

Building Department Operations
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If a builder build a house for someone, and does not construct it properly, and the house which he built fall in and kill its owner, then that builder shall be put to death.

If it ruin goods, he shall make compensation for all that has been ruined, and inasmuch as he did not construct properly this house which he built and it fell, he shall re-erect the house from his own means. - Code of Hammurabi (c.1754 BC)

Fortunately, code development, implementation, and enforcement have become more elegant in intervening millennia, but the intent remains the same:

The intent of the building code is to establish the minimum requirements to provide a reasonable level of safety, public health and general welfare, through structural strength, means of egress facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to firefighters and emergency responders during emergency operations. (International Building Code)

Modern Building Codes

The first building codes were promulgated by the Insurance Industry. The National Board of Fire Underwriters published its Recommended National Building Codes in 1905. The world's first building safety code organization, BOCA (Building Officials & Code

Administrators International), was established in 1915 to provide a forum for exchange of ideas regarding building safety and construction regulations. Today the insurance industry continues to play a part in the direction of code development alongside product manufacturers and public safety officials.

What are the International Codes (I-Codes) and where did they come from?

In 1994 The International Code Council (ICC) was formed with the intent of combining the Legacy Codes into one code standard. The Legacy Codes included:

- **NBC** (National Building Code) from BOCA (Building Officials & Code Administrators International) used largely in the Eastern and Great Lakes States.
- **UBC** (Uniform Building Code) from ICBO (International Council of Building Officials), in Western and Midwest States.
- **SBC** (Standard Building Code) from SBCCI (Southern Building Code Congress International) in the Southern States.

In 2000, the first International Building Code for commercial buildings was published by the ICC, and the Legacy Codes ceased to be developed. Jurisdictions within all 50 states have adopted the I-Codes, many with local amendments.

Establishment of the statewide New Hampshire Building Code

In 1947 The State of New Hampshire first adopted the NH State Fire Code. The NH State Fire Code references 2009 NFPA 1 (Fire Code) and NFPA 101 (Life Safety Code), as

well as rules under SafeC-6000 for the review and approval for handling and storing hazardous materials such as flammable liquids and fireworks, and for investigating the cause, origin, and circumstances of fires.

Each municipality desiring a building code adopted a legacy building code, or portion thereof, locally. In 2003 the State of New Hampshire ratified the NH State Building Code, which included a number of individual code publications. In October of 2007 the International Residential Code was ratified as part of the NH Building Code.

The NH State Building Code brought building code uniformity from town to town.

NH RSA 155-A: 1 IV

IV. "New Hampshire building code" or "state building code" means the adoption by reference of the International Building Code 2009, the International Existing Building Code 2009, the International Plumbing Code 2009, the International Mechanical Code 2009, the International Energy Conservation Code 2009, and the International Residential Code 2009, as published by the International Code Council, and the National Electrical Code 2014, as amended by the state building code review board and ratified by the legislature in accordance with RSA 155-A:10. The provisions of any other national code or model code referred to within a code listed in this definition shall not be included in the state building code unless specifically included in the codes listed in this definition.

Together, the State Fire Code, State Building Code, and the collaborative efforts between a jurisdiction's safety code professionals provide a comprehensive approach to ensuring the minimum standards are met for the welfare of the general public.

How to comply with the Building Code

The Codes are a set of *standards* rather than a set of rules and regulations. The Building Code is based on benchmarks set as the minimum required design expectation of a material, system, or design element. The standards are determined during the code consensus process when representatives from private industry and government work together to reach a determinate value for performance.

Meeting the intent of the Code, Performance or Prescriptive?

Because the Building Code is based in the idea that a *standard* must be met rather than a fixed solution, the *performance method* allows for a variety of means, methods or materials to be used individually or as part of an integrated system. The evaluation and design of that material or system is required to be prepared by a licensed design professional such as an Architect or Engineer, and allows for many options for the project owner based on their budget, sense of aesthetic, or goals.

The Residential Code was developed as a handbook to meet the standards. It was felt this approach would be beneficial for builders with smaller, historically simpler projects such as single family and duplex dwellings. The residential code uses the *prescriptive method* of meeting the minimum standards of the codes.

