Document Discrepancies

In case of a discrepancy between plans and specifications for buildings, which one governs?

The subject of document discrepancies is covered in Section 3.3 of the AISC *Code of Standard Practice for Steel Buildings and Bridges* (a free download at **www.aisc.org/code**) as follows:

"When discrepancies exist between the Design Drawings and Specifications, the Design Drawings shall govern."

Note that this section also states that any discrepancies that are discovered must be reported for resolution. It also states that it is not the responsibility of the construction team to discover discrepancies.

This may seem like a confusing answer, so let's go further. If a discrepancy is noted by the fabricator or detailer, it should be reported so that the design team can advise what information is correct and the work can be performed with the correct information. However, the fabricator, detailer, and others on the construction team are not expected to find discrepancies. Sometimes, the presence of a discrepancy only comes to light after a piece has been detailed, fabricated and/or erected. The quoted sentence provides a way to resolve if the work already performed has been performed properly, and who should pay for any re-work that is needed.

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Pipe Design

Section F8 of the 2005 AISC addresses flexural design of round HSS. Can Section F8 be used for the flexural design of steel pipe?

Yes, it is common to do so, and the AISC *Specification* explicitly includes steel pipe complying with ASTM A53 Gr. B. The Glossary of the 2005 AISC *Specification* defines HSS as a square, rectangular or round hollow structural section produced in accordance with a pipe or tubing product specification. Section A3.1a(3) of the *Specification* lists pipe as meeting the ASTM A53/A53M, Gr. B standard.

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Allowable Stresses in 1967

What was the allowable stress for A36 steel, fabricated in 1967?

Like today, the allowable stresses in 1967 were based on the limit state being investigated. F_y for ASTM A36 steel was and still is 36 ksi. Some example cases are as follows:

Flexure

The allowable strong-axis bending stress for a compact shape braced at a small enough interval to preclude lateral-torsional buckling was:

$F_b = 0.66F_y = 23.8$ ksi (use of 24 ksi was common)

The allowable strong-axis bending stress for a non-compact shape braced at a small enough interval to preclude lateral-torsional buckling was:

$F_b = 0.60F_y = 21.7$ ksi (use of 22 ksi was common)

The allowable bending stress for bracing at larger intervals was lower than these values.

Compression

The allowable axial compression stress was based on the slenderness ratio with a maximum of $F_a = 0.60F_y$. The actual allowable was much lower for any typical column length, of course.

Tension

The allowable tension on the net section, except at pin holes, was $F_t = 0.60F_y$.

See the 1963 AISC *Specification* for further information.

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Large Bolted Connections

We currently have a job with 1¼-in. diameter bolts (approximately 50 per connection) with 2 plies of 3-in.-thick steel. The hole size specified is 1⁵⁄₁₆ in. Needless to say all of the holes do not exactly line up perfect. What are the dimensional tolerances for the locations of holes in large bolted connections?

Neither the AISC *Code of Standard Practice* nor the AISC *Specification* provides tolerances on the locations of bolt holes. The holes however must be placed such that the other tolerances given in the AISC *Code of Standard Practice* can be maintained and the bolts can be installed in the holes. That is, the only requirement is that the joint must fit up, and it is up to the fabricator to employ a method that will achieve this. Some suggestions for how to do this follow.

When dealing with thick plates, consideration must be given to the use of oversized holes and slip-critical connections. The use of slip-critical connections will usually require more bolts. This may be detrimental to economy in both the shop and the field, due to the greater number of holes to be drilled, and bolts to be installed. There will also be additional cost involved in surface preparations and inspections.

The use of bearing bolts in standard holes will mean fewer holes to drill and bolts to install, but may require reaming if things do not fit-up. This reaming can be both time-consuming and costly in the field.

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High-Seismic Column Splice

Section 8.4a(2) of AISC 341 requires the available strength for each flange (LRFD) is noted as 0.5$_f$ FA . Is the term A the area of one flange or the total area of the two flanges?

The term A_f refers to the area of one flange of the smaller column connected.

Thanks for your question—this has been clarified in the draft

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