INTERNATIONAL CODE COUNCIL®

People Helping People Build a Safer World™

NABIE National Academy of Building Inspection Engineers

Who We Are and Why?

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International Code Council (ICC)

Who are we?

The International Code Council is a member-focused association dedicated to helping the building safety community and construction industry provide safe, sustainable and affordable construction through the development of codes and standards used in the design, build and compliance process.

What is a Building Code?

A building code is the minimum acceptable standard used to regulate the design, construction, and maintenance of buildings for the purpose of protecting the health, safety, and general welfare of the building's users.

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Benefits of a Building Code

Safer Buildings

Reduce deaths, injuries, and property damage

Promotes a level predictable playing field

For designers, builders and suppliers

Promotes a degree of comfort for buyers

Establishes minimum construction standards

Contributes to durability of buildings

Helps to maintain quality of life and property values

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Building Codes Past and Present

Past

Developed as the result of tragedies.

Often a knee jerk reaction.

Present

Based on measurable performance and steeped in established scientific and engineering principals that have been thoroughly tested.

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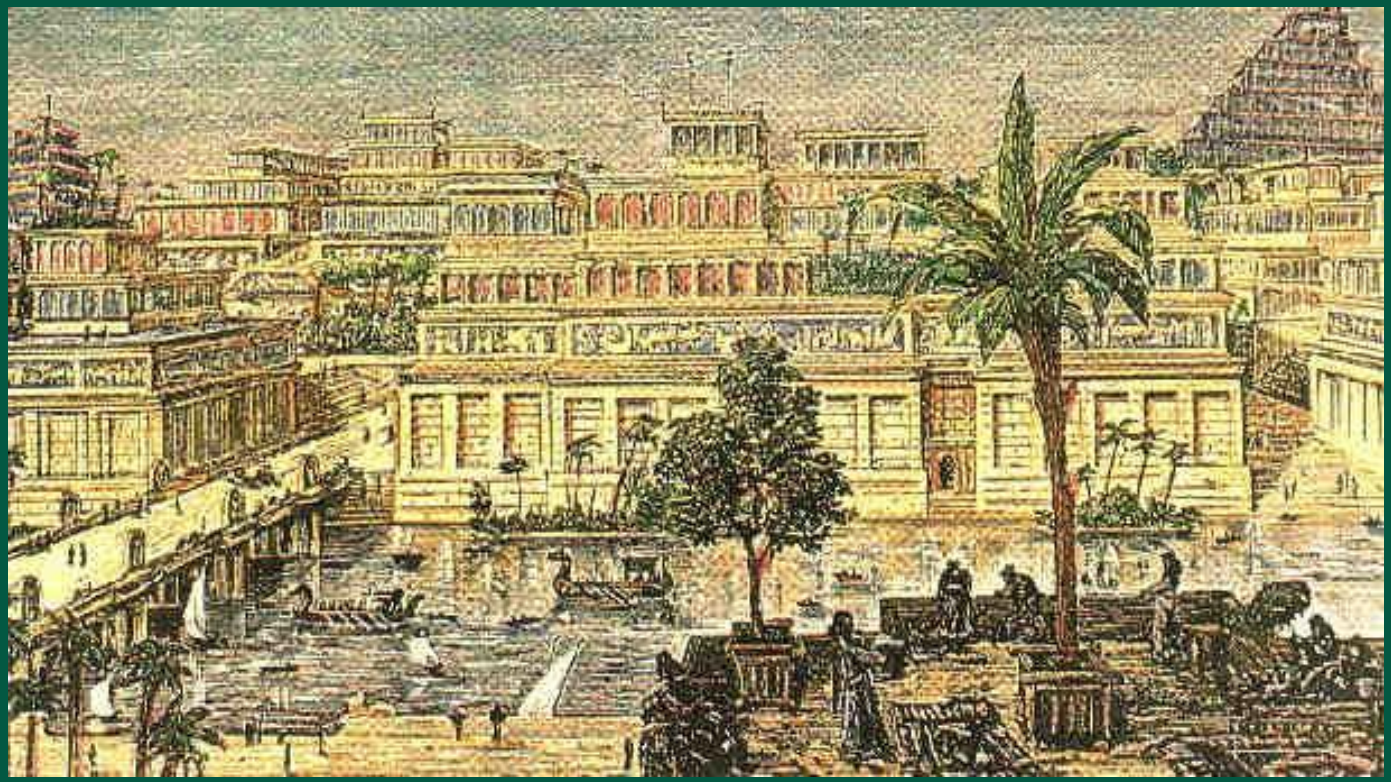
History of Building Codes

Question…

Who wrote the first code?

1750 BC…. Babylon



Ruled by King Hammurabi

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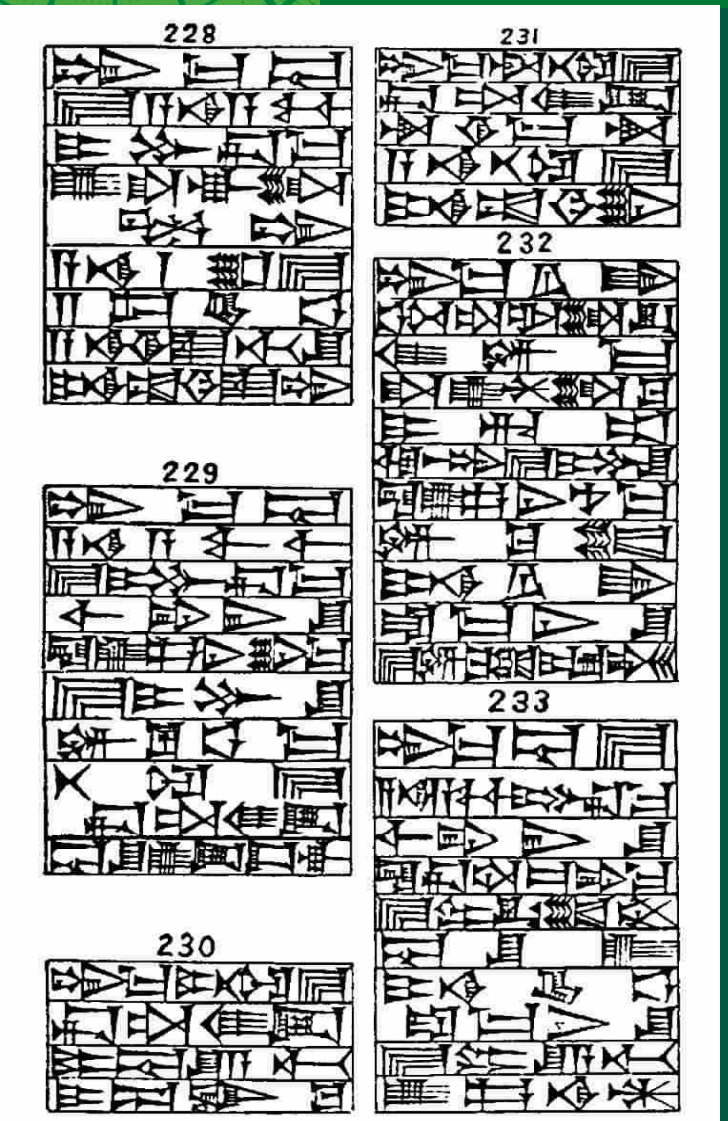
Hammurabi's Code



