

THE IMPACT OF BUILDING REGULATIONS AND STANDARDS
ON PRESERVATION AND CONSERVATION:
AN INTERNATIONAL PERSPECTIVE

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This paper addresses building regulations in the broadest sense. Rather than comparing specific requirements of various countries it focuses on the similarities in the origins and intent of regulations, and on the problems of the historic structure when stringent requirements are imposed upon it. From this perspective, conclusions are drawn that can benefit historic buildings from different geographies or contexts. Many of the conclusions presented in this paper are derived from research conducted in 1986 at ICCROM, the International Centre for the Study of the Preservation and the Restoration of Cultural Property in Rome. This research included review of literature and specific codes and standards as well as interviews with conservation architects practicing in all corners of the world.

WHAT ARE BUILDING REGULATIONS?

It is difficult to identify the first law or regulation that described a specific building technique or urban plan. Long before the need to identify such practices as law, standard building practices developed in response to the particular climate, geography, and cultural aspects of a settlement including trade, religion, politics and defense. Control of the physical form of the environment was desirable for a variety of reasons, some of which are remarkably similar to those of today. Although controls against fire and unsanitary urban conditions have always dominated building restrictions, controls less oriented to hazardous conditions such as those promoting a particular urban esthetic, have also existed historically and universally.

The history of building regulation, in particular its evolving sophistication, parallels the world's advancements in science and technology, public health and sanitation, and social, political and economic programs. Most recent are the introduction of building restrictions regarding earthquakes, thermal or acoustic resistance, handicapped accessibility, or the toxicity of building materials. For historic properties, the continual upgrading of building standards presents a universal problem. The

more specific and sophisticated the restrictions become, the wider the gap between what they describe as acceptable and what exists in a building that was constructed perhaps hundreds of years before.

PROBLEMS FACING THE HISTORIC BUILDING

All practitioners in conservation and preservation recognize that the application of modern building codes and standards to historic resources presents tremendous problems. In concept, these standards promise to make the cultural property safe, to protect it from the dangers of earthquake or fire, to accommodate social goals such as affordable housing or energy conservation and, in a general sense, to allow the structure to survive as an active member of a nation's building stock. In reality, their implementation can cause substantial damage to the historic building fabric. Examples are requirements that specify the number and dimensions of building exits or minimum distances between buildings; dictate the use of fire resistant materials and assemblies for exit stairs or corridors; limit the use of certain materials for structural members or the exterior skin; describe the specific materials that will provide adequate fire separation between occupancies; or establish the size and type of operation of windows that will ensure adequate ventilation of a building.

Each of these examples represents a reasonable solution to recognized problems and hazards. However, the solutions most commonly use exact specifications derived from modern construction materials and techniques, and do not allow the flexibility to be reinterpreted for the historic building. Enforcement is by building and fire officials who, while knowledgeable in their field, have a primary responsibility to the protection of life and property rather than the protection of the cultural heritage. With few exceptions, most technical aspects of conservation are the responsibility of this official. That the administrative responsibilities for conservation and building regulation are separate only exacerbates the problem, for specialists in either of these fields seldom develop expertise in the other. We preservationists are at fault for not learning the language of the fire or code official, as well as for not taking special measures to sensitize the official to our own concerns.

The conflict between code requirements and the historic character of the building presents a puzzling riddle: survival of the historic building as either a monument or a functioning artifact often requires modifications to the very spaces, finishes, or components that give the building its significance. The application of contemporary building codes and standards may limit the use of the historic resource, require the removal or obscuring of historic fabric, or demand substantial changes in plan that alter our ability to understand the building's historic use or appearance.

UNIVERSAL SIMILARITIES

Much can be done to lessen the damaging effects of modern building restrictions on the historic structure. The first steps are to acknowledge the similarities shared by building regulations and regulatory processes and to identify those of particular concern to the historic building.

