City of Norman to update building, fire prevention, and property maintenance codes

Background:

The Oklahoma Legislature, in May 2009, passed legislation creating the Oklahoma Uniform Building Code Commission. The Commission is composed of eleven members from different fields and is tasked with creating and maintaining a statewide uniform building code. The current edition of codes adopted by the state include the 2015 editions of relevant codes published by the International Code Council (ICC) and the 2014 edition of the National Electrical Code (NEC) published by the National Fire Protection Association (NFPA). With the adoption of a uniform building code by the state, the City of Norman is obligated to adhere to the state codes except the City may adopt amendments deemed more stringent than the state adopted codes to help assure a suitable level of health and safety in the built environment within the City of Norman.

Discussion:

As a result of these statutory requirements, pertinent City staff have undertaken a joint effort to evaluate the codes for building, fire prevention and property maintenance and to consider what, if any, local amendments to the state codes may be appropriate to reflect community standards for the built environment. Additionally, City staff is evaluating the 2015 edition of the International Residential Code in anticipation of this code being adopted by the state later this calendar year. Current City staff actions also include efforts to streamline and modernize the City Code format and content companion to these codes to enhance readability and clarity. A summary and brief synopsis of the codes currently under review by staff is provided as an enclosure with this memo for your information.

Conclusion:

City staff is suggesting a series of public meetings and/or other methods of communication to inform the public of the intention to amend the City's codes affecting the built environment with a view toward submitting a formal request for adoption to the full City Council for consideration later this year.

Abbreviations/acronyms used in the following text:

NFPA = National Fire Protection Association
ICC = International Code Council
OUBCC = Oklahoma Uniform Building Code Commission
CoN = City of Norman

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Summary of codes currently under review

NFPA 1 Fire (Prevention) Code 2015 edition

NFPA 1, Fire Code, advances fire and life safety for the public and first responders as well as property protection by providing a comprehensive, integrated approach to fire code regulation and hazard management. It addresses all the bases with extracts from and references to more than 130 NFPA® codes and standards including such industry benchmarks as NFPA 101, NFPA 54, NFPA 58, NFPA 30, NFPA 13, NFPA 25, and NFPA 72.

1.1 Scope. 1.1.1 The scope includes, but is not limited to, the following:

(1) Inspection of permanent and temporary buildings, processes, equipment, systems, and other fire and related life safety situations (2) Investigation of fires, explosions, hazardous materials incidents, and other related emergency incidents (3) Review of construction plans, drawings, and specifications for life safety systems, fire protection systems, access, water supplies, processes, hazardous materials, and other fire and life safety issues (4) Fire and life safety education of fire brigades, employees, responsible parties, and the general public (5) Existing occupancies and conditions, the design and construction of new buildings, remodeling of existing buildings, and additions to existing buildings (6) Design, installation, alteration, modification, construction, maintenance, repairs, servicing, and testing of fire protection systems and equipment (7) Installation, use, storage, and handling of medical gas systems (8) Access requirements for fire department operations (9) Hazards from outside fires in vegetation, trash, building debris, and other materials (10) Regulation and control of special events including, but not limited to, assemblage of people, exhibits, trade shows, amusement parks, haunted houses, outdoor events, and other similar special temporary and permanent occupancies (11) Interior finish, decorations, furnishings, and other combustibles that contribute to fire spread, fire load, and smoke production (12) Storage, use, processing, handling, and on-site transportation of flammable and combustible gases, liquids, and solids (13) Storage, use, processing, handling, and on-site transportation of hazardous materials (14) Control of emergency operations and scenes (15) Conditions affecting fire fighter safety (16) Arrangement, design, construction, and alteration of new and existing means of egress.

2015 IFC® INTERNATIONAL Fire Code®

THE INTERNATIONAL FIRE CODE The International Fire Code® (IFC®) is a model code that regulates minimum fire safety requirements for new and existing buildings, facilities, storage and processes. The IFC addresses fire prevention, fire protection, life safety and safe storage and use of hazardous materials in new and existing buildings, facilities and processes. The IFC provides a total approach of controlling hazards in all buildings and sites, regardless of the hazard being indoors or outdoors. The IFC is a design document.

For example, before one constructs a building, the site must be provided with an adequate water supply for fire-fighting operations and a means of building access for emergency responders in the event of a medical emergency, fire or natural or technological disaster. Depending on the building's occupancy and uses, the IFC regulates the various hazards that may be housed within the building, including refrigeration systems, application of flammable finishes, fueling of motor vehicles, high-piled combustible storage and the storage and use of hazardous materials. The IFC sets forth minimum requirements for these and other hazards and contains requirements for maintaining the life safety of building occupants, the protection of emergency responders, and to limit the damage to a building and its contents as the result of a fire, explosion or unauthorized hazardous material discharge.

