Effective length factor

How is a frame assigned a sidesway-uninhibited condition, rather than sidesway-inhibited?

Extended Question: Further, should I use the effective length factors automatically calculated through SAP2000? K = 1.0 for all members under any configuration, which does not seem accurate. Should K factors be input manually?

Answer:

CSI Software implements a rigorous process to determine K factors. A full description is available in the CSI *Steel Frame Design Manual* (Help > Documentation > Design > Steel Frame Design > Design Algorithms > Element Unsupported Lengths > Effective Length Factor).

A notable point mentioned in this section (pages 11-14) is that K-factor calculations are based on the assumption of uninhibited sidesway. For other cases, K factors should be specified by the user. Users should always, however, use engineering judgment to evaluate the accuracy of K factors calculated by computational tools. Any discrepancy between the unbraced properties modeled and the actual design intention may lead to inappropriate design.

Automatically-generated K factors may be overwritten for individual members using the Overwrite option under Stress Check Information, as shown in Figure 1:

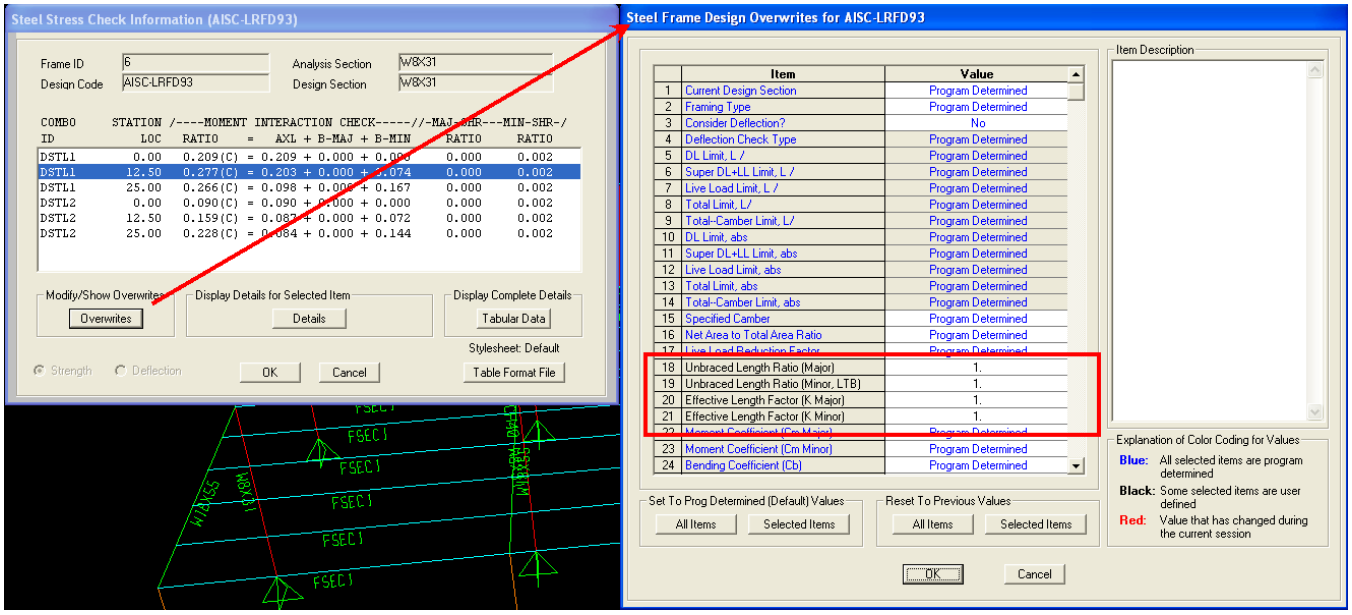

Figure 1 - Frame-property overwrite

See Also

- Sway and nonsway conditions article