

## Standards and Model Codes: A Working Relationship

In the course of just about any debate between a building official and a contractor, the phrase “Is that the standard for that product?” will be used to make someone’s point. The standards for product performance and installation methods have been so intertwined with the code that they can no longer be separated. The two features complement and support each other throughout the model code language.

When the contractor or designer asks the questions, he’s saying, “Show me how what I am doing is incorrect according to the code.” When a building official asks it, he’s saying, “You need to give me more information if you want me to allow that to pass inspection” because either this is the first time he’s seen this product or he’s asking, “Are you kidding me with this *Rube Goldberg* piping configuration?”

Either way, the two are looking through the code book to support their position. The best scenario is when the code clearly defines what should be done and doesn’t contradict itself across various chapters. It allows the issue to be black and white — not subject to interpretation.

The model codes are intended to be adopted as primary law by a local government. These codes are a compilation of minimum requirements addressing an area of regulatory focus; in our case, the plumbing and mechanical industries. In the development of a code, a standard addresses a specialized aspect of the construction industry or practice.

In section 205.0 of the *2018 Uniform Plumbing Code*<sup>®</sup>, “codes” are defined as “a standard that is an extensive compilation of provisions covering broad subject matter or that is suitable for adoption into law independently of other codes and standards.” In Section 202 of the *2018 International Plumbing Code*<sup>®</sup>, “codes” are defined as “these regulations, subsequent amendments thereto, or any emergency rule or regulation that the administrative authority having jurisdiction has lawfully adopted.”

By their own definition, the purpose and intent of the model codes is to provide “minimum requirements and standards for the protection of the public health, safety, and welfare...by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of plumbing equipment and systems.”

Within the body of building and safety codes, various reference standards are embedded to form the foundation of the codes. Standards are defined by the *Uniform Plumbing Code*<sup>®</sup> as “a document, the main text of which shall contain only mandatory provisions using the word ‘shall’ to indicate requirements and which is in a form generally suited for mandatory reference by another standard or code for adoption into law. Non-mandatory provisions shall be included in the index, footnote, or fine print note and not to be considered a part of the requirements of a standard” representing “an industry consensus on how a material, product or assembly is to be designed, manufactured, tested and installed so that a specific level of performance is obtained.<sup>1</sup>”

In some cases, the entire text of a standard is included in the code, while “reference standards” are included by citation to another document and require the user to subsequently research the supporting resources for the exact content. These referenced materials usually encompass the “property” standards that outline the performance and design of specific products and components. The “installation” standards are often embedded in the text of the specific code document and prescribe how components should fit together and perform as a system.

While the code as adopted by the Authority Having Jurisdiction remains unchanged, it is always important to refer to the current standard. Over time, issues regarding standards may arise and the standard itself may change in some degree to address those issues. By adopting the codes with

reference to the standard a change in standards can help to keep certain things current within the body of the code even though the jurisdiction may be operating under an older version of the code.

When the standard for a product or practice is engrained in the systematic approach to construction, the entire building envelope is secure. The building owner can rely on the other components and sub-systems to work together, while having a strong expectation of performance capabilities. I remember different buildings in the southwest where the mechanical systems fought each other: one was refrigerated air and the other evaporative cooling, so one system was putting moisture into the air while the other was dehumidifying it. Clearly, in this case, there was a communication disconnect between the mechanical engineer and the building owners. Enforcing the code and the referenced standard prevents oversights from continuing to be problematic during the life of the building.

By following the standards, a level of trust is also maintained by the various subcontractors. When a non-conforming product fails, it impacts the reputation of all the subcontractors near the point of failure. No one wants to hear from the jobsite superintendent near a project's completion that work must be redone to fix something because one trade cut some corners in the purchase of uncertified products or due to incorrect installation. In the past, when construction was getting projects done and moving on the next one, speed was the driving force. In today's economy, clients demand the work to be done correctly the first time; they have no patience for construction delays nor interest in having to back charge the subcontractor who caused the problem for remediation costs from the other trades.

When standards are written to an ANSI-accredited process involving all users of the code in all industry sectors, the process is open to everyone. Codes with embedded standards have their own uniquely effective and mutually interactive roles in attaining public health and safety. By allowing the building and safety official, as well as the system designer, plumbing or mechanical contractor and the product manufacturer, in the code development process, the "show me where it says that in the code" arguments go away, as everyone had a hand in writing the baseline document. Everyone has a stake in making the code work as a seamless practical document.

A model code allows a local jurisdiction a time- and cost-saving alternative to developing in total their own compilation of product standards and installation methodologies. The body of work that is the foundation for the model codes has almost an inestimable number of hours of dedicated writing by practical plumbing professionals, engineers and product manufacturers. They consider real world solutions, as well as the mathematical models necessary to ensure the designed systems work for the long term. The language is often dense, as it must be binding for contracts to be enforceable yet somewhat flexible enough to allow for new product innovations and local conditions.

The reliance on voluntary consensus codes and standards is intended to help make the government oversight of building safety operate more efficiently by reducing regulatory compliance costs. When the codes use readily recognizable standards, the duplication of effort caused by having separate private sector and government-unique solutions is avoided. This enables the government to take advantage of private sector technology and expertise in establishing standards that are up-to-date and encompass the latest technology, all the while serving the population with reliable clean water and sanitation. In this way, the plumbing and mechanical codes, with their supporting standards, contribute to the country's economic prosperity and growth.