = \frac{0.357}{200}$	
kLx (m)	5.00	Factored C	Compressive Resistance Check Clause 13.3.1	
kLy (m)	2.50	n=1 34· )	$=0.950$ $\frac{C_{f}}{C_{f}} = \frac{C_{f}}{C_{f}} = \frac{C_{f}}{C_{f}} = \frac{290}{0.257}$	
w1x	1.00	11-1.54, /y	$C_{ry} = \phi AF_y(1+\lambda^{2n})^{-1/n} = \phi A (219 \text{ MPa}) = 1129$	
w1y	1.00	Strong axis	is section capacity in bending Clause 13.5(a)	
w2	1.00		$\frac{M_{fx}}{M} = \frac{M_{fx}}{4E} = \frac{50}{100} = 0.264$	
Mx, max (kNm)		Banding St	$\frac{M_{rx}  \forall \mathbf{F}_{y} \mathcal{L}_{x}  190}{\text{Clause 13 6(a)}}$	
My, max (kNm)	<b>\</b>	Denoing of	M <sub>fx max</sub> 50	
Vy (kN)		L_=2.50 m	$m; \omega_2 = 1.000;$ $\frac{-mm}{M_{ex}} = \frac{1}{182} = 0.275$	
Vx (kN)		Axial Com	npression and Bending cross-sectional Strength Check Clause 13.8.2(a)	
Design Code: C4	AN/CSA-S16.1-M94		$\frac{C_{f}}{\phi \wedge F_{v}} + \frac{0.85 M_{fx}}{\phi Z_{x} F_{v}} = 0.385$	
		Axial Com	npression and Bending overall member Strength Check Clause 13.8.2(b)	
Simple input of design forces $\omega_{1x}$ =1.00; $U_{1x}$ =1.00; $U_{1$			U <sub>1x</sub> =1.05; C- 0.85 U. M. S-STEEL's class-leading output	
and effective lengths Axial Com			pression and Bending lateral torsional buckling stre	
		ω <sub>1x</sub> =1.00;	$U_{1_{x}}=1.05;$ $\frac{C_{f}}{c_{f}}$ showing, detailed code equations,	
			intermediate results, capacities	
			and clause references	

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."

ection Shapes	Sector Type	Section Name	OK.
IT	[ ] W071200-W07900 [ ] W07800 -W07600	* [X] W250X167 [X] W250X149	Carcel
듣금	[ ] W1000 [ ] W200 - W690	[X] W250X131 [X] W250X115 [X] W250X101	Min/Max.
	[ ] W610 - W530 [ ] W460 - W410 [ ] W360	[X] W250X89 [X] W250X80 [X] W250X73	Sect Prop.
	[ ] NO10 [X] NO50 - NOD0	(X) W250X67 (X) W250X58	-
Exclude Sector	re not matching Takla	Section: not availabling Revel	
Selection Ottens			
() Cost () Surface A () Depth	геа	ctions for Study	
() Width () Ix			
5 3 Tes			

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 <u>ALL</u> 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.

