

Certification Assurance

Certification standards vary for materials and techniques, requiring designers to look beneath the surface to be assured they are getting what they expect

by Craig A. Shutt

To help ensure products and materials will meet the standards of quality and precision they require, designers often look to industry certification programs to provide reassurance. But how stringent are certification bodies and do they provide the assurances the designers expect?

The Precast/Prestressed Concrete Institute (PCI) recently addressed these questions by going through the process to receive accreditation from the International Accreditation Service (IAS) for the PCI quality assurance manuals and the procedures that PCI-certified plants use to produce precast concrete products. IAS has accredited PCI's Plant Certification Program, which now is managed in accordance with IAS Accreditation Criteria (AC) 477 and ISO/IEC 17021, *Conformity Assessment—Requirements for Bodies Providing Audits and Certification of Management Systems*.

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According to the IAS website, "IAS provides objective evidence that an organization operates at the highest level of ethical, legal, and technical standards." The group is a subsidiary of the International Code Council (ICC), which develops the building, energy, fire, mechanical, plumbing, and other codes used by most U.S. municipalities. The three driving tenets of the accreditation are: competency, confidentiality, and impartiality.



IAS is a nonprofit, public-benefit corporation providing accreditation services since 1975. As a subsidiary of ICC, it accredits a range of companies and organizations, including governmental entities, commercial businesses, and professional associations. It acts like a registrar and has more than 900 accredited entities worldwide. IAS accreditation is based on recognized national and international standards that ensure domestic and global acceptance of its accreditations.

Who Certifies the Certifiers?

In such certification programs, the credibility of the certifying body is critical. Bridge engineers may not be as familiar with building-component certifying bodies such as IAS and ICC, and thus may require assurances that these bodies provide the same rigors for transportation material as they do in the building arena. For these assurances, engineers turn to the International Organization of Standardization (ISO).

The key element in determining an equivalency is to find a base of standards recognized by each industry to ensure they are rigorous on the significant required points. In the case of IAS, the organization follows all standards and requirements laid out by ISO supported by American National

Standards accredited by the American National Standards Institute (ANSI). It is important to note that PCI is an ANSI-accredited standards developer.

This base of standards allows IAS certification to be applied to materials in accordance with those recognized certification authorities. Some states provide this equivalency in their programs. The Florida Building Commission, for instance, through its Florida Administrative Code Rule 9B-72, allows products to be deemed certified only if the products' certification agency is "accredited by ANSI [to] meet the requirements of ISO/IEC Guide 65: *General Requirements for Bodies Operating Product Certification Systems* or other standard certified as equivalent."

Rule 9B-72 also requires quality-assurance agencies to annually audit the manufacturer's quality-assurance program through in-plant visits, product inspections at sites or distribution facilities, or testing of production-line samples. These elements are part of the IAS program, based on American National Standards, and are part of the PCI program.










By and large, the PCI quality-assurance program already provided these elements. With slight modification, these elements were brought into conformity with IAS and ISO requirements and certifying standards overall, which is a detailed process requiring significant documentation and added training and assessment activities.

"Our goal in attaining IAS accreditation was to ensure all processes associated with PCI's certified quality-management system fall in line with internationally accepted best practices and to ensure continuous improvement of the PCI

Research, Documentation Underlie Best Programs

Research produced and openly disseminated by long-standing technical institutes, which fund and monitor ongoing studies and programs of all types, often serve as the basis for the creation of alternative, static, low-cost, checklist-based programs run by trade associations and for-profit organizations.

This is why code organizations turn to technical institutes when developing their own standards, as the institutes are the source of the critical research that underlies the procedures. For instance, the codification and calibration of the AASHTO LRFD Bridge Design, Construction, and Rating Specifications for fabricated bridge elements relied upon the standards, publications, practices, and personnel certifications noted below, all promulgated by technical institutes:

-  American Iron and Steel Institute (AISI) plate standards;
-  AISC for best practices and plant certification;
-  American Segmental Bridge Institute (ASBI) for best practices and grouting-personnel certification;
-  American Concrete Institute (ACI) for best practices and personnel certification;
-  ASTM International for materials and test standards;
-  American Welding Society (AWS) structural welding code, after-welding distortion tolerances, best practices, and personnel certification;
-  Concrete Reinforcing Steel Institute (CRSI) reinforcement dimensions, bending and placement standards, and epoxy coating plant certification;
-  PCI for best practices, plant certification, and personnel certification; and
-  Post-Tensioning Institute (PTI) for best practices, hardware standards, and personnel certification.

This figure originally appeared in the Fall 2009 issue of ASPIRE.

Plant Certification program,” explains Dean A. Frank, PCI director of quality programs.

Many Benefits Result

PCI sought to achieve multiple goals with IAS accreditation. They include:

- Ensuring all processes associated with the quality-management process fall in line with internationally accepted best practices
- Providing a tool to ensure continuous improvement of the PCI Plant Certification Program
- Maintaining and increasing credibility with design professionals, code officials, and authorities having jurisdiction
- Providing objective evidence of PCI’s commitment to providing top-quality certification programs
- Assuring specifiers that PCI-Certified Plants can manufacture engineered-to-order and complex structural and nonstructural elements as designed
- Showing that PCI’s plants operate at the highest level of ethical, legal, and technical standards
- Offering credentials to ensure PCI Plant Certification will be accepted in the marketplace and by governmental agencies that regulate service or product acceptance

- Aligning more closely with ICC and enhancing the program’s standing with various building departments and authorities having jurisdiction
- Increasing credibility of the PCI Plant Certification Program on an international level


The program addresses any real or perceived conflicts of interest in having PCI-retained personnel performing certification audits for the plants, Frank explains. It provides an outside, credible source to review performance and standards that is accepted worldwide. “It is not just a club that meets its own easily achieved standards,” he says.

Customer Satisfaction Process

A key element for owners, designers, and contractors is the customer satisfaction process. This system ensures complaints about quality or other aspects of the products can be officially filed with the PCI Director of Quality Programs, who then coordinates with the plant to give additional incentive for the plant to resolve the issues. To facilitate any questions, a Feedback page has been added to the PCI website. It contains forms that can be filled out and submitted to PCI quickly.

IAS accreditation offers added assurance to the construction team that quality standards have the highest probability of being met and ensures consistency among PCI-certified

plants. “IAS accreditation provides independent verification that the program’s procedures appropriately address competency, confidentiality, and impartiality,” says Frank. “It should go a long way in easing the minds of the construction team.”

Designers recognize that materials and products manufactured by a plant certified by an accredited management system certification body, such as PCI, offer the best level of quality assurance. Certification programs that follow these rigorous standards produce the consistent, precise levels of quality that owners and designers expect when they specify products. 

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For more information, see the paper in the Fall 2009 issue of ASPIRE on the Institute Certification, and the white paper located at www.pci.org/uploadedFiles/Siteroot/PCI_Certification/Related_Content/Related_Content_Files/AISC_PCI_Quality_Systems_White_Paper.pdf