

## Alternate Materials and Methods

By Ronald L. Geren, AIA, CSI, CCS, CCCA, SCIP

I'm sure many of you have gone car shopping looking for that perfect set of wheels that has every feature and extra you want. But, as you look, you notice that Model No. 1 has some of the features you want, and you can get all the extras; Model No. 2 has the other features you want, but only a few of the extras; and Model No. 3 has all the features, but none of the extras. Why can't you get what you want?

Well, the same situation occurs in all model building codes. Most of the provisions contained in building codes are "prescriptive," or explicitly spelled out as to what's required in order to be approved. But in this day and age of new technologies, creative use of materials, and development of new materials, it is very difficult to publish a prescriptive building code that addresses every conceivable material and method possible. Understanding this, the model code organizations have established within their building codes provisions for allowing alternate materials and methods (AMM).

The phrase "alternate materials and methods" is generic in its meaning as each of the building codes, as well as some jurisdictions, have their own terminology. For example, the 2003 *International Building Code* (IBC) refers to it as "Alternative materials, design and methods of construction and equipment." One of the International Code Council's (ICC) legacy publications, the 1997 *Uniform Building Code* (UBC), refers to the same provision as "Alternate materials, alternate design and methods of construction." The bottom line is this: if you can't find what you need in the code, there is another way for you to get what you want.

Now, this doesn't mean that every time you develop something unique which is not specifically addressed by the code, all you have to do is call it an "Alternate Material" or "Alternate Method" and be done with it. The building official, in accordance with the building code, must approve the AMM. Building codes don't provide specific criteria that must be followed in order to get an AMM approved; that responsibility lies with the jurisdiction. Most, if not all, jurisdictions will have in place a policy or procedure for submitting and evaluating AMMs. The City of Phoenix and City of Tucson, both have procedures for submitting what they term "code modifications."

In car buying, you could probably get everything you want in a custom-built vehicle; however, you're probably not going to like the price. In some cases this applies to alternate materials and methods. In order to approve the alternate material or method, the building official may require reports, tests, or both. Sometimes, these reports and tests could cost several thousand dollars to accomplish. Some manufacturers will have this done as a part of their product development, knowing their product doesn't meet the prescriptive requirements of the code. ICC's Evaluation Services (ICC-ES) performs many of these tests for compliance with the IBC. Underwriters Laboratories (UL), Factory Mutual (FM), and Intertek Testing Services (ITS), are some of the other well known testing laboratories. If you decide to have a testing lab perform a test, it is recommended that you utilize a lab that's been accredited through the [International Accreditation Services](#) (IAS). The IAS maintains a list of all accredited labs on their website.

Another method utilized to get AMMs approved is hiring a consultant experienced in code development and application. This is best used when the AMM applies to a specific project within a single jurisdiction. A code consultant will prepare a report that draws on their experience from previously

obtained approvals, or by using engineering concepts based on similar models and applying them to the unique conditions of the project. In some cases, unfortunately, testing may still be required in addition to the consultant's report. Like testing, hiring a consultant will add cost to the project beyond the normal design fees.

Finally, another process that has started to make its way onto the building code scene is the performance-based method. This method focuses on what the building should do rather than stating how to do it. It's very similar to a performance specification when compared to a descriptive specification. The ICC has published the *ICC Performance Code for Buildings and Facilities*, and the National Fire Protection Association (NFPA) has included a performance-based option in Chapter 5 of their *NFPA 5000*. These performance-based codes are intended for entire buildings and not just a single material, component, or system. However, the concepts could be utilized when evaluating an individual AMM as a part of the submission to the building official.

The items below are recommendations for when and how a request for an AMM should be used.

- If the project is time and cost driven, then use the prescriptive requirements in the code. If not entirely possible, use materials or systems that have already been tested by an approved testing laboratory.
- If the project is cost driven, but time is flexible, then you could try to develop the AMM submission in-house. This works even better if you have a good, established relationship with the building official and staff. However, before getting too far down the road on preparing the request, make sure that the building official will even consider an AMM for your situation.
- If the project is time driven, but cost is not critical, then hiring a consultant to prepare the request would be your best alternative. If you have a good relationship with the building official, and you have some experience in preparing AMM requests, then you might consider keeping the effort in-house.
- For any of the situations above, if the AMM is complex, or requires some level of engineering to prepare, or both, then hire a consultant. In the long run, it will save you time and money.

Alternate materials and methods give architects, engineers, and product manufacturers the ability to explore new ways of providing different and exciting buildings for our environment without sacrificing safety or quality. But you have to be prepared for possible setbacks and the associated frustration that could come with it. The key, in my opinion, to getting an AMM approved is communication: communication within the design team, communication with product representatives, and especially, communication with your building official. And, the communication needs to start as early as possible in the design process.

*To comment on this article, suggest other topics, or submit a question regarding codes, contact the author at [ron@specsandcodes.com](mailto:ron@specsandcodes.com).*

*About the Author: Ronald L. Geren, AIA, CSI, CCS, CCCA, SCIP, is an ICC Certified Building Plans Examiner, and is the principal of RLGA Technical Services located in Scottsdale, Arizona, which provides specifications and code consulting services to architects, engineers, owners, and product manufacturers. A 1984 graduate of the University of Arizona, Ron has over 23 years of experience with military, public, and private agencies.*