Legal Basis and Intent of Building Regulation - Most countries have written building restrictions, printed documents that have the authority of law. These restrictions address similar technical issues in response to a country's unique geography, climate, available building materials, natural and man made hazards, and political and social structures. These may include fire, earthquakes, extreme temperature and humidity conditions, health and sanitation, esthetics, energy consumption, acoustics and privacy, or handicapped accessibility. In comparing building regulations, the most significant difference appears to be the degree to which a variety of life and property safety issues are addressed, a reflection of the financial and technical resources that country can afford to dedicate to the protection of its citizens.

Administration of Building Regulations - Although building regulation is a function of many levels of government, codes and standards are usually written by a centralized national or state office and administered regionally or locally. Responsibility for their administration typically falls within a public office oriented to construction and isolated from offices where other governmental functions related to building such as zoning, planning or conservation occur.

Bias of Building Regulations to Modern Construction - Comprehensive regulations that address a wide variety of issues and are applied on national or regional scales are largely a 20th century phenomena. These regulations are generally written to prescribe modern construction systems and techniques and are often inflexible in their approach to rehabilitation.

Multiple Regulatory Documents and Authorities - Separate code documents under the jurisdiction of different governmental offices commonly exist for the various aspects of building construction (i.e. for fire protection, plumbing, electric, multi-unit housing, etc.). Most common are separate offices for fire marshalls and building code officials, an often awkward and unclear distinction.

Universality of Construction Materials and Techniques - The majority of the world's construction is executed in natural building materials of adobe, stone or brick masonry, or wood and fibrous products. Although the specific use of these materials is determined by factors such as availability or climate, similarities in construction systems and techniques exist because

of universal structural principles and material characteristics. Construction diversity declines in the face of worldwide urbanization that relies on high-rise concrete construction and introduces new fire and health hazards.

For historic buildings, additional similarities can be identified:

Attitudes - Universally, historic buildings continue to suffer from the attitude that they are antiquated, redundant, and inferior. Building regulations oriented to modern construction reflect this attitude and the tendency of each society to build new structures of its own time and place.

Increasing Conflicts - Predominant themes of building regulations are the protection of life and property from fire and the provision of safe and sanitary structures and cities. These regulations are continually evolving in response to increased safety standards and developments in science, technology, and manufacturing. The conflict between what these regulations prescribe and what exists in the historic building increases with each more stringent change to the building regulations.

Conflicting Standards - While building regulations generally provide exact specifications for building construction, guidelines such as the Secretary of the Interior's Standards in the United States or ICOMOS's Venice Charter are more descriptive of a philosophy behind appropriate treatments for historic resources. The integration of these quantifiable and qualifiable provisions is difficult: the apparent subjectivity of preservation guidelines is difficult for the code official to work with, whereas the conservator often finds himself or herself overwhelmed by the specificity and inflexibility of the codes and standards.

Divided Administrative Authority - Administrative responsibilities for the cultural property are divided between the building regulator and the preservationist. Members of these fields do not understand each other's charge, and little has been done to encourage communication and promote a sensitivity between the two. While the field of preservation is composed of historians, archeologists, conservators, and architects, building and fire code officials typically represent a variety of specializations within the modern construction industry.

Existing Regulatory Approaches - Building regulations generally treat the cultural property in one of four ways: require the building to meet the same requirements applied to new construction; contain a few provisions that provide some relief from modern construction standards; allow a separate code document that specifically addresses historic buildings; or give the code official full administrative responsibility for determining appropriate, safe treatments. Whereas the first of these is usually the most damaging to historic fabric, the last may be problematic in the hands of an unsensitive or extremely conservative building or fire official.

Conflicts with modern engineering theory - Building regulations, although evolved from traditional construction practices, are largely a 20th c. phenomenon based on modern structural theory and testing as well as contemporary construction materials and techniques. These engineering principles are generally inadequate in explaining the physical dynamics and structural performance of the historic building in situations such as those presented by earthquakes.

