

# AISC and the IBC

BY ERIN CRISTE AND CHARLES J. CARTER, S.E., P.E., PH.D.

## Whose rules rule?

With adoption by reference, it couldn't be any easier to determine.

**WE OFTEN HEAR** from practicing engineers how much they dislike having to search through multiple documents to determine which requirements apply and which ones trump others when conflicts exist. We understand this sentiment and have worked to ease this burden.

AISC produces as few different documents as possible with as little change from edition to edition as possible. We also coordinate with the International Building Code (IBC) and related standards developers, like ASCE 7 and ACI 318, to make sure AISC standards are easy to use and cohesive. And we revise our standards less often—now every six years so that we still match the three-year module of the IBC cycle but don't have code changes happening before the previous changes have even been used.

### Steel Design Requirements

All of this has created a situation in the IBC of which we are very proud: Today's IBC requirements for steel design and construction are simple references to AISC 360 and AISC 341 (AISC's *Specification for Structural Steel Buildings* and *Seismic Provisions for Structural Steel Buildings*). Adoption by reference

helps make the requirements more uniform from edition to edition and also from jurisdiction to jurisdiction.

This makes sense and has grown from history. Since the first AISC *Specification* in 1923 and the first AISC *Steel Construction Manual* in 1928, the requirements and further recommendations, respectively, have been provided in AISC documents. Since then, and even when the local and model building code landscape was more complex than it is today, the actual requirements always got back to what was provided in the AISC *Specification* and related standards. Today, the IBC adopts AISC standards by reference, making it even more streamlined.

What does adoption by reference mean? It means that design requirements are in one place, not multiple places, and gaps, overlaps and conflicts can be minimized. The IBC has been doing this in steel for many cycles now, and the 2012 IBC continues this benefit. Table 1 on the following page illustrates how the pattern has progressed in recent editions of the IBC. This summary is not all-inclusive but rather covers notable aspects of the adoptions.



**Erin Criste** is staff engineer-education ([criste@aisc.org](mailto:criste@aisc.org)), and **Charles J. Carter** ([carter@aisc.org](mailto:carter@aisc.org)) is vice president and chief structural engineer, both with AISC.

Table 1	IBC 2003	IBC 2006	IBC 2009	IBC 2012
<b>Loads and system requirements</b>	IBC Chapter 22	ASCE 7-05	ASCE 7-05	ASCE 7-10
<b>Steel design with R=3</b>	AISC LRFD, ASD, and HSS Specifications	AISC 360-05	AISC 360-05	AISC 360-10
<b>Steel design other than R=3</b>	AISC 341-02	AISC 341-05	AISC 341-05	AISC 341-10
<b>Pages for steel design in IBC Chapter 22</b>	8	3	3	3

As mentioned before, few changes were made in steel design between the 2006 IBC and 2009 IBC as the reference standards were the same. There also were minimal changes from the AISC 360-05 to AISC 360-10, other than changes that were desirable for versatility, economy and ease of use. Looking forward, we expect this trend to continue.

Need to find these AISC standards? They're all available as free downloads (PDFs) at [www.aisc.org/epubs](http://www.aisc.org/epubs). They're also printed into the AISC *Steel Construction Manual* and *Seismic Design Manual*, so you have them already if you possess either or both of these publications. Historic AISC standards, and virtually all of our other documents, also are available—and are free downloads to AISC members—at [www.aisc.org/epubs](http://www.aisc.org/epubs).

#### Quality Requirements

Another example of how the approach of adoption by reference has improved the requirements in the building code, is with quality assurance and special inspections. Quality requirements exist, and have for some time, in many documents, including those produced by AISC, AWS, ICC and RCSC. Yet there previously was no roadmap for how these separate documents should all work together. Many arguments resulted and much money was spent, yet it remained

unclear what the right path should have been—until now, that is. With the adoption of AISC 360-10 Chapter N and AISC 341-10 Chapter J in the 2012 IBC Chapter 16 for steel quality requirements, the roadmap is provided and the appropriate quality requirements are clear.

Chapter N and Chapter J do not replace the AWS, AISC, IBC and RCSC requirements. Rather, they provide an overall picture of how they all work together. What's more, it really is the whole picture that is presented, addressing both the quality control that is required of the fabricator and erector, and the quality assurance that is performed by third-party inspectors.

#### Getting Up to Speed

We've read many articles on topics like this for other materials and are amazed at how much of the discussion in them must be devoted to how the base standard is modified and adopted into the IBC. For AISC standards, the adoption by reference is direct and there is no such need. So, we're happy to say that getting up to speed with IBC requirements is no more complicated than getting up to speed with AISC requirements. Adoption by reference is a win-win for everybody! ■