

Regional Code Amendment Workshop

NOVEMBER 16, 2018

STAFF CONTACT: RYANN CLINE

Welcome!

Regional Building Codes Program

- NCTCOG, in partnership with the Regional Codes Coordinating Committee (RCCC), has promoted the standardization of model construction codes since 1967
- Some results of past efforts include:
 - Advancements in the safety of building systems
 - Reduction of training costs for codes personnel
 - Reduction in overall building costs due to code uniformity from city to city

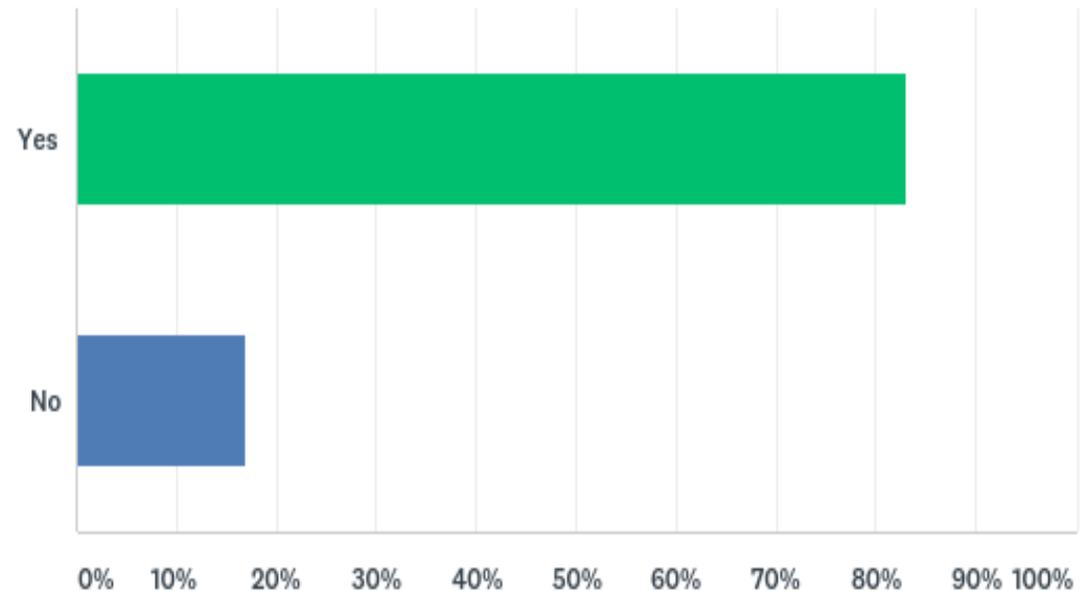
Regional Building Codes Program

- The mission of the regional building codes program has expanded to focus on industry-wide issues, and the development process as a whole, in addition to recommending the latest building codes and producing uniform regional amendments

Regional Codes Work Program: Annual Code Adoption Survey

- Annual Code Adoption Survey Conducted every year in January
- 2018 Annual Code Adoption Survey:
 - 61 Unique Respondents
 - This year questions regarding Electronic Plan Submittal and Review were added

Does your city utilize the NCTCOG Regional Code Amendments?

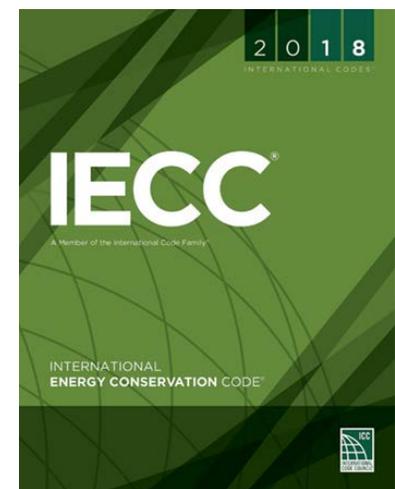
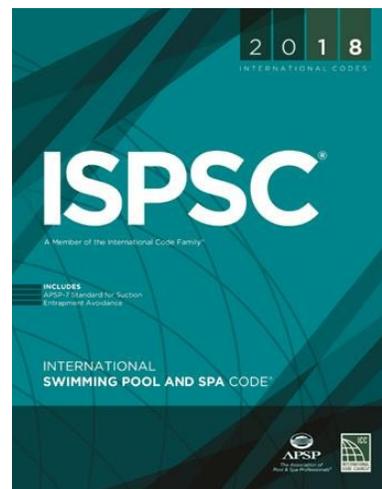
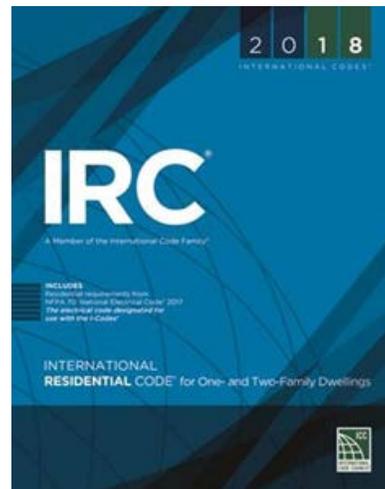
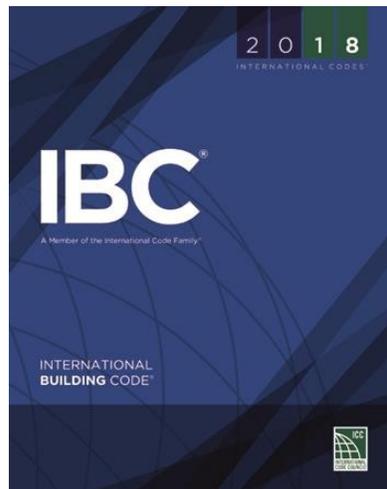