Regulated building construction in the Babylonian Empire

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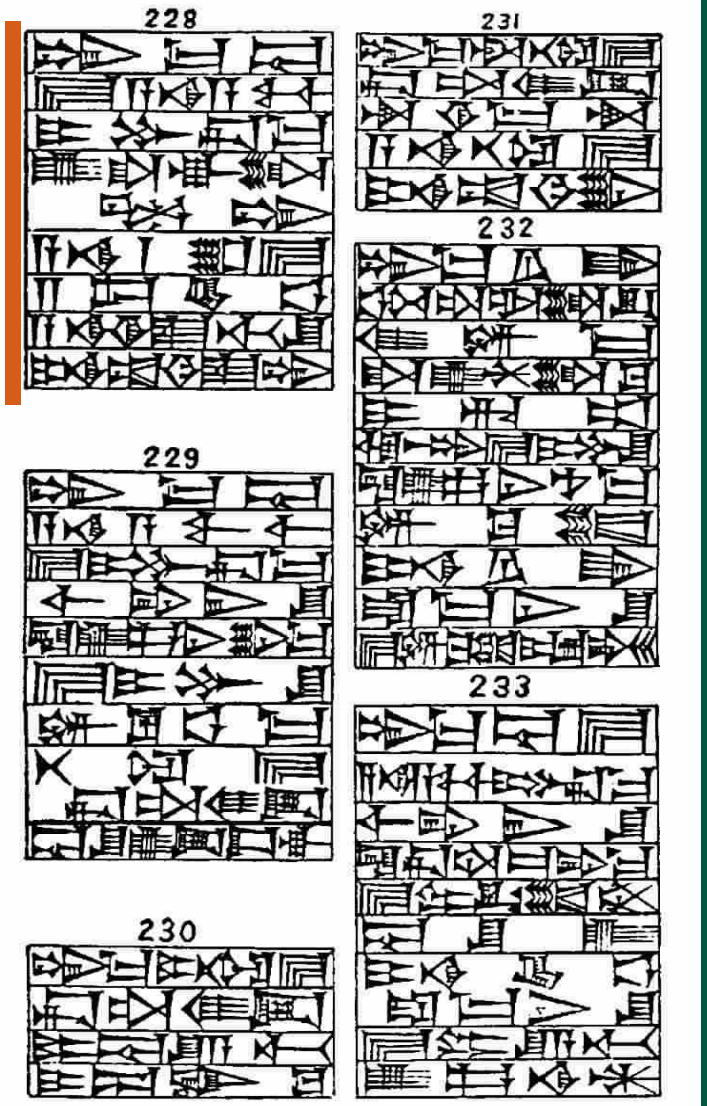
Hammurabi's Code



228 – If a builder builds a house for a man and completes it, that man shall pay him two shekels of silver per sar of house (approx. 12 square feet) as his wage.

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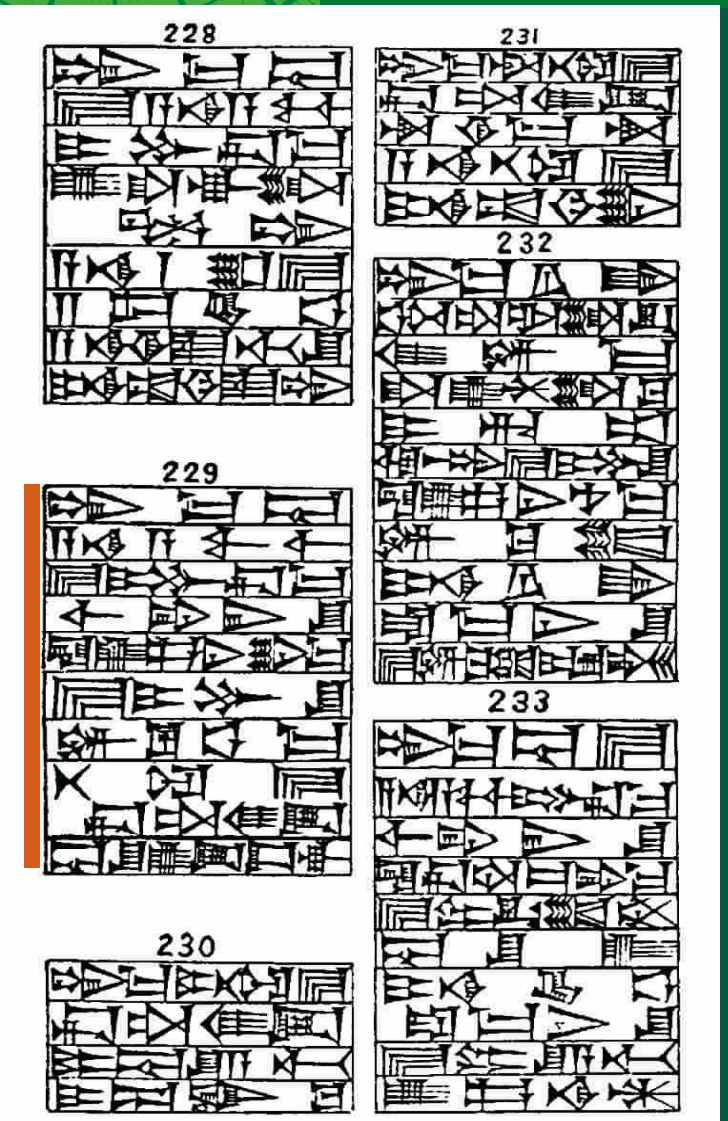
Hammurabi's Code



229 - If a builder has built a house for a man and his work is not strong, and if the house he has built falls in and kills the householder, that builder shall be slain.

