The Only Constant Is Change

BY ZANE KENISTON

Why document and data control procedures need to be dynamic within your organization.

CHANGE IS A CONSTANT in our lives. Heraclitus, an ancient Greek philosopher, is commonly credited with saying, "The only constant is change," and change seems to come at an incredible speed nowadays.

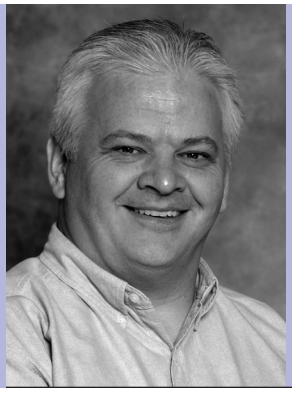
When was the last time you changed something, or anything? Was it a minute ago, or earlier today? And was it tangible, like an article of clothing, or intangible, like your goals for the year? Some things definitely require change while others, such as the economy, have little or no ability to be changed by us. Yet, there are many things that we can control and change, as the need occurs. The key to controlling this "constant" is to know why something needs changing, when to make that change, and how to do it effectively.

It is this selectable, controlled change we will address in this article. In particular, we will consider the document and data control process within a fabricator's quality management system (QMS). Because change or "continual improvement" is vital to a healthy QMS, AISC addresses this within its certification requirements. For one example, see Section 8—Document and Data Control within the *Certification Standard for Steel Building Structures*, available as a free download at **www.aisc.org/certupdates**.

This article will be limited to quality manuals, written procedures, and forms. Although not within the scope of this article's discussion, we will use shop and erection drawings as an example to assist our understanding of this process.

Let's consider three factors:

- Why documents and data must change?
- When to initiate such changes?
- How to control change to our documents?



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Why Change?

First, why do documents and data change? Time is probably the primary driving force. With documents, the passing of time includes the introduction of new computer software, improved communication and fabrication processes, new building code and specification criteria, and a plethora of other advances that can quickly make obsolete even the best of our documents. Naturally then, it is necessary to update and revise the documents that we are using to control particular processes within our QMS.

Let's use shop drawings as an example. Why is a shop drawing revised? Typically there is a change made to some aspect of the project. The approval process results in "Revise as Noted" or "Revise and Resubmit" mark-ups, then field dimensions are collected and necessitate revisions to the shop or erection drawings. Then come change orders. Shop drawing revisions for the most part are straightforward.

The reasons for maintaining good records of shop drawings and their revisions are highlighted in Chapter 8 of the AISC/NISD *Detailing for Steel Construction* 2nd Edition under the subheading "Maintenance of Records." On page 8-3 it states, "Good records provide documentation of revisions and other events, aid in the determination or justification of extras and back-charges, and furnish supporting data in the unpleasant event of litigation." Without a doubt, fabricating off of an outdated set of shop drawings is one of life's harder lessons that some of us have unfortunately learned.

Now, although a written procedure or form may not appear to have the glamour and immediate impact that a revised shop drawing does, over time an out-of-date procedure or form could prove just as costly as fabricating out-of-date shop drawings. When a procedure or form does not provide the direction necessary to perform the fabrication or erection according to contract or code requirements, costs will predictably increase.

As an example, a complex protective coating inspection form may not include sufficient supporting data to protect the fabricator in the event there is an in-service failure of the coating. Or, a calibration procedure may fail to address the code-required frequency for welding machine calibration thereby resulting in disputed welding performance by a third-party inspector. The possibilities are endless. The point is that written procedures and forms are subject to revisions

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and those revisions can have as much, if not more, impact on the bottom line as a set of shop or erection drawings.

When to Initiate Change

To help close the gap between recognizing that change needs to occur and actually making the necessary changes, let's next discuss when to initiate a document revision. As an example, revisions to shop drawings are dynamic in nature. Once a revision is made, the next step is to determine where the shop drawing is in the fabrication process. Has it been released to the shop or field? If so, who is responsible for retrieving the old sets and delivering the latest revisions? And, are you positive all the old revisions are out of the shop? All of this happens within a short period of time because of the risk involved.

Revising a written procedure or form, however, may not appear as dynamic as revising a shop drawing. In fact, revisions to procedures and forms are usually more lethargic in nature, perhaps because no one actually knows when and how to revise a procedure. So, how can you simplify the revision process for a written procedure or form? Simply using a Plan, Do, Check, Act method can be helpful. (See Figure 1.)

Ineffective procedures and forms are similar to a shop or erection drawing that contain useless information, so they should be reviewed at regular intervals to determine their effectiveness. If a procedure or form is not adding value to the QMS, then what is it doing? Make sure that your procedures add value, rather than take it away.