SUMMARY AND RECOMMENDATIONS

To a large degree, the goals of conservation and building regulation are parallel: that of protecting the built environment and its inhabitants from dangerous or damaging occurrences. The timing is right to promote a marriage of these goals. Generally, in one form or another, conservation has been adopted as public policy. The field of conservation now includes architects and engineers who can speak the regulatory language. Most important are the personal and organizational links that have been formed within individual countries and throughout the world that provide opportunities to share information and increase our knowledge about the special problems faced by historic buildings. The following recommendations suggest the first steps to ensure that our cultural and historic resources receive the best possible protection.

1. EDUCATION - BETTER COMMUNICATION BETWEEN THE PRESERVATION AND CODE COMMUNITIES IS ESSENTIAL. TRAINING OPPORTUNITIES TO EDUCATE OURSELVES AND THE CODE OFFICIALS ABOUT OUR RESPECTIVE PROGRAMS AND CONCERNS MUST BE PURSUED. WITHIN THE PRESERVATION FIELD, IT IS CRITICAL THAT THE REGULATORY INTENTS AND REQUIREMENTS ARE UNDERSTOOD AND THAT WE ARE ABLE TO WORK WITH THEM WITH INTELLIGENCE AND CREATIVELY.
2. CODE DOCUMENTS AND ADMINISTRATION - ALL GOVERNMENTS SHOULD DEVELOP SEPARATE CODE DOCUMENTS OR ADMINISTRATIVE PROCEDURES SPECIFIC TO HISTORIC BUILDINGS. THESE DOCUMENTS SHOULD ENCOURAGE MAINTENANCE OF HISTORIC PROPERTIES AND SEPARATE LIFE AND SAFETY CONCERNS FROM THOSE RELATED TO OTHER SOCIAL OR POLITICAL GOALS SUCH AS HANDICAPPED ACCESSIBILITY OR ENERGY CONSERVATION. THE APPLICATION OF CODES AND STANDARDS TO HISTORIC BUILDINGS SHOULD BE DONE ONLY BY THOSE WITH SPECIAL EXPERTISE IN BOTH FIELDS. POSITIONS FOR CERTIFIED FIRE/CODE OFFICIALS WITHIN REGIONAL, STATE OR NATIONAL PRESERVATION/CONSERVATION OFFICES SHOULD BE ESTABLISHED OR, CONVERSELY, FOR PRESERVATIONISTS IN THE EQUIVALENT BUILDING REGULATORY UNIT OF GOVERNMENT.
3. POLICY BOARDS - SPECIAL APPEAL OR VARIANCE BOARDS FOR UNIQUE SITUATIONS INVOLVING HISTORIC STRUCTURES SHOULD BE ESTABLISHED TO DEVELOP POLICY APPLICABLE TO CODES AND HISTORIC STRUCTURES. PERSONS WITH EXTENSIVE EXPERIENCE IN FIRE PROTECTION, GENERAL BUILDING CODE CONCERNS, AND HISTORIC PRESERVATION SHOULD BE

REPRESENTED ON THESE BOARDS. DECISIONS REACHED SHOULD BE RECORDED, PERIODICALLY EVALUATED AFTER EXECUTION, AND AS APPROPRIATE, USED TO ESTABLISH POLICY THAT CAN BE INTEGRATED INTO THE HISTORIC BUILDING CODES AND STANDARDS.

4. LIABILITY - THE ROLE THAT PROFESSIONAL LIABILITY CONCERNS PLAY IN THE USE OF CREATIVE CODE SOLUTIONS FOR HISTORIC BUILDINGS SHOULD BE EXPLORED. THIS APPLIES TO THE PUBLIC CODE OFFICIAL AS WELL AS THE PRIVATE PRACTITIONER WHOSE INSURANCE LIABILITY MAY PREVENT HIM OR HER FROM RECOMMENDING INNOVATIVE SOLUTIONS.