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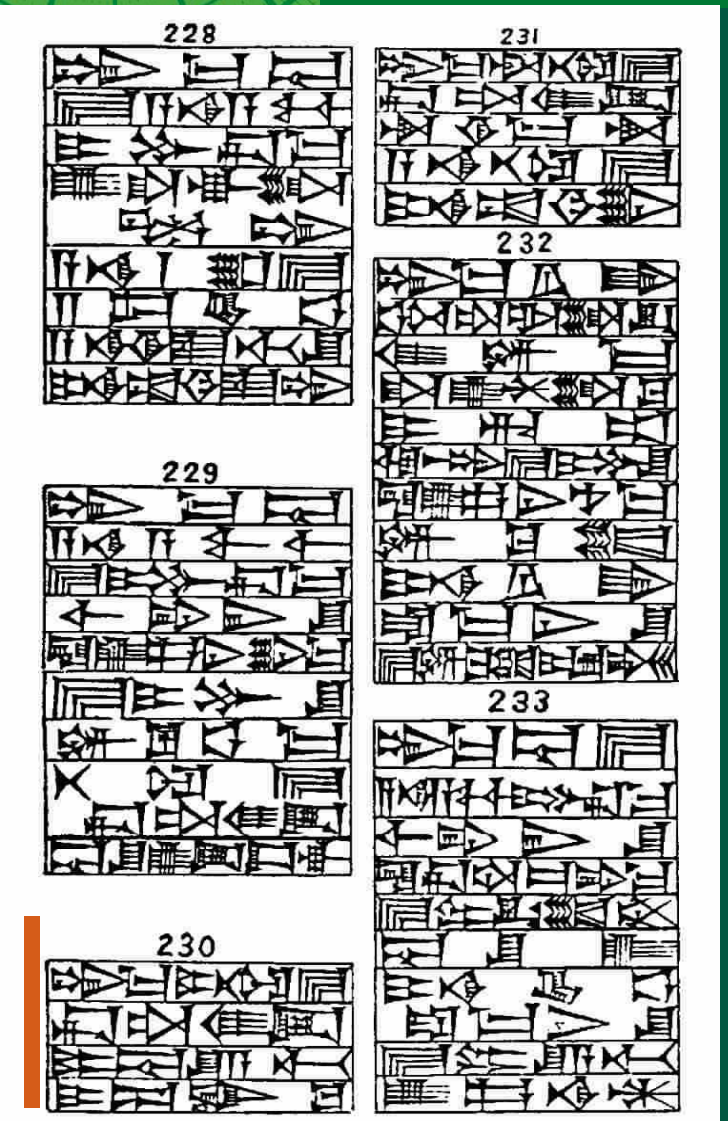
Hammurabi's Code



230 - If a child of the householder be killed, the child of that builder shall be slain

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Times have changed!

Today codes are much more complex yet more forgiving… *and I am sure today's builders are grateful for the more forgiving part!*

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Major Events that Shaped Codes

Roman Empire 1st Century A.D.
Many fatal building collapses

Great London Fire 1666
Destroyed 15,000 buildings

Great Chicago fire 1871
Killed 250 and destroyed 17,000 structures

First U.S. Building Code 1905
The National Building Code

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The U.S. Model Code System

The United States is unique among industrialized nations in that the federal government does not dictate building and fire-safety codes.

Privately developed model codes serve as the basis of building and fire-safety regulations

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Prior to 1994

National Building Code

Country Club Hills, IL

Uniform Building Code

Whittier, CA

Standard Building Code

Birmingham, AL

1994

3 model code organizations formed the ICC

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Why?

- Lack of uniformity.
- Standardized regulations across jurisdiction lines.
- Standardized education for code officials.
- Global markets (NAFTA) provided an incentive to standardize.
- Concerns that the Federal Government might establish their own Federal Building Codes.

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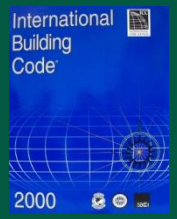
Historical Dates
First ICC Codes