Regional Codes Coordinating Committee

- The RCCC and its five Advisory Boards are comprised of local public and private code professionals
 - Building and Residential Advisory Board
 - Fire Advisory Board
 - Plumbing and Mechanical Advisory Board
 - Energy and Green Advisory Board
 - Electrical Advisory Board (2017 NEC)

2018 Regional Code Amendments and Code Review Process

- The International Codes are reviewed every 3 years when the updated codes are released by the International Codes Council (ICC)
- Four of the Advisory Boards reviewed the suite of 2018 International Codes and completed the code review process in August 2018



Codes Reviewed in Fiscal Year 2018

- 2018 International Building Code (IBC)
- 2018 International Residential Code (IRC)
- 2018 International Energy Conservation Code (IECC)
- 2018 International Swimming Pool and Spa Code (ISPSC)
- 2018 International Existing Building Code (IEBC)
- 2018 International Wildland – Urban Interface Code (IWUIC)
- 2018 International Fire Code (IFC)
- 2018 International Mechanical Code (IMC)
- 2018 International Fuel Gas Code (IFGC)
- 2018 International Plumbing Code (IPC)

NCTCOG Executive Board Support

- The NCTCOG Executive Board supports current activities in promoting building code uniformity in the North Central Texas region
- The NCTCOG Executive Board endorsed the 2018 International Codes and the RCCC's recommended Regional Code Amendments and the IWUI Code Opinion Statement
- The NCTCOG Executive Board recommends that all cities in the North Central Texas region adopt the 2018 International Codes and corresponding regional code amendments
 - <https://www.nctcog.org/executive-director/nctcog-executive-board>

Exhibit: 2018-09-14-ED

RESOLUTION ENDORSING THE 2018 INTERNATIONAL CODES AND REGIONAL CODE AMENDMENTS

WHEREAS, the North Central Texas Council of Governments (NCTCOG) is a Texas political subdivision and non-profit corporation organized and operating under Texas Local Government Code Chapter 391 as the regional planning commission for the 16-county North Central Texas region; and,

WHEREAS, NCTCOG is a voluntary association of, by and for local governments established to assist in planning for common needs, cooperating for mutual benefit, and coordinating for sound regional development; and,

WHEREAS, NCTCOG has been active in promoting construction code uniformity in the region for over five decades; and,

WHEREAS, code uniformity has been documented to lead to a decrease in confusion and delays for builders, developers, and architects; a decrease in costs to municipalities in the development of codes; and, ultimately a decrease in construction and insurance costs to consumers; and,

WHEREAS, the 2018 International Codes are the most current nationally recognized industry standard for buildings and construction; and,

WHEREAS, the Regional Codes Coordinating Committee (RCCC), through its respective code advisory boards, has reviewed the 2018 International Building Code, International Residential Code, International Existing Building Code, International Swimming Pool and Spa Code, International Fire Code, International Plumbing Code, International Mechanical Code, International Fuel Gas Code, International Energy Conservation Code; and the International Wildland Urban Interface Code; and,

WHEREAS, RCCC Advisory Boards have developed regional amendments to the aforementioned codes and an International Wildland Urban Interface Code Opinion Statement; and,

WHEREAS, the RCCC has reviewed and approved the recommended regional amendments and Opinion Statement; and,

WHEREAS, the Texas A&M Energy Systems Laboratory has verified that the recommended 2018 International Energy Conservation Code and the 2018 International Residential Code Energy Efficiency Chapter, and the corresponding recommended regional amendments, are as stringent as the state's adopted energy code as required by Texas Health & Safety Code, Chapter 368.

NOW, THEREFORE, BE IT HEREBY RESOLVED THAT:

Section 1. The NCTCOG Executive Board supports the current activities in promoting building code uniformity in the North Central Texas region.

Section 2. The NCTCOG Executive Board recommends adoption of the following 2018 codes by all cities and counties in the North Central Texas region: International Building Code, International Residential Code, International Existing Building Code, International Swimming Pool and Spa Code, International Fire Code, International Plumbing Code, International Mechanical Code, International Fuel Gas Code, and the International Energy Conservation Code.

Section 3. The Executive Board endorses the Regional Codes Coordinating Committee recommended regional amendments to the aforementioned codes and

Where to find the 2018 Recommended Regional Code Amendments

- The 2018 Regional Code Amendments can be found on the North Central Texas Council of Governments Website in both PDF and Word format:
 - <https://www.nctcog.org/envir/regional-building-codes/amendments>

Regional Codes Work Program

- Overall activities supported by the Regional Codes Work Program:
 - Regional Codes Coordinating Committee and Advisory Board Meetings
 - Development of the Recommended Regional Code Amendments and promoting adoption
 - Annual Code Adoption Survey
 - Education and Training
 - Funded by individual cost shares – local government and private sector contributions welcomed

Thank you to the Fiscal Year 2018 Cost Share Participants!

