If you've ever asked yourself "Why?" about something related to structural steel design or construction, 's monthly Steel Interchange is for you! Send your questions or comments to **solutions@aisc.org**.

Special Inspections and NDT

The following questions all relate to the requirements of Chapter N of the *Specification*:

1. **Must special inspections be performed when AISC Certified fabricators perform the work?**
2. **Are AISC Certified fabricators allowed to perform special inspections with their own personnel?**
3. **Are AISC Certified fabricators allowed to perform non-destructive testing (NDT) with their own personnel?**
4. **If fabricators are allowed to perform NDT with their own personnel, are the qualifications for these personnel any different than those of a typical third-party special inspector?**
5. **Do AISC Certified fabricators typically retain people in-house to perform NDT, or is this work typically done by a third party retained by the owner?**

The following answers are provided:

1. This is not a yes or no question. The AISC (ANSI/AISC 360), available at **www.aisc.org/specifications**, does not require special inspections. Requirements related to special inspections are defined in the building codes, such as the . The permits authorities having jurisdiction to approve fabricators, and some or all special inspection requirements can be waived when the work is performed by approved fabricators.
2. The fabricator can, at the discretion of the authority having jurisdiction, use their own personnel to ensure the quality of the project without outside inspections.

   Quality control (QC) is defined as "controls and inspections implemented by the fabricator or erector, as applicable, to ensure that the material provided and work performed meet the requirements of the approved construction documents and referenced standards." Quality assurance (QA) is defined as "monitoring and inspection tasks to ensure that the material provided and work performed by the fabricator and erector meet the requirements of the approved construction documents and referenced standards. Quality assurance includes those tasks designated 'special inspection' by the applicable building code."

   Both QC and QA are intended to ensure conformance with the approved construction documents and referenced standards. QC is performed and documented by the fabricator. Section N5.3 allows cooridinated inspection meaning QC tasks need not be repeated as QA tasks. The waiving of special inspections represents the approval of the engineer of record and the authority having jurisdiction for coordinated inspection. If special inspections are not waived, a third party will perform special inspections. These tasks can be seen by examining the tables provided in Chapter N.
3. Yes. Section N6 of the AISC specifically allows approved fabricators to perform NDT. It also indicates that when NDT is performed by the fabricator, a QA agency shall review the fabricator's NDT reports.
4. No. Section N4.3 defines NDT Personnel Qualifications. The requirements do not vary based on the party performing the work.
5. Practice varies. My understanding is that most fabricators do not employ personnel trained to perform NDT. If the fabricator cannot perform the NDT, then I believe it is more common for the owner to contract the NDT tasks.

Shear Center of Channel

I am designing a single-plate shear connection to a channel section for a stair. The plate of the single-plate shear connection attaches to the back of the channel, the side opposite the flanges. The structural engineer on the project is concerned about torsion on the channel because the load is eccentric to the shear center of the channel. Is this a valid concern?

We cannot make design decisions or arbitrate. Ultimately, the engineer of record will have to set the requirements.

The preamble to Chapter F in the AISC states: "Chapter F applies to members subject to simple bending about o 0.129 Tw 0 -1.278 TD[of the web of a wide-flange,)37.2 (which is of