1994 ICC formed

1995 International Plumbing Code

1996 International Mechanical Code



2000 International Building and Fire Code

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Present Day Codes

2012 I-Codes

New Codes for 2012
ISPSC
IgCC

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Code Adoption Landscape

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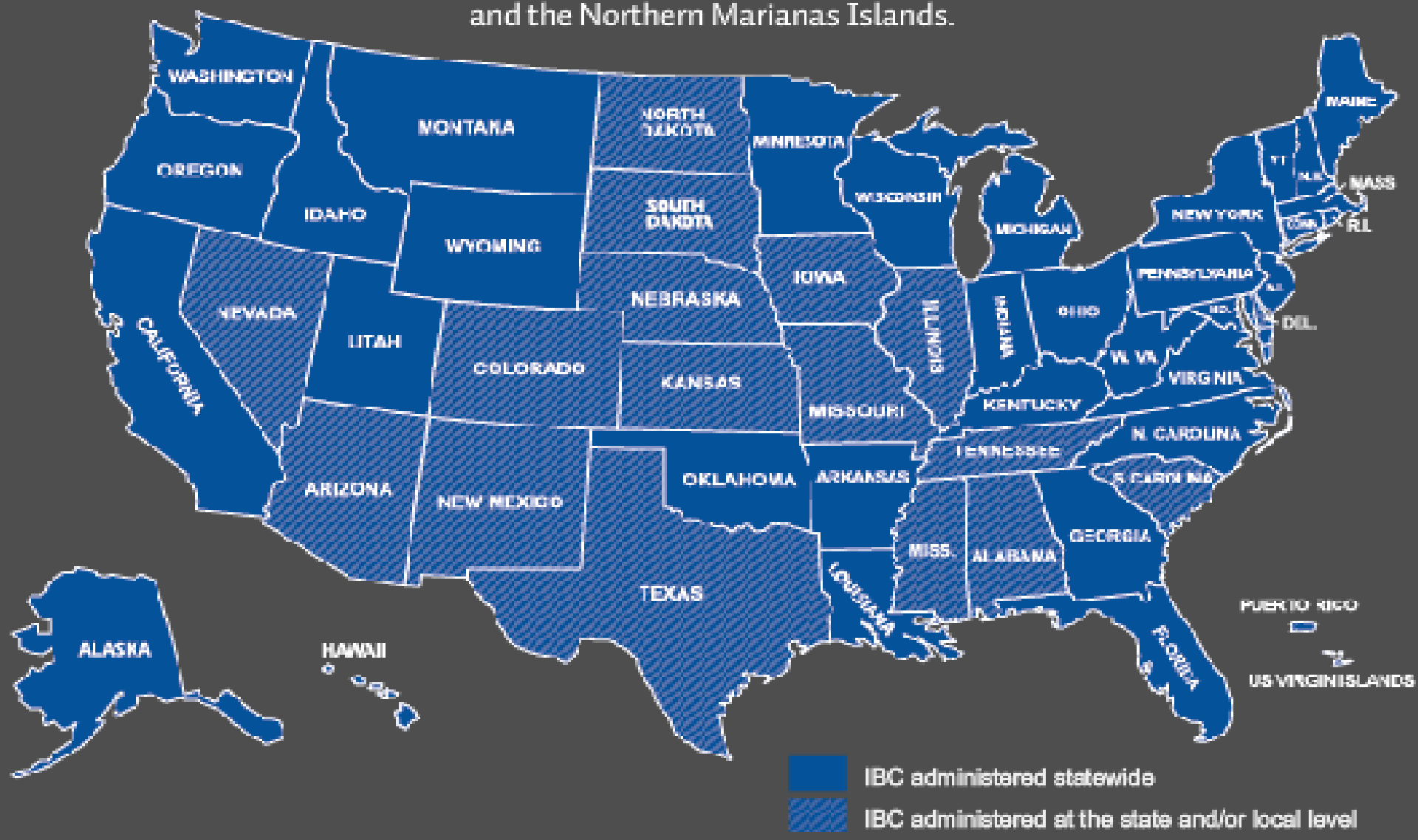
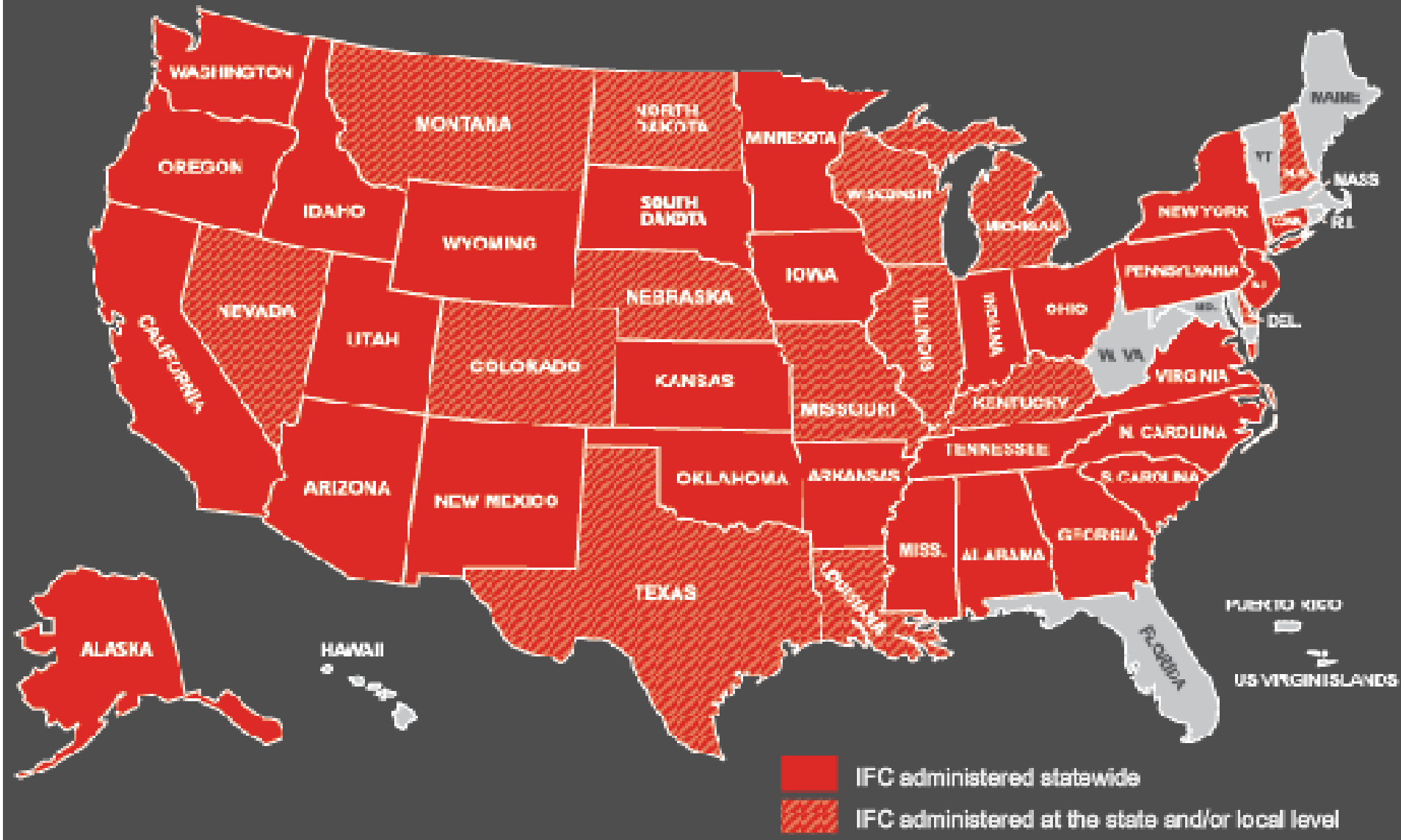
INTERNATIONAL BUILDING CODE ADOPTION MAP

The IBC is in use or adopted in 50 states, the District of Columbia, the U.S. Virgin Islands, NYC, Guam and the Northern Marianas Islands.



