

**BUILDING CODE ADOPTION, COMPLIANCE AND
ENFORCEMENT**

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I. Colorado Building Codes: Development, Application and Enforcement

A. Evolution of Model Building Codes:

Less detailed than a blueprint, a model building code offers generalized guidance to architects, engineers, designers, and contractors concerning the safe and standardized construction of buildings.

Although not in the form of standardized building codes, as is the case today, governments, for centuries have regulated building standards to enhance building safety, sanitation and livability. The archeological fragments of Greek and Roman laws give the first evidence of buildings requiring inspection during construction.¹ For example, the records of a building constructed by Socrates in 341 B.C. tell of the specific requirements: “He shall set the joints against each other, fitting, and before inserting the dowels he shall show the architect all the stones to be fitting, and shall set them true and sound and dowel them with iron dowels, two dowels to each stone in each course and one to the stone in the corner.”² Another example can be seen after Rome was destroyed by fire, which had its start in one of the numerous buildings constructed of combustible materials. Afterwards, there were serious efforts to require all construction to be of masonry.³ Likewise, in London during the 13th Century, thatch on roofs of new buildings was forbidden and tile roofing required, and ultimately all thatch roofs were ordered removed.⁴

¹ See PHILIP L. BRUNER & PATRICK J. O’CONNOR JR., BRUNER AND O’CONNOR ON CONSTRUCTION LAW § 16:2 (May 2006) (citing TOBRINER, THE HISTORY OF BUILDING CODES TO THE 1920S (Oct. 1984); THOMPSON, EARLY HISTORY AND DEVELOPMENT OF BUILDING CODES, in I READINGS IN CODE ADMINISTRATION 1, 2 (R. Sanderson ed., 1974).

² *Id.*

³ *Id.*

⁴ *Id.*

As society modernized during the centuries to follow, the focus of building codes expanded to (1) permissible structural stresses for common building materials such as wood, steel, cast iron and masonry, and (2) design issues presented by new building technologies such as electricity, natural gas, plumbing, heating and ventilation, vertical transportation using elevators and escalators, fire retardants and advanced structural elements.

In 1905, the first modern model building code, known as the National Building Code, was enacted. Over the years, three primary regional codes developed. The Building Officials and Code Administrators International (BOCA) issued the National Building Code⁵ which has been used primarily in the central and eastern parts of the United States along with parts of Texas. The Standard Building Code⁶ also known as the Southern Building Code was promulgated by the Southern Building Code Congress International (SBCCI) and has been adopted mainly in the southeast. Finally, the Uniform Building Code (UBC)⁷ was set forth by the International Conference of Building Officials (ICBO) and was adopted throughout the western region of the United States and parts of the central region. Only a few state and local governments maintain their own independently developed building codes.⁸ In an effort to

⁵ The BOCA National Building Code was promulgated by the Building Officials and Code Administrators International. *See* <http://www.bocai.org>. The BOCA code was been adopted in whole or with modification in Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, Pennsylvania, New Jersey, Maryland, Virginia, Kentucky, Ohio, Michigan, Illinois, Missouri and parts of Texas.

⁶ The Standard Building Code was promulgated by the Southern Building Code Congress International (SBCCI). *See* <http://www.sbcci.org>. The Standard Building Code, also known as the “Southern Building Code” was enacted on the whole or in part in North Carolina, South Carolina, Georgia, Florida, Tennessee, Alabama, Louisiana, Arkansas, Mississippi and parts of Texas.

⁷ The Uniform Building Code was promulgated by the International Conference of Building Officials. *See* <http://www.ICBO.org>; <http://www.ubc.com>. The Uniform Building Code was been adopted in whole or in part in Indiana, Minnesota, Iowa, North Dakota, South Dakota, Nebraska, Oklahoma, Montana, Wyoming, Colorado, New Mexico, Idaho, Utah, Arizona, Nevada, Washington, Oregon, California, Hawaii, Alaska and parts of Texas.

⁸ The states of New York and Wisconsin and some major cities, such as New York City, have their own building codes. *See also* Murphy, The International Building Code: A Primer (unpublished paper presented to the American Bar Association Forum on the Construction Industry, Apr. 7-9, 2005). Previously, some cities such as Denver and 5568433

develop unity and consistency among American building codes, the promulgating organizations for the National Building, the Uniform Building Code, and the Standard Building Code agreed on February 1, 2003, to merge their organizations into a single code organization known as the International Code Council (ICC).

The ICC was formed in 1994 and began publishing draft versions of the International Building Codes in 1997.⁹ The codes were first published as a complete series in 2000. Like the legacy organizations that preceded it, the ICC has a formal board of directors. Public officials, architects, engineers, and builders are “members” who also participate in the decisions made by the organization.¹⁰

In addition to the International Building Code (IBC), the ICC also publishes International codes for Conservation, Electrical, Fire, Fuel & Gas, Mechanical, Plumbing, Private Sewage Disposal, Property Maintenance, Residences, Urban-Wildland Interface, Zoning, and for Existing Buildings (I-Codes).¹¹ As of February 12, 2007, the IBC has been adopted in whole or in part in all but three states.¹² The ICC’s International Residential Code (IRC) is used in forty-five states.¹³ The ICC International Fire Code is used in forty-two states.¹⁴

Chicago had their own unique building codes but have since adopted the International Building Code. Interview with Chris Meier, Architect, RNL Designs, March 21, 2007. A summary of Mr. Meier’s comments appears in Appendix B.

⁹ The development of the IBC Codes is discussed in detail in *Int’l Code Council, Inc. v. Nat’l Fire Protection Assoc., Inc.*, 2006 WL 850879, 79 U.S.P.Q.2d 1651 (N.D. Ill. 2006) (not reported).

¹⁰ *Id.*

¹¹ See <http://www.iccsafe.org>.

¹² See <http://www.iccsafe.org/government/adoption.html>.

¹³ *Id.*

¹⁴ *Id.*

Today, modern “building codes” actually are a collection of separate but related codes that address standards for buildings and for related building systems, such as mechanical systems, plumbing systems, fire retardation, energy conservation, electrical systems, and gas systems. All model codes in turn incorporate by reference various standards promulgated by recognized industry sources, such as the American National Standards Institute (ANSI),¹⁵ American Society for Testing and Materials (ASTM),¹⁶ The National Institute of Standards and Technology (NIST),¹⁷ the American Concrete Institute (ACI),¹⁸ the American Institute of Steel Construction (AISC),¹⁹ the American Society of Civil Engineers (ASCE),²⁰ the American Society of Mechanical Engineers (ASME),²¹ and the National Fire Protection Association (NFPA).²² Compliance of building materials and products with code standards is verified through independent organizations providing testing such as the Council of American Building Officials (CABO) and Underwriters’ Laboratories (UL).²³

B. State Approaches to Model Building Codes

Although these dominant model building codes merged under the ICC, the ultimate discretion of state and local governments to modify model codes remains, which has resulted in

¹⁵ See <http://www.ansi.org>.

¹⁶ See <http://www.astm.org>.

¹⁷ See <http://www.nist.gov>.

¹⁸ See <http://www.aci.org>.

¹⁹ See <http://www.aisc.org>.

²⁰ See <http://www.asce.org>.

²¹ See <http://www.asme.org>.

²² See <http://www.nfpa.org>.

²³ See 2 LAWRENCE, JR., BUILDING CODES AND REGULATIONS, *in* THE ARCHITECT’S HANDBOOK OF PROFESSIONAL PRACTICE § 3.72 at 669 (12th ed. 1994).

an estimated 13,000 building codes in the United States.²⁴ Because local jurisdictions are authorized to adopt and enforce building regulations, building codes vary among states and even among cities within the same state. States have generally taken one of three approaches to building codes:

- They enact and require a uniform state-wide code;
- They enact a state model code, allowing municipalities to adopt it; and/or
- They delegate the power to enact a building code to the municipality.²⁵

Thirty-five states now mandate the use of a state-wide code, and most states use the IBC or one or more of the three regional model building codes.²⁶ Where states provide a model code and allow municipal adoption, the state code may be a minimum or a maximum code. If the states mandate a minimum code, then local jurisdictions must accept the code as the minimum requirement and may adopt more stringent or additional provisions at their discretion. If the state adopts a maximum code, then local jurisdictions cannot adopt a more stringent code provision.²⁷

Practice Point: Because of the plethora of building codes in the United States, special attention must be paid to which codes apply in a particular geographical location.

Finally, it is important to observe that diversity of local code enforcement interpretations also has resulted from varied promulgation of “prescriptive” or “performance” code standards.²⁸ “Prescriptive” standards dictate specific methods and materials, whereas “performance”

²⁴ *Id.* at 664.

