

Bring on building safety: Code enforcement explained

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by [Tara Lukasik](#)

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Throughout the United States and around the world, people have sustained injuries, death and economic loss because of unsafe buildings and systems. These losses are successfully minimized through the application of, and ongoing enhancements to, building safety codes and standards and a regulatory system to administer them.

Building officials, inspectors and other code professionals — and the profession of building safety that they devote their daily lives to — still remain a confusing and misunderstood occupation that most people know very little about. Ordinary citizens do not realize the essential role and integral importance that building code officials play in enhancing quality of life by helping to sustain safe, healthy living conditions for residents, businesses and communities.

What is building code enforcement?

Code officials play a major role in ensuring that all commercial, residential, public assembly and other buildings within a governmental jurisdiction are constructed in accordance with the provisions of the governing building code. Building code provisions address structural stability, fire safety, adequate means of egress (exits), sanitation, safe wiring and more. It is the code official's responsibility to protect the public health, safety and welfare in relationship to the built environment through effective building code enforcement.

How does the building code enforcement process work?

The code enforcement process is normally initiated with an application for a permit to construct or remodel a building. The code official is responsible for processing the applications and issuing permits for construction or modification of buildings in accordance with the code. This begins with a review of the construction plans for compliance with the building code. Once construction has begun, the code official makes inspections as necessary to determine compliance with the code. If a deficiency exists or if the building or a component does not comply with the code, it is the responsibility of the code official to issue orders to correct the illegal or unsafe condition.

The code official ensures that official records are kept pertaining to permit applications, permits, fees collected, inspections, notices and orders issued. The documentation provides a valuable resource of information if questions arise during and after the construction process. Because construction may occur in steps or phases, the code official may need to conduct multiple inspections; therefore, an exact number of inspections will vary with the particular building design and construction sequence.

In addition to these requirements, the code official also assists designers and builders by interpreting the code's application to a particular construction situation; by explaining minimum requirements and answering questions; and by investigating and resolving complaints involving

existing buildings and sites.

What are the duties of building code officials?

The executive official in charge of the building department is known as the code official. The term “code official” is a catch-all name for a variety of duties. In small communities and rural areas, a single code official may be responsible for building inspections, plumbing inspections, fire prevention inspections, mechanical and electrical inspections, building and zoning administration, and the like. In larger metropolitan areas, each of these tasks may be performed by different specialized staff members.

What about building inspectors?

Today’s technology dictates that, to be effective, building inspectors must be familiar with the principles of construction, not merely the specifics. Inspectors usually specialize in one type of construction work. They may be building inspectors, public works inspectors, electrical inspectors, mechanical inspectors, plumbing inspectors, housing inspectors or fire prevention inspectors. Federal, state and local governments employ various types of inspectors to make sure projects conform to government codes as well as to building specifications and model building codes. Architectural and engineering firms also hire inspectors to make sure workers complete the projects in accordance with codes and specifications. Inspectors may also work for small companies or large corporations.

No matter where they work, inspectors have similar tasks. They apply the principles and methods of construction to judge the work and decide whether it meets the applicable standards or codes. They make preliminary inspections during the first stages of the project. They also examine the supplies to be sure these materials meet the specifications, standards or codes called for. Follow-up inspections are performed throughout construction to ensure compliance with regulations. In regions prone to floods, earthquakes or tornadoes, they may make frequent inspections to ensure that equipment, materials and installation meet special safety requirements. For some projects, various inspectors work together throughout the construction process to ensure that the project meets code requirements.

Building inspectors review drawings and specifications for planned repairs of existing buildings, construction of new building projects, and building sites being considered for development. Before work begins, building inspectors investigate the construction site — checking drainage, elevation and the placement of buildings on the plot. Inspectors examine and approve floor framing, wall framing, roofs and ceilings, chimneys, and all other items that are part of the building structure. As each building phase is complete, inspections are required before the work can progress. When projects are completed, a comprehensive inspection is performed and a certificate of occupancy is issued by the building inspector.

Government projects such as airports, highways, water and sewer systems, streets, bridges and dams are the responsibility of **public works inspectors**. They inspect digging and fill operations, and the placement of forms for concrete. They observe the concrete mixing and pouring, asphalt paving and grading operations and keep records of all work performed and the materials used. Public works inspectors may be specialists in one kind of operation such as reinforced concrete, dredging or ditches.

