BUILDING DEPARTMENT ADMINISTRATION

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1 The Purpose of Controls

For at least five thousand years, man has exercised some limited controls over the construction and utilization of buildings and structures throughout the civilized world. It might seem that these controls were only partially effective, as witness the burning of Rome during the reign of Emperor Nero, the destruction of London in 1666 and the Chicago fire of 1871. There were, of course, many, perhaps thousands, of destructive fires that struck cities and towns all over the world, but these three are best remembered by most people for one reason or another.

From 1800 to 1900, eleven major American cities were devastated by fires that took unrecorded numbers of lives and damaged or destroyed property worth hundreds of millions of dollars. Since then there have been many more disastrous fires, but total conflagration has become less and less of an occurrence. To what extent effective building regulation has contributed to the reductions in fire losses must be left to conjecture. There are some who will say that a combination of improved building inspection and greater fire prevention efforts working together should be credited equally, while others will say that we have achieved a safer environment because of the improvement in fire protection systems, such as alarms and sprinklers devices themselves. There is little doubt that more buildings are now required to have automatic sprinklers and this has contributed a great deal in reducing the numbers of large-loss fires. Moreover, improved fire-protection systems have reduced the dollar amount associated with loss of property through fires and most definitely have reduced the number of lives lost.

The effect of each successive conflagration has served to strengthen laws, where such laws were already in existence, and to bring about some controls in areas where there were none previously. It is a sad commentary that disaster is necessary before appropriate regulations are adopted. A building official attempting to secure support in a proposal for necessary legislation would be well advised to call attention to this fact. A classic example of this type of reaction was the adoption of the *Basic Building Code* in 1979 by the State of Kentucky after the disastrous fire that took 165 lives at the Beverly Hills Supper Club on May 28, 1977. The objective of this action was to replace an antiquated, poorly maintained state code with a modern and adequately maintained model code. A more recent example of this kind of reaction is the one to the fast-moving fire that swept through The Station, a night club in West Warwick, Rhode Island, in February of 2003. That event was something that never should have happened, and as a result the government of Rhode Island formed committees and charged them with devising ways to make Rhode Island the safest state in the nation.

The Historical Perspective

The Burning of Rome

History has cast Emperor Nero in the role of a cruel, obese and truculent tyrant. Perhaps he was, but in addition he was apparently a man of intelligence and vision who could comprehend the full meaning and apparent dangers inherent in unregulated construction. Prior to Nero's coming into power, Rome lavished its wealth and resources on the construction of public edifices, but ignored construction of almost all other buildings. Poorly constructed tenements were being erected, mostly without controls of any type. Many of these monstrosities collapsed even before they were completed, killing and maiming workmen by the score. It is not too difficult to envision the chaotic state of affairs, relative to housing, that was Rome in 64 A.D.

Emperor Nero had a master plan for a new Rome prepared sometime prior to the fire that destroyed much of it, and his attitude toward the existing conditions was well known. Consequently, the charges that he deliberately ordered Rome's destruction seem to be well founded. To his credit it must be stated that the rebuilding of Rome was accomplished in accordance with sound principles of construction, with particular emphasis on fire resistance, sanitation and usefulness. What is important to code history is that until the downfall of Rome, the construction of both public and private buildings in that city was closely monitored and controlled. This burning may have been the world's first urban renewal project, and a project that would significantly impact the history of building safety.

The Great Fire of London

London was almost two-thirds destroyed in the great fire of 1666. Some historians have stated that the destruction was more of a blessing than a calamity, for London was a crowded, filthy city of low timber-framed warehouses, churches and houses. Most thoroughfares had open drains that carried raw sewage, and housewives threw their garbage into the narrow cobblestone streets. Overcrowding was a way of life, and sanitation was practically unknown. Under these circumstances it is little wonder that epidemics were common. London had been ravaged by the plague for nearly a year prior to the fire, and people were dying at the rate of a thousand a week.

The fire is reported to have started in a run-down neighborhood near the Tower of London. It attracted little attention, for fires were not uncommon in the city, and only half-hearted attempts to control it were made. It finally spread to warehouses where highly combustible tallow, oil and alcoholic spirits were stored. The fire then increased in its intensity and was soon engulfing even London Bridge. King Charles attempted to halt the spread of fire by ordering the demolition of yet undamaged buildings in the path of the fire, but its advance was relentless. Even the magnificent Cathedral of St. Paul suffered extensive damage. The fire raged for five days and nights. Its toll was fifteen thousand buildings, including eighty-four churches. Miraculously only six lives were lost in accidents directly attributable to the fire.

It took Parliament two years to enact controls for building, called the "London Building Act." The law applied only to the boundaries of the City of London, leaving the balance of England with no controls over building. While Parliament was wrestling with the problem of "code" writing, London began to rise again, almost at the whim of individual builders. After the fire, Sir Christopher Wren, architect of St. Paul's Cathedral, implored Parliament to enact regulations that would have created wider streets and boulevards, green spaces, building setbacks and the use of noncombustible building materials. But his pleas were ignored. London was reconstructed almost in the same style that had existed prior to the fire. Christopher Wren is reported to have shaken his head sadly and remarked, "The citizens of London have proved themselves unworthy of so great a fire."

The Chicago Fire

The most devastating and costly fire in American history was the fire that almost destroyed Chicago in 1871. Chicago at that time consisted of about sixty thousand buildings, more than half of which were of wooden construction. Lloyds of London, alarmed by the extent of combustible construction, warned its underwriters of the conflagration potential. But small heed was paid to Lloyds' warnings, and insurance companies continued to issue fire insurance coverage.

The initial fire, blamed, as every schoolchild knows, on Mrs. O'Leary's cow, started on October 7, 1871, and was thought to be under control, but on the night of October 8 a new fire broke out and, fanned by winds coming off the lake, was soon raging out of control. Measures were employed by the U.S. Army, under the command of General Sheridan, including the use of explosives to create fire breaks. Before this fire was extinguished two days later, seventeen thousand buildings had been destroyed and two hundred fifty lives had been lost. Almost one hundred thousand persons were homeless. Without the outpouring of help that soon arrived from every corner of the world, thousands might have died from exposure, starvation or disease because winter was approaching.

The Chicago fire devastated not only a major portion of the city but the financial reserves of many insurance companies, sixty of which went into bankruptcy. Those that survived financially threatened to leave the city *en masse* unless adequate laws regulating building were enacted. It took a little more time for the city fathers to overcome resistance to new controls, but in 1875 a building code and a fire-prevention ordinance became effective.