²⁵ *Id.*

²⁶ *Id.*

²⁷ See, e.g., *Buchholz v. Trump 767 Fifth Ave., LLC*, 5 N.Y.3d 1, 798 N.Y.S.2d 715, 831 N.E.2d 960 (2005) (holding that safety requirements for glass panels subject to human impact loads were applicable only to doors and door-like panels, but not to fixed exterior windows); *Village of Chatham v. County of Sangamon*, 216 Ill. 2d 402, 297 Ill. Dec. 249, 837 N.E.2d 29 (2005) (issue over whether village had building code jurisdiction over non-contiguous lands subject to annexation agreements made pursuant to statute).

²⁸ See 2 LAWRENCE, JR., BUILDING CODES AND REGULATIONS, in THE ARCHITECT’S HANDBOOK OF PROFESSIONAL PRACTICE § 3.72 at 666-68 (12th ed. 1994).

standards state a desired performance result and are concerned with the ultimate outcome or intent. For example, a building code may indicate a particular location in which to place the exit sign; in contrast, the performance code would say to make the exit sign clearly visible. It would then be up to the architect to satisfy that portion of the performance code. Performance requirements are preferred by most architects because they allow greater flexibility in meeting the projects overall requirements.

C. Material Changes: UBC vs. IBC

Although the IBC is premised on an amalgamation of the previous codes, it is important to identify and understand the similarities and differences between the previous UBC and the IBC. Although there are numerous changes in the details of the IBC, here we address only the general topic areas of structural design, fire prevention and fire protection, egress, and project costs.

1. Structural Design:

The structural design elements of the IBC are largely similar to the prior design codes found in the UBC. These sections concern the materials and design which determine the load bearing capacities and physical integrity of the building. Sections of the IBC address dead loads, live loads, and loads pertaining to weather elements such as wind, snow, rain, floods, and earthquakes.

A new requirement under the IBC that was not formally required under the UBC is the “special inspections” of structural work requirement. A “special inspection” must be performed by an agent of the owner or design professional in responsible charge.²⁹ The agent must produce

²⁹ See PHILIP L. BRUNER & PATRICK J. O’CONNOR, JR., BRUNER AND O’CONNOR ON CONSTRUCTION LAW, § 13:18.5 Inspection requirements of the Uniform Building Code – “Special inspections” of structural work under the International Building Code (May 2006).

a “statement of special inspections” that must include a complete list of materials and work requiring special inspections, the inspections to be performed, and a list of those retained to perform the inspections.³⁰ While inspections were similarly performed under the UBC, the IBC has codified the requirements and, at least in some instances, made it easier for design professionals to emphasize the importance of such inspections to owners or contractors who may be looking for ways to cut costs.³¹

2. **Fire Prevention and Fire Protection**

Changes between the UBC and IBC can also be seen in the general requirements for fire prevention. These include changes to requirements for emergency preparedness, building features used by the fire department during an emergency, general precautions against fire, building services, interior finishes, and fire protection systems requirements. One significant change from the UBC to the IBC includes new fire alarm and sprinkler safety requirements which can alter the structural requirements such as fire-resistance-rated corridors and even affect building size. Special attention must be paid to these requirements as they vary by use and occupancy type.

³⁰ *Id.* There are seven different inspections required, including: (1) footings and foundation after forms and reinforcing steel have been installed, but before concrete has been placed; (2) concrete slab and under floor, conduits and piping, after equipment is in place, but prior to concrete pouring; (3) floor elevations placed in floor hazard areas; (4) framing, fireblocking and bracing, rough-in electrical, plumbing and ductwork prior to enclosure; (5) lath and gypsum board prior to plastering or taping of board joints and fasteners; (6) fire resistant penetrations prior to concealment; (7) energy efficiency and envelope insulation R and U values. See PHILIP L. BRUNER & PATRICK J. O’CONNOR, JR., BRUNER AND O’CONNOR ON CONSTRUCTION LAW, § 13:17.5 Inspection requirements of Uniform Building Code – Building Official Inspections Under the International Building Code (May 2006). See also IBC § 109.

³¹ Interview with Carl Hole, Architectural Studio Leader, RNL Designs, March 22, 2007. A summary of Mr. Hole’s comments appears in Appendix B.

One striking example of the change from the UBC to the IBC is in fire safety and corridor requirements.³² Under the UBC, fire-resistance-rated corridors are required, even if a building has been fully installed with sprinkler systems. The requirement makes it difficult to maintain open floor plans with open lines of sight in most buildings. In contrast, the IBC eliminates the fire-resistance-rated corridors requirements along with a number of other requirements where the building is fully installed with sprinklers and includes certain other safety features. This offers more flexibility in design without sacrificing fire safety.³³ Open floor plans are now much easier to incorporate into new buildings.

In contrast to fire prevention, the fire protection codes outline the safety requirements for occupancy and operations in a building. This includes fire safety during construction and requirements applicable to flammable finishes and flammable liquids. Special rules apply to extra-hazardous areas such as those found in dry cleaning facilities, service stations, and garages. The storage and use of flammable materials are also addressed.

As an alternative and often in conjunction with the IBC, the National Fire Code Protection Association, Inc. (NFPA) publishes fire, safety and electrical standards. The National Fire Code is widely accepted throughout the United States and is used in many Colorado counties and municipalities, including many of those which have otherwise changed their building codes to conform to the IBC. Likewise, the NFPA Life Safety Codes are also used by various agencies in Colorado. Occasionally, the use of these competing codes can lead to difficult code compliance issues. For example, Chris Meier, an architect with RNL Design,

³² Interview with Peter Bemelen, March 9, 2007. A structural engineer by trade, Mr. Bemelen worked at two engineering firms before joining the Denver Building Department. A summary of Mr. Bemelen's comments appears in Appendix B.

³³ *See, e.g.*, Interview with Carl Hole, Architectural Studio Leader, RNL Design, March 22, 2007 (noting that in one instance, the change from the UBC to the IBC allowed a design team to made changes to a design midway through the design process, eliminating features required by the UBC but allowing for more openness, flexibility, and reduced costs under the IBC).

experienced a conflict between the NFPA Life Safety Code and the IBC while working on a plan for an assisted living facility, in Centennial, Colorado. While the Centennial building department follows the 2003 IBC, the health department uses the NFPA's Life Safety Code. Both departments have jurisdiction over assisted living facilities and, unfortunately, the two codes are not always consistent. Compliance is complex as both the building department and the health department have to sign off on the plans and there is no clear answer as to which code applies to a particular specification.³⁴

The NFPA standards and similar standards provide specific instruction as to how particular elements are to be implemented, but unlike the codes, they do not determine whether those elements are required in a particular building. Moreover, the IBC focuses on the design aspect of fire safety, whereas the NFPA standards focus on fire safety on an ongoing basis, dealing with standards and procedures both during construction and after the structure is complete.

Despite initial efforts at collaboration, the NFPA did not agree to join with the ICC in promulgating a uniform standard for comprehensive building codes. Instead, the NFPA has published its own comprehensive model building code. Known as the NFPA 5000, the code was first published in 2002 and continues to be updated and promulgated by the NFPA on an ongoing basis. Prior to the NFPA 5000, the NFPA's codes were largely limited to fire, electrical, and safety standards. Although the NFPA continues to publish these standards and others, the NFPA 5000 serves as a wholesale alternative to the IBC. The International Association of Plumbing and Mechanical Officials (IAPMO), the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), and the Western Fire Chiefs Association have joined with the NFPA in promoting the NFPA 5000 as an alternative to the IBC.

³⁴ Interview with Chris Meier, Architect, RNL Design, March 21, 2007.
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The differences between the ICC and the NFPA have gone beyond competing code publications. In 2006, the ICC brought a lawsuit in Illinois federal district court against the NFPA alleging copyright infringement.³⁵ The ICC alleged that portions of the 2000 IBC were used in the NFPA 5000.

Practice Point: Many times problems arise because of simultaneous and independent enforcement of building and fire codes. The building official is usually responsible for permit enforcement until construction of a new building is complete. Once the building is occupied, the fire marshal assumes authority for continued safety. Sometimes the two codes, and enforcing officials, do not agree on requirements and procedures. Fire officials may become involved during construction, interpreting the fire code to require changes in the work. To compensate for confusion caused by jurisdictional overlaps, the most conservative advice is to design according to the most restrictive requirement or to document any permit deviations. Depending on the circumstances, it usually makes sense to keep both fire and building officials informed of a project's progress so there is a clear understanding of their concerns and roles.³⁶

3. Egress

The IBC includes some significant changes from the UBC in the area of egress. The “means of egress” is generally defined as “a continuous and unobstructed path of vertical and horizontal egress travel from any point in a building or structure to a public way.”³⁷ Egress involves the path of travel to an exit, the exit itself, and the exit discharge (the path to a safe area outside). The path of travel must conform to specific distance restrictions and is typically an unprotected path. In contrast, the exit must provide protection through fire-resistance-rated construction and entryway protections. For example, a stairwell exit must provide a heightened and adequate level of protection from fire and smoke that is not required of a typical office hallway. There are also requirements for the exit discharge, determining what safety elements

³⁵ *Int'l. Code Council, Inc., supra* note 9.