- City of Dallas
- City of Decatur
- City of Denton
- City of Farmers Branch
- City of Garland
- City of Highland Village
- City of Highland Park
- City of Justin
- City of Lancaster
- City of Murphy
- City of Northlake
- City of Plano
- City of Sanger
- City of Seagoville
- City of Venus

Regional Codes Work Program

- FY2019 will primarily focus on:
 - Promoting the adoption of the 2018 recommended regional code amendments
 - Development of Workshops and Training
 - Educational Videos
 - Annual Code Adoption Survey
 - Electronic Plan Submittal Subcommittee Activities

How to Get Involved

- Sign up to receive NCTCOG communications: <https://www.nctcog.org/envir/mail>
- Attend an RCCC or Advisory Board Meeting: <https://www.nctcog.org/envir/committees/regional-codes-coordinating-committee>
- Attend a training or workshop: <https://www.nctcog.org/envir/regional-building-codes/training>

How to Get Involved

- Serve on an Advisory Board, the Electronic Plan Submittal Subcommittee, or the RCCC
- Participate in the Annual Code Adoption Survey
- Participate as a cost share member to help support additional activities
- Ask questions!
 - Contact Ryann Cline at rcline@nctcog.org or 817-608-2363

Thank you to North Texas Chapter of the ICC!

Significant Changes from 2015 to 2018 IRC, IBC, IEBC, and ISPSC Regional Amendments

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CITY OF PLANO

What's New in the 2018 I-Codes?

2018 International Building Code® (IBC®)

- Accessory storage spaces of any size are now permitted to be classified as part of the occupancy to which they are accessory.
- New code sections have been introduced addressing medical gas systems and higher education laboratories.
- Use of fire walls to create separate buildings is now limited to only the determination of permissible types of construction based on allowable building area and height.
- Where an elevator hoistway door opens into a fire-resistance-rated corridor, the opening must be protected in a manner to address smoke intrusion into the hoistway.
- The occupant load factor for business uses has been revised to one occupant per 150 square feet.
- Solid sawn lumber header and girder spans for the exterior bearing walls have reduced span lengths to allow #2 Southern Pine design values.
- <https://www.iccsafe.org/wp-content/uploads/2018-IBC-UPDATE-Handout-9-1-17.pdf>

Explanation of Options A and B:

OPTION "A" and OPTION "B" are provided in the Fire and Building Code amendments.

Jurisdictions should choose one or the other based on their fire fighting philosophies / capabilities when adopting code amendments.

Option A:

**** *no amend necessary***

Option B:

**** *Section 202, amend definition to read as follows:***

HIGH RISE BUILDING. A building with an occupied floor located more than 75-55 feet above the lowest level of fire department vehicle access.

(Reason: To define high-rise, as it influences sprinkler requirement thresholds based on the fire fighting capabilities of a jurisdiction.)

*****Section 602.1.1; add sentence to read as follows:**

602.1.1 Minimum Requirements. [Existing Text to remain]

Where a building contains more than one distinct type of construction, the building shall comply with the most restrictive area, height, and stories, for the lesser type of construction or be separated by fire walls.

(Reason: To create definite language that requires separation between dissimilar building types.)

*****708.4.2 Fireblocks and draftstops in combustible construction.** *[Body of text unchanged]*

Exceptions:

1. Buildings equipped with an automatic sprinkler system installed throughout in accordance with Section 903.3.1.1, or in accordance with Section 903.3.1.2 provided that sprinkler protection is provided in the space between the top of the fire partition and the underside of the floor or roof sheathing, deck or slab above as required for systems complying with Section 903.3.1.1. Portions of buildings containing concealed spaces filled with noncombustible insulation as permitted for sprinkler omission shall not apply to this exception for draftstopping.

[Remainder unchanged]

Reason: (The most common exception used to eliminate the need for sprinklers in concealed spaces of combustible construction is to fill the space with noncombustible insulation. This exception was changed in 2010 to permit a 2-inch air gap at the top of the filled space. A space compliant with the permitted omission above would allow hot gas and smoke to spread unimpeded throughout a building not provided with draftstopping. For this reason, omission of sprinklers permitted in accordance with NFPA 13 referenced standard should not be permitted with IBC exception requiring draftstopping in combustible construction.)

*****Section 718.3; change sentence to read as follows:**

718.3 Draftstopping in floors. *[Body of text unchanged]*

Exceptions: Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. and provided that in combustible construction, sprinkler protection is provided in the floor space.

(Reason: To remain consistent with changes in 708.4.2 code.)

*****Section 718.4; change sentence to read as follows:**

718.4 Draftstopping in attics. *[Body of text unchanged]*

Exceptions: Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 and provided that in combustible construction, sprinkler protection is provided in the attic space.

(Reason: To remain consistent with changes in 708.4.2 code.)

****Option A**

Section 903.2.11; change 903.2.11.3 and add 903.2.11.7 and 903.2.11.8, as follows:

903.2.11.3 Buildings 55 Feet or more in Height. An automatic sprinkler system shall be installed throughout buildings that have one or more stories with ~~an occupant load of 30 or more, other than penthouses in compliance with Section 1510 of the *International Building Code*, located 55 feet (16 764 mm) or more above the lowest level of fire department vehicle access, measured to the finished floor.~~

Exceptions:

1.—Open parking structures in compliance with Section 406.5 of the *International Building Code*, having no other occupancies above the subject garage.

2. ~~Occupancies in Group F-2.~~

903.2.11.7 High-Piled Combustible Storage. For any building with a clear height exceeding 12 feet (4572 mm), see Chapter 32 to determine if those provisions apply.

903.2.11.8 Spray Booths and Rooms. New and existing spray booths and spraying rooms shall be protected by an approved automatic fire-extinguishing system.

(Reason: Provides jurisdictions options as to their desired level of sprinkler protection based on multiple factors including firefighting philosophies/capabilities.)