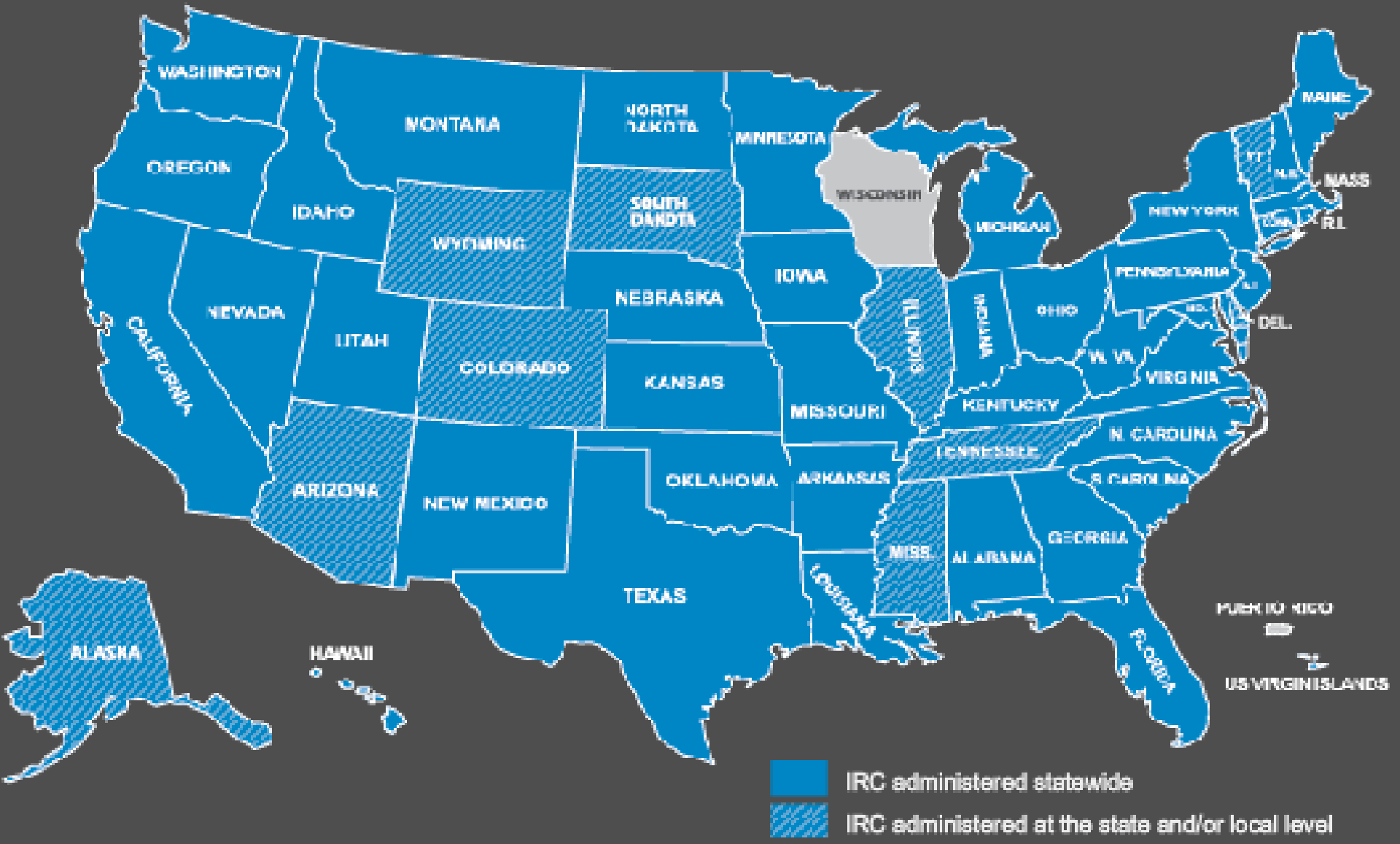
INTERNATIONAL FIRE CODE ADOPTION MAP

The IFC is in use or adopted in 43 states, the District of Columbia, NYC, Guam and Puerto Rico.