³⁶ See 2 LAWRENCE JR., *THE ARCHITECT'S HANDBOOK OF PROFESSIONAL PRACTICE* § 3.72, at 669 (12th ed. 1994).

³⁷ ICBO Booklet Guide to the IBC, “Ch. 10: Means of Egress” p.2 (Int'l Conference of Building Officials, 2000).

must be present in the portion of the path between an exit and a public way. Unlike the path of travel to an exit, distance is generally not important for exit discharge requirements.

Generally, the IBC exiting requirements offer more flexibility to architects and engineers than the UBC.³⁸ However, certain requirements, such as the IBC requirement for a split path or exit no more than every 100 feet along a “common path” may prove more restrictive than UBC requirements for a particular project. It is difficult to predict the effect of the UBC to IBC change, particularly as there are additional requirements which frame these building codes. For instance, egress and ingress issues must also conform to requirements imposed by the Americans with Disabilities Act and the Fair Housing Act.³⁹ There are also additional requirements for buildings with special security, health and/or equipment needs such as hospitals, prisons, and nursing homes.

4. **Project Cost Estimates:**

Although the use of a single uniform code throughout the United States may lower construction costs in the aggregate by eliminating time spent addressing competing and sometimes conflicting codes, the change from the UBC to the IBC may raise costs for individual build projects.⁴⁰ Depending on the type of building and which particular code requirements apply, the costs of construction can increase when costlier design and materials requirements come into play. Costs may also change depending on whether fire, safety, or other elements are mandated or whether such requirements are relaxed. As the particular design and materials costs

³⁸ See Lainie Mazzullo, *Builders Say International Building Code Will Take Some Getting Used To*, WICHITA BUS. J., Sept. 7, 2001.

³⁹ See, e.g. Interview with Chris Meier, Architect, RNL Designs, March 21, 2007 (discussing the difficulty of complying with the IBC, ANSI standards, ADA, FHA, and other accessibility codes which may apply).

⁴⁰ Although the ICC stressed that it was forging a “middle ground” with the IBC, some critics believe the IBC results in more stringent guidelines which translate to higher costs. See “New International Building Codes,” Carter & Burgess Quarterly, Issue One, 1999.

will vary greatly from project to project along with the code requirements thereto, it is almost impossible to say whether the change from the UBC to the IBC will result in increased costs for any particular project.

Recently, there has been considerable public concern about the costs associated with code transitions in Louisiana's rebuilding efforts in the aftermath of Hurricane Katrina. The Louisiana Statewide Construction Code Council adopted the 2006 IBC and I-Codes, which were enacted by the state legislature as the Louisiana Uniform Construction Code.⁴¹ This code went into effect on January 1, 2007.⁴² The new code "places stricter requirements on residential property as a reaction to the devastation of hurricanes Katrina and Rita."⁴³ Due to a shortage of qualified inspectors, many areas in Louisiana are struggling with compliance.⁴⁴ Moreover, due to concerns over increased building costs, some local parish governments have had to assure residents that the remodeling provisions of the IBC will not be enforced.⁴⁵

In these particular circumstances, the enactment of the IBC will prove particularly costly as the number of building projects and wholesale transition to the new code will impact a large number of people and the number of trained inspectors and design professions prepared to implement the new changes are few. However, over the long run, the advantages of a uniform code may well outweigh these short-term costs of transition. In the interviews we conducted

⁴¹ See Alexandria Burris, *Code Inspections Present Problems for Some Towns*, THE DAILY ADVERTISER, Jan. 30, 2007.

⁴² See *id.*

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ Samuel R. Irwin, *New Building Code Raises Questions*, THE ADVOCATE, Feb. 16, 2007, available at <http://www.theadvocate.com/news/suburban/5861181.html?showAll=y&c=y> (last accessed Feb. 21, 2007).

here in Denver, the consensus seems to be that once the transition is made, the IBC is not generally costlier and the gains in efficiency and ease of use are significant.⁴⁶

II. Application/Enforcement of Building Codes in Colorado Courts:

A. Colorado Building Codes:

Now that we know there are several building codes from which a state and/or municipality may rely, the question is: What code(s) applies in Colorado?

As Colorado is a home-rule state, building codes are adopted at the local level and typically vary from city to city and county to county. Counties and municipalities are authorized to adopt codes under Title 30, article 28 of the Colorado Revised Statutes. C.R.S. § 30-28-201 to -210 (2006).⁴⁷

Section 30-28-201 of the Colorado Statutes sets forth the code requirements applicable to the state:

(1) A board of county commissioners is authorized to adopt ordinances and a building code consistent with the Uniform Building Code, 1988 edition, as promulgated by the international conference of building officials and as revised from time to time, in all or part of the county, and not embraced within the limits of any incorporated city or town. Buildings or structures used for the sole purpose of providing shelter for agricultural implements, farm products, livestock, or poultry may be excepted. The requirements shall be uniform for each class of dwelling, building, or structure. The board of county commissioners may employ qualified technical experts to assist in the preparation of the text of such ordinances and the area building code.⁴⁸

⁴⁶ See Interview summaries attached as Appendix B.

⁴⁷ Although the Colorado Revised Statutes undergo frequent revision by the legislature, a number of provisions still make reference to the Uniform Building Code. For example, Section 12-47.1-516 which regulates fire safety in gaming facilities requires the safety codes from the 1988 edition of the UBC. Similarly the legislative declaration for Section 24-32-702 concerning the Colorado Housing Act of 1970 also makes reference to the UBC. The aforementioned Title 30 which addressed the adoption of local building codes references the 1988 edition of the UBC and the UBC as revised. The use of the 1988 edition of the UBC is not mandated, however, and it is presumptively superseded by the replacement of the UBC with the International Building Codes.

⁴⁸ § 30-28-201, C.R.S. (2006).

The Colorado Legislature noted that the purpose of the code is to insure reasonable consideration of the public health, safety, morals, and general welfare and the safety, protection, and sanitation of such dwellings, buildings, and structures.⁴⁹

Although the above statute references the UBC, the majority of Colorado counties and municipalities have adopted the IBC. For example, Arapahoe County, Jefferson County, Longmont, Boulder County, Pueblo County, the Pikes Peak Region, and Pitkin County, among others, have adopted the 2003 IBC. The City of Golden and Mesa County have already adopted the 2006 IBC.⁵⁰ Despite adoption of the IBC and other I-Codes, all Colorado cities and counties continue to use the National Fire Codes and the Uniform Plumbing Code.

In 2004, the City and County of Denver adopted the IBC in an effort to conform its code to the national standard. As of October 1, 2004, the Building Code for the City and County of Denver is based on the codes developed by the ICC, particularly the IBC and IRC. Peter Bemelen, a Denver City and County Building Official who manages permitting and inspections, believes the change to these codes has been a good one.⁵¹ When he began working for Denver in 1986, Denver had its own unique set of building codes specifically for use in the City and County of Denver. In 1990, Denver adopted the UBC, which remained in place until Denver's adoption of the ICC codes. Bemelen notes that the change to the IBC has made it easier to license inspectors and contractors as they no longer need to be licensed by each individual municipality. Instead, the ICC provides training materials and standardized tests which are universal and can be used wherever the IBC codes are used. Although the change to the IBC has

⁴⁹ § 30-28-203, C.R.S. (2006).

⁵⁰ A comprehensive listing of Colorado code adoptions by city and county is available at <http://www.coloradoenergy.org/codes/colorado.aspx>. See also Appendix A.

⁵¹ Interview with Peter Bemelen, March 9, 2007.

required additional training and licensing, overall it is much easier for a contractor or inspector to work in a variety of jurisdictions.

In our discussion, Bemelen pointed out a number of changes which have been made from the UBC to the IBC, many of which had already been incorporated into the UBC by Denver amendments. With the IBC, Denver has less need to customize the codes as many previous changes have been implemented into the new codes. Through its Building Code Review Committee, Denver reviews all proposed changes with a diverse representation of industry professionals. Changes to the IBC provisions are scrutinized to determine if amendments will be beneficial overall. Amendments are generally discouraged to keep with the principles of uniformity and ease of use across jurisdictions.⁵²

Denver's adoption of the I-Codes includes the 2003 Series of International Building Codes, the International Residential Code, the International Mechanical Code, the International Fuel and Gas Code, the International Energy Conservation Code, and the International Plumbing Code. These are accompanied by the National Electrical Code regulated by the National Fire Protection Association and the State of Colorado Electrical Board. Notably, Denver did not adopt the International Electrical Code, the International Zoning Code, or the International Property Maintenance Codes promulgated by the ICC.⁵³

For existing buildings in the City and County of Denver, the 1997 Uniform Code for the Abatement of Dangerous Buildings (UCADB) published by ICBO and the 1997 Uniform Code for Building Conservation (UCBC) published by ICBO may still be used.⁵⁴ The 2004 code

⁵² See also Interview with Carl Hole, March 22, 2007 (noting that with the advent of the IBC, municipalities are enacting far fewer amendments).

