

# So That's What they Meant!

User Notes provide useful insights into the provisions of the 2005 AISC *Specification*.

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This article is the second in a series that will give you insight into the AISC 360-05 (the 2005 AISC *Specification*) and the next AISC *Manual of Steel Construction*, which will be built around it. This month, the focus is on User Notes and Commentary.

In one early meeting, the AISC Committee on Specifications reflected on how good it would be if every user of the AISC *Specification* could hear the insights shared by Committee members in discussing a provision. This struck a chord with the wishes expressed by designers that the requirements be easily understood and applied.

The *Specification* is written as a document suitable for reference in the building code. As such, it must be written in mandatory code language, not conversational phrases guiding judgments. There is a Commentary behind the *Specification*, but helpful guidance often gets lost in the Commentary, which more often serves other purposes. But what could be done?

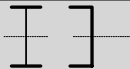


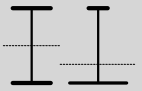
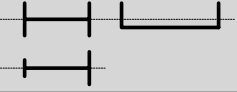




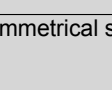
Some suggested that AISC use a side-by-side format with the specification in the left-hand column and the commentary in the right-hand column. This idea was rejected because of resulting white space, so ubiquitous in the standards in which this approach is taken because commentary normally runs so much longer than the specification text next to which it appears.

The interspersed Commentary format used in the AISC *Code of Standard Practice* was then considered—and almost used. This format with the Commentary in grey boxes works well in the *Code* because the *Code* Commentary is short in all except a few cases. But the Commentary in the *Specification* is not always so brief, often giving detailed summaries of the historic progression of design requirements or the research upon which the design requirements are based. Because this for-

## User Note Example 1

A User Note such as this one provides a helpful roadmap through the provisions of the section. In this case, the reader can determine exactly where to go and what provisions apply to the various cross-sections.

**Table User Note F1.1**  
Selection Table for the Application of Chapter F Sections

Section in Chapter F	Cross Section	Flange Slenderness	Web Slenderness	Limit States
F2		C	C	Y, LTB
F3		NC, S C		LTB, FLB
F4		C, NC, S N	C	Y,LTB, FLB, TFY
F5		C, NC, S S		Y,LTB, FLB, TFY
F6		C, NC, S N	/A	Y, FLB
F7		C, NC, S C	, NC	Y, FLB, WLB
F8		N/A	N/A	Y, LB
F9		C, NC, S N	/A	Y, LTB, FLB
F10		N/A	N/A	Y, LTB, LLB
F11		N/A	N/A	Y, LTB
F12	Unsymmetrical shapes	N/A	N/A	All limit states

Y = yielding, LTB = lateral-torsional buckling, FLB = flange local buckling, WLB = web local buckling, TFY = tension flange yielding, LLB = leg local buckling, LB = Local Buckling, C = compact, NC = noncompact, S = slender

## User Note Example 2

A User Note such as this one provides a helpful reminder of how few shapes require consideration other than the very basic provision at the start of a section. In this case, it reminds the reader that all of the non-compact and slender provisions for W-shapes in bending are rarely, if ever, used (though still there if you do need them).

### F2. DOUBLY-SYMMETRIC COMPACT I-SHAPED MEMBERS AND CHANNELS BENT ABOUT THEIR MAJOR AXIS

This section applies to doubly-symmetric I-shaped members and channels bent about their major axis, having compact webs and compact flanges as defined in Section B4.

**User Note:** All current ASTM A6 W, S, M, C and MC shapes except W21×48, W14×99, W14×90, W12×65, W10×12, W8×31, W8×10, W6×15, W6×9, W6×8.5, and M4×6 have compact flanges for  $F_y \leq 50$  ksi (345 MPa); all current ASTM A6 W, S, M, HP, C and MC shapes have compact webs at  $F_y < 65$  ksi (450 MPa).

## User Note Example 3

A User Note such as this one provides a faster, conservative way to apply an equation. The reader can still design to the gnat's eyelash when necessary, but can also choose to be "quick and dirty" when that is more important.

$$F_{cr} = \frac{C_b \pi^2 E}{\left(\frac{L_b}{r_{ts}}\right)^2} \sqrt{1 + 0.078 \frac{Jc}{S_x h_o} \left(\frac{L_b}{r_{ts}}\right)^2} \quad (\text{F2-4})$$

**User Note:** The square root term in Equation F2-4 may be conservatively taken equal to 1.0.

mat would tend to obscure the shorter *Specification* segments between the grey boxes, it was also rejected.

Clearly, a new means was needed—one by which short statements of guidance could be provided without diverting the reader from the flow of the actual provisions being applied. A brainstorm gave birth to User Notes, which are non-mandatory sentences and short paragraphs interspersed throughout the 2005 AISC *Specification* to provide concise and practical guidance in the application of the provisions. A few common uses of User Notes are illustrated in boxes in this article.

Beyond User Notes, Commentary is also a wonderful thing. I am told (but cannot substantiate conclusively enough to claim with certainty) that AISC was first to innovate with the inclusion of Commentary. What a great idea it was! Today the Commentary on the 2005 AISC *Specification* continues to provide useful and explanatory background information for the *Specification* provisions. But unlike recent versions in which the Commentary received little attention until the end or not enough at all, the 2005 edition has a Commentary that was cleaned up and modernized from front to back by a dedicated ad-hoc group led by Jerry Hajjar, who worked extensively with Ted Galambos, Steve Fenves, Tom Murray and many other members of the AISC Committee on Specifications and its task committees. The resulting compilation is a useful and helpful resource for the user of the AISC *Specification*. ★

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The 2005 AISC *Specification for Structural Steel Buildings* (AISC 360-05) will be available in April 2005 as a free download from the AISC web site, [www.aisc.org](http://www.aisc.org). The corresponding AISC *Manual of Steel Construction* will be available for purchase in late 2005.

### Coming Up in SpecWise

May	Simplified design of beams
June	HSS & Single Angle Provisions
July	Composite columns
	Design of non-building structures