2015 IBC® INTERNATIONAL Building Code®

The International Building Code® (IBC®) is a model code that provides minimum requirements to safeguard the public health, safety and general welfare of the occupants of new and existing buildings and structures. The IBC is fully compatible with the ICC family of codes, including: International Energy Conservation Code® (IECC®), International Existing Building Code® (IEBC®), International Fire Code® (IFC®), International Fuel Gas Code® (IFGC®), International Mechanical Code® (IMC®), International Plumbing Code® (IPC®), International Property Maintenance Code® (IPMC®), and International Residential Code® (IRC®). The IBC addresses structural strength, means of egress, sanitation, adequate lighting and ventilation, accessibility, energy conservation and life safety in regard to new and existing buildings, facilities and systems.

The codes are promulgated on a 3-year cycle to allow for new construction methods and technologies to be incorporated into the codes. Alternative materials, designs and methods not specifically addressed in the code can be approved by the code official where the proposed materials, designs or methods comply with the intent of the provisions of the code (see Section 104.11). The IBC applies to all occupancies, including one- and two-family dwellings and townhouses that are not within the scope of the IRC. The IRC is referenced for coverage of detached one- and two-family dwellings and townhouses as defined in the exception to Section 101.2 and the definition for "Townhouse" in Chapter 2.

The IRC can also be used for the construction of Live/Work units (as defined in Section 419) and small bed and breakfast-style hotels where there are five or fewer guest rooms and the hotel is owner occupied. The IBC applies to all types of buildings and structures unless exempted. Work exempted from permits is listed in Section 105.2.

2015 IEBC® INTERNATIONAL Existing Building Code

The International Existing Building Code is a model code in the International Code family of codes intended to provide alternative approaches to repair, alteration and additions to existing buildings. A large number of existing buildings and structures do not comply with the current building code requirements for new construction. Although many of these buildings are potentially salvageable, rehabilitation is often cost-prohibitive because compliance with all the requirements for new construction could require extensive changes that go well beyond the value of the building or the original scope of the alteration.

At the same time, it is necessary to regulate construction in existing buildings that undergo additions, alterations, extensive repairs or change of occupancy. Such activity represents an opportunity to ensure that new construction complies with the current building codes and that existing conditions are maintained, at a minimum, to their current level of compliance or are improved as required to meet basic safety levels. To accomplish this objective, and to make the alteration process easier, this code allows for options for controlled departure from full compliance with the International Codes dealing with new construction, while maintaining basic levels for fire prevention, structural and life safety features of the rehabilitated building.

This code provides three main options for a designer in dealing with alterations of existing buildings.

These are laid out in Section 301 of this code:

> **OPTION 1:** Work for alteration, repair, change of occupancy, addition or relocation of all existing buildings shall be done in accordance with the Prescriptive Compliance Method given in Chapter 4. It should be noted that this method originates from the former Chapter 34 of the *International Building Code* (2012 and earlier editions).
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> **OPTION 2:** Work for alteration, repair, change of occupancy, addition or relocation of all existing buildings shall be done in accordance with the Work Area Compliance Method given in Chapters 5 through 13.
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> **OPTION 3:** Work for alteration, repair, change of occupancy, addition or relocation of all existing buildings shall be done in accordance with the Performance Compliance Method given in Chapter 14. It should be noted that this option was also provided in the former Chapter 34 of the *International Building Code* (2012 and earlier editions).

Under limited circumstances, a building alteration can be made to comply with the laws under which the building was originally built, as long as there has been no substantial structural damage and there will be limited structural alteration.

2015 IRC® INTERNATIONAL Residential Code® FOR ONE- AND TWO-FAMILY DWELLINGS

The International Residential Code® (IRC®) was created to serve as a complete, comprehensive code regulating the construction of single-family houses, two-family houses (duplexes) and buildings consisting of three or more townhouse units. All buildings within the scope of the IRC are limited to three stories above grade plane. For example, a four-story single-family house would fall within the scope of the International Building Code® (IBC®), not the IRC.

The benefits of devoting a separate code to residential construction include the fact that the user need not navigate through a multitude of code provisions that do not apply to residential construction in order to locate that which is applicable. A separate code also allows for residential and nonresidential code provisions to be distinct and tailored to the structures that fall within the appropriate code's scopes. The IRC contains coverage for all components of a house or townhouse, including structural components, fireplaces and chimneys, thermal insulation, mechanical systems, fuel gas systems, plumbing systems and electrical systems. The IRC is a prescriptive-oriented (specification) code with some examples of performance code language. It has been said that the IRC is the complete cookbook

for residential construction. Section R301.1, for example, is written in performance language, but states that the prescriptive requirements of the code will achieve such performance.