These condensed versions of episodes in world history indicate that building regulation as we know it today is the result of an evolutionary process that has its roots deeply embedded in disaster and tragedy. Those responsible for the absence of controls and the absence of enforcement must share accountability for the needless loss of lives and property. When the question is asked, "Why do we need building laws?", it would be proper and safe to say that lives and property have been lost because of their absence.

Early Controls in the United States

In America, the familiar cycle of needs and dangers arising out of unregulated construction followed by scattered laws, ordinances and codes seeking to correct the conditions has repeated in a span of some three hundred years the experiences of older countries that extended over a much longer period of time. For example, the colonists took whatever building materials were at hand and at first were content with hastily improvised shelters. Early accounts tell of the fires that originated in log chimneys imperfectly protected with layers of mud. These experiences resulted in laws forbidding such dangerous practices.

A detailed account of the growth of building regulations from colonial times to the present would be wearisome to the reader. However, various highlights from cities in which related historical material is well documented can be evidence that the problem of protecting the public safety and health is a recurring one in all times and differs only in degree today.

For instance, we know that wooden chimneys were forbidden in New York as early as 1648 and that chimney inspectors were appointed at that time. Later orders in 1657 complained that the previous requirements had been "obstinately and carelessly neglected by many of the inhabitants" and called for the removal of both wooden chimneys and thatched roofs. A fire district was established in 1766 where "all buildings shall be made of stone or brick and roofed with tile or slate."

After the birth of the republic and the decision to erect a national capital on the banks of the Potomac there came a chance to control construction from the very beginning of a city's development in a way often dreamed of but seldom granted. That the statesmen of that time were not blind to the opportunity is apparent from correspondence found in the collection of the Department of State. Apparently there was concern, not only about conflagration and structural collapse, but also about the appearance of buildings. So George Washington drew up a list of his thoughts on the subject, and Thomas Jefferson talked it over with the newly appointed commissioners of the capital. Washington wrote the questions; Jefferson found the answers. It appears that George Washington was influenced considerably by observations he made in Philadelphia, for there are distinct traces that show an intimate relationship between the construction techniques and architecture of the two cities.

The requirements for outside walls and party walls of brick and stone were rescinded shortly thereafter; one explanation offered is that the requirements made housing too expensive for "worthy mechanics" who were needed in the extensive construction programs going on. The changes took the form of permitting wood-frame structures not over twelve feet high and not over 328 square feet in area—certainly not a very generous concession.

In the following century there was an increasing emphasis on certain features of construction. It was not until 1862, when the population had exceeded 800,000, that there was a real building code in the sense that we know it today. Whereas earlier laws emphasized measures to reduce fire hazards, about this time exit requirements began to become prominent. Plumbing regulations followed around 1880, and regulations for elevators and hoists appeared in 1883. A series of regulations limiting the height of non-fireproof buildings was initiated in 1885. In 1896 precautions for workers' safety were introduced through a requirement for covering the floors of buildings under construction with planks to prevent accidental falls to lower floors.

The building code as we know it today has grown through such a process of accretion. It represents a catalog of those features of construction that experience has proved require the imposition of public authority in order to curb the activities of the less informed, the careless or those who are unscrupulous and may try to cut corners.

Any discussion of the history of building regulations would be incomplete without some reference to the advances in the art of construction that have taken place in the past hundred years. Before that time there had been little change either in the materials used or in the methods by which they were assembled. The bearing-wall building composed of materials used since the beginning of recorded history was the characteristic type. After several thousand years of this there came a rush of improvements that multiplied the problem of building regulation. With the invention of Portland cement by Joseph Aspdin in 1824, reinforced concrete construction was made possible. The skeleton steel frame made its appearance in the 1880s and revolutionized the attitude toward tall buildings, and the "skyscraper" was born. Before steel frames, tall buildings were being constructed with heavy cast-iron frames.

For the World's Fair of 1853, James Bogardus proposed a tall building with a mechanism for hoisting observers to the top using steam for power. At the same time, what has been called the world's first "safe elevator" was developed by Elisha Graves Otis, and it received its initial showing and demonstration at the Crystal Palace Expedition in New York. The necessary feature of the elevator was providently already in the process of development; without elevators, tall buildings would hold little appeal.

Each of these developments required new techniques of design and inspection. The underlying principles of safety had to be established by research and by trial and error. The complexity of building code administration was greatly increased, and the reliability of new innovations, which had great promise from an economic standpoint but a limited record of demonstrated safety, had to be proved.

The early part of the twentieth century witnessed a growing impatience in the building industry with what was felt to be the slowness of building regulations to recognize the rapidly developing new methods of construction. This impatience with existing requirements and insistence on immediate recognition of new features as fast as they were introduced gradually built up the widespread belief that codes were a definite obstacle to progress rather than a steadying influence in the construction industry. To a certain extent this belief has been justified, but if all that the code demands is proof of adequate safety, it is doing no more than the mission for which it is created. Mere claims of adequacy for new materials and methods are not sufficient guarantee against the loss of life or injury. The difficulty has lain in the absence of adequate machinery through which safety could be proved.

Here also, a history of building codes must include recognition of parallel developments in professional and scientific fields. The founding of the American Society of Civil Engineers in 1852, the American Society for Testing and Materials in 1902 and the three individual model code organizations in the first half of the twentieth century (Building Officials Conference of America in 1915, Pacific Coast Building Officials Conference in 1922 and Southern Building Code Congress in 1949) provided the means for ascertaining facts about building materials and for the evaluation of proposed construction methods through the meeting of many minds on a professional plane. The tests conducted at the Watertown, Massachusetts, arsenal in the 1880s and later, tests at university laboratories, Underwriters Laboratories Inc., the National Bureau of Standards and other laboratories supplied the facts without which rational determination of safety requirements would have been difficult, if not impossible. Anyone who examines a modern building code must be impressed by the fact that it is increasingly a series of references to national standards of professional and technical organizations and that these standards in turn have their roots in much testing and research that have been carried out patiently over a period of years. The methodology of increasingly referencing national standards has its advantages and disadvantages and is sometimes hotly debated during the building code public hearings.

As early as 1905 a recommended building code was issued by the National Board of Fire Underwriters. It had considerable influence, and its appearance gave support to a conviction that was gaining strength in the minds of those who had given thoughts to the subject—namely, that there was a use for basic recommendations prepared for general use throughout the country. Increasing criticism of building regulations, particularly of the lag between the accumulation of test results and their practical application, resulted in definite steps for improvement on a national scale shortly after World War I. The early 1920s was the occasion for much intensive study of factors entering into the operations of the building industry. Prominent among the investigations then carried on was one by the Senate Committee on Reconstruction and Production, which was appointed in 1920. This committee covered a wide range of economic conditions but was especially interested in construction. After extensive hearings it expressed the following view: "The building codes of this country have not been developed upon scientific data but rather on compromise; they are not uniform in practice and in many instances involve an additional cost of construction without assuring more useful or more durable buildings."

