

Not-Quite-Oversized Holes

According to Section J3.8 of the 2010 AISC *Specification*, different resistance factors are given for standard holes and oversized holes. If the hole size provided is larger than that specified for a standard hole, but smaller than that specified for an oversized hole, is it permitted to use linear interpolation to calculate the strength?

The Commentary to the RCSC *Specification* (a free download at www.boltcouncil.org) states, "The footnotes in Table 3.1 provide for slight variations in the dimensions of bolt holes from the nominal dimensions. When the dimensions of bolt holes are such that they exceed these permitted variations, the bolt hole must be treated as the next larger type." Thus, RCSC does not allow interpolation.

La. S. M. P.E.

ASTM 1085

Does the introduction of ASTM A1085 HSS mean that ASTM A500 HSS is no longer available on the market?

No. We are in a transition period in which the structural marketplace will decide if ASTM A1085 will supercede ASTM A500 as the usual material for design and construction. In the meantime, ASTM A500 remains the usual material and HSS manufacturers do not plan to stop producing it. We are watching the transition and will advise with information in *MSC* as we see things change.

La. S. M. P.E.

Perform and Observe versus Periodic and Continuous

steel interchange

Demolition and the Code of Standard Practice

We have received a contract that requires the fabricator to perform demolition. Is this a violation of Section 1.7.1 of the AISC Code of Standard Practice?

The AISC *Code of Standard Practice* (available for free at www.aisc.org/code), in Section 1.7.1, does not prohibit the fabricator or erector from performing demolition work, but rather clarifies that demolition or shoring of an existing structure cannot be construed as being within their scope of the work unless it is contractually agreed to. You said that your contract assigns the demolition work to you, and so this is a case where the default provision in the *Code* is superseded by a specific instruction to the contrary in the contract. Section 1.1 in the AISC *Code* allows for this.

Coordination of any construction project is usually the responsibility of the general contractor (GC), and demolition and shoring would usually fall into that category. Were I bidding a job for which demolition is shown in your work, I would exclude that work in my bid. It would then be up to the GC to assign it to someone else.

Keith Landwehr

Slotted HSS Connections

What is the proper way to slot an HSS used as a brace member and welded to a gusset plate?

A few years ago, I asked several fabricators how they cut these slots and found a variety of answers, including:

- Drill a hole and cut between the hole and the end of the brace to form a slot.
- Cut the entire slot with CNC-guided torches.
- Use a hand-held torch to cut the entire slot manually and grind as required.

Each of these methods is acceptable. The User Note in the 2010 AISC *Specification* (a free download at www.aisc.org/2010spec), in Section M2.2, states: "Slots in HSS for gussets may be made with semicircular ends or with curved corners. Square ends are acceptable provided the edge of the gusset is welded to the HSS."

Due to erection tolerance and clearance requirements, welding the gusset along the edge at the end of the slot is not practical for typical field-welded braces. Therefore, for all practical purposes, slots with square ends should be used only for shop welded gusset plates.

Bob Dineen, P.E., P.D.

Compression Chord Bracing

I have a truss where I can effectively brace the tension chord but cannot brace the compression chord. Can the web members of a truss be considered to brace the compression chord out-of-plane?

In a vertical truss incorporated into a window wall system at the Virginia Beach Convention Center, the truss compression chord was "braced" by the truss web members. The connection of the tension chord to the window mullions was detailed to provide rotational restraint of the tension chord, the web members and the compression chord, thereby eliminating the need for out-of-plane bracing at the compression chord. The analysis and detailing of all of the truss components was quite rigorous in order to ensure proper load transfer and connection stiffness. A more detailed description of this particular case can be found in the following reference:

W. F. Baker and B.S. Young, "Stability Design of the Bow String Trusses of the Virginia Beach Convention Center," *Proceedings*, ASCE 2012 Structures Congress.

So in theory, with proper detailing and member rotational restraint, it is possible to design a system where the web members could be relied on as brace points. That said, you would need to evaluate your design and member detailing and use your own engineering judgment to assess whether you could apply these principles to your project. The project described in the article is obviously unusual. In most instances it would likely be less expensive to simply add additional bracing.

Susan Bursch, P.E.

Larry Muir is director of technical assistance at AISC. Bob Dowswell, Keith Landwehr and Susan Bursch are members of the AISC Steel Institute.

