

IF YOU'VE EVER ASKED YOURSELF "WHY?" about something related to structural steel design or construction, *Modern Steel Construction's* monthly Steel Interchange column is for you! Send your questions or comments to solutions@aisc.org.

Repairs at Protected Zones

When installing the light gauge framing on a special moment frame with RBS connections, four shot pins were inadvertently installed into a beam flange in a protected zone. What criteria can we apply to determine if this exceeds an acceptable level? And if it does, what repairs are available to us?

Question sent to AISC's Steel Solutions Center

The AISC *Seismic Provisions* state that "welded shear studs and decking attachments that penetrate the beam flange shall not be placed on beam flanges within the protected zone." There is no level of such attachments that would be considered acceptable.

Base metal repair requirements within the protected zone are given in Section 6.15 of the AWS D1.8 *Structural Welding Code—Seismic Supplement*. Subjects of weld removal and repair of gouges and notches in protected zones are covered.

Kurt Gustafson, S.E., P.E.

Design Wall Thickness

What is the reason for the smaller gross areas of standard pipes in the new (13th edition) steel manual?

Question sent to AISC's Steel Solutions Center

The areas of HSS and steel pipes listed in the 13th edition *Steel Construction Manual* reflect the requirement in Section B3.12 of the AISC specification that the design of HSS manufactured by the electric resistance welded (ERW) process be based on a design wall thickness equal to 0.93 times the nominal wall thickness. An HSS is defined in the AISC specification as "Square, rectangular, or round hollow structural steel section produced in accordance with a pipe or tubing product specification."

Kurt Gustafson, S.E., P.E.

65 ksi Steel and LEED Certification

We are considering the use of 65 ksi steel for building columns. Can you tell me what the availability would be for 65 ksi W-shapes? We are currently looking at sizes ranging from W14x61 to W14x605—the whole range!

Additionally, the project (located in Chicago) is to be LEED certified, so we would be looking for steel manufacturers within a 500-mile radius. Do you have any recommendations for steel suppliers that would be able to fulfill this requirement and supply 65 ksi W-shapes?

Question sent to AISC's Steel Solutions Center

As you likely know, LEED 2.2 requires that local products be both manufactured and harvested within 500 miles of the project site (in previous versions the two were separate considerations). For steel, the location of the steel fabricator is the point of final manufacture, and this location is easily obtainable by numerous steel fabricators local to the Chicago area. For harvesting of material, however, you have to use the location of the scrap source for the mill where the material is produced, which is usually within approximately 300 miles of the mill.

Unfortunately, for your particular case, you will not be able to apply the steel toward this credit if you use 65-ksi steel, as shapes of this grade (ASTM A913) are currently only produced by Arcelor-Mittal steel in Europe. Thus, with respect to sustainable design, you will have to weigh the material savings that you yield by using a stronger grade of steel versus the environmental impact of shipping the material overseas. The closest mill of any structural steel material to your project site is Steel Dynamics in Ft. Wayne, Ind. If you choose to use a 50-ksi material, they can supply it from that location to meet your LEED criteria.

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If you have a question or problem that your fellow readers might help you solve, please forward it to us. At the same time, feel free to respond to any of the questions that you have read here. Contact Steel Interchange via AISC's Steel Solutions Center:

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