It is important to understand that the IRC contains coverage for what is conventional and common in residential construction practice. While the IRC will provide all of the needed coverage for most residential construction, it might not address construction practices and systems that are atypical or rarely encountered in the industry. Sections such as R301.1.3, R301.2.2.1.1, R320.1, M1301.1, G2401.1 and P2601.1 refer to other codes either as an alternative to the provisions of the IRC or where the IRC lacks coverage for a particular type of structure, design, system, appliance or method of construction. In other words, the IRC is meant to be all inclusive for typical residential construction and it relies on other codes only where alternatives are desired or where the code lacks coverage for the uncommon aspect of residential construction.

Of course, the IRC constantly evolves to address new technologies and construction practices that were once uncommon, but now common. The IRC is unique in that much of it, including Chapters 3 through 9 and Chapters 34 through 43, is presented in an ordered format that is consistent with the normal progression of construction, starting with the design phase and continuing through the final trim-out phase. This is consistent with the “cookbook” philosophy of the IRC. The IRC is divided into eight main parts, specifically, Part I—Administration, Part II—Definitions, Part III—Building Planning and Construction, Part IV—Energy Conservation, Part V—Mechanical, Part VI—Fuel Gas, Part VII—Plumbing and Part VIII—Electrical.

The OUBCC created:

- A new appendix V, entitled "Appendix V Automatic Fire Systems." Sections R312.2.1 entitled "One- and two-family dwellings automatic fire systems" and "R312.2.1 entitled "Design and installation" have been removed from Chapter Three of the IRC® 2015 and relocated to Appendix V, entitled "Appendix V, Automatic Fire Systems."
- A new appendix W, entitled "Appendix W Energy Efficiency." Section N1101.14 entitled "Certificate" has been removed from Chapter Eleven of the IRC® 2015 and relocated to Appendix W, entitled "Appendix W, Energy Efficiency."
- A new appendix X, entitled "Appendix X, Swimming Pools, Spas and Hot Tubs." Appendix G has been carried forward from the previous adoption of IRC® 2009 and relocated to Appendix X, entitled "Appendix X, Swimming Pools, Spas and Hot Tubs."
- A new Appendix Y, entitled "Appendix Y, Residential Tornado Provisions." This appendix provides prescriptive based requirements for construction of a residential structure meeting or exceeding a 135 mph wind event corresponding to an EF-2 tornado rating. The single most important objective in protecting a structure against high wind is achieving a continuous load path from the roof to the foundation. Based on the findings of studies and failures associated with various construction types, a group of 11 building practices (each associated with a different aspect of the structure) are summarized in this section.

2015 IMC® INTERNATIONAL Mechanical Code®

The International Mechanical Code® (IMC®) is a model code that regulates the design and installation of mechanical systems, appliances, appliance venting, duct and ventilation systems, combustion air provisions, hydronic systems and solar systems. The purpose of the code is to establish the minimum

acceptable level of safety and to protect life and property from the potential dangers associated with the installation and operation of mechanical systems.

The code also protects the personnel that install, maintain, service and replace the systems and appliances addressed by this code. The IMC is primarily a prescriptive code with some performance text. The code relies heavily on product specifications and listings to provide much of the appliance and equipment installation requirements. The general Section 105.2 and the exception to Section 403.2 allow designs and installations to be performed by approved engineering methods as alternatives to the prescriptive methods in the code. The format of the IMC allows each chapter to be devoted to a particular subject with the exception of Chapter 3, which contains general subject matters that are not extensive enough to warrant their own independent chapter.

2015 IPC® INTERNATIONAL Plumbing Code®

The International Plumbing Code (IPC) is a model code that regulates the design and installation of plumbing systems including the plumbing fixtures in all types of buildings except for detached one and two-family dwellings and townhouses that are not more than three stories above grade in height. The regulations for plumbing systems in one- and two-family dwellings and townhouses are covered by Chapters 25 through 33 of the International Residential Code (IRC).

The IPC addresses general plumbing regulations, fixture requirements, water heater installations and systems for water distribution, sanitary drainage, special wastes, venting, storm drainage and medical gases. The IPC does not address fuel gas piping systems as those systems are covered by the International Fuel Gas Code (IFGC). The IPC also does not regulate swimming pool piping systems, process piping systems, or utility-owned piping and systems. The purpose of the IPC is to the establish the minimum acceptable level of safety to protect life and property from the potential dangers associated with supplying potable water to plumbing fixtures and outlets and the conveyance of bacteria-laden waste water from fixtures.

The IPC is primarily a specification-oriented (prescriptive) code with some performance-oriented text. For example, Section 405.1 is a performance statement but Chapter 6 contains the prescriptive requirements that will cause Section 405.1 to be satisfied. Where a building contains plumbing fixtures, those fixtures requiring water must be provided with an adequate supply of water for proper operation. The number of required plumbing fixtures for a building is specified by this code and is based upon the anticipated maximum number of occupants for the building and the type of building occupancy.