Positive action soon resulted. A committee known as the Department of Commerce Building Code Committee, composed of seven nationally-known architects and engineers, was formed to consider the situation and bring forth definite recommendations that could be used in preparing local codes. For thirteen years this committee, working closely with the National Bureau of Standards, which published the committee's recommendations, was the recognized source of authoritative information on the subject of codes. Altogether it issued eight reports dealing with various matters found in building codes, and these reports were widely used as the basis for local legislation. Meanwhile, in 1922 the Pacific Coast Building Officials Conference, predecessor to the International Conference of Building Officials (ICBO), had taken up the matter of preparing a complete building code and had carried this forward to a successful completion in 1927. Another code appeared in 1937, also prepared by building officials and based to a large extent on the work of the Pacific Coast Building Officials Conference. This code was known as the *Recommended Uniform Building Code of the New England Building Officials Conference*.

As our thoughts go back to the flaming cities of Rome, London and Chicago, we can recognize the rich heritage of those early efforts to regulate building construction that has helped make life safer and healthier today. There have been lapses and mistakes in code writers trying to do the right thing, but an honest appraisal shows that there has been substantial progress. Although there still are differences in requirements among the various codes that appear to be unnecessary, the accomplishments of the past provide that these differences will be whittled down until only those with some substantial basis in reason remain. An open mind, a scientific attitude and a sense of responsibility are inescapable parts of any such work that will continue to function in the public interest.

Where Are We Now?

Governmental regulation of building construction is a natural consequence arising from the experience of tragedies brought about by fire, collapse and panic. But we cannot look into the past and be smug because even today faulty construction and the lack of effective and properly administered laws regulating the construction, use and maintenance of buildings and structures results in needless deaths, injuries, illness or loss of property. These deaths or injuries could be reduced if measures to eliminate or control hazards were vigorously undertaken by all parties involved in the construction and regulation of buildings. Adoption and enforcement of modern model codes by those jurisdictions that have none is essential.

We are in an era of ecological awareness when our very survival as living organisms is looked upon with some uncertainty by some scientific circles unless drastic action to reverse any further degradation of our environment is initiated. The dramatic and observable effects of pollution on air, land and water have brought a personal awareness of the problem to almost every person in the United States and in many other parts of the world. This public awareness, dissatisfaction and concern are the sources from which will spring the thrust necessary to prod legislators into taking whatever forceful action is necessary to combat the menace. Unlike the dangers of a polluted environment, the dangers lurking in poorly constructed buildings, as well as in obsolete and dangerous structures, are obvious only to a small and knowledgeable segment of the population and therefore cannot hope to gain the same degree of support for programs that could eliminate or neutralize the dangers. The tragic difference between the two situations is that decimation through environmental pollution is a possibility, while for some, death and injury from dangerous structures is a foregone conclusion.

Historical Background

The building code is not a modern concoction. As previously mentioned, the history of building regulation and codes extends back thousands of years, but because it is neither dramatic nor romantic, it is difficult to find. Historians did, however, record some of it. We find mention of building laws from the time of the ancient Babylonian empire of Hammurabi about 2000 B.C., through Nero's Rome and into twelfth-century Europe, in England in the 1600s and in America as soon as urban life indicated the need.

Hammurabi

The building code of Hammurabi, founder of the Babylonian Empire, is the earliest known code of law. Figure 1-1 depicts, in the cuneiform writing of the Babylonians, an excerpt from the Hammurabi code pertaining to buildings, translated as follows:

> 228: If a builder build a house for a man and complete it, that man shall pay him two shekels of silver per sar of house as his wage. 229: If a builder has built a house for a man and his work is not strong, and if the house he has build falls in and kills the householder, that builder shall be slain. 230: If the child of the householder be killed, the child of the builder shall be slain. 231: If the slave of the householder be killed, he shall give slave for slave to the householder. 232: If goods have been destroyed, he shall replace all that has been destroyed; and

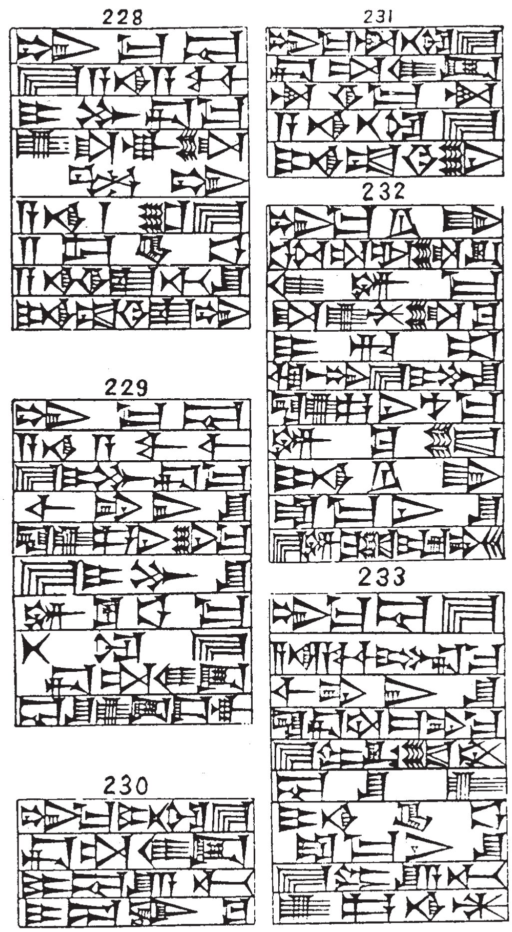

Figure 1-1
The Code of Hammurabi

> because the house was not made strong, and it has fallen in, he shall restore the fallen house out of his own material. 233: If a builder has built a house for a man and his work is not done properly and a wall shifts, then that builder shall make that wall good with his own silver.

Historians did not clearly differentiate between "building laws" and "building construction specifications," and it is possible that reference to ancient "laws," except for those of Hammurabi, should refer instead to building specifications, but the important point is that there were controls, however narrow or limited the scope.

