

## Equivalency and Newer Versions of a Standard

This issue of TechNotes was written by Bob Upson, NFSA's Manager of Installation Standards. A frequent discussion in Expert of the Day responses here at NFSA is the practice of using newer versions of consensus standards than a local jurisdiction has adopted. In this article we'll take some time to consider the merits of that practice and, most importantly, how to reasonably justify it to local AHJs. We'll confine our discussion to NFPA 13 for clarity but the gist of this discussion applies to other standards as well.

In general, the assumption is that the latest version of a standard represents the latest thinking of the technical committees that produce that standard and that each newer standard represents at least the same or better protection than provided by the prior standards. This is a reasonable assumption to make. The question becomes how to best convince the AHJ on a given project to accept a standard that hasn't been formally adopted by his or her jurisdiction.

There are two features of the codes and standards that need to be examined. The first and most familiar is the equivalency statement in the administrative section found at the beginning of NFPA 13 (2013):

**1.5 Equivalency.** *Nothing in this standard is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by this standard.*

In other words, the standard recognizes that there may be more than one way to build a mousetrap and it doesn't preclude using alternative methods as long as they provide equivalent or better protection than that explicitly contained in the standard. We typically assume that a newer version of the same standard meets those criteria. What is sometimes overlooked are the next parts of this section:

**1.5.1** *Technical documentation shall be submitted to the authority having jurisdiction to demonstrate equivalency.*

**1.5.2** *The system, method, or device shall be approved for the intended purpose by the authority having jurisdiction.*

The determination of equivalency is up to the AHJ and it is the responsibility of the petitioner to provide reasonable evidence of equivalency to the AHJ.

The second thing to consider is that standards like NFPA 13 are more often adopted into code by way of another document; typically the building code. Most commonly this means some version of the International Building Code (IBC). The IBC (2012) also has equivalency language of its own:



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**[A] 104.11 Alternative materials, design and methods of construction and equipment.** *The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.*

**[A] 104.11.1 Research reports.** *Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports from approved sources.*

**[A] 104.11.2 Tests.** *Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the building official shall have the authority to require tests as evidence of compliance to be made at no expense to the jurisdiction. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the building official shall approve the testing procedures. Tests shall be performed by an approved agency. Reports of such tests shall be retained by the building official for the period required for retention of public records.*

As with NFPA 13, the Building Code requires supporting data to accept that an alternative means provides suitably equivalent protection. It is up to the AHJ to determine what constitutes sufficient evidence.

A common mistake at this point in the process is confusing the AHJ with the plans examiner, local building official, or fire marshal – referred to collectively here as the “code official”. The Authority Having Jurisdiction is typically a legal entity not to be confused with the code official charged with representing that entity as its agent. The authority of any given code official to permit modifications or alternatives to the letter of the prescriptive code varies from jurisdiction to jurisdiction. Any system designer desiring to make use of the equivalency clauses in the codes and standards needs to be aware of who has the authority to approve them and be prepared to make a well reasoned case to support the desired changes. In some cases, the authority to permit modifications or alternatives to the adopted code may not rest with the local code official at all.

We'll consider three different situations where it might be prudent to look to newer editions of a standard as an alternative means of providing equivalency:

1. Clarifications of the standard committee's intent about a particular situation;
2. New rules that conflict with the adopted standard;
3. New technologies or practices simply not anticipated or addressed by the adopted standard.

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## Clarifications in New Editions

Occasionally we run across language in the standard that just isn't clear or is ambiguous. Later versions of the standard may revise that language to more clearly state the standard committee's intent. In this case, newer editions of the standard can be used to clarify the intent of the adopted edition language. When presenting such a case to the AHJ, it's not necessary to depart from the adopted standard. The newer standard is just provided as a means to clarify the committee's intent when they produced the adopted standard. In this case, the required technical documentation is the newer standard itself.

A good example of this is the ever changing language concerning projections from a building which changes with virtually every cycle as the committee refines exactly what it is that they're trying to say. So far, each edition tends to be a little easier to understand and apply than its predecessor even though the intent hasn't really changed at all.

## New Rules That Conflict with the Adopted Standard

As time goes on, our knowledge about what practices and methods work and which do not tends to improve. A newer edition of a standard may prohibit practices allowed in prior editions or it may permit practices that were once prohibited. Applying a newer standard here is more of a challenge but not without merit.

