Introduction to ICC MENA:
I-Codes role in fire and life safety practices

INTERNATIONAL CODE COUNCIL®

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Agenda

- Introduction to ICC / facilitating building safety through family of solutions
- Global message & regional presence
- ICC in MENA – Contribution to Building Safety
- Why are building codes important / code development process
- Critical components of building/fire safety – fire resistance and protection requirements in the IBC/IFC – high level
- Useful trainings/certifications
- Conclusion & take-aways

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Introduction to ICC / facilitating building safety through family of solutions

"…dedicated to the construction of safe, sustainable, affordable and resilient structures."

Global leader in offering building safety solutions & an accredited developer of international standards

Assists governments and organizations with building the necessary regulatory framework to maintain a resilient infrastructure through technical support, plan review and consulting services.

Develops partnerships with key partners to add value to the community and works towards having its codes adopted/referenced regionally.

The International Code Council (ICC) is a member focused not-for-profit association with over 64,000 Members.

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Global Message & Regional Presence

Vision: Protect the health, safety and welfare of people by creating safe buildings and communities.

Mission: Provide the highest quality codes, standards, products and services for all concerned with the safety and performance of the built environment

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ICC in MENA – Contribution to Building Safety

- ICC's family of solutions provide added value
- Increase market outreach TO better serve our partners/clients
- Knowledge sharing with local AHJs and key stakeholders to ensure regulatory requirements are met to overcome compliance issues.
- Maintain close relationship locally to increase company's response to market changes / challenges

ICC's 20+ year Commitment to Building Safety in the Middle East

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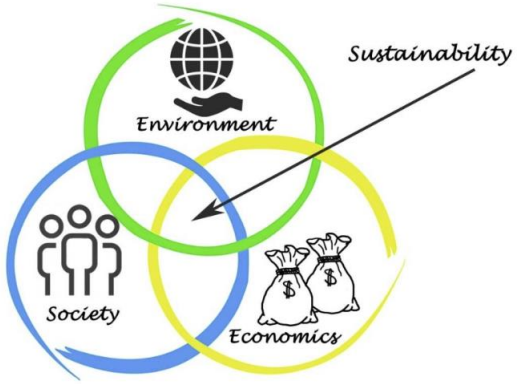
Why are building codes important

- Ensure structures are built in a safe manner
- Model codes embody minimum safety requirements
- Take your time in incorporating safety aspects before it is too late!
- Importance of code adoption/mandating



- **Environmental:**
  1. Better indoor air quality
  2. Usage of sustainable building materials
  3. Improve quality of life – saves lives
- **Engineering:**
  1. Building safety from all aspects
  2. Approved referenced standards for all stakeholders in the construction business
  3. Enhanced design/construction through adopting latest construction practices
- **Economic:**
  1. Minimize operational and maintenance cost hence extending lifetime of buildings
  2. Optimize building materials for greater safety to help reduce insurance cost

Benefits of IBC/IFC

- Provide protection for public health, safety and welfare from the hazards of fire, explosion or dangerous conditions in buildings, structures and premises.
- Flexible in that it allows for the use of alternative and innovative materials and performance-based methods in achieving code compliance.
- References nationally developed consensus standards
- Correlation – This code is specifically correlated to work with ICC's family of codes.

