

# Code Report

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## Michigan Ruling on Cast Iron Soil Pipe

I recently read an article by a well-known plumbing engineer and industry code consultant attacking Michigan for not approving Chinese cast iron pipe for use in the state. The writer's client, an importer of Chinese cast iron pipe, submitted paperwork intended to support the seller's request for state approval of the products. The paperwork was intended to provide evidence of the supplier's compliance with the product standards required by the Michigan Plumbing Code. The seller argued that a third party listing certificate should be sufficient for acceptance of his products. Ultimately, the Michigan Plumbing Board did not agree.

### Michigan's product review

I reviewed copies of the transcripts of the Michigan Plumbing Board meeting and the Michigan Construction Code Commission meeting addressing the requested approval of the seller's Chinese cast iron pipe, and I reviewed copies of the certified lab reports that were submitted by the seller. This issue boils down to an importer trying to gain acceptance of Chinese pipe with inadequate documentation to prove that it meets the manufacturing requirements for cast iron pipe.

The problem is that an importer, wholesaler or seller of imported Chinese pipe might not use just one but dozens of Chinese foundries. The importer in the Michigan case attempted to present his company as the maker of the pipe, despite the numerous requirements in the standard for on-site testing and quality control that the seller could not possibly have performed or witnessed. The importer submitted test reports that were supposedly from the foundry in China, but that foundry may or may be the one where the importer might eventually purchase the pipe. If a seller can purchase products from another foundry at a lower price, then the lowest priced material may get shipped, and chances are that it will not come from the foundry submitting the paperwork. It would be inaccurate for a seller or importer to be listed as the foundry, because the importer has no control over the overseas foundry's testing, manufacturing process or quality control.

### My experience

Over the last few years, I have been a plumbing designer on numerous major projects in Michigan. On more than one occasion, after they had already provided submittals for U.S.-made pipe that met the referenced standards in the code, contractors have asked whether I would approve Chinese cast iron pipe materials. In one case, not wanting to just say no, and in an effort to be fair, I asked for submittals of the Chinese pipe information and received one typewritten page with a note saying that the cast iron pipe for the project would be equivalent to the previously submitted U.S. pipe. There was no manufacturer documentation, no warranty information and no installation instructions as required in our specification.

I decided to discuss these Chinese materials with a few people in the industry that I knew had experience working with them. One of them is a close friend who is a master plumber

and is now a plumbing inspector in Michigan. He has more than 40 years experience in plumbing and heating. He reported that he had recently had the experience of installing Chinese cast iron pipe, and that there was a distinct difference between the Chinese pipe and U.S.-made pipe. He said that when he cut U.S.-made pipe from a manufacturer such as Tyler or Charlotte it would snap off clean, and that, when it snapped off, the pipe would make a distinctive bell ringing sound. When he cut the Chinese pipe it made a crunching sound, and it would often crush or break irregularly and leave jagged ends.

Based on the information I had gathered and on the fact that there was no product data, manufacturer's installation information, warranty information or proof of product listings, I decided not to approve the Chinese pipe on my projects.

### Test reports are questioned

The Chinese pipe seller submitted production and quality test reports to Michigan, allegedly from one or more of the many foundries in China that produce cast iron pipe for the third-party listing agency to review for their product listing. I was surprised to see that the test reports were in English. I would have expected to see the test reports written in Chinese. (I would be just as surprised if a U.S. manufacturer prepared their reports in Chinese.)

There were numerous things that raised my suspicions concerning these test reports. The tension test for metallurgical consistency, for example, indicated that the Chinese material always fractured at the exact same fracture or breaking load force on 16 consecutive tests. It is nearly impossible to fracture or break 16 different test bars and have the exact same fracture or breaking load on even two occasions. Still another red flag was that all 16 Chinese test bars were exactly the same in diameter, measured to a thousandth of an inch.

The testing I have witnessed in the U.S. manufacturing facilities convinced me that it was extremely difficult to machine a cast iron test bar on a lathe to the exact same diameter within a thousandth of an inch sixteen consecutive times. Even with a very sophisticated computer-controlled lathe, there are typically some variations of several thousandths of an inch between samples. Another odd coincidence was that the minimum breaking load recorded on their test report for each test bar diameter was the same number listed in the published charts for the minimum failure point of the test for each of the sixteen tests.

Other aspects of the report raised suspicions as well. The handwriting was all uniform and neatly written with the same ink, and it was in perfect alignment, which is not likely to happen with multiple entries in a log over a long period of time. The interesting thing was that the person who did the testing apparently never sleeps. The log listed the same person's name as conducting the testing around the clock.

Other conflicting information in the submittal was that the purchase order paperwork from the importer identified a total

of 8,764 pieces of pipe in sizes ranging from two inches through 10 inches diameter in 10-foot lengths being produced from Nov. 21, 2006 through Nov. 25, 2006. The listing agency also had paperwork showing that they were on site at that foundry on Nov. 21, 2006, but their inspection report showed no production at the time of inspection, and they had notes stating that no listed products were in stock at the time of their inspection. This indicates that either the listing agency's site visit report or the manufacturer's test reports are in error. The paperwork also indicated a shipping date from the foundry of Dec. 2, 2006, so there should have been a significant portion of the 8,764 pieces of pipe in production and in stock when the listing agency inspector was at the foundry.

I know the code consultant who represented the Chinese pipe importer. He is a very bright individual and a well-respected person in the industry. I understand that he got involved with his client somewhat late in the process, and testimony revealed that he did not have all of the information at some of the early meetings. I am sure that if he had more time to review the test results before the hearings he would not have attacked the chief plumbing official in Michigan and the Michigan Plumbing Board as he did in his article. I applaud the state plumbing board and the chief plumbing official for their attention to detail in catching these inconsistencies in the test reports and denying the materials. I'm sure that they based their denial on concerns that these reports could possibly have

been fabricated after the fact to satisfy the listing requirements for the pipe. It may also be why Michigan filed an official complaint with ANSI regarding the listing agency's process.

This is an example of a loophole in the product certification system. If product-listing agencies are simply going to collect money and issue listings without enforcing the standards that the products are supposed to be listed to, then the system needs to be fixed. The product certification agencies should witness the testing to make sure that it is actually being done, and they should not rely so much on the applicant's promises or on questionable paperwork. The system needs to be adjusted to make it fair for U. S. manufacturers who have on-site testing, quality control and pollution control equipment and actually meet the requirements in the standard.

In my opinion, Michigan code officials did their job. In this day and age, with all of the other quality problems with products being imported from China, I'm finding it hard to find much sympathy for someone who may be trying to cut corners. ■

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