

editor's note



UNTIL 1970, THERE WERE NO RED OR YELLOW CARDS IN SOCCER. The concept was only invented by the legendary Ken Aston four years earlier. Today, very few individuals still working have refereed a game without these now standard tools.

Similarly, many designers have never specified anything but ASTM A992 for their steel beams and columns. But that specification was only introduced in the late 1990s. A992 rapidly became the dominant steel material because it offered a better material definition at no price premium. It has an upper limit on yield strength of 65 ksi, a minimum tensile strength of 65 ksi, a specified maximum yield-to-tensile ratio of 0.85 and a specified maximum carbon equivalent of 0.47%.

In a few decades, I expect a similar shift for HSS. ASTM recently announced the introduction of a new grade that will result in the production of improved hollow structural sections (HSS). This new specification provides improved performance that makes HSS design easier and potentially more effective for designers and their clients.

As with A992, the new ASTM A1085 offers tighter material tolerances. Specifically, the material has a minimum yield stress of 50 ksi and a maximum specified yield stress of 70 ksi—the only specification used in North America or Europe that offers a maximum yield stress in HSS.

The material's more stringent wall tolerances and the addition of a mass tolerance means the full nominal wall thickness can be used for the design of HSS. This means no

longer needing to reduce the nominal wall thickness by 0.93 as prescribed in the AISC *Steel Construction Manual* for either member selection or connection design—both of which should make HSS more economical and more efficient.

The material's defined upper and lower yield stress also means it is now well-suited for use in seismic applications. And because it also has standard requirements for Charpy notch toughness, the new HSS material is more suitable for use in dynamically loaded structures.

AISC and the HSS producers have been working on this new material specification for nearly five years and their efforts look to be very successful. To learn more about this material, visit www.aisc.org/hss or contact the AISC Steel Solutions Center at solutions@aisc.org or 866.ask.aisc. And make sure you talk with domestic HSS producers and your local service centers about price and availability.



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