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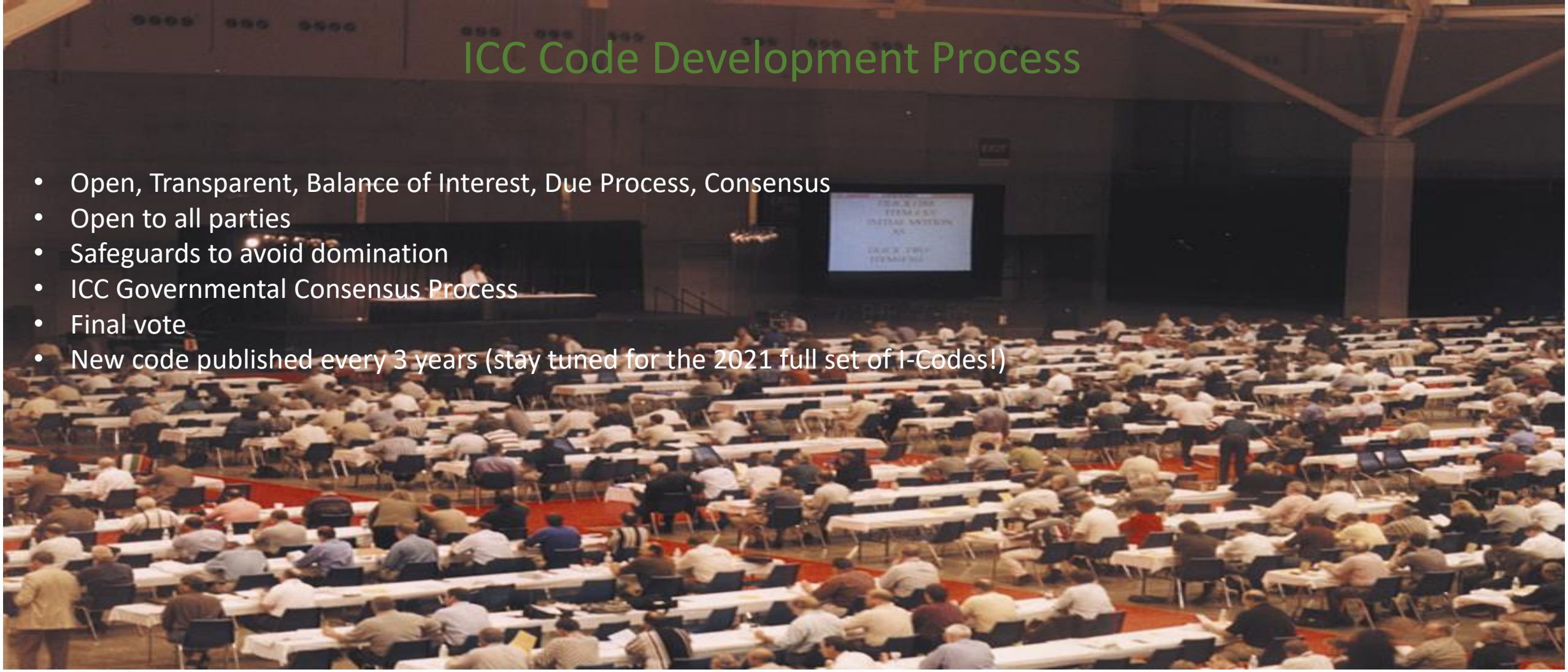
ICC Code Development Process



- Open, Transparent, Balance of Interest, Due Process, Consensus
- Open to all parties
- Safeguards to avoid domination
- ICC Governmental Consensus Process
- Final vote
- New code published every 3 years (stay tuned for the 2021 full set of I-Codes!)

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ICC Code Development / Committees Members

- **General**: Consumers, Regulators
- **Producer**: Builders, Contractors, Manufacturers, Material Associations, Testing Labs
- **User**: Academia, Designers, Research Labs, Owners
- Not less than 33% of each committee are Regulators

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Critical components of building/fire safety – fire resistance and protection requirements in the IBC/IFC

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The International Codes Address All Critical Components of Building Safety

- Sets of regulations
- Code administration and enforcement
- Ensure that buildings are built in a safe manner
- Safety first

Minimum standards to protect and safeguard

- Public health
- Safety
- General welfare

- 1,500 international standards are referenced in the I-Codes
- Building planning
- Fire and Life Safety
- Structural Safety
- Chapter 7 – requirements to maintain required fire-resistance rating