Intent of Codes

The primary intent of building regulation is to provide reasonable controls for the design, construction, use, occupancy and maintenance of buildings and their facilities and various components. Thus such codes are minimum in nature, and under the provisions of "police power" cannot legally be made to require construction of a quality excessive of that necessary to furnish a reasonable degree of safety. Attempts to impose construction requirements that might exceed those minimums in all probability would not be upheld if taken into court. (The word "minimum" should not be misconstrued to mean the acceptance of inferior or shoddy work. It is simply that work that provides the very minimum, acceptable level of safety. Whatever is designed and constructed must contain these basic elements. That which exceeds the minimum is encouraged but not required.)

Codes must be based on what is generally accepted as good standards of construction. Only those provisions that are reasonable, practical or necessary can be legally enforced. Codes containing requirements or specifications that through analysis can be proved to exceed minimum requirements may be of questionable legal validity, and before a building code inspector suggests exceeding the minimum standard that is printed in the code, those requirements should be carefully analyzed to determine their merit.

Authority for Enforcing Codes

The authority for codes is based on police power, whether the enforcement agency is the state, county or municipality. Police power is conferred upon the states by the United States Constitution, and the states, in turn, give such power to their own political subdivisions to enact whatever laws are necessary to protect their citizens within the scope of the police power. The authority to regulate the construction and use of buildings and structures through the application of codes is a valid and proper exercise of police power, but the provisions of such codes must be reasonable and certain. They must not be arbitrary, oppressive or discriminatory, and they must contain provisions only to the extent that they will provide a reasonable degree of safety to the public. Codes and their enforcement are tightly bound by the police power, which, reduced to its simplest terms, means the power and responsibility of a government to protect its citizens.

Scope of Codes

Properly written codes will contain provisions requiring that buildings and structures be designed, erected, utilized and maintained in a manner that reduces the risk to human life and safety to an acceptable minimum. These codes should also make provisions for the proper disposition of dilapidated or dangerous buildings or elements of buildings.

The aesthetics of a building are not recognized as a proper subject for municipal control under police power, and codes do not presume to exercise any control over the appearance of any building. However, when codes address the design of buildings, they are referring to the work of the design professional, which results in a complete structure, building or facility that will be in full compliance with the code once the construction is completed. The abatement of objectionable odors, vibrations or noise is a legitimate subject for the use of police power, but that which offends the visual sense has not yet become a subject for control by a building code. There are some exceptions to this statement, notably in planning, deed restrictions or local "design" ordinances. Some planning departments and homeowners' associations or neighborhood committees have succeeded in placing and enforcing requirements that can successfully influence and perhaps control aesthetics.

A prime example is found in controls over advertising signs. The proliferation of such signs has been almost uncontrolled for many years with a result that some of our business sections have practically been inundated with advertising signs, all competing for attention. Such competition has created discordant and unpleasant vistas along some of our commercial boulevards. Some planners as well as citizen boards and committees have been able to convince legislative bodies that such situations actually contribute to unsafe driving conditions in two ways: first, by diverting a driver's attention away from the road, and second, by obscuring traffic signs and signals. Resulting controls have been upheld by the courts, which in the past have steadfastly refused to give credence to local ordinances that were based solely on aesthetic considerations. But properly-worded ordinances, based on demonstrable public safety, will almost always prevail in court.

Attitudes toward Building Regulations

Although building regulations are one of the oldest and most enduring of our governmental functions, ranging from ancient times to the present, there are many influential persons who do not assign value to such regulations. This attitude is more prevalent than is generally realized and is due in part to the highly technical, complex and sometimes rather obscure role played by building regulatory agencies. We all admit that buildings will be designed and built whether building-safety regulations exist or not. Indeed, there are untold thousands of buildings still in use that were built without the influence or overriding control of a building department. Such structures may appear as any other to the untrained eye, but close examination by a trained observer would probably reveal the presence of dangerous conditions.

Inadequately Staffed Building Departments

Building officials often experience frustrations for their attempts to hire additional personnel whom they feel are needed in order to adequately fulfill their responsibilities to their constituents. This is an almost universal complaint from building officials and leads one to wonder why this state of affairs exists throughout so much of the country. There are several apparent reasons: economics, lack of physical facilities or the absence of a line of direct communication to the decision-making level. These are often difficult to deal with, but there is at least one other very good reason that has its effect and can be corrected. That is the ability (or lack of it) of the building official to provide convincing arguments and figures to his or her superiors to support the need. This is where many managers (not only building officials) fail to achieve whatever it is they are seeking. They often feel that because they can perceive the need so clearly that it must be obvious to anyone else as well. This line of reasoning fails to take into account that people who are responsible for accepting (or rejecting) such requests usually receive similar requests from other subordinate sources. They cannot be expected to understand any subtle reasons that have not been explained or justified, which could explain the difference why one request is deemed more important than another. The building official who takes the time to develop an articulate and well-presented argument will prevail when it comes time for the administrators to divide limited resources.

In the face of opposition from members of the legislative body who are sensitive about spiraling taxes, or chief administrative officers who are ever mindful of their obligation to keep the budget at an acceptable level, it is difficult for the building official to present persuasive arguments to overcome resistance. But administrators of a building department have little choice. If they fail to emphasize the need for an adequate staff and salaries sufficiently high to attract people of high caliber who have the potential to absorb the significant amount of training required to attain a reliable level of technical proficiency, no one else will. The municipality that has relegated its building department to the status of a nonentity and handicapped it with an unrealistic manning authorization is performing a disservice to its citizens.

The salaries offered by some municipalities to building department personnel indicate a lack of knowledge of the magnitude of the department's function, and one can only expect marginal or inept performance from persons who are offered and will accept employment for salaries that are in many instances less than those paid to craftsmen and laborers whose skills would ordinarily be less than those of a trained inspector. The result of all this is a guarantee that few, if any, buildings will be free of built-in problems. Building departments that are sections or divisions of other major departments, such as public works or planning, and which do not report directly to a chief executive officer or legislative body are similarly handicapped. The diffusion that is created by hierarchical layers can dilute any proposition before it gets to the policy-making bodies, if it gets that far.

The administrator of such a department who achieves any degree of operational efficiency will be the exception rather than the rule. Public works departments are usually the "parent" of subordinate building departments apparently because they are both involved, to one extent or another, in functions in which the applied sciences are used. Aside from that irrelevancy there is a wide disparity between their total function and particularly their orientation.

Emergence of the Modern Building Department

The modern building department developed, as did its predecessors, when the need for such a grouping of functions became apparent to the decision makers. New degrees of specialization, heretofore unheard of, became necessary. Poorly planned assignment of these specialty functions to different departments of government sometimes led to fiascos. One division of government might insist on a particular type of construction specifically prohibited by another, which was nothing more than petty rivalries creating delays and needless expenses. It became evident to some administrators that functions as closely related to a building as the plumbing and electrical inspections should be closely correlated with all of the regulations that govern the structure itself. When these functions were finally placed within a single agency, the first building safety department was born.