As an example of the difference between performance and prescriptive methods, the building code requires that a typical residential living area meet the *minimum standard* of supporting a floor load of 40 pounds per square foot. If a homeowner decides that they

would like a living room floor made entirely out of glass panels over a koi pond, they have the option of hiring a licensed design professional who will undertake to perform the calculations and/or testing needed to verify that the glass floor panels will *perform* as required by carrying the structural load. If the homeowner chooses a traditional wood framed floor, the builder simply references the floor joist tables in the Residential Code and based on the size, span and lumber desired, chooses a floor joist size that is *prescribed* by the code as being sufficient for the loading.

What are Referenced Standards?

Referenced Standards play a large part in the building codes. Often the Building Code will include a specific reference to a separate publication or a specific section of a publication and allow that, if the requirements of the referenced publication are met, then the building code minimum standard is also met. Some examples of other publications cited as referenced standards include many National Fire Prevention Association documents and American Wood Council publications.

What part do Manufacturer's Instructions play?

Manufacturer's instructions that are part of a *tested, listed & labeled* product are treated much like a referenced standard, in that, if the product is installed in accordance with the instructions the minimum code standard is also met.

A *tested, listed & labeled* product is a product that has been thoroughly tested by an accredited laboratory and listed as passing the minimum safety and operational standards.

The product is then permanently labeled with the testing laboratory insignia and approval

number. The most recognizable laboratory is UL (Underwriter's Laboratory), although there are a number of accredited testing laboratories.

What is reviewed for a Commercial Project - *for life safety*

Use and Occupancy Classification – *Who will be in the building, how many of them will there be, and what will they be doing? What is the intended purpose of the building?*

Is it a high risk occupancy such as a nightclub, with high occupant load per square foot, low lighting, loud music, lack of knowledge of the building layout, and the potential for alcohol consumption which reduces situational awareness and reaction time? Or is it a lesser risk occupancy such as an office building with a lower occupant load per square foot, bright lighting, populated largely by people who are familiar with their surroundings? Does the population in the building have special needs that should be considered?

Height and Area – *How wide and tall is the building, and what is the setting?*

If a fire event happens how far will people need to go to escape, how many floors from grade will they need to travel, how will the first responders approach the building and gain ingress for rescue and firefighting activities? How is the building affected by proximity to other buildings and how would a fire event in this building affect other proximate buildings?

Type of Construction – *What is the structure made of?*

Is it made entirely of combustible wood, entirely of non-combustible steel or concrete, or some combination of materials? How long will the materials keep their structural integrity in the event of a fire, allowing the occupants time to evacuate?

Fire and Smoke Protection Systems – What systems will be in place to advance the time period in which the occupants can safely leave the building?

Fire alarms, fire sprinklers, fire protective coatings and smoke compartmentalization are examples of systems put in place to lengthen the time of safe egress. These protective systems fall generally into two categories. Active systems such as alarms or sprinklers initiate based on a response to a notification or situation. Passive systems are integral to the construction such as fire walls and smoke gaskets. It is important that the active systems be tested on a regular schedule, and that the passive systems are not compromised when renovation, repair, or tenant fit-out projects occur.

Means of Egress – What are the pathways people will take to get out of the building in an emergency event? How will the occupants identify the safest route? Will those routes accommodate the number and ability of the people the building is designed for?

Based on the number of occupants and their activities, the time-integrity of the structural elements, and the distance of safe egress, how many exits are needed and where do they need to be located?

What is reviewed for a Commercial Project - for design and construction elements

➤ Soils and foundation, structural frame design, exterior wall covering, roof assemblies.

- Light, temperature, ventilation, minimum room dimensions, interior finish materials.
- Efficient utilization of energy.
- Access and usability functions for all persons.
- Building Systems, Electrical, Plumbing and Mechanical.

What about Existing Buildings?

Existing Buildings are regulated by the International Existing Building Code. Code requirements are based primarily on the *Level*, or scope and area, of the proposed work. Requirements for fire and life safety and accessibility are typically the most rigorous upgrades required even when the proposed scope of work is limited.

NFPA 101, the Life Safety Code, also addresses existing buildings *whether or not* there is any proposed construction. The Life Safety Code requires that some critical elements be in place in every occupied building. Because these few Life Safety elements have been proven to have such a major impact on the safety of both the occupants and the First Responders, there is no grandfathering or waivers offered. A few of these critical code requirements are:

- Smoke and carbon monoxide detection in residential buildings.
- Minimum sizes for emergency escape and rescue openings.
- Required dimensions along egress paths including stairs and handrails.