****Option B**

Section 903.2.11; change 903.2.11.3 and add 903.2.11.7, 903.2.11.8, and 903.2.11.9 as follows:

903.2.11.3 Buildings ~~55~~ 35 feet or more in height. An automatic sprinkler system shall be installed throughout buildings that have one or more stories ~~with an occupant load of 30 or more,~~ other than penthouses in compliance with Section 1510 of the *International Building Code*, located ~~55~~ 35 feet (~~16 764~~ 10 668 mm) or more above the lowest level of fire department vehicle access, measured to the finished floor.

Exceptions:

1. ~~Open parking structures in compliance with Section 406.5 of the *International Building Code*, having no other occupancies above the subject garage.~~

2. ~~Occupancies in Group F-2.~~

903.2.11.7 High-Piled Combustible Storage. For any building with a clear height exceeding 12 feet (4572 mm), see Chapter 32 to determine if those provisions apply.

903.2.11.8 Spray Booths and Rooms. New and existing spray booths and spraying rooms shall be protected by an approved automatic fire-extinguishing system.

903.2.11.9 Buildings Over 6,000 sq. ft. An automatic sprinkler system shall be installed throughout all buildings with a building area 6,000 sq. ft. or greater and in all existing buildings that are enlarged to be 6,000 sq. ft. or greater. For the purpose of this provision, fire walls shall not define separate buildings.

Exception: Open parking garages in compliance with Section 406.5 of the *International Building Code*.

*****Section 3001.2 Emergency Elevator Communication Systems for the deaf, hard of hearing and speech impaired; delete this section.**

(Reason: Per Elevator manufacturers input, they were not consulted prior to code approval and technology of elevator provisions as submitted are not currently available to provide this feature.)

*****Section 3002.1 Hoistway Enclosure Protection required. Add exceptions to Section 3002.1 as follows:**

Exceptions:

4. Elevators completely located within atriums shall not require hoistway enclosure protection.
5. Elevators in open or enclosed parking garages that serve only the parking garage, shall not require hoistway enclosure protection.

(Reason: Provides specific Code recognition that elevators within atriums and within parking garages do not require hoistway enclosure protection. Amendment needed since specific Code language does not currently exist.)

*****Section 3005.4 Machine rooms, control rooms, machinery spaces and control spaces;**

Delete exceptions and add two new exceptions to Section 3005.4 as follows:

Exceptions:

1. Elevator machine rooms, control rooms, machinery spaces and control spaces completely located within atriums shall not require enclosure protection.
2. Elevator machine rooms, control rooms, machinery spaces and control spaces in open or enclosed parking garages that serve only the parking garage, shall not require enclosure protection.

(Reason: This amendment eliminates the Exceptions to Section 3005.4 such that passive enclosures for these areas are to be provided and maintained. The fire rating of these enclosures is permitted to be omitted by the above added exceptions where allowed by other provisions of the code such as in atriums and parking structures. See companion change to eliminate fire sprinklers to eliminate the need for shunt trip system.)

Option A

Section 3006.2, Hoistway opening protection required; Revise text as follows:

5. The building is a high rise and the elevator hoistway is more than 75 feet (22 860 mm) in height. The height of the hoistway shall be measured from the lowest floor at or above grade to the highest floors served by the hoistway.”

Option B

Section 3006.2, Hoistway opening protection required; Revise text as follows:

5. The building is a high rise and the elevator hoistway is more than ~~75 feet (22 860 mm)~~ 55 feet (16 764 mm) in height. The height of the hoistway shall be measured from the lowest floor at or above grade to the highest floors served by the hoistway.”

(Reason: 2018 IBC text does not address hoistways that are greater than 75'-0" in height that are both below grade and above grade but not located above the high rise classification nor does the IBC address hoistways wholly located above grade such as those that serve sky lobbies".)

2018 International Residential Code for One and Two-Family Dwellings ® (IRC®)

- The townhouse separation provisions now include options for using two separate fire-resistant- rated walls or a common wall.
- An emergency escape and rescue opening is no longer required in basement sleeping rooms where the dwelling has an automatic fire sprinkler system and the basement has a second means of egress or an emergency escape opening.
- The exemption for interconnection of smoke alarms in existing areas has been deleted.
- Handrail projections, clearance and continuity separated into sections for each.
- New girder/header tables have been revised to incorporate the use of #2 Southern Pine in lieu of #1 Southern Pine.

<https://www.iccsafe.org/wp-content/uploads/2018-IRC-UPDATE-Handout-9-1-17.pdf>

In 2009, the State Legislature enacted SB 1410 prohibiting cities from enacting fire sprinkler mandates in residential dwellings. However, jurisdictions with ordinances that required sprinklers for residential dwellings prior to and enforced before January 1, 2009, may remain in place. Reference; Section R313 Automatic Fire Sprinkler Systems.

*The energy provisions in IRC Chapter 11 is deleted in its entirety.
Reference the 2018 IECC for energy code provisions and recommended amendments.*

*****Section R313.2 One and Two Family Dwellings; Delete this section and subsection in their entirety.***

(Reason: In 2009, the State Legislature enacted SB 1410, amending section 1301.551 subsection I of the occupation code, prohibiting cities from enacting fire sprinkler mandates one or two family dwellings only. However, jurisdictions with ordinances that required sprinklers for one or two family dwellings prior to and enforced before January 1, 2009, may remain in place.)