Further Developments

As technological advances led to more complex buildings, the codes regulating construction became more complex. With urban growth, zoning regulations became more commonplace, and as a practical necessity, building departments began to screen plans submitted for permits of more and more varieties of specialized buildings. A practical and moral obligation to the public not to issue building permits that violated zoning laws was clearly felt by municipalities. Even early courts recognized the validity of this type of action and supported municipalities that were taken into court by individuals who felt that their constitutional rights had been arbitrarily denied. Similarly, indignant protests were registered whenever the violation of any regulation relating in any way to construction was not reported to the applicant for a building permit in the plan-checking process prior to the issuance of the permit. Not just building regulations but such diverse fields as grading and excavation, licensing, occupancy of a public right-of-way, utility requirements and fire prevention all fell into this province. Should a building department be proficient in all these fields? If not all, then which ones? And how should liaison be established among the fields? A myriad of such questions arise and with them a large number of proposed solutions of varying quality develop.

The Growth of Building Regulations

The growth of construction regulation has followed a random pattern. This was to be expected since these regulations have only developed as the need for them became apparent. It can be demonstrated that the most common avenue of an obvious need for controls has been tragedy. Fire-resistive standards have been developed when society has experienced the horrors of major conflagration; design standards for earthquake resistance and buildings emerge after cataclysmic earth tremors; hundreds of tragic deaths due to carbon monoxide poisoning resulted in the development of requirements for the proper venting of heating appliances employing fossil fuel.

These catastrophes and many related ones that have resulted in the formulation of building regulations have occurred at different times and in different sequences. Each corrective regulation, when developed, has been assigned to the department that seemed at that time and in that particular governmental entity to be the best able to perform the duties it created. Regulatory authority was thus scattered among many different agencies of government.

Conflicting Jurisdictions and Interests

Cities have played a major role in this regulatory field; however, they have not been the only governmental agencies to take action aimed at reducing the occurrence of tragedies resulting from building failures. The federal government, states and counties too have entered this field. In many instances several levels of government or even several agencies at a single governmental level have created regulations covering essentially the same areas. Unfortunately, these various regulatory agencies have not always been carefully monitored or correlated. As a result, conflicting regulations and confusion have resulted. State governmental agencies have, on occasion, developed building regulations and charged cities with the responsibility of administering and enforcing them, sometimes even spelling out the particular department that must perform the function.

Not all construction regulations have stemmed from a desire to reduce hazards to life and limb. The preservation of trade and professional interests, to name but two, have also had their effect. They are mentioned here only to further the contention that the growth of construction regulations has been erratic and inconsistent. Today the investigator readily finds evidence of this early random growth. Fragments of plumbing regulations may be found in the records of health departments, water departments and city engineer's departments. Similar evidence can be found in almost any area of construction regulations.

More often than not, the citizen builder must meet the requirements of several departments, combining different arrangements of regulatory functions pertaining to plumbing, electrical work, boilers, elevators, health and zoning. Each of these departments has police authority. Again, all too often the correlation between departments is inadequate with regard to both timing and requirements. Sometimes interdepartmental rivalries and frictions created by faulty administrative organizations exist, which work a hardship upon both the owner and the builder.

This topic, often so casually handled today, is of very serious concern to the gigantic construction industry. Local solutions to these problems, frequently ill-conceived, are forced upon municipalities by economic or political exigencies. Under such circumstances it is certain that clear, objective reasoning will often be missing and that the costs to the economy of mismanagement in this area will continue to amount to millions of dollars annually. An improperly built or placed building frequently becomes a monument to ineptness for many years to come. The entire character of a municipality is easily so affected. It seems evident that studies of corrective measures should be undertaken.

The Effects

Governmental efficiency suffers by virtue of departmental immaturity. The direct effects are on the builder and his client. The indirect effects are far-reaching. Administrative inefficiencies may result in the rejection by an irate citizenry of highly justified and necessary regulations. As buildings become more complex and municipalities become more densely populated, the costs of errors in this field will become greater in terms of both lives and property if the necessary regulatory functions do not keep pace. They may not, if administrative organizations are not kept abreast of the times.

ICC Evaluation Service

A code official is often faced with unfamiliar building products either during plan review or at the job site. They may be truly innovative or copies of products often used. ICC Evaluation Service, Inc. (ICC-ES), a subsidiary of the International Code Council (ICC), issues evaluation reports on building products. ICC-ES subjects the technical data submitted by the report applicant in support of his or her product to a rigorous review process. The International Codes are the base documents used in determining compliance with specific and broad requirements that will be described later in more detail. The evaluation report provides the code official with independent technical justification to support an approval decision, if she or he so decides. ICC-ES has the evidence and technical staff to support its evaluation report findings if challenged.

The history of product evaluation for the benefit of code enforcement had its beginning in 1932 when a regional group of building departments recognized the need for uniformity and technical independence in evaluating building products. At that time, voluntary building department personnel observed the preparation of specimens that in turn were tested by laboratories at cost, in the interest of public safety. World War II brought a temporary hold to this program, which was resumed in earnest soon after by the three legacy code groups. In 1975, the first national organization, composed of the three organizations, commenced operations under the National Research Board name. This name was changed in 1984 to the National Evaluation Service (NES), which was then incorporated in 1992. Simultaneous with the birth of ICC in February of 2003, NES changed its name to ICC Evaluation Service, and all three legacy ES services were consolidated into ICC-ES as it operates today.

ICC-ES has almost two thousand evaluation reports on materials, products and components. These reports have been requested by manufacturers who have sought independent verification of code compliance. The verification process is quite simple for a product adequately addressed in the code. An example would be an interior, non-structural wall panel for which the flame spread and smoke-developed indices would be needed when tested under the ASTM E 84 standard. This along with installation procedures would be the extent of technical justification necessary. The same holds true for steel truss plates for light wood trusses for which structural values are developed under the TPI 1 standard.