When these minimums cannot be met in an existing structure, an alternative providing the same level of safety must be approved. An alternative may include a sprinkler system (if

not already otherwise required), a whole building alarm system, restrictions on the Use and Occupancy, a standing fire watch, and similar options.

Changes of Occupancy and Changes of Use

An existing building is typically home to a number of different businesses in the course of the building's usable life. The simplest change would be a *Change of Occupant* without any physical changes to the building, change of use, or hazard category. For instance, a change from a pet store to music store would fall under the same use, occupancy & hazard categories of the codes, and therefore would be subject to the least rigorous upgrades.

When a building has a *Change of Use*, such as change from a pet store to an urgent care health center, the existing building is reviewed for the requirements of the new use and hazard category, and potentially will incur rigorous code upgrades. In this scenario, an urgent care center might require an emergency generator that will automatically power the mechanical, electrical and fire protection systems if the building were to suffer an outage. The activities at an urgent care center include invasive procedures that *must* continue without interruption of power, whereas a retail establishment can be easily evacuated with only emergency lighting.

An example of a *Change in Hazard Category* within the same *Use Group* might be a building used to store cans of clam chowder vs. a building used to store fireworks. They both are storage occupancies, but one presents more hazard to the employees and neighborhood.

Historic Buildings

Historic buildings are a special class of existing buildings. When a repair, alteration, relocation or change of occupancy occur within a historic building, a registered design professional must prepare a report which shall identify each required safety feature that is in compliance with historic building chapter, and identify where compliance with other chapters would be damaging to the contributing historic features. The report shall describe each feature that is not in compliance with code provisions and shall demonstrate how the intent of the code is complied with by providing an equivalent level of safety. The code official may accept equivalent measures such as a means of maintaining doors in an open position to permit egress, a limit on building occupancy, a limit on occupancy of only certain areas or floors, or constant supervision by a person knowledgeable in the emergency exiting procedures. Not all old buildings are created equal; to qualify as a Historic Building, this definition must be met:

Any building or structure that is listed in the State or National Register of Historic Places; designated as a historic property under local or state designation law or survey; certified as a contributing resource within a National Register listed or locally designated historic district; or with an opinion or certification that the property is eligible to be listed on the National or State Register of Historic Places either individually or as a contributing building to a historic district by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places. (International Building Code)

Reuse, redevelopment, changes of use, infill projects, and historic preservation are arguably the most challenging, and rewarding, code exercises.

Agricultural Buildings

IBC Appendix C is adopted as part of the NH Building Code. In order to be treated as an agricultural building for code purposes, the building must meet the below definition:

AGRICULTURAL, BUILDING. A structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products. This structure shall not be a place of human habitation or a place of employment where agricultural products are processed, treated or packaged, nor shall it be a place used by the public.

C101.1 Scope. The provisions of this appendix shall apply exclusively to agricultural buildings.

Such buildings shall be classified as Group U and shall include the following uses:

Livestock shelters or buildings, including shade structures and milking barns; Poultry buildings or shelters; Barns; Storage of equipment and machinery used exclusively in agriculture; Horticultural structures, including detached production greenhouses and crop protection shelters; Sheds; Grain Silos; Stables. (International Building Code)

Of course there are many other types of buildings on a farm that fall under the typical building types and are not considered agricultural buildings such as the family residence, employee bunk house, structure for the sale of products, farm to table restaurants, pancake houses and the like.

International Residential Code

The Residential Code regulates detached one and two-family (“duplex”) dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress and their accessory structures (International Residential Code). The Residential Code regulates construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition.

Note: Every building other than those listed in the scope of the International Residential Code above is regulated by the International Building Code, which is sometimes referred to as the commercial code.

Requirements to consider that are *not* regulated by the NH Building Code:

- Lead, Asbestos and Radon testing and abatement
- Americans with Disabilities Act (ADA)

ADA is a federal regulation and cannot be enforced at the local level.

The Americans with Disabilities Act of 1990 (ADA) prohibits discrimination and ensures equal opportunity for persons with disabilities in employment, State and local government services, public accommodations, commercial facilities, and transportation. (<http://www.ada.gov/>).

The Building Code includes a chapter titled *Accessibility* which regulates much of the same criteria as the ADA, and is enforceable at the local level. It is expected that upgrades will be done if a building permit is issued or a change of use occurs. Typically, the upgrades start in the parking lot by creating a compliant parking spot

and a safe, navigable route into the building. Even something as simple as replacing a round door handle with a paddle style handle will be credited as an upgrade effort.