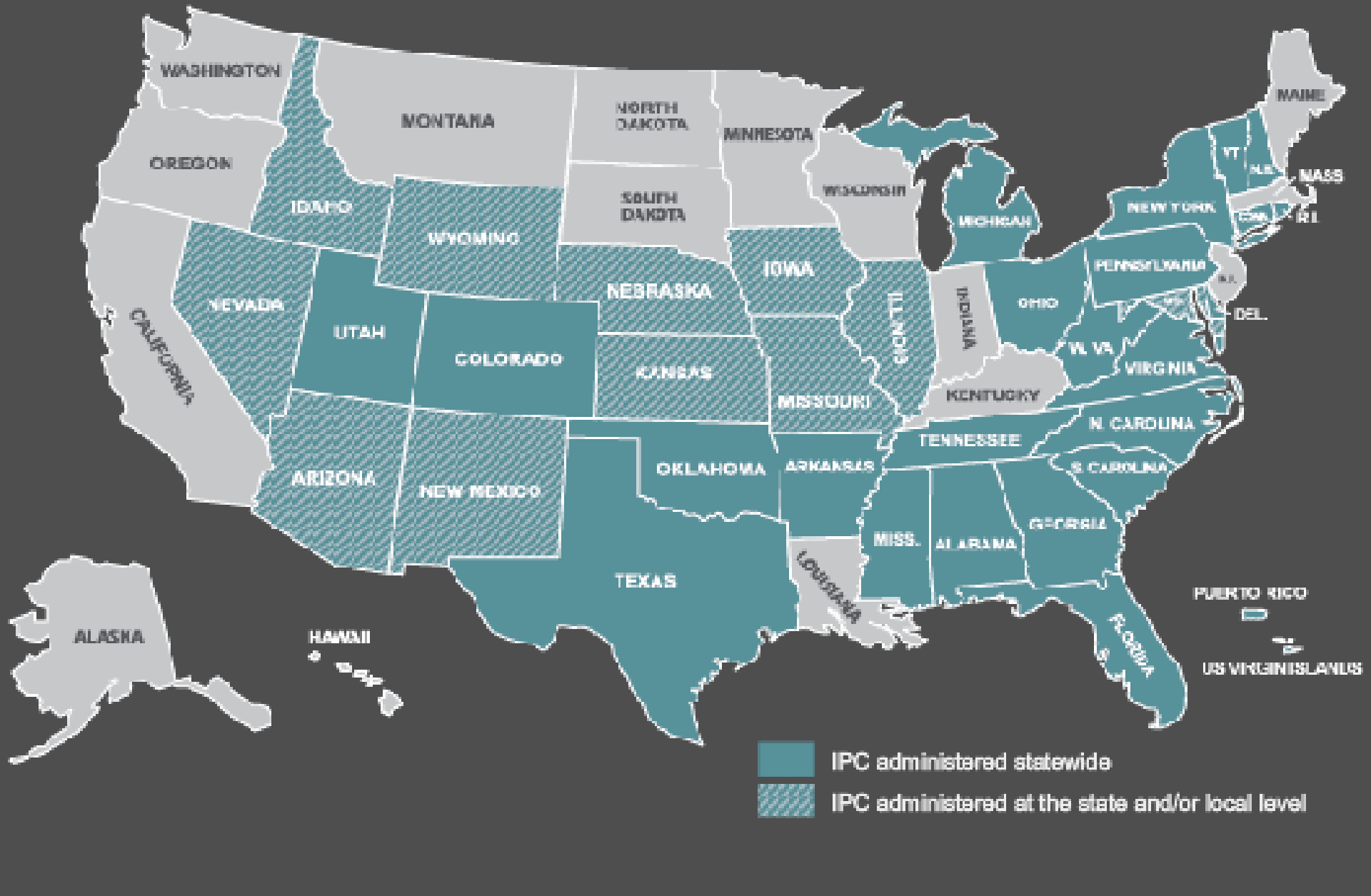
INTERNATIONAL RESIDENTIAL CODE ADOPTION MAP

The IRC is in use or adopted in 49 states, the District of Columbia and the U.S. Virgin Islands.



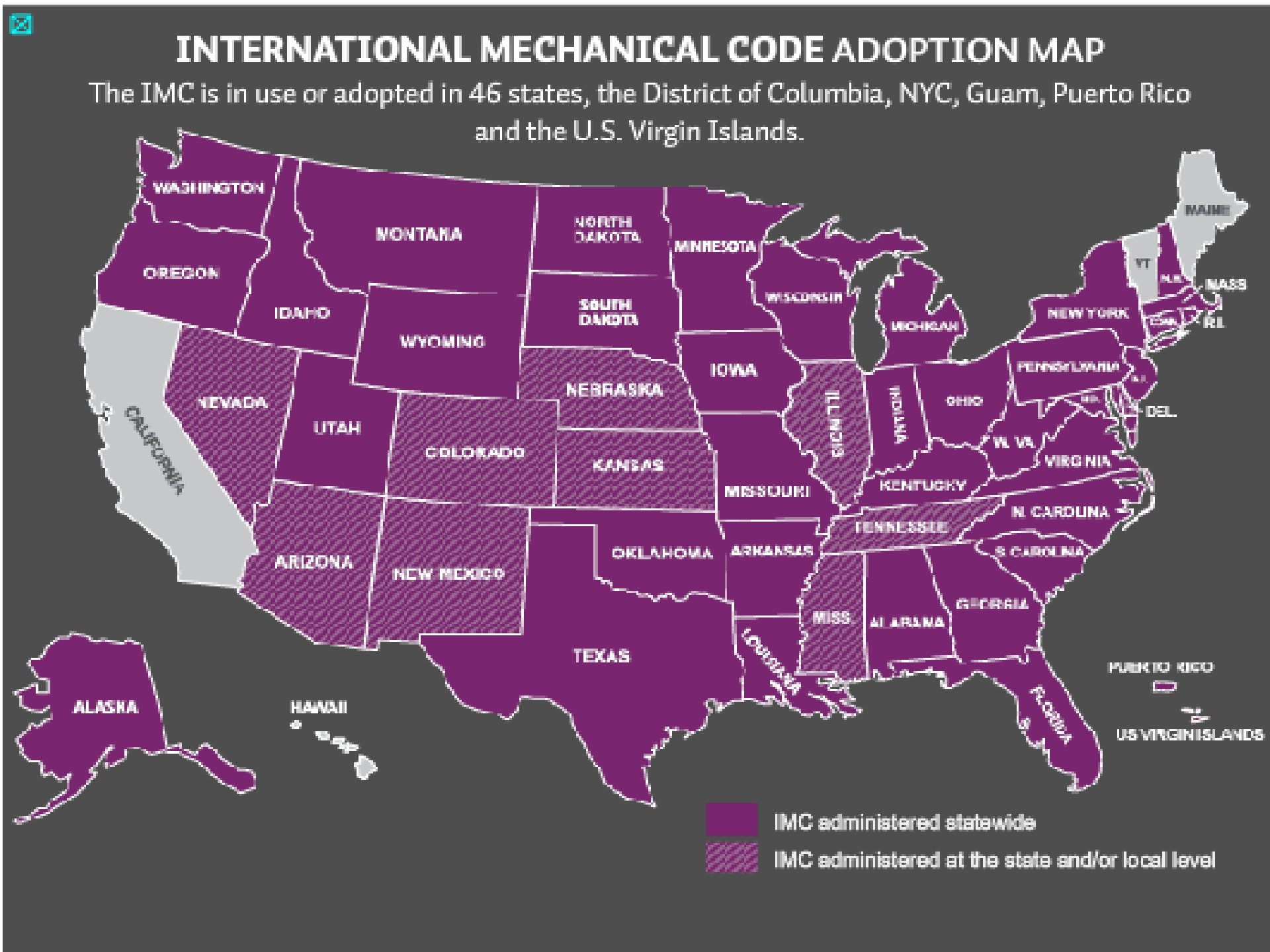
INTERNATIONAL PLUMBING CODE ADOPTION MAP

The IPC is in use or adopted in 34 states, the District of Columbia, NYC, Guam, and Puerto Rico.