When innovative products or those not adequately addressed by the code are submitted for recognition, a very rigorous process is followed to ensure technical responsibility, fairness and protection for report users. In order to gather the most current and recognized information available, public hearings are held by an evaluation committee composed of practicing code officials. The hearings consider acceptance criteria developed by the ICC-ES technical staff with input from the applicant and other sources available to ICC-ES. The acceptance criteria address the specific technical data, test standards and manufacturing quality-control items that are needed to justify a product. The criteria are developed considering the broad concepts of life safety and preservation of property along with code requirements for like-product uses. They are then posted on the ICC-ES web site thirty days before the hearing date for public viewing and comments. Since ICC-ES provides a method for code recognition long before standards are developed to address innovative products, technical experts in varied fields of expertise follow these hearings. The committee and staff evaluate written and verbal comments received during the hearings, and the process may go through several cycles before the committee is prepared to approve the criteria. Committee input is necessary to assure that the needs of the code official in the field are addressed. After approval, the criteria are posted on the ICC-ES web site, so that all interested parties can determine what type of justification must be submitted to properly evaluate the referenced product for an ICC-ES evaluation report. At this point, the applicant submits data for staff review, and again the process may go through several cycles before the application is approved.

To provide better assurance that products subsequently manufactured comply with evaluation reports and retain the necessary properties, quality control considerations are an integral part of the evaluation process. Where the product is under a listing program, the listing agency assumes the responsibilities of maintaining quality through the monitoring of records and unannounced inspections at least four times annually. In these instances, the listing or inspection agency should be accredited under ISO Standard 17020 by an agency that is in turn properly accredited by a recognized body. International Accreditation Service (IAS), an ICC subsidiary, is an organization that possesses the necessary credentials. The inspection agency must be accredited to inspect the type of product under consideration. In other words, an approved inspection agency for steel fabrication is not recognized for quality control inspection work involving reinforced concrete. The approved listing/inspection agency is a condition of product approval and is named in the evaluation report. It is also a part of the product identification for field purposes.

Where there is no listing agency required for a product recognized in an ICC-ES evaluation report, a quality control program is still a part of the evaluation report process. In these instances, a quality control manual covering the product materials and manufacture is a part of required data for an initial application. The manual is reviewed and an inspection of the manufacturing facility is conducted to ensure that the quality control process specified in the manual is in place. Thereafter, quality control is administratively monitored by ICC-ES, and subsequent on-site inspections are made as necessary based on field problems.

When the application for an evaluation report is approved, the report is posted on the ICC-ES Web site. All ICC-ES evaluation reports and acceptance criteria can be downloaded at any time with the assurance that the material is current. This procedure has replaced the outmoded process of distributing hard copy reports that might later be revised, unbeknownst to the user.

ICC-ES evaluation reports are formatted to provide a description of the product along with technical information, codes and the code sections on which recognition is addressed, and conditions of use. The purpose is to provide information to allow proper use in complying with a code. See Appendix A for a sample report.

ICC-ES evaluation reports issued for the first time expire after twelve months unless an application is filed for renewal. Thereafter, the reports can be requested for renewal for one-year or two-year periods. When the expiration date arrives, one of three events can occur:

1. The report expires if there has been no application filed for renewal.
2. The report is renewed without change under the following conditions:
   a. An application for renewal is filed before the expiration date.
   b. The report content continues to comply with the codes and acceptance criteria in effect at the time of renewal.
   c. No complaints are on file concerning manufacturing or field problems.
3. The report is held for further study during which time it remains valid under the following conditions:
   a. An application for renewal is filed before the expiration date.
   b. There is a reason acceptable to ICC-ES to allow this. Examples would be the addition of or revision to products in the report, new code editions or acceptance criteria that are current, or questions concerning the report or product that must be resolved. These conditions would require the submittal of data and review by the ICC-ES staff.

At the building department level, where time is always at a premium, the permitting process and field inspections weigh heavily on customer satisfaction. With all the other items that must be considered, the question of building product or system compliance is not necessarily a high priority. Often during the plan checking phase, this potential problem is addressed by the checker noting on plans that the product is recognized in an ICC-ES evaluation report. This puts the onus on the inspector in the field who would not necessarily have access to the evaluation report to review the required conditions that must be addressed by the product. The classic example might be joist hangers or holddown anchors; the inspector could not be expected to know what loads would be imposed on the product. This in turn would expose the building department to potential problems. It would be an instance where the specific manufacturer and type of hanger would have to be known for the inspector to responsibly make a judgment. Through experience and knowledge, valid judgments can be made. A fire door is an example. The plans might state a one-hour rating for the door, but in the field, the inspector's knowledge that the listing agency for the fire door being installed is a responsible organization that has tested and labeled the door as one hour allows him or her to accept the door. Additionally the agency would have a follow-up inspection program to ensure that the door at the job site had the same qualities as the test specimen. Acceptability of fire-resistive floor, roof or wall assemblies should be determined during the plan check phase since access to a fire-resistive listing manual issued by a responsible testing and inspection agency would be more accessible within the office. The fire-resistive assemblies so indicated and described deal with proprietary products. Use of these assemblies with substitute materials raises the question of whether the alternates exhibit or exceed the properties of the listed product. The code official approving these substitutions must be aware of the responsibility he or she assumes.

The question of accepting new or innovative products is again the code official's responsibility. Knowledge of the code and experience go a long way in helping the code official make good decisions. However, having an ICC-ES evaluation report addressing the product and its use provides a very strong basis on which the code official can base her or his decision of approval, if this is her or his direction. The resources of ICC-ES, its technical process and justifying data required for recognition provide excellent support if the code official's decision is challenged.

The code official is invariably faced from time to time with innovative products at the job site that have not been subjected to an independent technical review by a recognized agency for compliance with construction codes. ICC-ES provides a service exclusively to building jurisdictions that involves the evaluation of technical data that the product manufacturer has in support of acceptance. This is called the Building Department Service (BDS) process. Only the building jurisdiction can authorize this service, which results in a presentation of written findings to the jurisdiction concerning code compliance. Once receiving the authorization to proceed, ICC-ES works directly with the responsible party for the product in requesting the needed information. The written findings are forwarded to the building jurisdiction within two weeks of receipt of data from the responsible party. A minimum fee covering five hours of technical time is assessed to start the review. Any additional time required is charged on an hourly rate. These fees can be paid by either the manufacturer or building jurisdiction. The technical findings provide the jurisdiction with evidence on which it can make a valid decision of acceptance or rejection.

International Accreditation Service

The adoption and administration of the model codes by the ICC-member governmental jurisdictions is the process by which building construction regulations are created for the public safety and welfare. An integral part of the administration of the model codes is providing local building officials with a means to approve testing laboratories, inspection agencies and fabricators. Effective enforcement of the codes requires careful attention to the qualifications of these entities. The competency, quality and experience of laboratories and inspection agencies are critical to the accuracy and reliability of the reports they generate. Therefore, any technical shortcomings in the process used to qualify them could directly affect the safety of structures built within a jurisdiction.