⁵³ See <http://www.denvergov.org/Building/BuildingCode/tabid/379534/Default.aspx> (last accessed on Feb. 13, 2007).

⁵⁴ *Id.*

adoptions have subsequently been amended to include revisions to the fire code.⁵⁵ The Building Code Review Committee plans to review the latest I-Codes published in 2006 and implement them accordingly. Suggested revisions and changes to the codes may be submitted to the committee as the building codes are updated on an ongoing basis.

Practice Point: As building codes vary by county and municipality in Colorado, construction professionals should consult the most recent code published in the city and the county where the construction is planned.

B. The Permit Process:

The foundation of code administration and enforcement is the permitting process, which involves the issuance of: (1) building permits to authorize commencement of construction, (2) partial approvals or enclosure approvals authorizing contractors to proceed with sequential work or cover up or enclose certain building elements, such as plumbing or electricity, (3) temporary use approvals to authorize contractors to begin using installed heating, plumbing, electrical, elevator, or other building systems for temporary construction purposes, and (4) certificates of occupancy permitting completed structures to be occupied for their intended purposes.⁵⁶

Issuance of the building permit is contingent upon the building officials' review and approval of the construction documents, including plans and specifications. One element of the building permit approval process is verification by building officials that the contract documents have been prepared by a licensed design professional as required by law.⁵⁷

⁵⁵ See Denver City and County Council Bill No. 698, enacted Oct. 3, 2005, *available at* <http://www.denvergov.org/Portals/114/documents/Denver%20Building%20&%20Fire%20Code%20Amendments%2010%202005.pdf> (last accessed on Feb. 13, 2007).

⁵⁶ See PHILIP L. BRUNER & PATRICK J. O'CONNOR JR., BRUNER AND O'CONNOR ON CONSTRUCTION LAW § 16:2 (May 2006) (citing 2 LAWRENCE, JR., BUILDING CODES AND REGULATIONS, in THE ARCHITECT'S HANDBOOK OF PROFESSIONAL PRACTICE § 3.72, at 672 (12th ed. 1994)

⁵⁷ See 1997 Uniform Building Code § 106.3.2.

The licensed design professional becomes the “architect of record” or “engineer of record,” which is an official designation that pinpoints legal responsibility for design coordination and design compliance with codes.⁵⁸ The design professional of record also is responsible for preparing any code-required program for “special inspection,”⁵⁹ and, once the design documents are approved, the design professional may not change, modify or alter the documents without further authorization from the building official.⁶⁰ Thereafter, building codes routinely require inspection of work, such as foundations, frames, plumbing and electrical work, prior to the installation of reinforcing steel, structural framing, fire resistive assemblies, foundations, under-floor building service equipment and piping, and lath or gypsum board work.⁶¹

Upon substantial completion of construction, the building official inspects the completed work to verify that it has been constructed in conformance with code and, if found to be so, to issue a certificate of occupancy authorizing the owner’s occupancy and use of the project for its intended purposes. Through the code’s official review process involving the issuance of multiple permits, building code standards and professional licensure requirements are enforced.

C. Violation of the Building Code:

Now that we understand that codes exist and vary amongst the state’s municipalities, the question arises: What liability exists for failing to observe the applicable building codes?

⁵⁸ See 1997 Uniform Building Code § 106.3.4.1; Int’l. Building Code § 1704.

⁵⁹ See 1997 Uniform Building Code §§ 106.3.5; 1701; Int’l. Building Code § 1704.

⁶⁰ See 1997 Uniform Building Code § 106.4.1; Int’l Building Code, Ch. 17.

⁶¹ See 1997 Uniform Building Code § 108.5; Int’l Building Code, Ch. 17.

Typically, and as discussed more fully below, the most common claims against a contractor or design professional for violation of the applicable building code is negligence and/or breach of contract. Should a plaintiff be successful in proving that the violation of the building code resulted in damages, the contractor and/or design professional can be liable for civil and criminal damages; therefore, it is crucial that each contractor and design professional on a particular project be fully aware of the applicable codes, or make clear in their respective written contracts, who will carry of the risk of a violation of the code.

1. **Negligence:**

A common claim arising under a violation of the applicable building code is negligence. A cause of action founded on negligence requires proof of the following elements: (1) a duty or obligation, recognized by law, requiring the defendant to conform to a certain standard of conduct for the protection of others against unreasonable risks; (2) a failure or breach of duty by the defendant to conform to the standard required by law; (3) a sufficient causal connection between the offensive conduct and the resulting injury; and (4) actual loss or damage resulting to the interests of the plaintiff.⁶²

The Colorado Legislature, however, has limited the claims of negligence for construction defects only when the following factors exist: (a) Actual damage to real or personal property; (b) Actual loss of the use of real or personal property; (c) Bodily injury or wrongful death; or (d) A risk of bodily injury or death to, or a threat to the life, health, or safety of, the occupants of the residential real property to bring a claim where the construction did not meet applicable building codes.⁶³

⁶² *Bayly, Martin & Fay, Inc. v. Pete's Satire, Inc.*, 739 P.2d 239, 242 (Colo. 1987); *see also* Colo. Jury Instructions 9:1 (2005).

⁶³ § 13-20-804, C.R.S. (2006).
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Practice Point: Licensing laws require design professionals to furnish designs meeting relevant building codes and regulation and also require construction professionals to conform their work to code requirements.⁶⁴ Moreover, where construction professionals become aware that design documents do not conform to code requirements, they typically have a legal obligation to bring the nonconformance to the immediate attention of the design professional.⁶⁵ From the perspective of the design professional, building code standards usually are deemed minimum standards, compliance with which does not necessarily relieve the architect of professional liability for negligence.⁶⁶

Practice Point: Professional registration laws require that design professionals practice in a fully lawful manner, that is, meeting all pertinent laws-including building codes and regulations-involved with their projects and practices. Design professionals must know the codes and apply them appropriately.⁶⁷

Practice Point: When a building code that has been adopted by a local jurisdiction or a regulation issued by a state or federal government applies to the project, it creates a legal duty for the architect. Without a variance, an architect failing to design in compliance with a code of regulation may be subject to an allegation of negligence. Neither an owner's requirement to disobey the code nor a building official's unknowing or unreasonable approval of a non-compliant project relieves the architect of this duty.⁶⁸

⁶⁴ See 2 LAWRENCE JR., BUILDING CODES AND REGULATIONS, in THE ARCHITECT'S PROFESSIONAL HANDBOOK OF PROFESSIONAL PRACTICE § 3.72, at 666 (12th ed. 1994) ("Professional registration laws require that design professionals practice in a fully lawful manner, that is, meeting all pertinent laws-including building codes and regulations-involved with their projects and practices. Design professionals must know the codes and apply them appropriately."). See also AIA Document A201-1997, General Conditions, ¶ 3.7.4 ("If the Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Architect and Owner, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction." ... The codes and their administration are joint activities of the building officials and the design professionals. Building officials enforce the building code and are not responsible for the design of the building.").

⁶⁵ See AIA Document A201-1997, General Conditions, ¶ 3.7.3 ("It is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes and rules and regulations. However, if the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Architect and Owner in writing, and necessary changes will be accomplished by appropriate Modification.").

⁶⁶ See 2 LAWRENCE JR., BUILDING CODES AND REGULATIONS, in THE ARCHITECT'S HANDBOOK OF PROFESSIONAL PRACTICE § 3.72, at 672 (14th ed. 1994).

⁶⁷ *Id.* at 666..

⁶⁸ *Id.* at 672.

Practice Point: Codes and regulations set forth only the requirements necessary to protect public health, safety, and welfare. Architects are required to use reasonable care in providing services, and there are times when this requirement may call for a design solution in excess of that mandated by code.

Practice Point: It is important for construction professionals, and their counsel, to understand that a building is an assembly of elements, components, and substances. Even though each of the materials and products in a building assembly may meet specified standards, the assembly itself may not comply with the building code. Typically, once product standards have been written, manufacturers and suppliers want to offer some certification that their products meet the standards. For a fee, the Counsel of American Building Officials (CABO) will verify whether a product conforms to one of the model codes. Another method for product certification is through the use of a seal such as the Underwriters' Laboratories (UL) label, which signifies a product has been subjected to Underwriters' Laboratories' testing process. Through these means, testing organizations certify that specific materials and products meet standards.⁶⁹

2. **Negligence Per Se:**

Attorneys may also consider filing a claim for negligence per se when a code violation, resulting in damages, has occurred. The doctrine of negligence per se creates a presumption that one who has violated a legislatively imposed safety standard has necessarily violated the legal duty to use "due care." Generally, persons are presumed to have constructive notice of a statute, ordinance, or code. For negligence per se, a plaintiff must show that (1) a building code has been legislatively promulgated by statute for the purpose of imposing safety standards intended to create a standard of care; (2) the building code applies to the property in question; (3) the claimant is a member of the class protected by the building code provisions that have been violated; (4) the owner or party in control of the property had actual or constructive knowledge of code violations and failed to take reasonable steps to remedy them; (5) the injury suffered was

⁶⁹ *Id.* at 669.

the kind that the code was meant to prevent; and (6) the violation was the proximate cause of the injury or damage.⁷⁰

In the building code context, and prior to the enactment of the current premises liability statute, negligence per se has been entertained and rejected in several cases because one or more of the its elements was not present.⁷¹

However, in those cases in which the elements of negligence per se have been found to be present, divisions of Colorado Court of Appeals are split on the application of the building code. For example, in *Singleton v. Collins*, 40 Colo. App. 340, 342, 574 P.2d 882 (Colo. 1978), a plaintiff fell while climbing a stairway in an apartment building. While the stairs violated the building code, the defendant was not the builder of the apartment complex, and the property had been approved for occupancy by the building inspector - indicating compliance with the applicable ordinances. The division concluded that “[u]nder these circumstances there is no reasonable basis for the application of the strict rule of negligence per se, and in the absence of some showing that there is no liability.”