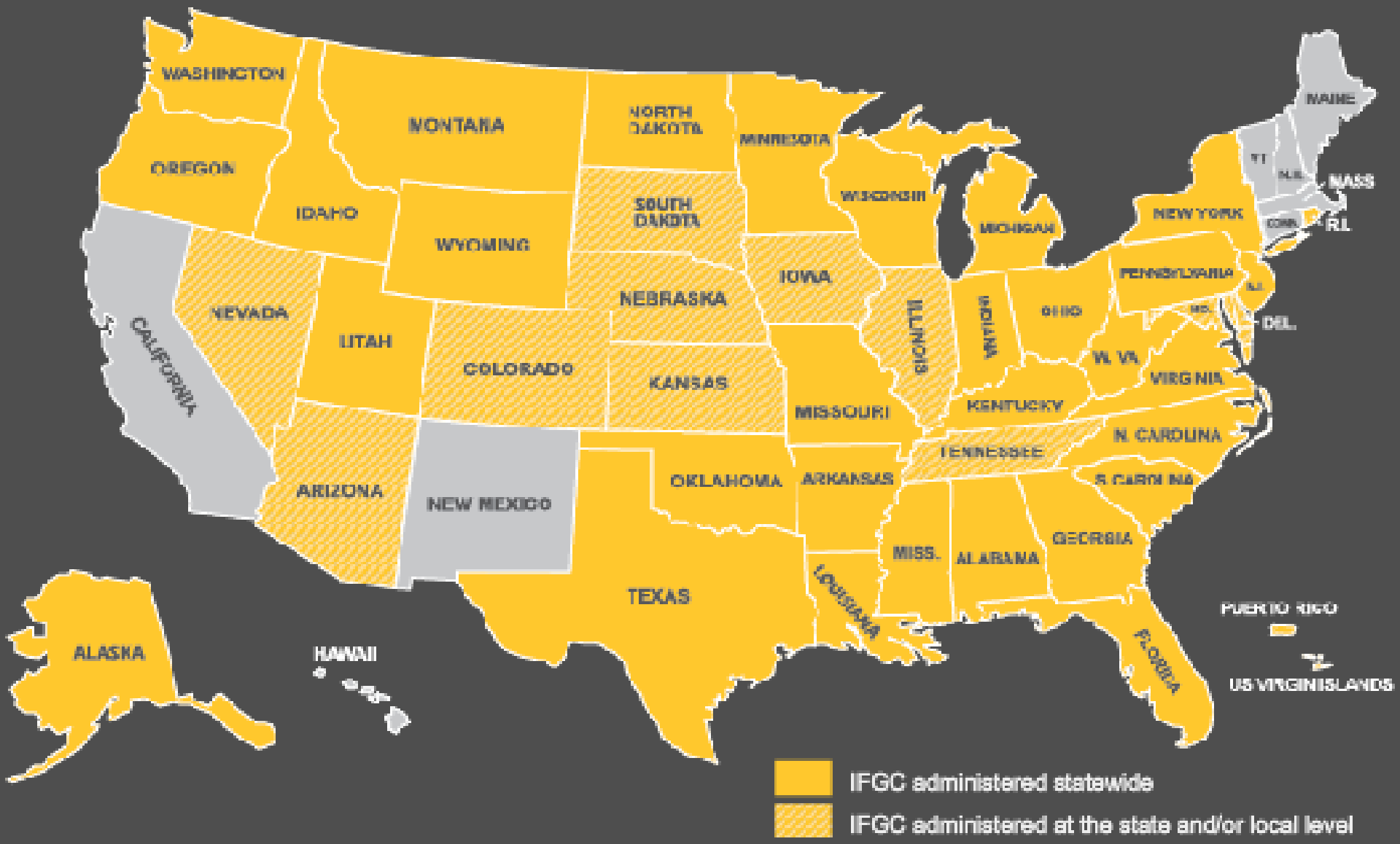
INTERNATIONAL MECHANICAL CODE ADOPTION MAP

The IMC is in use or adopted in 46 states, the District of Columbia, NYC, Guam, Puerto Rico and the U.S. Virgin Islands.



INTERNATIONAL FUEL GAS CODE ADOPTION MAP

The IFGC is in use or adopted in 42 states, the District of Columbia, NYC, Guam, and Puerto Rico.



What is a Fire Code?

Fire Code – A regulatory document for the implementation of measures to prevent the occurrence and spread of fire and to suppress unwanted fires. Most fire codes are prescriptive in nature, however recent trends are for more performance-based provisions.

Building Codes tell you how to build the building and fire codes tell you how to maintain the building.

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What is a Residential Code?

Stand alone code for the construction of one and two family dwellings and town houses not more than three stories above grade with separate means of egress.

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Codes *vs* Standards

Code:

- Tells you when to do something
- Carries weight of law once adopted
- Mandatory language

Standard:

- Industry consensus on how to do something
- Carries weight of law when specifically referenced by code

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Prescriptive vs Performance Codes

Prescriptive:

A car must be equipped with disc brakes.

Performance:

A car weighing 3500 pounds and traveling at 60 mph must be able to stop in 75 feet.