The *International Building Code* broadly defines testing and inspection service providers as "approved agencies" but only gives minimal guidelines for evaluating their qualifications. In the early stages of consolidation of the legacy code agencies, the founding members of ICC realized that effective code enforcement requires critical support services. Testing laboratories, inspection agencies and fabricators are prime examples of these critical services.

International Accreditation Service, Inc. (IAS), a subsidiary of the ICC, was established in 2002 to manage all accreditation-related functions needed to fully support proper enforcement of codes. IAS operates exclusively for the promotion of social welfare under the definition of Section 501(c)(4) of the Internal Revenue Code. The exempt purpose of IAS, as stated in its Articles of Incorporation and its Bylaws, is to lessen the burdens of government through the performance of certain accreditation functions for the benefit of federal, state and local governments in connection with the administration of building laws and regulations.

To this day, in many parts of the United States, reports issued by a testing laboratory or an inspection agency are rarely questioned as long as they are signed off by a registered engineer (P.E.). Since the early 1990s the United States has recognized that, for the World Trade Organization's "free trade" concept to work effectively, all trading partners must embrace equivalent accreditation practices for their testing, calibration and inspection activities. To facilitate the free trade concept, the International Organization for Standardization (ISO) published several new standards establishing minimum requirements for operation of testing and calibration laboratories and inspection bodies. These standards have been accepted by the federal government and all major practitioners of accreditation in the United States.

Most countries have a single national accreditation body operating under the auspices of the national government. However, the United States' free market system permits competition in the accreditation field. Knowledgeable accreditation practitioners recognize that competition in accreditation generally tends to lower the standard of quality because accreditation bodies may compete on price by offering programs that are less comprehensive or lack appropriate field oversight. From the code official's perspective, the minimum requirement for acceptance of testing and inspection agencies should be that the bodies accrediting them be a signatory to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA). ILAC is the apex body internationally that evaluates and monitors accreditation bodies to ensure that they meet the equivalent level of competence of all other national bodies worldwide and are not subject to competitive influences. To qualify for ILAC signatory status, accreditation bodies are required to be evaluated by an internationally recognized team of peer evaluators from its particular region in the world. In the case of IAS, that region is the Asia Pacific Laboratory Accreditation Cooperation (APLAC). ILAC/APLAC evaluation teams conduct a comprehensive assessment of the accreditation body to determine if it complies with international accreditation standards and if the laboratories and inspection bodies it accredits can produce equivalent results to the all other MRA signatory bodies. This evaluation is repeated periodically and is supplemented by mandatory proficiency tests required of accredited laboratories and inspection bodies. Proficiency testing is a practical way of determining the ongoing equivalence of test and inspection results of laboratories and inspection agencies accredited by ILAC MRA signatories. Through the international MRA, ILAC provides a method for worldwide recognition of the test and inspection reports and calibration certificates issued by laboratories and inspection bodies that have been accredited by ILAC signatories.

IAS is the only accreditation body in the United States that focuses primarily on laboratories and inspection bodies that do work in the building and construction field. IAS is also the only internationally recognized accreditation body that is currently recognized in all three major conformity assessment areas: testing, calibration and inspection. There are two other accreditation bodies in the U.S. recognized for accrediting calibration and testing laboratories, one in the private sector and one operated under the auspices of the National Institute of Standards and Technology (NIST).

Accreditation services provided by IAS are practical means available to building officials to obtain the necessary information to make their findings in evaluating the performance of new and innovative building materials and products and to ensure that on-site inspection functions are carried out by competent inspection agencies. Without these services, it would be necessary for each governmental agency charged with enforcing model codes to maintain a staff of trained assessors and engineering specialists qualified to review and evaluate newly-introduced materials and products as well as to review and evaluate laboratories, inspection agencies and fabricators.

Accreditation Process for Testing and Calibration Laboratories

Testing and calibration laboratories are required to comply with international standard ISO/IEC 17025, which stipulates that laboratories be assessed on-site to ensure that they operate under a well-documented quality management system, have sufficient qualified staff and are equipped with all needed apparatus and support systems to ensure competent testing and calibration. Typically, an ILAC-recognized accreditation body will assess the following areas of a laboratory’s operations:

- Adequacy of resources
- Freedom from external and internal pressures

- Impartiality and integrity
- Quality policy and quality objective statements
- Contract review procedures
- Subcontracting, if practiced by the laboratory
- Complaints and complaint handling
- Technical records
- Internal audits and management reviews
- Staff competence and skills
- Educational qualifications, training and certification of staff
- Participation in interlaboratory comparison and proficiency testing
- Procedure for estimating uncertainty of measurements
- Assuring quality of testing and calibration results
- Reporting of results
- Opinions and interpretations

Assessment teams consisting of experts in quality management and technical subject-matter experts are matched to the laboratory's scope of accreditation. Assessment visits involve careful scrutiny of all aspects of the laboratory's operations. Laboratories with a very small staff often demand greater scrutiny, as key elements are handled by a single individual who often has to "change hats" to cover every area of the standard. In such cases, great care is exercised by the assessment team to ensure that issues like conflict of interest, impartiality and integrity are all properly addressed to ensure valid results.

See Appendix B for flowcharts illustrating the accreditation process.

Participants in proficiency testing and inter-laboratory comparisons (PT/ILC) are key elements of laboratory accreditation. ILAC-recognized accreditation bodies collaborate with national and international partners to ensure that appropriate PT/ILC are available for laboratories in all fields. PT/ILC are two very important and closely related methods that a laboratory uses to demonstrate technical competence; they provide independent feedback regarding a laboratory's actual performance and can be used as a tool to monitor improvement efforts. For a PT/ILC exercise to be meaningful, it is essential that very nearly identical samples (known as well-characterized artifacts) are circulated to different laboratories or to different individuals within the same laboratory and tested in a standard format using similar equipment and processes. The results of these exercises are carefully reviewed and statistically evaluated to determine consistency of results to consensus values and outliers. Laboratories with outlying results are required to carefully analyze their test protocol and isolate the problem or deficiency that resulted in the outlying results.

Evaluation of uncertainties commonly referred to as measurement uncertainties is the heart of testing and calibration work. The person conducting a test or calibration, more particularly calibration, should be conversant with the procedure of evaluation, have knowledge of "type A" and "type B" contributions, factors to be considered for evaluation of "type B" contributions, combined uncertainties, degrees of freedom, and coverage factor. The person in charge of each major test area must be aware of all these factors as well as the procedures for evaluation. The concepts, theoretical background and factors influencing measurements should be clearly understood by the testing/calibration staff.

