IF YOU'VE EVER ASKED YOURSELF "WHY?" about something related to structural steel design or construction, *Modern Steel Construction*'s monthly Steel Interchange column is for you!

Axial Compression Capacity

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Yes, the resistance factor (phi) and safety factor (omega) were changed for columns in the 2005 AISC specification.

In previous LRFD specifications, phi was equal to 0.85. In previous ASD specifications, the safety factor was approximately 1.76. These values were set based upon a variety of products, including columns that might be fabricated from universal mill plates. In fact, UM plates were the controlling material and dragged the phi down (the safety factor up) all by themselves.

For the 2005 AISC specification, we recognized that UM plates are no longer available and eliminated them from the determination of the resistance factor and factor of safety. As a result, phi is 0.9 and omega is 1.67 in the 2005 AISC specification; hence, the difference in strength you noted.

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Frames Braced Against Joint Translation

The reason for this requirement is that in Eq. H1-1 we are allowed to use $C = 6 - 0.4 \quad 1/ \quad 2$ to account for the effect of moment gradient when the frame is prevented from sidesway. C is approximately $1/C$. Using both in the interaction equation would be "double dipping," and it would result in an unsafe result. You can use either F /C or $F C$

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