5. RESEARCH - A BODY OF KNOWLEDGE RELATED TO THE ACTUAL PERFORMANCE OF HISTORIC BUILDINGS IN FIRES, EARTHQUAKES, ETC. SHOULD BE DEVELOPED. THE KNOWLEDGE SHOULD BE BASED ON BOTH EMPIRICAL PRACTICE AND SCIENTIFIC THEORY AND GATHERED IN A SYSTEMATIC FORMAT THAT CAN BE USED AND ADDED TO IN VARIOUS COUNTRIES.

6. INTERNATIONAL COMMUNICATIONS - APPROPRIATE CHANNELS TO COMMUNICATE RELEVANT INTERNATIONAL RESEARCH AND DEVELOPMENTS, PROGRESSIVE ADMINISTRATIVE PROCEDURES, ETC. SHOULD BE IDENTIFIED AND ENCOURAGED. THESE MAY INCLUDE INTERNATIONAL MEETINGS AND PUBLICATIONS TRANSLATED INTO A COMMON LANGUAGE.

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Building regulations, documents written primarily to describe appropriate construction materials and techniques for modern construction, present a universal problem to the protection of historic property. The application of their specifications and restrictions to the historic resource often mandates the destruction, removal, or obscuring of the very qualities and materials that give a property its architectural or cultural significance. In addition to the problem of the written regulations is the division of administrative responsibilities between the fire/building code official and the preservationist, professionals with different concerns, technical backgrounds, and priorities.

The specifics of each country's building regulations vary according to legal custom, available construction materials, and predominant health concerns and natural hazards. However, similarities of intent, approach and administrative process exist. These similarities become particularly significant for the historic property as they establish a common foundation from which sensitive technical and administrative approaches can be shared between countries.

This paper discusses building regulations in the broadest sense. It is written not for architects addressing specific fire or engineering problems, but for preservationists in policy roles who can affect changes in both existing code documents and administrative systems. Although specific code requirements and procedures of different countries are not discussed, these were the basis of the paper's research, including interviews with conservation architects from more than twenty countries. These interviews made clear that while no one solution addressing the conflict of building regulations and historic preservation can be developed, programmatic solutions that utilize education, research, the development of special documents and administrative procedures, and international communication can have universal benefit.

El impacto de Regulaciones y Modelo
para la Preservación y construcción de:
una perspectiva internacional

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Regulaciones de construcción documentos escritos principalmente para describir materiales de construcción apropiados y técnicas para construcción moderna, presentan un problema universal a la protección de la propiedad histórica. La aplicación de sus especificaciones y restricciones al recurso histórico a menudo manda la destrucción, eliminación o oscureciendo las mismas calidades y materiales que le ofrecen a una propiedad la significación arquitectónica o cultural además del problema de las regulaciones escritas es la división de las responsabilidades administrativas entre el código oficial de fuego/edificio y los que se dedican a preservar, profesionales con diversos intereses educación técnica y prioridades.

Las especificaciones de regulaciones de edificios de cada país varían según la costumbre legal, materiales de construcción disponibles e intereses predominante de salud y riesgos naturales. Sin embargo, intenciones en común, acceso y proceso administrativo existen. Estas intenciones en común se desarrollan con significación para la propiedad histórica porque establecen una fundación común de la cual accesos sensitivos técnicos e administrativos pueden compartirse entre países.

Esta disertación discute las regulaciones de construcción en el sentido más amplio. No está escrito para arquitectos dirigiéndose a problemas específicos sobre fuego o de ingeniería sino para los dedicados preservar lo histórico en el papel de seguir curso de acción que puedan influir cambios en ambos documentos de código también como existen hoy en día y sistemas administrativos. Aunque específicos códigos que son requisitos y procedimientos de diferentes países no son discutidos, estos fueron la base de la investigación del tema, incluyendo entrevistas con arquitectos de conservación de más de veinte países. Por consecuencias estas entrevistas se aclararon que mientras, ninguna resolución dirigiéndose al conflicto de las regulaciones de construcción y la preservación histórica se pueden desarrollar soluciones prácticas que utilicen educación investigación, el desarrollo de documentos especiales y procesos administrativos, y comunicación internacional pueden layrarse en tener beneficio universal.