Accreditation Process for Inspection Agencies

Currently, there is a lack of accreditation bodies that accredit Special Inspection Agencies as defined in the code. One exception is the IAS program. Inspection agencies are required to comply with international standard ISO/IEC 17020. In addition to this standard, Special Inspection Agencies are also required to comply with the IAS Accreditation Criteria for Special Inspection Agencies (AC291). Both of these documents stipulate that assessments be conducted at both the corporate office and in the field to observe the agency's inspectors in practice. Assessment of the corporate offices is required to ensure that the agency operates under a well-documented quality management system, has adequate qualified staff and is appropriately equipped with all needed apparatus and support systems to ensure competent inspections.

As with the accreditation of testing and calibration laboratories, assessment teams for inspection agencies should consist of experts in quality management as well as subject matter experts matched to the inspection scope requested. Assessment visits should involve all aspects of the inspection agency operations. Most inspection agencies have a small full-time staff but rely on contract inspectors for the field work. Where Special Inspection Agencies (SIAs) make extensive use of contract inspectors, great care must be exercised by the assessment team to ensure that issues like conflict of interest, impartiality, integrity and inspector competence are all properly evaluated to ensure valid outcomes.

For SIAs, IAS maintains a database to identify deficiencies noted in the field. Table 1-1 is a fictional example of this. Data gathered by assessors help SIAs monitor trends and assist in the implementation of remedial measures in a timely fashion.

Table 1-1
Example of Data Entry on IAS Assessment of Special Inspection Agencies in the Field

Item No.	SIA Code*	Type of Work	Assess-ment/ Audit Date	Findings	Remarks
1	11	Concrete Masonry	1-27-05	Work not per approved plans and details; no expansion joints; engineer revisions not wet-stamped.	Major noncon-formance
2	11	Reinforced Concrete	2-14-05	Plans require footings and floor as monolithic pour but Special Inspection (SI) Agreement report shows two pours; wall rebar #4 where plans call for #6; discrepancy in wall thickness; inadequate drawings; in some areas, plans and calculations don't match.	Major noncon-formance
3	12	Roof Structure	1-31-05	Beam seats not per detail because rebar exposed; hangers not per detail; truss plans and calculations not approved by city; stabilizer plates called for in plans not installed; column base plates not grouted as required by approved plans; no reports for continuous weld inspection of midspan joists as required by approved documents (contractor claims special inspector could have lifted the plywood sheathing [still unfastened] to inspect welds).	Major noncon-formance
4	18	Structural Steel	1-25-05	Welded areas not painted; outside corners not built per plans; headers and soffits not per plan; web stiffeners not installed at supports; 12-gauge studs missing in some areas; attachment of columns to headers incomplete; in some areas nuts and screws missing.	Major noncon-formance
5	18	Reinforced Concrete Footings	3-18-05	Incorrect footing size at many locations; high-strength (HD) bolts tied to rebar driven into dirt in many locations; fill has been removed in surcharge areas of footing; rebar missing in some areas of footing; piers not formed out; post bases not set at some locations; job not under continuous special inspection as required; spread footing poured without special inspection.	Lack of supervision of special inspectors
6		Structural Steel Welding	4-05-05	ASTM E7018 low-hydrogen welding rods not maintained under specified environment in AWS D1.1. In one case, when this was pointed out by the assessor, a heating oven was secured from a different site and installed on the job.	Need training and inspector monitoring
7		Structural Steel	4-05-05	ID of steel tubing could not be confirmed; project specs called for Grade C. (Under ASTM A500, the applicable standard, the tubes come in three grades, A through C.)	

*Special Inspection Agency code number

Accreditation of Fabricator Inspection Programs

Chapter 17 of the *International Building Code* specifically requires approval of any fabrication activities that are conducted off-site without continuous special inspection. Some aspects of construction, such as structural welding, reinforcing concrete and high-strength bolting, are so critical to safeguarding public welfare that special inspections are required by the applicable building code. Typically, special inspections are made by special inspectors at the construction site. Increasingly, however, some phases of construction requiring special inspections are performed at a fabrication facility away from the construction site, including outside the United States. When this occurs, the code official has the difficult responsibility of determining whether the special inspections are being conducted in accordance with the code. IAS assists the building official in this regard through its Fabricator Inspection Accreditation program. IAS evaluates the inspection activities at the fabrication facilities, including internal quality management systems and third-party inspection procedures, to determine compliance with the code and applicable IAS accreditation criteria. The criteria include a detailed review of the fabrication procedural manual, spot-testing of key quality-control procedures at the fabrication facility and evaluation of the competence of staff. IAS conducts an initial joint on-site assessment of the facility with the designated accredited inspection agency and quarterly unannounced inspections of the facility by accredited inspection agencies. This periodic monitoring determines on an ongoing basis that the fabrication activities are in compliance with the procedural manual.

Building Department Accreditation

Increasingly, building and safety departments are embracing the IAS Building Department Accreditation Program to assist cities, counties and states in evaluating the performance of their building code enforcement activities. This accreditation program is under the control of governmental bodies that regulate construction and is overseen by a Board of Directors made up of building-regulator representatives of governmental jurisdictions. For detailed information about Building Department Accreditation see Chapter 6.

Summary

This chapter emphasizes the “minimum” nature of codes, a description that is based on contemporary law and attitude. This does not mean that building officials should adopt an unalterable acceptance of the definition. On the contrary, those involved in the field of building regulation should develop and retain sensitivity to needed changes that may seem to exceed the current interpretation of “minimum.” When such changes seem to lack consonance with the intent of the enabling statutes, it may be necessary for code writers to undertake a re-evaluation of such intent, measuring its value against contemporary needs. Many requirements, adopted at a propitious time, remain inviolate because too many persons are willing to accept things as they are, even though the conditions and needs for such requirements no longer exist.

Dramatic revelations, spotlighted by reference to statistical data, sometimes are the most effective means of illustrating a point. The reference to past disasters and the growth of building regulations intended to avert tragedies to every extent possible might leave the impression that major disasters belong to the past. Not so. A look at some current statistics should dispel any feelings of satisfaction or security related to our current sophisticated society and its modern laws.

Building officials have a responsibility not only for the proper administration of their own departments but to actively participate in any attempts to bring about an awareness of the importance of adequate building control. In 1980 the National Conference of States on Building Codes and Standards (NCSBCS) initiated a program to focus attention on the importance of codes and code enforcement through a national program entitled “Building Safety Week.” The objective was to secure publicity on the importance of building regulation through a series of campaigns, including requesting the governors of states to proclaim their own Building Safety Week, and through the news media and other devices bring an awareness of the reason for codes via a slogan that simply read, “Building Safety Is No Accident.” This activity is now actively supported and endorsed by the International Code Council.