Compare, however, the courts holding in *Aetna Casualty & Surety Co. v. Crissy Fowler Lumber Co.*, 687 P.2d 514, 516 (Colo. App. 1984). There, the defendant fabricated trusses which sagged after a snowfall because they pulled apart at their joints. The plaintiff, having reimbursed the owner for his damages under an insurance contract, brought a subrogation claim

⁷⁰ See, e.g., *Scott v. Matlack, Inc.*, 39 P.3d 1160, 1166 (Colo. 2002); *Foster v. Redd*, 128 P.3d 316, 318 (Colo. App. 2005).

⁷¹ See *Smit v. Anderson*, 72 P.3d 369 (Colo. App. 2002), cert. dismissed, (Aug. 29, 2002) (holding that the section of code relied upon by plaintiffs is designed primarily to ensure the construction of safe buildings, and not the safe construction of buildings; therefore, plaintiffs was not a member of the class the legislation was designed to protect); *Harless v. Geyer*, 849 P.2d 904 (Colo. App. 1992) (installation of linoleum on stairs was not a significant modification to require that the stairs be brought up to current code); *Comfort v. Rocky Mountain Consultants, Inc.*, 773 P.2d 615 (Colo. App. 1989) (ordinance requiring approval of plans of construction of a ditch was not designed to protect passengers of an automobile that left the road and crashed into a ditch); *Iverson v. Solsbery*, 641 P.2d 314 (Colo. App. 1982) (cost of bringing residence up to code is not an injury the code is intended to prevent).

against the defendant. The Court of Appeals held that, unlike other negligence per se cases previously brought on building code violations:

[T]here was evidence that an actual failure did occur, that the building itself was damaged, and that such damage would not have occurred had the defendant complied with the code. There is no logical reason to exclude the building owner from the class designed to be protected by the building code. And, the damages to the building resulting from the failure of the trusses is obviously a type of injury that the code was designed to prevent. An instruction on negligence per se should have been given.

Id.

Cases from other jurisdictions decline to apply negligence per se to building code violations because some such defects cannot be discovered upon a reasonable inspection of the premises.⁷²

3. **Breach of Contract:**

In addition to the traditional tort claim of negligence, owners and other contracting parties, may also claim a breach of contract for code violations if their contracts require code compliance. In order to prove a party breached his/her contract, the non-breaching party must prove the existence of a contract, the breach of a contract, and the occurrence or nonoccurrence of any condition precedent.⁷³ Common form contracts used by contractors and design professionals require conformance with the applicable building codes.⁷⁴ Failure to observe compliance with the applicable code would constitute a breach of contract under those forms.

⁷² See, e.g., *Fitzgerald v. Cestari*, 569 So. 2d 1258 (Fla. 1990) (holding that defendants were relieved from liability for failing to ascertain that the sliding glass door was not made of safety glass as required by the applicable building code because the lack of safety glass was not discoverable through a reasonable inspection by the owners); *Bills v. Willow Run I Apartments*, 547 N.W.2d 693 (Minn. 1996) (holding that the owner reasonably relied on the inspection reports of a state building inspector and thus could not be expected to re-inspect the property); *Sikora v. Wenzel*, 88 Ohio St. 3d 493, 727 N.E.2d 1277 (Ohio 2000) (holding that the property owner had no way of knowing that a deck was improperly designed).

⁷³ See Colo. Jury Instructions 30:1 (2006).

⁷⁴ See, e.g., AIA Document A201-1997, General Conditions, ¶ 3.7.4 (“If the Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the
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Practice Point: Attorneys should be aware that if a contract exists that sets forth a duty to observe the applicable building code, tort claims, such as negligence and negligence per se, are typically not actionable and will be dismissed under the Economic Loss Rule. Colorado law provides that “a party suffering from only economic loss from the breach of an express or implied contractual duty may not assert a tort claim for such a breach absent an independent duty of care under tort law.”⁷⁵ “As a general rule, no cause of action lies in tort when purely economic damage is caused by negligent breach of a contractual duty. This economic loss rule prevents recovery for negligence when the duty breached is a contractual duty and the harm incurred is the result of failure of the purpose of the contract.”⁷⁶ “Economic loss is defined generally as damages other than physical harm to persons or property.”⁷⁷

4. **Breach of Implied Warranty:**

Another claim premised on breach of contract, is the breach of the implied warranty to obey the applicable building codes in new construction. The implied warranty doctrine includes agreements between builder-vendors and purchasers for the sale of newly constructed buildings, completed at the time of contracting. There is an implied warranty that builder-vendors have complied with the building code of the area in which the structure is located, and where a home is the subject of sale, and there are implied warranties that the home was built in a workmanlike manner and is suitable for habitation.⁷⁸

Architect and Owner, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.” ... The codes and their administration are joint activities of the building officials and the design professionals. Building officials enforce the building code and are not responsible for the design of the building.”).

See also AIA Document A201-1997, General Conditions, ¶ 3.7.3 (“It is not the Contractor’s responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes and rules and regulations. However, if the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Architect and Owner in writing, and necessary changes will be accomplished by appropriate Modification.”).

⁷⁵ *BRW, Inc. v. Dufficy & Sons, Inc.*, 99 P.3d 66, 72 (Colo. 2004) (citing *Town of Alma v. AZCO Constr., Inc.*, 10 P.3d 1256, 1259 (Colo. 2000)).

⁷⁶ *Town of Alma v. AZCO Constr., Inc.*, 10 P.3d 1256, 1261 (Colo. 2000).

⁷⁷ *Id.* at 1264.

⁷⁸ *See Carpenter v. Donohoe*, 154 Colo. 78, 388 P.2d 399 (1964).

5. **Civil and Criminal Penalties for Violations of the Building Code:**

In addition to civil liability for damages as a result of code violations, contractors and/or design professionals also face the potential of state *and* municipal civil and criminal penalties.

State Criminal Penalties: Violations of building codes are a misdemeanor in Colorado and carry fines and up to ten (10) days imprisonment.⁷⁹ Under Section 30-28-209, it is illegal to erect, construct, alter or use any building or structure in a manner that results in a violation of any provisions of the area building code, or any amendment thereof, enacted or adopted by the board of county commissioners.⁸⁰ “Any person, firm or corporation violating any such regulation, provision, or amendment thereof is guilty of a misdemeanor and, upon conviction thereof, shall be punished by a fine of not more than one hundred dollars, or by imprisonment in the county jail for not more than ten days, or by both such fine and imprisonment. *Each day during which such illegal use of any building or structure continues shall be deemed a separate offense.*”⁸¹

Unlike a civil case for personal or property damages, it is the responsibility of the county attorney to enforce these provisions. Whenever a county building inspector, who exercises the functions of a county building inspector, has personal knowledge of any violation of the code, he or she must give written notice to the violation within the ten-day period. The county building inspector may request that the sheriff or the county issue a summons and complaint to the violator, stating the nature of the violation with sufficient particularity to give notice of the

⁷⁹ § 30-28-209, C.R.S. (2006).

⁸⁰ *Id.*

⁸¹ *Id.* (emphasis added).

charge to the violator. The summons and complaint must require that the violator appear in county court at a definite time and place stated therein to answer and defend the charge.

State Civil Penalties: In addition to the penalties imposed under Section 30-28-209, any person, firm or corporation violating any provision of the area building code may be subject to the imposition, by order of the county court, of a civil penalty in an amount of not less than five hundred dollars nor more than one thousand dollars. It is within the discretion of the county attorney to determine whether to pursue the civil penalties set forth in this section, the remedies set forth in Section 30-28-209, or both. Each day after the issuance of the order of the county court during which such unlawful activity continues is deemed a separate violation and is subject to a continuing penalty in an amount not to exceed one hundred dollars for each such day. Until paid, any civil penalty ordered by the county court shall, as of recording with the County Clerk and Recorder, be a lien against the property on which the violation has been found to exist. In case the assessment is not paid within thirty days, it may be certified by the county attorney to the county treasurer, who shall collect the assessment, together with a ten percent penalty for the cost of collection.