How do we create a Building Department?

Funding a building department - A permit fee schedule is required.

RSA 674:51(d) A schedule of fees, or a provision authorizing the governing body to establish fees, to be charged for building permits, inspections, and for any certificate of occupancy enacted pursuant to paragraph III.

Although permit fees can be established to offset the costs of a Building Department, any income is required to be deposited into the General Fund. The income from Building Department fees cannot be deposited to an Enterprise Fund.

The activities of a Building Department, and enforcement of Zoning Ordinances which may be included under the Building Department, are meant to be a balance between user fees for those who directly benefit from the time-tasks of the Building Department, and the overall gain to the community for having safety, health, and land use controls in place.

Typically jurisdictions review their fee policies every few years as they try and keep a fiscal balance. Traditionally building permit fees are a calculation of several items which may include a flat fee, a fee per square foot, and a fee based on the project value.

How do we know who to hire and if they are qualified?

What ways can a municipality determine if a building inspector candidate is qualified? Currently there is no certification or licensure requirement for a building inspector. A municipality may choose a candidate that is a licensed tradesperson, such as electrician or plumber, a design professional such as an architect or engineer, or a candidate that has spent a number of years in the construction industry.

Although the above qualifications and experience are all acceptable foundations to be considered for a position as an inspector, continuing education is necessary to broaden the scope of knowledge as well as keep abreast of new construction methods and technology.

Many building inspectors and code officials gain certification through the International Code Council. The ICC offers training and certification testing in hundreds of topics, from zoning administration, plan review, residential construction, to accessibility.

What's in a name? Building Inspector, Building Official, Code Enforcement Officer, Code Official, Plan reviewer, Health Officer. Who are we and what credentials might we have?

You may be uncertain how to address your local building department staff. The various titles are not cast in stone and only generally reflect the staff person's qualifications and areas of responsibility. If the local building office is a one person operation, than most of the titles listed above would apply. Here are some general guidelines:

Inspector - The person whose primary function is to be out in the field performing daily inspections, or the person whatever their other responsibilities are, that is doing an inspection. There can be several types of inspectors such as Electrical Inspector or

Plumbing Inspector. A Building Inspector is likely someone who inspects all of the work including framing, trade work, and site plan elements.

Plan Reviewer - The primary function of a plan reviewer is to review submitted construction documents for compliance with the building codes, and to prepare the submittal documents for the review and issuance of a permit by the Building Official. Many times this function is at least initially handled by the front desk staff, who intake applications and verify that all of the required submittals are accounted for. Efficient, knowledgeable, and customer savvy front desk staff are critical to the operation of the building department. The ICC has developed a training program and certification for the position of Permit Technician.

Building Official - The Building Official is generally the head of the building department and has responsibilities for the administrative functions of the office such as managing building department staff, preparing the department budget, and representing the department to the town governance. This person is also the person who makes final code determinations and initiates enforcement actions based on violations of the building code.

Code Enforcement Officer - This title refers to the person who formally issues notices for violations of building codes or zoning ordinances. In most of New Hampshire's jurisdictions the Building Official will also be named as the Code Enforcement Officer, however it is common in larger cities for this position to be filled by another individual who may even be administrated through a different department such as the Planning Department, Public Safety Department, or even the Legal Department.

Code Official - Code Official is similar to a Building Official except her responsibilities may include additional codes or laws. Other areas of responsibility may include Health Officer, Zoning Administrator, Floodplain Manager or Fire Prevention Officer.

Duties of the Building Office

A town acts to meet the statutory requirements to the extent possible within the department's resources. The departmental resources include the level at which the building department budget is funded, the amount of time an inspector has related to the quantity of work to be done, and also the level of municipal support for continuing education and pursuit of certifications.

Once the municipality has adopted enforcement provisions and hired a building inspector under the requirements of RSA 674:51 and RSA 47:22, the municipality shall ensure, at a minimum, that implementation and enforcement includes:

1.) Review and acceptance of appropriate plans

RSA 676:13 III. The building inspector shall adopt a form or set of standards specifying the minimum contents of a completed application for any building permit. Upon the submission of a completed application, the building inspector shall act to approve or deny a building permit within 30 days; provided, however, that nonresidential applications or residential applications encompassing more than 10 dwelling units shall be approved or denied within 60 days.