This code provides prescriptive criteria for sizing piping systems connected to those fixtures. Through the use of code-approved materials and the installation requirements specified in this code, plumbing systems will perform their intended function over the life of the building. In summary, the IPC sets forth the minimum requirements for providing safe water to a building as well as a safe manner in which liquid-borne wastes are carried away from a building.

2015 IFGC® INTERNATIONAL Fuel Gas Code®

The IFGC is a model code that regulates the design and installation of fuel gas distribution piping and systems, appliances, appliance venting systems, combustion air provisions, gaseous hydrogen systems

and motor vehicle gaseous-fuel-dispensing stations. The definition of fuel gas includes natural, liquefied petroleum and manufactured gases and mixtures of these gases. The purpose of the code is to establish the minimum acceptable level of safety and to protect life and property from the potential dangers associated with the storage, distribution and usage of fuel gases and the byproducts of combustion of such fuels.

The code also protects the personnel that install, maintain, service and replace the systems and appliances addressed by this code. With the exception of Section 401.1.1, the IFGC does not address utility-owned piping and equipment (i.e., anything upstream of the point of delivery). See the definition of "Point of delivery" and Section 501.8 for other code coverage exemptions. The IFGC is primarily a specification-oriented (prescriptive) code with some performance-oriented text. For example, Section 503.3.1 is a performance statement, but Chapter 5 contains prescriptive requirements that will cause Section 503.3.1 to be satisfied.

The IFGC applies to all occupancies including one- and two-family dwellings and townhouses. The IRC is referenced for coverage of one- and two-family dwellings and townhouses; however, in effect, the IFGC provisions are still applicable because the fuel gas chapter in the IRC (Chapter 24) is composed entirely of text extracted from the IFGC. Therefore, whether using the IFGC or the IRC, the fuel gas provisions will be identical. The IFGC does not apply to piping systems that operate at pressures in excess of 125 psig for natural gas and 20 psig for LP-gas (note exception in Section 402.6). The general Section 105.2 and the specific Sections 304.8, 402.3, 503.5.5 and 503.6.9 allow combustion air provisions, pipe sizing and chimney and vent sizing to be performed by approved engineering methods as alternatives to the prescriptive methods in the code.

NFPA® 70 National Electrical Code® NEC 2014 edition

The purpose of this Code is the practical safeguarding of persons and property from hazards arising from the use of electricity. This Code is not intended as a design specification or an instruction manual for untrained persons.

This Code is divided into the introduction and nine chapters. Chapters 1, 2, 3, and 4 apply generally; Chapters 5, 6, and 7 apply to special occupancies, special equipment, or other special conditions. These latter chapters supplement or modify the general rules. Chapters 1 through 4 apply except as amended by Chapters 5, 6, and 7 for the particular conditions. Chapter 8 covers communications systems and is not subject to the requirements of Chapters 1 through 7 except where the requirements are specifically referenced in Chapter 8. Chapter 9 consists of tables that are applicable as referenced. Informative annexes are not part of the requirements of this Code but are included for informational purposes only.

2015 IPMC® INTERNATIONAL Property Maintenance Code®

The International Property Maintenance Code (IPMC) is a model code that regulates the minimum maintenance requirements for existing buildings. The IPMC is a maintenance document intended to establish minimum maintenance standards for basic equipment, light, ventilation, heating, sanitation and fire safety. Responsibility is fixed among owners, operators and occupants for code compliance. The IPMC provides for the regulation and safe use of existing structures in the interest of the social and economic welfare of the community.

Additional Information

Here is a link to access the 2015 International Code Council (ICC) codes for viewing: http://codes.iccsafe.org/I-Codes.html

Here is a link to access the 2014 National Electrical Code (NEC) and other codes published by the National Fire Protection Association (NFPA): http://www.nfpa.org/codes-and-standards/free-access

Here is a link to access the Oklahoma Uniform Building Code Commission (OUBCC) to view the Oklahoma state code amendments:
https://www.ok.gov/oubcc/Codes_&_Rules/Adopted_Building_Codes/index.html

Here is a link to access the City of Norman current code amendments:
http://www.normanok.gov/planning/building-codes

Here is a link to access to access the current City of Norman Code of Ordinances:
https://www2.municode.com/library/ok/norman/codes/code_of_ordinances?nodeId=CH

A draft copy of the proposed new format for chapters of the City of Norman Code of Ordinances affecting building, fire and property maintenance codes is currently not available. Please contact City staff for current progress.

Here are the links to view presentations describing many of the general code changes occurring as the codes are updated from the 2009/2012 editions to the 2014/2015 editions:

ICC 2015 IBC transition from 2009

ICC 2015 IPC IFGC transition from 2009

ICC 2015 IRC transition from 2009

NEC 2014 analysis of change

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