Municipality Penalties: Municipalities may impose additional penalties. For example, the Denver City and County code provides:

111.2 Violation. Whenever, by the provisions of this Code, any act is prohibited, or whenever any regulation, dimension or limitation is imposed on the erection, alteration, maintenance or occupancy of any building, structure or utility, each failure to comply with provisions of this Code shall constitute a violation. Each day on which a violation exists shall constitute a separate offense and a separate violation.

111.3 Penalties. Whenever, in any Section of this Code, or any Section of a Rule or Regulation promulgated thereunder, the performance of any act is required, prohibited or declared to be unlawful, and no definite fine or penalty is provided for a violation thereof, any person convicted of a violation of any Section shall, for each offense, be fined, imprisoned or both fined and imprisoned within the

limits established by Section 1-13 of the Denver Revised Municipal Code. The suspension or revocation of any license, certificate, permit or other privileges conferred by the City shall not be regarded as a penalty for the purpose of this Code.

Accordingly, and in light of the substantial penalties facing contractors and design professionals for code violations, it is essential that the parties be fully aware of all applicable codes and ensure their compliance.

III. Conclusion:

Over the next couple years, the ICC, states and local municipalities will continue to review and revise the applicable codes as society continues to modernize and alter its construction techniques and practices. As a result, the codes will experience further revisions, amendments, proposals and re-drafting hearings, as will the law that interprets them. At the end of the day, however, the ultimate hope is to take these assorted codes and transform them into a standardized set that will hopefully make the complex world of construction, seemingly more simplistic.

Appendix A

Online Building Code Resources		
Web Resource	Description	URL
<u>Building Officials and Code Administrators International</u>	BOCA National Building Code	www.bocai.org
<u>Colorado Code Publishing Company</u>	Publishes Colorado municipal codes.	www.colocode.com/
<u>Colorado Department of Labor and Employment</u>	The Division of Oil and Public Safety includes public school construction statutes and regulations and information about construction standards.	www.coworkforce.com
<u>Colorado Division of Fire Safety</u>	Includes contractor registration requirements, application, rules, statutes and draft legislation.	www.state.co.us/gov_dir/cdps/dfs.htm
<u>ColoradoENERGY.org</u>	Contains energy efficiency and renewable energy information, design and build tips, a map of state energy codes by county, and a Residential Energy Code Analysis Group report.	www.coloradoenergy.org
<u>Colorado Governor's Office of Energy Management and Conservation</u>	Provides information about energy management and conservation programs, including commercial building energy standards, energy efficiency improvements for building professionals and green building.	www.state.co.us/oemc/
<u>Colorado State Electrical Board</u>	Includes permit and inspection information. Lists state electrical inspectors and electrical code class providers.	www.dora.state.co.us/electrical/
<u>Colorado State Examining Board of Plumbers</u>	Contains inspection and permit information and Uniform Plumbing Code instructions.	www.dora.state.co.us/Plumbing/

<u>International Association of Plumbing and Mechanical Officials (Uniform Plumbing Code)</u>	Includes code information, Uniform Mechanical Code and Uniform Plumbing Code adoption maps, and reports on Research and Testing.	www.iapmo.org
<u>International Code Council (International Building Code)</u>	All current International building codes, code development status, public comment forms, news of pending legislation, tools for code adoption, and supplemental resources. Also has extensive information on certification programs, including exam information and application, searchable certification registry, candidate bulletin, renewal forms and information.	www.iccsafe.org
<u>Naffa International World of Building Codes</u>	Provides an online Building Code Discussion Group and numerous building code resources.	www.naffainc.com
<u>National Conference of States on Building Codes and Standards</u>	Provides information on code developments and standards throughout the U.S.	www.ncsbcs.org
<u>National Fire Protection Association (National Fire Code, National Electrical Code, NFPA 5000 Building Construction and Safety Code)</u>	Contains codes and development information for numerous national codes. Offers certification programs and training.	www.nfpa.org
<u>Southern Building Code Congress International (SBCCI)</u>	Contains information on the Standard Building Code a/k/a Southern Building Code.	http://sbcci.org
Selected Colorado County and Municipal Sites		
Note: a complete listing of county and city links is available at http://www.coloradoenergy.org/codes/colorado.aspx .		
Arapahoe County	http://www.co.arapahoe.co.us/departments/pw/building/index.asp	
City of Boulder	http://www.ci.boulder.co.us/index.php?option=com_content&task=view&id=205&Itemid=205	

Denver City and County	http://www.denvergov.org/Building/BuildingCode/tabid/379534/Default.aspx
Douglas County	http://www.douglas.co.us/community/building/index.html
Fort Collins	http://www.ci.fort-collins.co.us/building/codes.php
Golden	http://ci.golden.co.us/Code.asp
Jefferson County	http://www.co.jefferson.co.us/building/index.htm
Longmont	http://www.ci.longmont.co.us/bldginsp/adopted/index.htm
Mesa County	http://www.mesacounty.us/building/adoptedcodes.aspx
Pikes Peak Regional Building Department	http://www.pprbd.org/
Pueblo Regional Building Department	http://www.prbd.com/
Summit County	http://www.co.summit.co.us/BuildingInsp/codesamend.htm

Appendix B

Peter Bemelen, Manager of Permitting and Inspections, Denver Building Department

Question	Response
What is your position at the Denver Building Department?	Building Official, manager of permitting and inspections
What model code does Denver County use?	Denver uses the 2003 International Codes promulgated by the ICC, which includes the following subset codes: International Building Code, International Residential Code, International Mechanical Code, International Fire Code, International Fuel & Gas Code, International Energy Conservation Code, and the International Plumbing Code. These ICC codes are collectively referred to as the “I-Codes”.
What model code does the State of Colorado use?	Local jurisdictions adopt codes, except for Electrical and Plumbing which are uniform throughout the state
Has the Denver County always used that code?	Until 1990, Denver had its own unique set of building codes. From 1990 until June 2004, Denver used the Uniform Building Code (“UBC”). In June 2004, Denver adopted the International Building Code (“IBC”).
How often is Denver’s Building Code revised?	Every three years, paralleling the UBC and IBC code cycles.
Why did Denver County change codes?	The UBC is now defunct as it is no longer updated. The IBC replaced all three regional codes. City officials wanted a more uniform code so as to minimize contradictions with other state municipalities, especially those neighboring Denver County, and to decrease the number of amendments made to the UBC by Denver officials.

Question	Response
Which code do you prefer, and why?	The IBC and IRC for their uniformity and flexibility.
Has the change in codes affected your job responsibilities? How so?	The adoption of the I-Codes has required training and familiarization with the new codes. Enforcement remains the same; however, over the last three years the building department has been focusing on working with contractors and design professionals to get construction projects approved.
What are the major differences, if any, between the UBC and the IBC?	The UBC has been subdivided in the I-Codes between the IBC and the IRC. The UBC never had a separate code for residential construction. The ICC now provides for that in the IRC.
Does the fact that other municipalities are allowed to enact different building codes affect your review process?	No. However, most of the jurisdictions have adopted the same codes.
What are the major differences, if any, between the UBC and the IBC as it relates to egress issues?	Common path of travel, separation of exits, and requirements for rated corridors have changed. The code has also become less complicated due to the separation of commercial and residential building requirements. Overall, a major difference is the uniformity of egress codes, which results in less amendments of the code by local municipalities.
What are the major differences, if any, between the UBC and the IBC as it relates to fire issues (i.e., materials, sprinkler systems, exits, emissions)?	The IBC allows more flexibility in design by relaxing corridor requirements and certain other requirements where the entire building has installed sprinklers. The IBC is now less restrictive and more uniform as it relates to open floor space architecture.

