

# Code Compliance

Ralph Gerdes, AIA

*As codes become more complex, the demand for experts in code compliance expands. Architects who combine the necessary technical knowledge with communications and leadership skills will find abundant opportunities to offer this service.*

## Summary

### CODE COMPLIANCE SERVICES

#### **Why a Client May Need These Services**

- ▶ To evaluate code issues for facilities of a complex nature
- ▶ To determine whether alternative methods or materials meet code requirements
- ▶ To assist in interpreting controversial code issues
- ▶ To assist clients in jurisdictions without a building code

#### **Knowledge and Skills Required**

- ▶ In-depth knowledge of building codes
- ▶ Knowledge of building service systems
- ▶ Knowledge of fire safety concepts and technologies
- ▶ Experience in the code review and approval process

#### **Representative Process Tasks**

- ▶ Analyze preliminary design
- ▶ Prepare preliminary report, including code summary and potential code-related design issues
- ▶ Obtain review of design development documents by code officials
- ▶ Submit request (if needed) for discretionary action before local code officials
- ▶ Review construction documents
- ▶ Prepare final report

The most basic code compliance service is review of the project design (from schematic design through design development) to provide advice on code issues. When alternative methods or materials are introduced and must be judged on a performance basis, code compliance services may include assistance with code interpretation. Increasingly, the scope of these services is broadening to include review of construction documents for code-related issues, field reviews during construction, and construction testing.

Code compliance consulting services first emerged in the 1970s with the trend toward design of unique and nontraditional structures such as atriums because these structural types were not specifically addressed in the building codes of the time. The field has seen a steady, progressive growth over the years, with demand for code compliance services increasing as building codes become more complex. The emerging performance-based building codes are expected to further stimulate the market for these services.

### CLIENT NEEDS

Building owners or architects involved in innovative projects with nontraditional architectural elements or building materials often find their designs raise issues not explicitly addressed by the codes. Highly complex facilities (e.g., medical and laboratory facilities; stadiums, arenas, convention centers, and other large assembly areas; airports; large schools; assisted-living complexes; and warehouse facilities) often involve complex code issues. These building types also may involve regulatory integration issues generated by special concerns such as proper ventilation and storage of hazardous materials or accessibility to the disabled.

Many clients will need a code compliance determination in order to show that an alternative method or material meets the intent of a code. Such a determination may be supported by design analysis services that document the projected performance of various design options. Other clients use code compliance consultants only for assistance with controversial code issues.

Clients who need buildings designed in a jurisdiction without a building code often seek the services of a code compliance expert to evaluate the life safety and fire safety aspects of a design. In these cases nationally adopted building code standards can be applied, supplemented by judgment calls based on experience when necessary. Recently some states (e.g., Indiana) where uniform statewide building codes are in effect have discontinued review of building plans by state code officials, creating another market for code compliance services.

Government agency clients are more likely to require a full range of code compli-

---

**RALPH GERDES** is a building code and fire safety consultant with Ralph Gerdes Consultants, LLC. He serves as AIA liaison to the International Code Council and the National Fire Protection Association. Gerdes consults on projects throughout the United States and abroad, lectures on fire safety at universities, and participates in code-writing groups.

ance services, extending through the entire design and construction process and including review of construction documents, field review during construction, and construction testing. In these cases, code compliance services may overlap with provision of construction documents and construction administration services. Related services include accessibility compliance, indoor air quality consulting, construction defect analysis, egress studies, energy analysis, materials research and/or specifications, preliminary project programming for code compliance, seismic analysis and design, service as a code change proponent for manufacturers and industry or professional organizations, and zoning process assistance.

The code compliance services field traditionally has been dominated by fire protection engineers. Many firms that began by offering fire code consulting services have broadened their scope to include consulting on building codes and ADA. For example, Rolf Jensen & Associates, a fire protection engineering firm in Chicago, first offered code consulting services in the late 1960s and has grown to be one of four or five very large (50- to 200-person) code consulting firms in the country. These large firms have national and international branch offices and tend to serve clients with large projects.