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International Fire Code

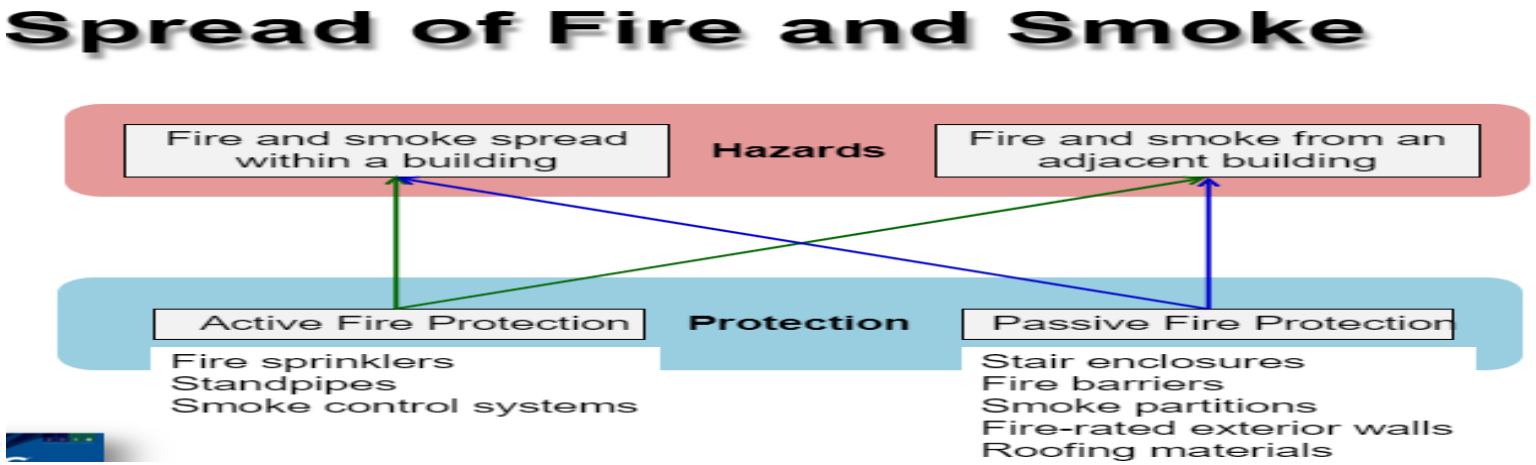
Major themes of the IFC

- Protection of the occupants
- Protection of the public
- Protection of the emergency responders

The IFC addresses various hazards

- Building use and operation
- Storage and use of combustible materials
- Storage and handling of hazardous materials
- Fire department access
- Water supplies

- Provides a reasonable level of life safety and property protection from the hazards of fire, explosion or dangerous conditions in new and existing buildings and facilities.
- Addresses design, construction, installation, testing and maintenance of fire protection systems
- Contains regulations for the safety of firefighters and emergency responders during emergency operations



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Chapter 7 – Fire and Smoke Protection Features

701.2 Fire-Resistance-Rated Construction

Wall assemblies such as fire walls, fire barriers, fire partitions, smoke barriers and exterior walls must be provided with fire-resistance ratings as determined in accordance with:
ASTM E119 or UL 263 – fire tests of buildings construction and materials
ASTM E814/UL-1479 – fire tests (penetration firestop systems)

Examples of the fire-resistance rating of the following fire-resistance-rated construction shall be maintained:

1. Fire walls, fire barriers, and fire partitions

2. Smoke barriers and smoke partitions

4. Penetrations and opening protectives

5. Maintaining protection and unprotected openings

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Chapter 7 – Fire and Smoke Protection Features (Cont. 1)

Fire Walls

A fire-resistance-rated wall having protected openings, which restricts the spread of fire and extends continuously from the foundation to or through the roof, with sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall.

Fire Barriers

A fire-resistance-rated wall assembly of materials designed to restrict the spread of fire in which continuity is maintained.

Fire Partitions

A vertical assembly of materials designed to restrict the spread of fire in which openings are protected.
Fire partitions are required to be a minimum of 1-hour fire-resistance-rated construction.

TABLE 706.4
FIRE WALL FIRE-RESISTANCE RATINGS

GROUP	FIRE-RESISTANCE RATING (hours)
A, B, E, H-4, I, R-1, R-2, U	3[a]
F-1, H-3[b], H-5, M, S-1	3
H-1, H-2	4[b]
F-2, S-2, R-3, R-4	2

a. In Type II or V construction, walls shall be permitted to have a 2-hour fire-resistance rating.
b. For Group H-1, H-2 or H-3 buildings, also see Sections 415.6 and 415.7.