Question	Response
<p>Does Denver County follow the IBC or UBC as it relates to fire issues, or does the County follow a different code relating to fire issues? Does the City of Denver follow a different fire code. If so, why?</p>	<p>No, both the City and County of Denver use the IBC fire codes, and both are regulated by the same department.</p> <p>However, structures constructed prior to adoption of the IBC, using the Denver Building Code and/or UBC, that undergo further construction or remediation, often times continue to follow the code under which the structure was originally constructed. For example, DIA started under the old pre-UBC adopted Denver Building Code. As the DIA project progressed, Denver resorted to the 1988 UBC in 1991. Additional subsequent work at DIA, including work today, is generally construed under the UBC in an effort to ensure matching code requirements and so as to not compromise life safety.</p>
<p>What are the major differences, if any, between the UBC and the IBC as it relates to Structural issues?</p>	<p>Seismic standards are now established by the National Earthquake Hazard Reduction Program, instead of standards from Southern California. Wind load standards were measured by “fast mile” under the UBC; the IBC uses a “three second gust” measurement. The American Society of Structural Engineers establishes the ASCE 7 standards. Finally, municipalities amend the IBC to fit certain aspects of the particular location, i.e., wind and snow loads in Denver as compared to higher elevation municipalities.</p>

Question	Response
Has the requirement for “Special Inspections” of structural work changed from the UBC to the IBC?	No real change in this requirement. Engineers must still specify which inspections are necessary and who will conduct the inspections. Third party inspection agencies carry out these inspections. A similar process occurred under the UBC. This process allows building inspectors to work more efficiently and timely in their inspections of construction projects. Additionally, it provides the owners and design professionals added security that the specialty trades are being performed in accordance with the code.
How have the changes in code affected overall project costs generally?	It depends on the case. In some cases it can cost more, but in many, costs are lowered because of less restrictive requirements and more flexibility.
What costs have been most affected?	Residential costs, now that they are uniform across the country under a separate, specific residential code under the IRC.
Are there any other areas that are affected by the code change that you observe routinely?	Licensing and testing requirements. Under the UBC, contractors were all given the same licensing test without variation of questions. The ICC has improved the testing requirements and increased the number of potential questions for testing.
Overall, has the change been positive?	Yes. The overall uniformity of the I-Codes has made both the compliance and enforcement of the code easier.
Has the change in code affected project timelines?	Overall, no. Timeliness typically remains a project by project issue.
Has the IBC made the building codes more uniform?	Yes.

Question	Response
Has the IBC made enforcement of the code easier from an administrative perspective?	Yes, because of the uniformity of the code. Additionally, over the past few years, the building department has made a concerted effort to cooperate with owners, contractors and design professionals in getting projects approved and constructed.
Have there been greater or fewer instances of code violations with the IBC?	No observed change.
What code compliance issues come up most frequently on the job site and/or post-completion?	Fire prevention and egress.
What does the building department do when it learns that a code has been violated?	<p>Issues correction notices, and works with owners, contractors and design professionals in making changes to the plans in an effort to move the project along.</p> <p>As to our internal review procedures, there has been no real change in our office procedures for code violations. However, we now hold weekly one hour meetings amongst the building inspectors to review project specific code violations and discuss the best and most efficient way to get the plans approved.</p>
Who on a project is typically responsible for the code violations, i.e., owner, contractor or design professional?	The Contractor is responsible for meeting the approved plan. Any changes to the plan must go through the design professional and permitting process.

Question	Response
Do you have any advice for owners, contractors and/or design professionals concerning the change in codes?	Properly prepare detailed building plans. All too often building plans are submitted that are really in rough draft format, with the expectation from design professionals and owners that the building department finalize the plans in compliance with the codes. Additionally, owners and design professionals are encouraged to use Special Inspections to insure their project is being constructed according to the code, insuring that the final project is approved by the building department, which naturally creates more timely and cost efficient projects in the end. Finally, because of the amendments made by local municipalities, ensure that you are using the specific code enforced by the particular municipality.

Jay Watson, P.E., Mechanical Engineer, ABS Consultants, Inc.

Question	Response
How long have you worked with Building Codes?	Since 1995 (12 years).
What is your job position?	Project Manager / Mechanical Engineer.
Which model codes do you most frequently use?	2003 International Codes.
Are there substantial differences between the codes in terms of structure/drafting?	No, the sequencing of the chapters & sections for the International Codes was based on the 1997 Uniform Codes, so the transition was fairly easy.
Which code is the most “user-friendly”?	The 2003 I-Codes. There seems to be a lot more “commentary” available that aides in interpretation. Although the Uniform Building Code (“UBC”) offered some commentary as well, it was not as extensive as it is in the International Building Code (“IBC”). Additionally, the commentary provides more interpretation of the codes, and provides a helpful cause/purpose analysis.
Which code do you prefer and why?	The 2003 I-Codes, because they have relaxed a few of the more stringent requirements from the Uniform Codes. There are areas of the code that have become more stringent as it relates to life safety issues, such as in areas of plumbing, venting and garage exhaust.
Has the change in codes from the UBC to the IBC affected your job responsibilities?	No, our responsibilities remain the same. The fact that most jurisdictions have adopted the I-Codes has made it easier since we don’t have to deal with multiple codes.

Question	Response
<p>What are the major differences, if any, between the Uniform Building Code and the International Building Code?</p>	<p>The IBC has relaxed the requirements for plumbing system materials & venting options, making design easier. Life safety is a little more “open-minded” allowing jurisdictions to provide their own requirements. Garage exhaust requirements are more stringent. Ventilation rates have changed, mostly to follow ASHRAE 62.1 revisions. The energy code (IECC) has become much more stringent than the old Model Energy Code that was widely used.</p>
<p>Does the fact that other municipalities are allowed to enact different building codes affect your review process?</p>	<p>Most jurisdictions in the states that we work in have adopted the I-Codes with minimal amendments, so it has actually become easier than when the Uniform Codes, Southern Codes and BOCA Codes were utilized (along with many other State initiated codes).</p>
<p>What are the major differences, if any, between the UBC and the IBC as they relate to egress issues?</p>	<p>Egress illumination is better defined in the I-Codes. The other major changes made affect Architectural issues more than mechanical engineering issues.</p>
<p>What are the major differences, if any, between the UBC and the IBC as they relate to Fire issues (i.e., materials, sprinkler systems, exits, emissions)?</p>	<p>If sprinkler systems are installed, many of the other requirements are relaxed. Other than that, there are not any significant changes in materials or other system requirements.</p>
<p>Why do some municipalities and counties use the NFPA code instead of the IBC code?</p>	<p>That seems to be a preference of the Fire Departments in each jurisdiction. Both the UFC and IFC incorporate the NFPA into their codes for any discrepancies.</p>
<p>What are the major differences, if any, between the UBC and the IBC as they relate to Safety issues?</p>	<p>For the mechanical engineering trades, the only real difference is the egress illumination.</p>

Question	Response
How has the requirement for “Special Inspections” of structural work under the IBC affected your work?	Mechanical engineers typically do not require special inspections. Generally, if we or the owner desire a special inspection, we will hire a consultant to work with us during the design phase. Once the construction begins, it is up to the contractor to ensure that the design is implemented pursuant to the code.
How have the changes in code affected overall project costs generally?	There are some variations, but generally costs are about the same overall relative to changes in the codes.
What costs have been most affected?	Addition of fire/smoke dampers in some instances has increased cost. Increased ventilation requirement for enclosed garages has also increased cost. Plumbing systems have decreased in cost due to new allowable materials and methods. None of these costs are as significant as the effect felt from material escalation costs that we have seen the past few years due to the increase in construction in China.
Any other areas that are affected by the code change that you observe routinely?	Dryer booster fans have become a hot topic. (fans used in venting systems to allow for longer venting hoses, such as a laundry dryer, than is required by the code). Some jurisdictions allow them, others do not. Because neither code has specifically addressed them, most jurisdictions are becoming more stringent in their requirements that the projects follow the specific language of the code.
Overall, has the change been positive?	Yes.
How has the change in code affected project timelines?	No noticeable changes.
Has the IBC made the building codes more uniform?	Yes, definitely.
Has the IBC made compliance with the code easier from an engineering perspective?	Yes.

Question	Response
What code compliance issues come up most frequently on the job site and/or post-completion?	The definition of an attic space. We have had instances where there is a 3 or 4” void space in the roof construction that the inspectors have considered an attic, which in turn requires ventilation.
What codes do you see as being the most frequently code violations?	Installation issues with plumbing backflow prevention devices. Each municipality has particular requirements specific to its jurisdiction and building sizes. Because this code concerns life safety issues, it is a strict code requirement.
What are the consequences of a code violation?	Lost time in the redesign of that particular situation. The contractor and/or owner may also suffer additional costs for the labor and materials necessary for the fix.
Who on a project is typically responsible for code compliance, i.e., owner, contractor or design professional?	The contractor is generally the most responsible. The design professional must also be cognizant of the codes to avoid showing a flagrant code violation on the construction documents.
How difficult is it to comply with the code?	Generally not too difficult, but some architectural design elements can create difficult situations. For example, a particular structure’s architectural design may impact venting from boilers and laundry facilities, and can have a significant impact on garage exhaust compliance.
What internal procedures/policies do you follow to ensure that the project meets code compliance?	Internal reviews are performed for both design elements and code compliance, but of course there is no such thing as a perfect set of drawings. If something is missed, we rely on the code reviewer, or subsequently, the contractor or inspector to catch deficiencies.
Do you have any advice for owners, contractors and/or design professionals concerning the change in codes?	Review all of the codes thoroughly, including local amendments. It is generally the small changes that get you into trouble.