For instance, our experience with antifreeze systems has led to severe restrictions essentially prohibiting new installations in most cases. These restrictions exist in the 2013 edition of the standard and have been inserted retroactively into the 2010 edition via TIA. What about all those jurisdictions where the 2007 edition or earlier is still legally in effect as part of the adopted code? As far as those older standards are concerned, it's still perfectly acceptable to install new antifreeze systems. But should we?

Ethically, the answer is that we should not. The industry has become aware of the potential problems with combustible antifreeze and is moving to solve them but, until it does, it makes good sense to apply the newest antifreeze rules even where older editions of the standard are still legally in force. Since this is a more conservative approach with well documented safety implications, it's usually not in conflict with older editions even if they don't require it.

The more difficult issue is when newer standards are potentially *less* conservative. This generates two potential problems: The risk of "cherry picking" and code officials bound to enforce rules that are equivalent or better than the adopted standard.

In the 2010 edition of the standard, for example, new language was added in Chapter 8 that exempted certain noncombustible and limited combustible concealed spaces from sprinkler protection. It might be tempting to try and apply this new language to an older edition of the code if it weren't for the fact that it potentially comes at a cost in a larger design area in Chapter 11. Using just the more permissive concealed space language in one chapter without applying the rest of the standard would be a good example of

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“cherry picking” and is not an acceptable practice.

The second issue comes back to the code official's authority as the agent of the AHJ to permit equivalent methods and practices. The language in IBC allows the code official to approve alternatives that are “*at least the equivalent of that prescribed in this code*” – it makes no mention of the code official's authority to approve alternatives that are less conservative. This can be a problem as it may prohibit a code official from approving a practice or method that is less conservative even if it clearly represents the current intent of the standard committee. An oft overlooked fact is that code officials are agents of the government whether it be local, state, or federal; all depending on their legal jurisdiction. Their authority to act as the government's agent is usually defined by statute or regulation which may limit their ability to permit alternative methods more strictly than the language found in codes and standards. There is little point in asking code officials to permit alternatives that exceeds their sworn authority to do so. It pays to understand the limits of local code officials' authority and the systems that may be in place to elevate requests to approve alternative methods to a higher level in the hierarchy. It's always a good practice to work with the code official as an ally – not an adversary.

### **New Technologies**

Occasionally a new technology or method comes along that simply isn't addressed by an older adopted standard at all. Indeed, this is one of the primary reasons why equivalency language exists. Sometimes the manufacturer's installation instructions are sufficient but it's helpful if a newer edition of the standard that *does* address the new technology is available as an additional reference. If they can be installed as equivalents to options in the existing adopted code using standalone language from a newer edition of the standard, the rest of the adopted code may reasonably be followed. However, be aware of the risk of “cherry picking” whenever parts of two different editions of the same standard are used. A more conservative approach would be to request authorization to follow the *whole* newer edition to address new technology not covered in the adopted edition.

### **Summary**

New editions of standards can be useful even where older editions are still legally adopted. They can clarify ambiguous language, provide alternatives, and assist with new technology. What is important is that the designer must be able to clearly support the reasoning behind applying new language to the agent of the AHJ, the code official.

1. If new language is needed just for clarification, following the adopted code is still possible as long as the new language is acceptable to the code official as equivalent.
2. If there are conflicts between editions of a standard, consider:
  - a. If new language actually changes the requirements of the standard, it might be best to request authorization to follow the *whole* newer edition to avoid potential “cherry picking”.
  - b. If new language is *less* conservative than the adopted code, it may not be within the official's authority to accept it as “equivalent or better”. Ask about procedures to have alternative methods approved at a higher level of the code enforcement or legislative hierarchy. Be careful not to approach this option as going over the local code official's head – it's best to win

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over the local official as an ally in any appeal to a higher authority.

3. New technologies require careful examination. New language may be available to better describe how to utilize them in conjunction with the adopted standard or the whole newer standard may be utilized to ensure that they are used in harmony with the intent of the whole document.

As always, standards are living documents that evolve over time. Not every step of that evolution works out and what seems like a good idea in one edition may have to be rethought for the next. When seeking approval to depart from an adopted standard in favor of a newer edition, the burden of proof lies with the designer so dig in and do your homework before you make your request to the code official.

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