*****Table R301.2 (1); fill in as follows:**

GROUND SNOW LOAD	WIND DESIGN				SEISMIC DESIGN CATEGORY ^f	SUBJECT TO DAMAGE FROM			WINTER DESIGN TEMPE ^e	ICE BARRIER UNDER-LAYMENT ^h	FLOOD HAZARDS ^g	AIR FREEZING INDEX ⁱ	MEAN ANNUAL TEMP ^j
	SPEED ^d (MPH)	Topographic Effects ^k	Special Wind Region ^L	Windborne Debris Zone ^m		Weathering ^a	Frost Line Depth ^b	Termite ^c					
5 lb/ft	115 (3 sec-gust)/ 76 fastest mile	No	No	No	A	Moderate	6"	Very Heavy	22 ^o F	No	Local Code	150	64.9 ^o F

Delete remainder of table Manual J Design Criteria and footnote N

(Reason: To promote regional uniformity. Manual J is utilized by third party and not part of performed plan reviews. This is reference table only, not needed.)

*****Section R315.2.2 Alterations, repairs and additions; amend to read as follows:**

Exception:

1. [existing text remains]
2. Installation, alteration or repairs of all electrically powered mechanical systems or plumbing appliances.

(Reason: Revised exception for clarity. Code intent is to protect against the products of combustion.)

*****Add section R703.8.4.1.2 Veneer Ties for Wall Studs; to read as follows:**

R703.8.4.1.2 Veneer Ties for Wall Studs. In stud framed exterior walls, all ties may be anchored to studs as follows:

1. When studs are 16 in (407 mm) o.c., stud ties shall be spaced no further apart than 24 in (737 mm) vertically starting approximately 12 in (381 mm) from the foundation; or
1. When studs are 24 in (610 mm) o.c., stud ties shall be spaced no further apart than 16 in (483 mm) vertically starting approximately 8 in (254 mm) from the foundation.

(This amendment had been a carry over amendment for years to provide clear instruction for placement of brick ties. It is now retained with changes to reflect its correct placement and use for clarity when attachment to framing lumber (studs). It should remain for those purposes. It is in addition to the new Table in 2018 which provides for brick ties directly to sheathing.)

2018 International Existing Building Code® (IEBC®)

- Section 410 Accessibility has been relocated to a new Section 305.
- Chapters 4, 5, 6, 13 and 14 have been relocated resulting in a reorganization and new chapter numbering.
- Where storm shelters are required based on IBC and ICC 500 for Group E Occupancies, any addition to such existing occupancies where the occupant load of the addition is 50 or more will trigger the construction of a storm shelter.
- Carbon Monoxide provisions have been added in the Prescriptive Method Additions and Alterations Level 2 Additions for I-1, I-2, I-4 and R Occupancies.
- Emergency Escape and Rescue Opening provisions related to being operational have been added to Prescriptive Compliance Method and Alterations Level 1.

****Section 202; amend definition of Existing Building as follows:**

Existing Building - A building, structure, or space, with an approved final inspection issued under a code edition which is at least 2 published code editions preceding the currently adopted building code; or a change of occupancy.

****Section 202; amend definition of Existing Structure as follows:**

Existing Structure- A building, structure, or space, with an approved final inspection issued under a code edition which is at least 2 published code editions preceding the currently adopted building code; or a change of occupancy.

(Reason: To prevent potential abuses in new construction and shell buildings.)

*****Section 1301.3.2; change to read as follows:**

1301.3.2 Compliance with other codes. Buildings that are evaluated in accordance with this section shall comply with the International Fire Code. and International Property Maintenance Code.

(Reason: NCTCOG does not currently review the IPMC for recommended amendments at this time.)

2018 International Swimming Pool and Spa Code® (ISPSC®)

- Flotation tank systems for sensory deprivation therapy are not within the scope of the ISPSC.
- Lockable safety covers on spas and hot tubs and powered safety covers on pools are recognized as meeting barrier requirements
- New sections were introduced into the code to cover solar thermal water heating systems. Installation requirements refer to the IMC.

Significant Changes from 2015 to 2018 IECC Regional Amendments

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CITY OF LANCASTER

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- Presentation focuses on ‘New code amendments’ – not ‘Carried forward’ amendments
 - A double (**) asterisk at the beginning of a section identifies an amendment carried over from the 2015 edition of the code and a triple (***) asterisk identifies a new or revised amendment with the 2018 code.

Formatting of Changes

- Sections of the IECC are noted first
- Corresponding sections of the IRC are in parenthesis
- 2018 IECC (Energy Provisions of the 2018 IRC)
 - Example:
 - *R102.1.2 (N1101.4.1)*

Participants

- The majority of the new residential changes may be attributed to a collaborative effort between the members of the Energy and Green Advisory Board, Dallas Builders Associations, third party energy providers and the Energy Systems Laboratory of Texas A&M University. The changes were implemented by policy decisions between the 2015 and 2018 adoptions. These changes are recommended now to be codified into the 2018 proposed amendments.
- In view of the stringent requirements of the 2018 IECC these proposed amendments provide viable options for the single family builders and reasonable expectations for door blower testing and duct blaster testing on multi-family projects; and for additional compliance approaches.

Residential Provision

*****Table 402.1.2 (N1102.1.2) INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT; the Fenestration U-factor for Climate Zone 3 is amended as follows:**

CLIMATE ZONE	FENESTRATION U-FACTOR
3	0.32 <u>0.35</u>

Maintains the 2015 values

Residential Provision

*****Table 402.1.4 (N1102.1.4) EQUIVALENT U-FACTORS; the Fenestration U-factor for Climate Zone 3 is amended as follows:**

CLIMATE ZONE	FENESTRATION U-FACTOR
3	0.32 <u>0.35</u>

Maintains the 2015 values

Residential Provision

******Section R402.4 (N1102.4) Air leakage (Mandatory); add a new section and table to read as follows:***

R402.4.1.3 (N1102.4.1.3) Testing option – ACH tradeoff.