Chris Meier, Project Architect, RNL Design

Question	Response
How long have you worked with Building Codes?	7-8 years; I worked with the Uniform Building Code (“UBC”) in Colorado for 3 years, then I moved to Chicago where I worked with the BOCA Code and Chicago’s own set of Building Codes. I returned to Colorado after 2 or 3 years and now work with the International Building Code (“IBC”).
What is your job position?	Project Architect
Which model codes do you most frequently use?	I use the IBC primarily and really don’t use the IRC or other I-Codes.
Which code do you prefer and why?	IBC, it is easier to use and is particularly helpful when changing from one region to another.
Overall, has the change been positive?	Yes, especially for moving to different regions.
Which code is the most “user-friendly”?	The IBC because of the commentaries. The IBC is one volume and the commentaries are two volumes, they are a “must have.”
Which codes are used in Illinois?	Illinois has gone from the BOCA Codes to the IBC.
What are the major differences, if any, in the codes that you’ve used?	I can’t really speak to the differences between the UBC and the IBC, but between BOCA and the IBC, the IBC allows for more build area – greater heights and more flexibility in floor plans.
Are there substantial differences between the codes in terms of structure/drafting?	Compared to the UBC, the BOCA Codes were more organized and easier to get through. The IBC is structured very similarly to the BOCA Codes. The transition from the UBC to the BOCA Codes was difficult, but the transition from BOCA to the IBC was relatively easy.
Has the change in codes from the UBC to the IBC affected the scope of your job responsibilities?	No.

Question	Response
How has the change in code affected project timelines?	No effect.
Does the fact that other municipalities are allowed to enact different building codes affect your review process?	I haven't run across this problem yet. I have only dealt with municipalities that use the 2003 IBC. It would be less efficient to have to use a different code.
What are the major differences, if any, between BOCA and the IBC as they relate to egress issues?	The IBC may be more lenient with respect to travel distances.
What are the major differences, if any, between BOCA and the IBC as they relate to fire issues (i.e., materials, sprinkler systems, exits, emissions)?	The IBC has more exceptions because of how it addresses sprinkler systems.
What are the major differences, if any, between BOCA and the IBC as they relate to safety issues?	Offhand, I don't know of any. There are, however, significant differences between the IBC and the NFPA Life Safety Code. In Centennial, Colorado, for example, the Health Department follows the Life Safety Code and has jurisdiction over assisted living facilities. In contrast, the building department has concurrent jurisdiction but follows the 2003 IBC. There are conflicts between the two codes that are difficult to reconcile and both the building department and the health department have to sign off on the plans. The Life Safety Code is not necessarily more or less restrictive with respect to particular requirements, but it seems like there are more hoops to jump through than with the IBC.
What are the major differences, if any, between BOCA and the IBC as they relate to Structural issues?	There are no major differences to my knowledge.
Does BOCA have a "Special Inspection" requirement for select trades?	I'm not sure. This is an issue that the general contractor must address.
Are there any differences between the IBC and BOCA as they relate to overall project costs generally?	There is no noticeable difference.

Question	Response
What do you see as being the most frequent code violations?	Accessibility issues arise most frequently. The IBC refers to the ANSI standards, so both of those codes must be used. In addition, there are requirements in the Fair Housing Act and the Americans with Disabilities Act that must be included. In jurisdictions outside of Colorado, there may even be state or local accessibility codes. Chicago, for example, has its own code, as does the state of Illinois. To comply, I use the most restrictive elements in each code. Using all of them together can be onerous. There has been considerable litigation in this area for compliance failures, most frequently with multifamily dwellings, especially condominiums. In some instances, the litigation has been malicious and used to generate law suits where no real problem exists.
What are the consequences of a code violation?	The architect is responsible for code compliance in the plans. The plans will be redrafted in order to meet code. Once the plans are in the hands of the developer, however, it is the responsibility of the developer to meet the code requirements. For developers, cost considerations often conflict with code compliance.
Who on a project is typically responsible for code compliance, i.e., owner, contractor or design professional?	The design professional provides the first check for code compliance. The second check is on site, where the contractor is responsible for how the structure is actually built.
How difficult is it to comply with the code?	No matter how well-versed one is with the codes, there are always several interpretations. That's why the code commentaries are so important.
What internal procedures/policies do you follow to ensure that the project meets code compliance?	We complete an up-front code study and document everything. A code sheet identifies "hot spots" and is included with the drawings. We also do a final compliance check once before the documents are issued.

Question	Response
Do you have any advice for owners, contractors and/or design professionals concerning work under BOCA?	It is important to communicate code issues up-front and get everyone – especially the contractor – on the same page. Review the code sheet that accompanies the plans and make sure the contractor understands the code issues and recent changes to the code that affect the project.

Carl Hole, Architectural Studio Leader, RNL Design

Question	Response
How long have you worked with Building Codes?	18 years; I have worked in Colorado for 15 or 16 years. I have also worked throughout the country.
What is your job position?	Architectural Studio Leader – I am responsible for quality control and general oversight.
Which model codes do you most frequently use?	International Building Code (“IBC”. I haven’t used the Uniform Building Code (“UBC”) for 2 or 3 years. Even in municipalities where the UBC is still in use, we will try to work with them to use the IBC instead as many plan to implement the IBC in the near future. On a couple of large residential projects, we have used the International Residential Code (“IRC”).
Are there substantial differences between the codes in terms of structure/drafting?	The UBC and IBC are very similar structurally; no real structural differences.
Which code is the most “user-friendly”?	IBC.
Which code do you prefer and why?	IBC; ease of use and flexibility.
Has the change in codes from the UBC to the IBC affected your job responsibilities?	No change in scope. The only effect is additional time spent in transitioning to the new codes.
What are the major differences, if any, between the Uniform Building Code and the International Building Code?	The IBC views sprinkler systems as a much better life safety feature than does the UBC.
Does the fact that other municipalities are allowed to enact different building codes affect your review process?	Not particularly. It’s common in the industry to deal with a variety of codes.
What are the major differences, if any, between the UBC and the IBC as they relate to egress issues?	The IBC is more lenient in certain instances with respect to distances to exits and number of exits.

Question	Response
What are the major differences, if any, between the UBC and the IBC as they relate to Fire issues (i.e., materials, sprinkler systems, exits, emissions)	Under the IBC, exiting and corridor ratings are relaxed for sprinkled buildings.
Why do some municipalities and counties use the NFPA code instead of the IBC code?	I'm not sure. I would speculate that it is largely a political decision.
What are the major differences, if any, between the UBC and the IBC as they relate to Safety issues?	Again, the largest change is with respect to the use of sprinklers and how that can relax other safety requirements.
What are the major differences, if any, between the UBC and the IBC as they relate to Structural issues?	Depending on the project, the number of special inspections may increase under the IBC.
How has the requirement for "Special Inspections" of structural work under the IBC affected the building code and permit process?	There hasn't been much change as we conducted the same types of inspections when the UBC was in place. The inspections are a good practice, regardless of whether they are required by the code.
As a design professional, do you prefer the Special Inspection requirement?	Yes, because it makes it easier to have discussions with the owner as to why the inspections are necessary.
How have the changes in code affected overall project costs generally?	Any changes have been minimal and it would depend on the particular project as to whether the costs have increased or decreased.
What costs have been most affected?	Compliance with fire safety. Sprinkling a building can offset the costs of other fire safety features. For example, on a recent project I was involved with, the project team had been using UBC codes in their design. The design incorporated fire separation features that were not necessary under the IBC. After pointing this out during a mid-point check in the design phase, the team was able to implement a more efficient and less costly design.
Any other areas that are affected by the code change that you observe routinely?	Not really.

Question	Response
Overall, has the change been positive?	Very positive.
How has the change in code affected project timelines?	No change.
Has the IBC made the building codes more uniform?	Yes.
Has the IBC made compliance with the code easier from a design professional perspective?	Yes, especially because municipalities are enacting fewer amendments with the IBC.
What code compliance issues come up most frequently on the job site and/or post-completion?	The most common issue in planning arises with respect to interpreting space occupancy requirements. In the field, the biggest issue is whether something has been built according to the design. Post-completion, the most problematic issues tend to be exiting requirements if not in compliance with code.
What codes do you see as being the most frequently code violations?	There are not many violations, but when they do arise, they are typically the result of differing interpretations of the code.
What are the consequences of a code violation?	It depends on when the issue arises. If caught early, the costs can be minimal, requiring minor changes to the plan. If a problem is not caught until the building official reviews the plans during the permitting process, revisions can be very costly. We try to work with building officials early on to prevent this.
Who on a project is typically responsible for code compliance, i.e., owner, contractor or design professional?	It depends. During the design phase, the design professional is responsible for compliance. During the build phase, the contractor is responsible.
How difficult is it to comply with the code?	It's fairly easy to comply. Any difficulty arises with conflicting code provisions, but the IBC has made that less of a problem.

Question	Response
What internal procedures/policies do you follow to ensure that the project meets code compliance?	Every design team must do code research early on. We have quality control checks as the design progresses. We also encourage the team to meet with city officials. Finally, we have one last check when the plans are issued.
Do you have any advice for owners, contractors and/or design professionals concerning the change in codes?	I encourage education. Attending seminars which address code changes is important to keep up to date on the requirements.