Dozens of smaller consulting firms also offer code compliance services. These firms, generally staffed by one to five professionals, tend to cluster around engineering schools that offer strong fire protection engineering programs, such as the Illinois Institute of Technology, the University of Maryland, Worcester (Massachusetts) Polytechnic Institute, and Oklahoma State University.

While only a handful of architects currently specialize in code compliance consulting, the growing demand offers abundant opportunities for architects.

 **The client needs, skills required, and processes involved in complying with accessibility laws, an important area of code compliance, are described in Accessibility Compliance**

## SKILLS

The architect's ability to read drawings and understand architectural intent adds immeasurable value to code-consulting services. The architect's communication skills and ability to understand the integrative aspects of design adds a dimension most engineers are not equipped to deliver.

Much of the core knowledge required of someone offering code compliance services may be obtained by careful study of the model codes. The code development process is public and consensus-based; anyone with an interest can follow current code issues and stay abreast of changes and controversies in the codes arena. Participating in the code development process by serving on one of the committees responsible for recommending changes in the codes is an excellent way to network with the leaders of the code community. (See the For More Information section at the end of this topic.)

People skills are especially important for those offering code compliance services. After all, they are employed not only to provide advice on technical concerns but to resolve potential conflicts in order to keep their clients out of trouble. The ability to establish a good working rapport with state and local code officials is essential to success. Depending on the geographic area of practice, the work may require repeated negotiations with a single set of code officials. In these cases, the ability to earn the respect and trust of the code officials is doubly important.

## PROCESS

Code compliance review must begin early in a project so that any conflicts with applicable codes can be ironed out before they become difficult or expensive to correct. Likewise, it is best to get any specialty consultants required for the project on board early so there are no surprises later in the process.

**Teaming approach.** Depending on the scope of a project, specialties in structural, electrical, HVAC, fire, seismic, and ADA services are most likely to be pertinent for code compliance review. When computer analysis is required to document the projected performance of various design options, mastery of the relevant modeling program will also be needed. An architecture firm offering code compliance services may have some of these skills in-house but may have to contract for others. The model codes community provides a good nationwide network for locating consultants with expertise in various specialty areas.

## Architects Will Benefit from U.S. Building Code Consolidation

Ever since the development of the first American building codes early in the twentieth century, building codes have varied significantly from region to region. With the publication of the first editions of the International Building Code (IBC) and the International Residential Code (IRC), the fragmentation of American building codes effectively ceased. The international codes were virtually assured of adoption because the three U.S. model code groups—BOCA (Building Officials and Code Administrators), ICBO (International Conference of Building Officials), and SBCCI (Southern Building Code Congress International)—worked together through the International Code Council (ICC) to develop and publish them. At the same time, the three groups are maintaining their separate, regionally based organizations to service the building code community.

**To what extent will the international building codes be used internationally?** The codes are not really international, but there is hope they will become more widely used. "Calling it 'international' keeps it from being called the 'U.S. Building Code,'" explains Bill Tangye, SBCCI chief executive officer. "Some U.S. model codes are already used outside the United States. Bermuda uses BOCA, and Western Samoa uses ICBO." There is also the hope that consolidation of the three U.S. codes will increase the chances of their adoption by developing countries.

**How many international codes are there?** The ICC has published the following codes:

- International Building Code (for non-residential properties)
- ICC Electrical Code
- International Energy Conservation Code
- International Existing Buildings Code
- International Fire Code
- International Fuel Gas Code
- International Mechanical Code
- International Performance Code
- International Plumbing Code
- International Private Sewage Disposal Code
- International Property Maintenance Code
- International Residential Code (covers hotels and motels, apartments, townhouses, and single-family dwellings)
- International Zoning Code

The American Institute of Architects has been promoting a single building code since the 1970s. The benefits to the design profession are great. The design process is simplified and the cost of producing design and construction drawings is often reduced. Companies that build in more than one region of the country or in foreign countries benefit from using a coordinated set of building codes.