The new section provides an option for single-family dwellings to meet compliance with a maximum 4 ACH when the project complies with one of the two options – generally a prescriptive approach.

Multi-Family Provision

***** Section R402.4 Air leakage (Mandatory); add a new section to read as follows:**

R402.4.1.4 Testing options for R2 multifamily dwelling units

R402.4.1.4.1 Total air leakage rate for interior multifamily dwelling units

R402.4.1.4.2 Total air leakage rate for corner multifamily dwelling units

Measuring air leakage for multifamily buildings to outside can be costly and time prohibitive. In order to isolate leakage only through the building thermal envelope, all leakage to adjacent units must be pressure neutralized. The new code language allows total air leakage testing for multifamily dwelling units that includes air leakage to the exterior and to adjacent units to show compliance with R402.4.1.2. This increases the flexibility of the code without affecting stringency.

Multi-Family Provision

***** Section R402.4 Air leakage (Mandatory); add a new section to read as follows:**

R402.4.1.5 Sampling options for R2 multifamily dwelling units

For many multifamily projects, it is very costly and time consuming to test each dwelling unit for projects where there may be dozens of dwelling units in each building. Considering that the same tradesman generally constructs a building, it is reasonable to deem that construction practices are consistent and that if a reasonable sampling of units tested pass then all units would pass. These amendments are very similar to other ordinances/policies from Austin and San Antonio

Multi-Family Provision

***** Section R403.3 Ducts; add a new section to read as follows:**

R403.3.4.1 Sampling options for R2 multifamily dwelling units

For many multifamily projects, it is very costly and time consuming to test each dwelling unit for projects where there may be dozens of dwelling units in each building. Considering that the same tradesman generally constructs a building, it is reasonable to deem that construction practices are consistent and that if a reasonable sampling of units tested pass then all units would pass. These amendments are very similar to other ordinances/policies from Austin and San Antonio.

Residential

Section R404.1 (N1104.1); revised in its entirety to read as follows:

Section R404.1 (N1104.1) Lighting equipment (Mandatory). Not less than 75 percent of the lamps in permanently installed lighting fixtures or not less than 75 percent of the permanently installed lighting fixtures shall contain only high-efficacy lamps.

(Reason: This retains the 2015 language will allows for more flexibility.)

Residential & Multi-Family Provision

Section 405.2 (N1105.2); add the exceptions to read as follows:

Exceptions:

1. For one and two family dwellings the maximum envelope leakage of **4 ACH50** is permitted provided the envelope leakage in the Standard Reference Design is 3 ACH50 and all other requirements of Section R405 are met, including all other mandatory measures. **The annual energy cost or source energy usage of the Proposed Design must be equal to or less than that of the Standard Reference Design.**
2. For multifamily or townhomes and buildings classified as Group R2 and Group R4 of three stories or less the maximum envelope leakage of less than **5 ACH50** is permitted provided the envelope leakage in the Standard Reference Design is 3 ACH50 and all other requirements of Section R405 are met, including all other mandatory measures. **The annual energy cost or source energy usage of the Proposed Design must be equal to or less than that of the Standard Reference Design.**

Commercial

Section C405.9. Voltage drop in feeders; deleted in its entirety.

(Reason: There are similar provisions in the NEC where this type of requirement is best managed.)

Section C408.3.1 Functional Testing; amend to read as follows:

C408.3.1 Functional Testing. Prior to passing final inspection, the registered design professional or approved agency shall provide evidence ...*{Remainder of section unchanged}*.

(Reason: The addition of 'or approved agency' will make the lighting systems requirements match the mechanical system requirements in C 408.2.1. This will facilitate and add flexibility to the enforcement of the commissioning requirements.)

Commercial

Section C403.11.1 Duct and Plenum Insulation and Sealing (Mandatory); is amended by adding a second paragraph to read as follows:

Environmental ducts and plenums installed in vertical chases, both supply and exhaust, where the ducts or plenums will not be accessible after construction completion, shall be leak tested in accordance with the SMACNA HVAC Air Leakage Test Manual...

Documentation shall be furnished demonstrating that representative sections totaling not less than 25 percent of the duct area have been tested and that all tested sections comply with the requirements of this section.

(Reason: Ductwork installed in chases is not accessible after construction completion. Leakage in these ducts will increase the energy use of the buildings and systems for the life of the building and reduce the system performance. Since the leakage in the chase enclosed ductwork would be difficult if not impossible to locate and correct, testing at the time of installation would assure that the ducts are properly installed and efficient.)

Not New but Worthy of Mention- Residential

TABLE R406.4 (N1106.4) MAXIMUM ENERGY RATING INDEX; amend to read as follows:

TABLE R406.4 (N1106.4) ¹

MAXIMUM ENERGY RATING INDEX

CLIMATE ZONE	ENERGY RATING INDEX
3	65

¹ This table is effective until August 31, 2019.

TABLE R406.4 (N1106.4) ²

MAXIMUM ENERGY RATING INDEX

CLIMATE ZONE	ENERGY RATING INDEX
3	63

² The table is effective from September 1, 2019 to August 31, 2022.