Electrical inspectors check the quality of materials, the installation work, and the safeguards in electrical systems. They make sure electrical systems meet city, state or national codes, and

electrical codes and standards. Electrical inspectors look closely at new wiring and fixtures in businesses, public buildings, and in homes.



Mechanical inspectors focus on heating, ventilating and air-conditioning (HVAC) concerns. This includes inspection of: mechanical appliances and equipment; air distribution systems; kitchen exhaust equipment; boilers and water heaters; hydronic piping; gas piping systems; flammable and combustible liquid storage and piping systems; fireplaces, chimneys and vents; refrigeration systems; incinerators and crematories. The mechanical inspector also checks for air quality and energy conservation measures.

Plumbing inspectors check for proper design and installation of plumbing systems, including sanitary and storm drainage systems, sanitary facilities, water supplies, and storm water and sewage disposal in buildings.

The duties of a **fire prevention inspector** are usually performed by the local fire department or fire prevention bureau. Typically, fire inspectors check nonresidential buildings on an annual basis to ensure that appropriate fire safety practices are being followed.

Property maintenance or housing inspectors inspect existing buildings to check for health or safety violations and the condition of the exterior property.

The **plan reviewer or examiner** is usually the first person who begins the evaluation process which ensures that a building or structure conforms to the requirements of the local or specified code. The plan reviewer examines the construction documents used to describe a project, including architectural, structural, site plan, mechanical, plumbing, electrical and fire protection drawings as well as the corresponding specifications, structural design calculations and soil report. As these items are examined for building code compliance against a checklist of the code's requirements, any deficiencies are cited along with the corresponding section number of the code. These deficiencies can then be resolved by revising the construction documents and a permit for the building construction to begin can be issued.

A plan reviewer must have a working knowledge of the code requirements used to evaluate the building or structure. The reviewer must be familiar with all construction documents produced by an architect/engineer to fully describe the project. Expertise is required in reading drawings and plans for basic construction techniques along with an understanding of engineering and architectural definitions and symbols. A background in architecture or engineering is beneficial but not necessary to conduct plan reviews.

Large architectural/engineering firms also retain plan review departments to evaluate a proposed project from the design/conceptual phase through the final ready-for-construction documents. Code-consulting businesses along with highly trained and expert staff at the International Code Council provide [plan review services](#) for organizations who do not have the necessary workforce to keep up with today's fast-paced construction rate and the on-going renovations of existing buildings.

Helping promote the importance of building code officials



Modern house cross section with rooms:
bedroom, office, bathroom, kitchen, living
room, laundry, garage, boiler room

The International Code Council begins celebrating Building Safety Month this May. Our 64,000 members and a diverse partnership of public and private entities will host events at town halls, community centers, schools and elsewhere to remind people that building safety codes save lives and money and reduce recovery times after a disaster. During the first week of May, the Code Council celebrates "[Partnering with Code Officials to Build Stronger, Safer Communities](#)" to recognize the special role code officials play in our society. They are engaged in the building process from the initial building plan to the finished product, and their work impacts every building in every community. Because of their commitment to building safety, our buildings stand, our communities prosper and our homes are safe. To better understand the role of the code official in making our homes safer and more resilient, see the new, Interactive, digital poster – "[Code Officials and Your Home](#)."

Late last year, the International Code Council unveiled resources to promote code officials. The [Value of the Code Official toolkit](#) helps government officials, Code Council members and others

build awareness about building safety, the code official's significant role within their communities and encourages young professionals to join the industry.

This new resource also encourages students and young professionals to join the industry's pipeline of qualified professionals. According to a 2014 study, the building industry will experience a loss of 80 percent of the existing skilled workforce over the next 15 years. Retirements combined with a growing demand for skilled labor make the booming construction industry a tremendous opportunity for young adults entering the workforce.



About the Author



Tara Lukasik is an editor for the International Code Council, working out of its Western Regional Office in Southern California. Starting with the International Conference of Building Officials as the managing editor of its *Building Standards Magazine*, she has more than 25 years of experience in writing and editing feature content and advancing digital newsletters and magazines from conception to completion. She is currently putting her experience to good use managing the Code Council's *Building Safety Journal* and its *BSJ Weekly* newsletter, which connects construction professionals with the Code Council community and the latest industry news and resources. A California native, she enjoys volunteering in her local community and exploring the Golden State with her husband and three spoiled dachshunds. Follow her on Twitter @ICCTLukasik and LinkedIn at [linkedin.com/in/taralukasik](https://www.linkedin.com/in/taralukasik).