TABLE 707.3.10
FIRE-RESISTANCE RATING REQUIREMENTS FOR FIRE BARRIER ASSEMBLIES OR HORIZONTAL ASSEMBLIES BETWEEN FIRE AREAS

OCCUPANCY GROUP	FIRE-RESISTANCE RATING (hours)
H-1, H-2	4
F-1, H-3, S-1	3
A, B, E, F-2, H-4, H-5, I, M, R, S-2	2
U	1

TABLE 1018.1 CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without sprinkler system	With sprinkler system[c]
H-1, H-2, H-3	All	Not Permitted	1
H-4, H-5	Greater than 30	Not Permitted	1
A, B, E, F, M, S, U	Greater than 30	1	0
R	Greater than 10	Not Permitted	0.5
I-2[a], I-4	All	Not Permitted	0
I-1, I-3	All	Not Permitted	1[b]

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Chapter 7 – Fire and Smoke Protection Features (Cont. 2)

Smoke barriers.

1-hour fire resistance-rated walls and/or floors that form a continuous membrane, either vertical or horizontal, such as a wall, floor, or ceiling assembly, that is designed and constructed to restrict the movement of smoke. The fire-resistance rating and smoke-resistant characteristics of smoke barriers shall be maintained.

Smoke partitions.

A wall designed to limit the movement of smoke from one area to another. Openings must be sealed, and the smoke-resistant characteristics of smoke partitions shall be maintained. Openings in smoke partitions must be tested in accordance with UL 1784

Horizontal assemblies

A fire-resistance-rated floor or roof assembly of materials designed to restrict the spread of fire in which continuity is maintained. It can serve as an occupancy separation and have a fire-resistance-rating, as required in the IBC. When a floor/ceiling assembly provides a separation between dwelling units or guest rooms, it must have a 1-hour fire-resistance rating just like a fire partition

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Chapter 7 – Fire and Smoke Protection Features (Cont. 3)

Penetrations

Materials and firestop systems used to protect membrane and through penetrations in fire-resistance-rated construction and construction installed to resist the passage of smoke shall be maintained. The materials and firestop systems shall be securely attached to or bonded to the construction being penetrated with no openings visible through or into the cavity of the construction. Where the system design number is known, the system shall be inspected to the listing criteria and manufacturer's installation instructions. through penetrations and membrane penetrations must be recognized in approved fire-resistance-rated assemblies complying with ASTM E119 or UL 263 or ASTM E814 or UL 1479. the penetration firestop system must have an F-rating not less than the wall penetrated or an F-and T-rating not less than the rating of the floor penetrated.

Opening Protectives

Doors and windows installed in fire-resistance-rated assemblies are required to have a fire protection rating. Fire door assemblies include the door, frame and all associated hardware.
Fire window assemblies are required to be tested to a different standard. Fire windows are not permitted to be installed in fire walls or in any fire barriers having a required fire-resistance rating greater than 1 hour.

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Methods for Determining Fire Resistance

- Fire-resistance designs documented in approved sources
- Prescriptive assemblies using fire-resistance-rated designs in section 721
- Calculation of fire-resistance as per section 722
- Engineering analysis
- Alternative protection methods as per section 104.11
- Fire-resistance designs certified by approved agency

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How can ICC Help?

- Plan review service for projects of any size
- Technical opinions on codes (member benefit)
- Webinars/certification/training
- TIC (Testing, Inspection and Certification) services from ICC-ES and ICC-NTA accredited to the requirements of ISO/IEC-17020, -17025, and -17065

ICC EVALUATION SERVICE

NTA

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Useful trainings & certifications

- ICC strives to partner with other associations to work together on raising awareness and educating the relevant stakeholders about the value of building codes by sharing best practices.
- ICC provides training options to educate and promote the adoption, enforcement and use of building codes when applicable.

ICC SKGA S. K. GHOSH ASSOCIATES

SKGA provides live and recorded web sessions and face-to-face topics geared towards engineering or building safety professionals looking to keep up to date with technical information on building code and structural standards.

IAS INTERNATIONAL ACCREDITATION SERVICE

IAS offers recorded web and in-person training programs for conformity assessment professionals worldwide. Select IAS training programs also offer CEUs to contribute to ongoing professional development requirements.

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LEARNING center

Explore the Learning Center for a robust library of online, face-to-face, virtual and web session courses ranging from beginner to advanced topics in all the ICC codes including topics specific to building safety, fire, design and construction, safety, plumbing, mechanical, fuel gas and leadership. The Learning Center is also the home of career paths to guide you on your journey to certification.

https://www.iccsafe.org/professional-development/training/

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Useful trainings & certifications (Cont. 1).