Significant Changes from 2015 to 2018 IFC Regional Amendments

BOB MORGAN, P.E., CPCU

CITY OF FORT WORTH

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P: Chapter 2 Definitions

- Change of Occupancy revised to include any change in use within a group for which there is a change in the application of the requirements of this code, which could include:
 - Increased occupant load
 - Increase in or change to high-piled storage
 - Change in hazardous materials storage/use
 - Retail occupant starting to sell upholstered furniture, etc., etc.

P: 315 – General Storage

- 315.3.1 – Ceiling clearance not required at all along walls (no 18" or 2 ft.) – this issue regularly comes up at fire inspections.
- Consider cabinet type storage that goes to ceiling – same difference.
- Not applicable to high-piled storage situations.
- Also, this assumes no sprinkler directly above such storage or fire alarm devices being blocked by such storage.

P: 315 – General Storage

- 315.7 – Outdoor pallet storage – huge change requiring setbacks from buildings and other storage based on quantity, type, etc. – very complicated and will be difficult to enforce and explain.
- Example: metal building with glass windows requires minimum 15 ft. separation to 50 wood pallets or 90 ft. to 200 pallets.
- But, if no windows, then separation is 10 ft. to 50 pallets and 20 ft. to 200 pallets.
- Issue: Separation distance required up to 150 ft. from building, but only 10 ft. from a lot line. So, if someone builds on adjacent property, must enforce setback – very problematic to enforcement.



P: 319 – Mobile Food Vehicles

- Mobile food prep vehicles now addressed in code, so COG amendment for such removed.
 - Published code requires Type 1 hood and hood fire extinguishing system, as well as LP gas system compliance.
 - LPG: max 200 Lbs, protect container and piping from damage, and LPG alarm required in vehicle.
- Food trucks – what are we concerned about?
 - https://www.youtube.com/watch?v=NGGIddddi_0



P: 510 – Emergency Responder Radio Coverage

- 510- changes to Emergency Responder Radio Coverage systems – now must be monitored by fire alarm system. Several technical improvements and requirements for the AHJ to maintain documented radio frequencies, radio station locations, etc.
- Requirements for these new systems continue to evolve as the codes progress.



A: 603 – Fuel-fired appliances (Gen Sets primarily)

- Relocated Chapter 57 amendments on fuel storage tanks to Chapter 6 and simply referenced Chapter 57 to achieve compliance with Emergency Venting, Overfill Prevention, etc. – such is not negated by Chapter 6 for fuel oil storage.
- Added requirements for secondary containment tanks for interior fuel tanks, which was approved for the 2021 IFC at the code hearings.



P: 807 – Decorative Materials and Artificial Decorative Vegetation in New and Existing Buildings

- In 2015 IFC, 807 was re-arranged and modified: In the 2012 IFC, curtains were required to be NFPA 701 compliant in A, E, I, R-1, and R-2 dormitory occupancies, but in 2015, Section 807.3 changed to apply to EVERYTHING except I-3 (non-combustible only). So, apartment, office, retail curtains must comply with NFPA 701 and are limited to 10% of the wall area.
- 2018 IFC revised back to legacy language except that B's and M's were still added; however, the 10% limitation does not apply to curtains, draperies, etc.
- Be aware that this is a retroactive requirement to existing buildings.

P: 901.8.2 – Removal of existing occupant-use hose lines

- Previous COG amendment adopted into the published 2018 IFC, so this amendment is gone.



P: 903.2.4 Group E sprinkler requirements

Required when:

- E fire area greater than 12,000 sq. ft., or
- E on floor other than level of exit discharge, or
- Occupant load of 300 or more.



A: 905.4 – Location of Class I standpipe hose connections

- 905.4 - Amendment requires for all stairways and at intermediate landings (legacy language), rather than only interior stairways and main landings as currently published in the 2018 IFC.



P: 907 – Fire Alarms (monitoring common mistake)

- As of 2013 edition of NFPA 72:
 - Monitoring significantly changed to no longer allow 2 phone lines to suffice for monitoring, i.e. phone line not allowed as back-up any more. Must use VOIP, cell, 2-way radio, etc. as back-up instead.
 - However, be aware that listed sole path is allowed for VOIP, Cellular, and 2-way radio.

P: 915 – CO Detection/Alarms-FYI

915: Carbon Monoxide detection:

- Previously (2012) was in 908 as an emergency alarm system.
- Requires CO detection in R and I (not I-3) occupancies in dwelling and sleeping units, and in classrooms of E's:
 - in buildings having a fuel-burning appliance or fireplace with some exceptions, or
 - in buildings having attached private garages with some exceptions.
- Powered by building wiring.
- No interconnection required.
- Can use CO alarms – monitoring by fire alarm system not required.

A: Chapter 11 (Existing Buildings)

- 1103.5.1: Retroactive sprinkler requirement for A-2's with occupant load of 300 or more where alcoholic beverages are consumed – this can be a restaurant.
- COG amendment adds: **Fire sprinkler system installation shall be completed within 24 months from date of notification by the fire code official.**

P: 1103.4 – Vertical Openings

- 704 on floor openings and shaft protection in the 2015 IFC was moved to 1103 in the 2018 IFC.

A: Chapter 31 – Tents, etc

- Published Section 3103.3.1 requires sprinkler system for temporary tents designated as having special amusement buildings.
- COG amendment deletes this section.

(Reason: Not a reasonable or enforceable requirement for a temporary use. A fire watch or fire alarm system is a more advisable approach for such occupancies that are only temporary.)