The model building code groups finally embraced the idea of a unified building code in the early 1990s, motivated by fear of federal government action. In the wake of the Americans with Disabilities Act (ADA) and the North American Free Trade Agreement, it seemed plausible that the federal government might intrude into the building code promulgation business to call for a unified code in order to maintain competitiveness in the increasingly global construction market. In defense of the voluntary code development process, the code groups embraced the single-code concept.

**What are the benefits of the international building codes?** For architects, the family of international building codes offers a number of benefits and opportunities:

**Streamlined implementation of the Americans with Disabilities Act (ADA).** One of the frustrations with the ADA has been that the Department of Justice (DOJ) hasn't certified local codes. With adoption of the International Building Codes, the DOJ could certify one model code, effectively ending the confusion about what is required for compliance with ADA.

**State-of-the-art hazard mitigation.** The most current wind, seismic, and flood criteria have been incorporated into the IBC and IRC. One of the biggest changes is the adoption of the more stringent Southern Building Code wind provisions for low-rise buildings (up to four stories). Previously the one- and two-family dwelling code didn't have seismic and wind requirements, preventing its adoption in certain areas. The new residential code, which results from an effort to reach national consensus, has provisions for wind and seismic conditions and will qualify for the National Flood Insurance Program.

**Performance code.** The International Performance Code provides additional guidance on the "alternate materials and methods" sections of the building and fire codes and ultimately could be the most significant element of the international building codes package.

**Work increments.** Code compliance review typically begins during schematic design or possibly at the end of that project phase. The schematic design is analyzed and a preliminary report prepared that includes a code summary and identifies potential code-related design issues. A code summary contains basic information such as occupancy classification, minimum construction requirements, exiting and materials requirements, and so on. The discussion of code-related design issues typically includes recommendations for resolving each of the issues, for example, through design modification or by seeking a code variance.

During design development, a preliminary review by the local authorities (fire, building code, etc.) is desirable so that any potential compliance concerns can be resolved early in the design process. Jurisdictions and agencies vary in their receptivity to this approach. Some will not perform such reviews, while others encourage it; some charge for

the service, and some do not. When a firm staff member or consultant has a good working relationship with local officials, he or she may be able to facilitate this valuable early communication. When it is not possible to meet with officials during design development, a staff member's or consultant's judgment on emerging issues is even more critical.

When code compliance problems do arise, a submittal may be prepared and the case for discretionary action argued before the relevant officials. A staff member or consultant's rapport with the officials and in-depth knowledge of code requirements often is critical to achieving a decision that is positive for a project's success.

In some cases, the scope of code compliance services includes review of construction documents, often at 75–80 percent completion and again at 90 percent. The deliverables would be a letter detailing the findings of the document review, written documentation of relevant phone calls, and copies of all relevant correspondence.

“Code Compliance” was originally published in *The Architect’s Handbook of Professional Practice*, 13<sup>th</sup> edition, ©2000 by the American Institute of Architects, published by John Wiley & Sons, Inc.

---

The AIA provides a contract document designed especially for alternative architectural services.

**B102–2007, Standard Form of Agreement Between Owner and Architect without a Predefined Scope of Architect’s Services.**

AIA Document B102–2007 is a standard form of agreement between owner and architect that contains terms and conditions and compensation details. B102–2007 does not include a scope of architect’s services, which must be inserted in Article 1 or attached as an exhibit. Special terms and conditions that modify the agreement may be included in Article 8.

The separation of the scope of services from the owner/architect agreement allows users the freedom to append alternative scopes of services.

AIA Document B102–2007 replaces and serves the same purpose as AIA Document B141–1997 Part 1.

For more information about AIA Contract Documents, visit [www.aia.org/contractdocs/about](http://www.aia.org/contractdocs/about)

*May 2011 The American Institute of Architects*