The review and acceptance of appropriate plans will follow the process that the building office has identified as being the level of review necessary in each jurisdiction. In

addition to the construction documents, most building offices review plans for compliance with the following:

Zoning Regulations -

- Height of structures, compliance with approved uses, setbacks to property lines, wetlands, shorefront, and flood regulations, driveway approval, and similar restrictions.
- Approvals from Jurisdictional Boards such as Planning Board subdivision conditions, Zoning Board of Adjustment Variance, Special Exception or Conditional Use approvals, Historic District Commission requirements, and Conservation Commission recommendations.
- Compliance with other State of NH regulations such as Septic Plan approvals, Modular or Manufactured Housing Regulations and DES Shorefront Regulations.

2.) Issuance of building permits

RSA 155-A IV. Except for buildings owned by the state, the community college system of New Hampshire, or the university system, the issuance of permits and certificates of occupancy pursuant to the state building code is expressly reserved for counties, towns, cities, and village districts. The state fire marshal shall issue permits and conduct inspections for buildings owned by the state, the community college system of New Hampshire, and the university system.

3.) Inspection of the work authorized by the building permits

Required Inspections - The code identifies required inspections, and although the scoping is different for commercial and residential buildings, in every case the inspections are a verification that the work detailed in the submitted plans is completed in the manner prescribed by the code and in the manner prescribed by the approved drawings.

In a perfect world, review and approval of the design drawings would ensure that the final project meets code. But because of the complex nature of construction projects where there may be dozens of collaborators, long periods of time between conception and construction, changing technology or the realization that a different method is the better option, and the fluctuating cost and availability of materials and qualified labor, often a completed project includes many changes that are approved during construction and documented in the drawings as change orders.

Special Inspections & Statement of Special Inspections - The term *Special Inspections* has particular meaning within the International Building Code, and is a defined set of inspections, testing, and reporting that is required for commercial construction. These particular inspections and testing are highly technical and often require specialty equipment and laboratory access. Because of the nature of these inspections they are not performed by the town's building department, but are identified in the submitted *Statement of Special Inspections* as to the firm and testing laboratory that have been contracted by the project owner.

Examples of Special Inspections or Testing would be concrete strength testing (cylinder breaking), inspecting steel bolt tightening and welds to plan specifications, and destructive testing for the correct installation of firestopping materials. All inspection and testing reports are sent to the town building office for review and approval.

Third Party Inspections - Any municipality that has adopted an enforcement mechanism under RSA 674:51 may contract with a qualified third party agency or individual for inspectional services as an alternative to establishing the position of building inspector. A third party inspector so hired has the same authority as a building inspector.

Sometimes those municipalities that have a full time inspector find that the building office becomes overwhelmed by concurrent large projects, or that a project having particular inspectional needs exceeds the resources of the building department. In these instances, the municipality may also contract third party inspectional services that act as temporary inspectors under the authority of the Town's building inspector.

For communities that have not established any local enforcement mechanism, any construction activities within the municipality must nevertheless comply with the State Building Code. The contractor or owner shall be responsible for meeting the minimum requirements of the State Building Code and State Fire Code. If the project is anything other than a one or two family dwelling, the contractor must notify the State of NH Fire Marshal's Office before construction begins.

4.) Issuance of appropriate use and occupancy certificates

RSA 676:13 I. The building inspector shall not issue any building or occupancy permit for any proposed construction, remodeling, or maintenance which will not comply with any or all zoning ordinances, building codes, or planning board regulations which are in effect.

What is the liability to the Town if a mistake or oversight occurs?

The State Building Code gives guidance on liability issues, additionally it is common for a jurisdiction to add language in their Ordinance that mirrors the State language and includes indemnity language for the local inspector:

RSA 155-A:2 VII. The contractor of a building, building component, or structure shall be responsible for meeting the minimum requirements of the state building code and state fire code. No municipality shall be held liable for any failure on the part of a contractor to comply with the provisions of the state building code.

Is there help available to help us work through the start up?

Yes there is. New Hampshire Building Officials Association has created a mentorship program for both communities creating a code enforcement program and for building inspectors new to the profession. This program is designed to match the community with a NHBOA member code official/inspector in a nearby community of similar size. Either the community or inspector needs only to submit a request to info@nhboa.net to begin the process. Our organization will contact inspectors in nearby communities, similar in nature, to find an appropriate mentor.