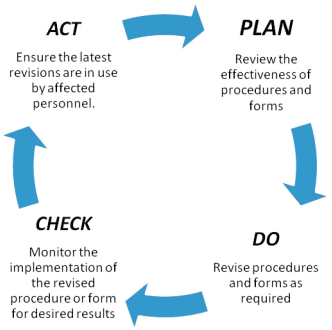


Fig. 1: The Plan, Do, Check, Act Method

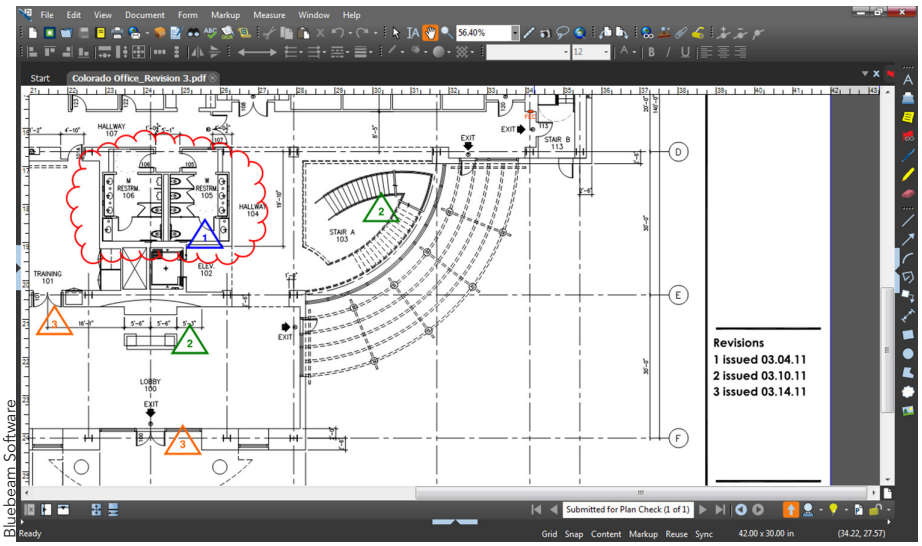
For example, a fabricator had several forms that are generated by certain written procedures. A review of several completed forms revealed that certain columns were consistently left blank from one job to the next. When the user of the form was asked about these blank areas, the answer was, "We never use that." What would you conclude? Either the data in that column were originally considered important, but are no longer necessary; or that perhaps the user has not received sufficient training to appreciate the importance of the information and is thus failing to capture it.

How to Control Change

What control is needed for revising forms and procedures? Unless you clearly address this question, there may exist multiple

procedures trying to define one process, or incongruent forms that add no value to your QMS. Always consider two steps when it comes to performing revision control: responsibility and revision method.

Most shop drawings contain a revision box somewhere on the physical drawing, usually near the title block, where the revision may be noted as letter or number, depending on the fabricator's detailing standard. Many times that revision letter or number is placed inside a triangle (which resembles the Greek delta, symbolizing change) next to the revised dimension, piece mark, bill of material item, etc. In some cases, the detailer will "cloud" the revision on the drawing, thus clearly identifying what was revised. (See the example in Figure 2.) The revised drawings are then checked for accuracy by someone other than the detailer.



▲ **Fig. 2**: Revisions on a drawing typically are identified with the revision number and clouding around the most recent changes.

An effective document and data control procedure will attempt to achieve a similar level of control over written procedures and forms. The procedure will identify:

- A responsible person to review the effectiveness of procedures and forms.
- The individuals who will review effectiveness of suggested revisions.
- The method to indicate revisions to procedures and forms.
- The individual responsible to ensure the latest revisions are in use and effective.

Give attention to the third bullet point. A method for revising documents should produce the same effect as the detailer's method for revising shop drawings. It should call attention to the fact that the drawing was revised and indicate what was revised. Most document control procedures require that a revision log and/or revision number or letter be applied to the procedure or form. This will clearly indicate that the procedure was revised. But how can you indicate what within that procedure was revised? A very simple and effective method employed by the American Welding Society notes that changes to text from one edition to the next are indicated by underlining. This makes it extremely easy to quickly identify what changed from one edition to the next. It could be that easy with your procedures and forms as well. Otherwise, even if a procedure is issued, users may not be inclined to dig through the text to find what changed and how it affects them.

The above suggestions and guidance probably sound simple, and the truth is they are. I have given this same advice to multiple fabricators and erectors in our industry and have seen it work successfully time and time again.

So, do not cringe when it comes time to revise your quality manual, procedures, and forms—just ask and understand the why, the when, and the how. Take full advantage and always consider it an opportunity to improve your overall processes, add value to your operations, reduce your client's risks, and control change as it happens. After all, no one has proved Heraclitus wrong in 2,500 years. MSC