Why Choose ICC

1. Industry leader in building safety
2. Many AHJs and third-party entities recognize ICC certification
3. Reference to most widely used model codes in the world

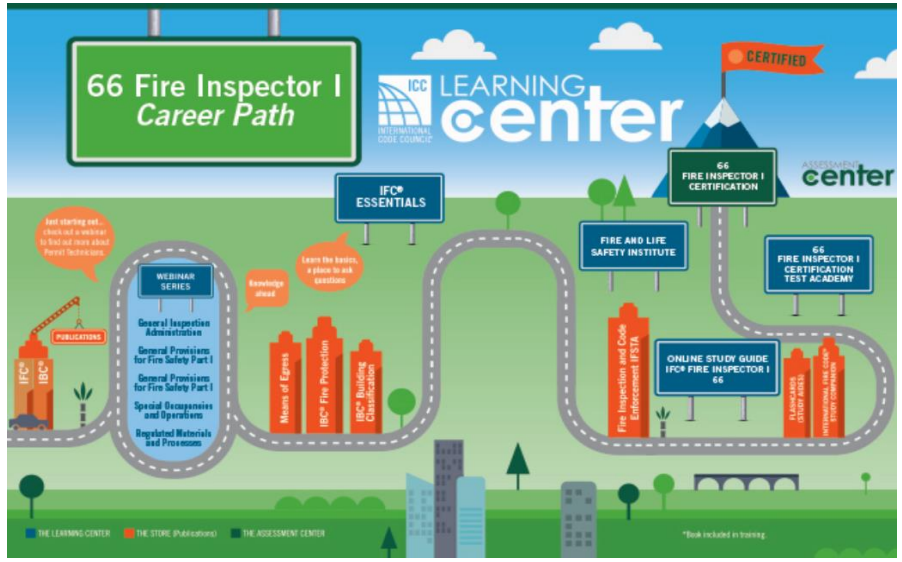
Benefits of ICC Certification:

1. International recognition by a trusted association
2. Valuable acknowledgment of technical capability
3. Professional development for work in respective domain
4. Open career prospects

- ICC offers a wide range of trainings courses and certifications; ***Example:*** Fire Inspector I (https://www.iccsafe.org/content/fire-inspector-i-career-path/)

Others for reference include Building Plans Examiner, Commercial Building Inspector, Commercial Mechanical Inspector, Commercial Plumbing Inspector

More information about Code Council courses, including Career Path programs that are specially designed for professionals seeking ICC certification, can be found on https://learn.iccsafe.org/ihtml/application/student/interface.icc/index.htm



No need to go anywhere!

Through ICC's PRONTO® portal, professionals can register to take credentialing exams online from any secure location, scheduled at their convenience, 24 hours a day, 7 days a week. ICC is the first building safety professional credentialing organization to offer secure online proctored exams – part of our commitment to ensuring that building safety professionals across the globe have access to the latest technology-based solutions to succeed and advance.

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Conclusion & Take-aways…

- Building codes play a key role in supporting safe and sustainable deployment of building safety.
- Dynamics in today's world will continue to cause rapid new introductions on a global scale (modular construction, 3D printing, etc.…).
- Standards development will need to move at a faster pace to proactively support critical attributes to building safety.
- Standards adoption is key to avoid re-inventing the wheel and emerge into new trends.
- ICC / ASTM collaborative efforts through the MDCP in 2015 & FCIA in advocating the IAS AC291 for special inspections
- FCIA advocacy of the IAS AC291 special inspections requirement locally
- ICC through its family of solutions will continue to work its partners to develop/maintain/benchmark building safety in the region.
- Develop/Support standards awareness programs (Building Safety Month) https://www.iccsafe.org/advocacy/building-safety-month/2020-building-safety-month/
- Support harmonization and standards adoption to overcome duplication efforts
- ICC additional resources:
  - Building Safety Journal (https://www.iccsafe.org/building-safety-journal/)
  - Membership (https://www.iccsafe.org/membership/about-membership/)
  - Global Building Codes Tool (Global Building Codes Tool - ICC Global (iccsafe.org))
  - Publication of International Fire Safety Standard (International Code Council Applauds Publication of International Fire Safety Standard - ICC (iccsafe.org))

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Thank you!

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https://global.iccsafe.org

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