A: Table 32 High-piled Storage

Table 3206.2, footnote j; add footnote j to row titled ‘High Hazard’ and ‘Greater than 300,000’ to read as follows:

j. High hazard high-piled storage areas shall not exceed 500,000 square feet. A 2-hour fire wall constructed in accordance with Section 706 of the *International Building Code* shall be used to divide high-piled storage exceeding 500,000 square feet in area.

(Reason: This is a long-standing legacy requirement and provides passive protection for extremely large buildings where it would be otherwise impossible to control the spread of fire without the fire wall in place in an uncontrolled fire event, which is much more likely in high hazard commodities, such as tires, flammable liquids, expanded plastics, etc.) There was little to no justification for removing this requirement .

P: 5307 - Compressed Gases - FYI

5307.3: CO2 systems for beverage dispensing:

- (105.7) Construction Permit for Compressed Gas now required at more than 100 Lbs of CO2.
- Requires exhaust ventilation or CO2 detection.
- Again, requirements have evolved – CO2 detector now results in Supervisory alarm at normally attended location for low level and visible/audible alarm at high level.
- Phoenix Fire Dept experience with Liquid CO2 in basement of McDonald's:
https://www.youtube.com/watch?v=eY_H-CMvw0

FYI – new 5307.4 is for CO2 enrichment systems where CO2 is introduced into an environment such as for plant growth.



A: 5707- On-demand Mobile Fueling Operations

Amendment adds the following to Section 5707.4:

“Mobile fueling sites shall be restricted to commercial, industrial, governmental, or manufacturing, where the parking area having such operations is primarily intended for employee vehicles. Mobile fueling shall be conducted for fleet fueling or employee vehicles only, not the general public. Commercial sites shall be restricted to office-type or similar occupancies that are not primarily intended for use by the public.”

This is mobile fueling of gasoline which has been prohibited for many years.

(Reason: The general public does not expect a hazardous operation to be occurring in a typical parking lot or for a fuel truck to be traversing such parking lot, temporarily fueling a vehicle, and moving on to the next area in the parking lot to fuel the next vehicle. Vehicular accidents occur in parking lots on a regular basis, but the presence of a fuel truck, especially one in the process of fueling a vehicle with gasoline, greatly adds to the potential risk involved in such accidents. By restricting such operations to the occupancies in question, the employees of the business may be adequately notified to expect such operations to occur in the parking lot.)

Is anyone still awake?

THANK YOU FOR YOUR TIME!

IN THE INTEREST OF FIRE SAFETY,



FORT WORTH FIRE DEPARTMENT



Significant Changes from 2015 to 2018 IMC, IPC, IFGC, and IRC Regional Amendments

LARRY BARTLETT

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International Mechanical Code

- Language was cleaned up
- Got rid of redundant wording
 - 102.8- Any reference to the NFPA 70 or the NEC
 - 306.3- large enough to allow removal of largest appliance or larger

International Plumbing Code

- **305 Protection against contact**
 - Added “approved material” and struck out “plastic”.
 - The Building Official can allow other material besides plastic.
- **306.2.4 Plastic sewer and DWV piping installation**
 - Gives specific methods on how manufacturers require DWV piping to be backfilled. This allows for the requirements to be clear to the inspector out in the field.
- **504.6 Requirements for discharge piping**
 - Changed #5 in this section to read “approved location” or to the outdoors. Some municipalities may have specific locations on where the T&P can drain.

International Plumbing Code

- **713.1 Design of Drainage System**
 - Wanted to make aware that Engineered drainage systems are not inspected by the AHJ.
- **918.8 Where permitted (AAV)**
 - Air admittance valves shall be installed with prior approval of the Building Official because they are a mechanical device that can fail.
- **1202.1 Medical Gases**
 - Deleted both exceptions regarding portable cylinder systems and vacuum systems. Med gas is installed with required endorsement and as per NFPA 99.

International Fuel Gas Code

- 306.3 Cleaned up redundant wording
 - Example same as the IMC
- 401.5 Warning
 - Wanted to stress importance of having the warning label for medium pressure gas on both ends of the medium pressure piping
- 404.12 Minimum Burial depth
 - Depth changed from 12 inches to 18 inches all around. 404.12.1 allowed for lines other than the service to be reduced to 8 inches. With the change all gas piping is 18 inches

International Residential Code

- M1503.6 Makeup air Required
 - Entire wording of the section changed but kept the wording that specified how much makeup air was required (Difference between excess and 400)
 - Exception remained the same
- G2415.2.1 Warning Label
 - Importance of Medium pressure gas label
- 2415.12 Burial Depth
 - Requiring all gas to be 18 inches deep. This include 2G415.12.1 outside appliances

International Residential Code

- P2603.3 Protection against contact
 - Added “approved material” and struck out “plastic”.
 - The Building Official can allow other material besides plastic.
- P2603.5.1 Sewer Depth
 - Requirement for Sewer depth 12 inches below grade.
- P2604.2 Plastic sewer and DWV piping installation
 - Gives specific methods on how manufacturers require DWV piping to be backfilled. This allows for the requirements to be clear to the inspector out in the field.

International Residential Code

- P2801.6 Required Pan

- Crossed out the allowance for plastic pans. Plastic pans will degrade with time

- P2804.6.1 Requirements for discharge piping

- Changed #5 in this section to read “approved location” or to the outdoors. Some municipalities may have specific locations on where the T&P can drain

- P3003.9.2 Solvent Cementing

- Removed Exceptions for not requiring PVC Solvent

Thank you!

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