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Codes are Published on a 3 Year Cycle

Year One

Group "A" Code cycle

IBC – egress
IBC – fire safety
IBC – general
IBC – structural
IFGC
IMC
IPC
IPSDC

Year Two

Group "B" Code cycle

IECC
IRC building/energy
IFC
I-Performance
IPMC
IRC-mechanical and plumbing
IWUIC
IZC
ISPSC

Year Three

Group "C: Code cycle

IgCC

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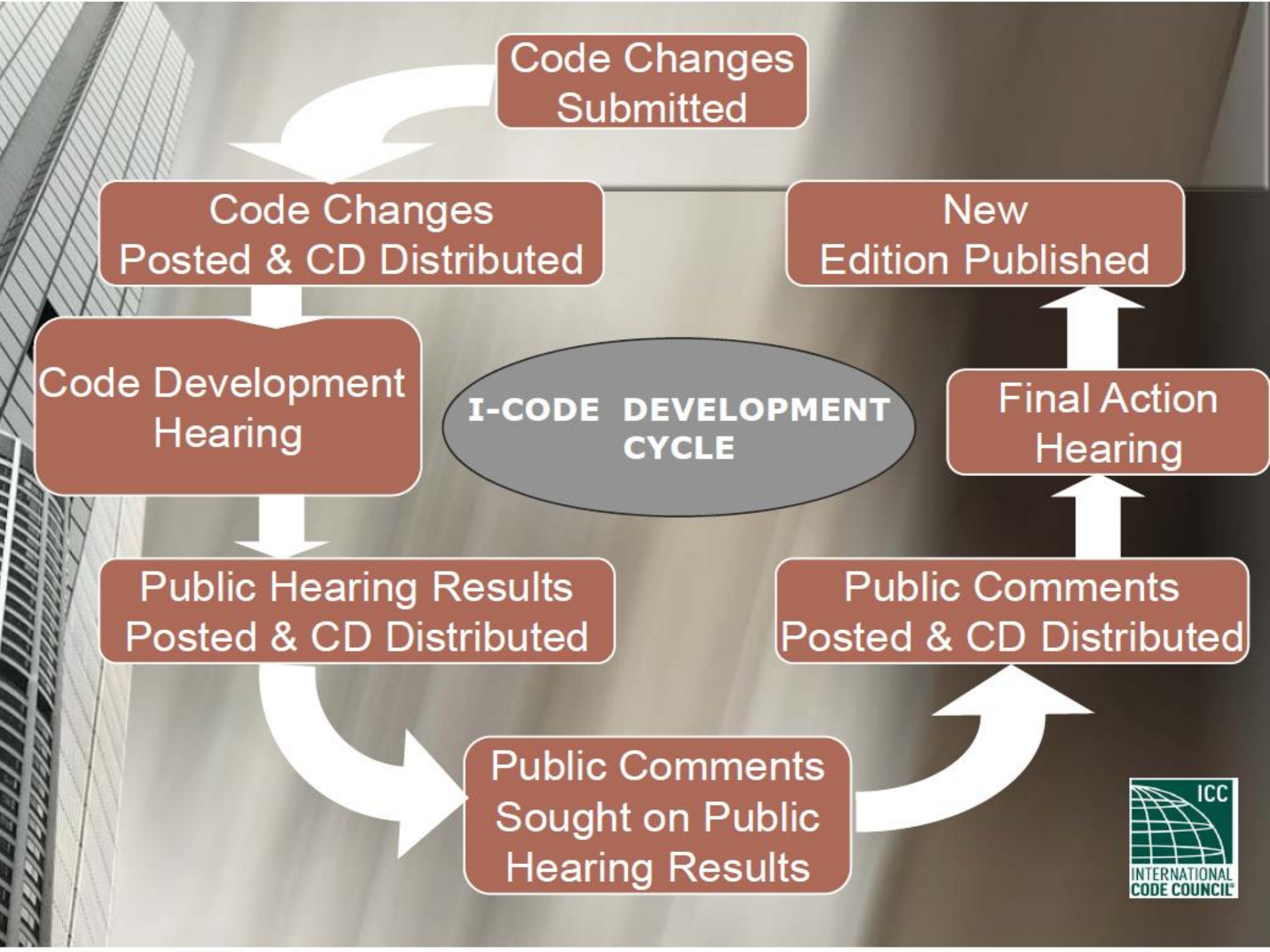
Code Changes Submitted
Code Changes Posted & CD Distributed
Code Development Hearing
Public Hearing Results Posted & CD Distributed
Public Comments Sought on Public Hearing Results
Public Comments Posted & CD Distributed
Final Action Hearing
New Edition Published
I-CODE DEVELOPMENT CYCLE
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Why Do Codes Change?

New technology

New issues such as reactions to high profile events
- Lock down plans and special locking arrangements

Culture changes such as:
- Movement to build in remote forested/wildland areas
- Need to build on smaller lots (space between structures)
- Ski lanterns
- Assemblies on roof tops
- Vegetation on roof top
- Reclaimed water used for fire protection

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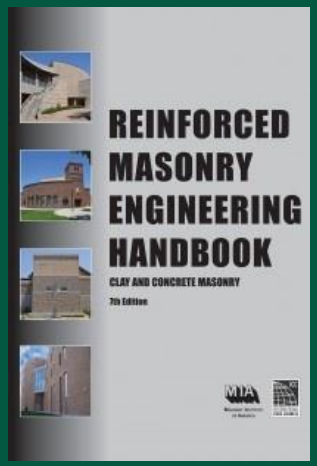
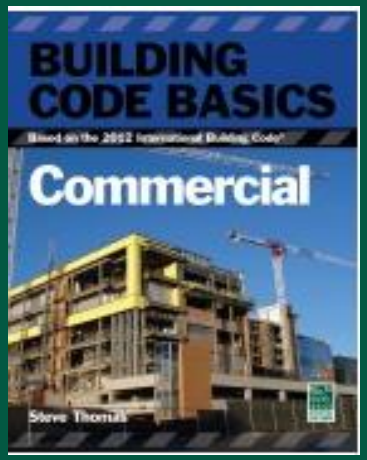
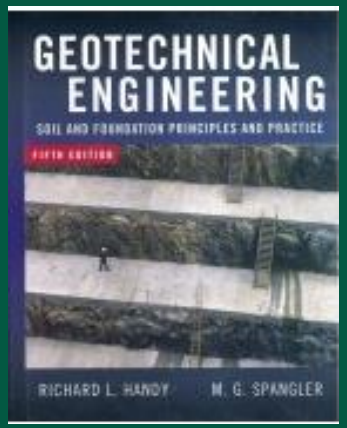
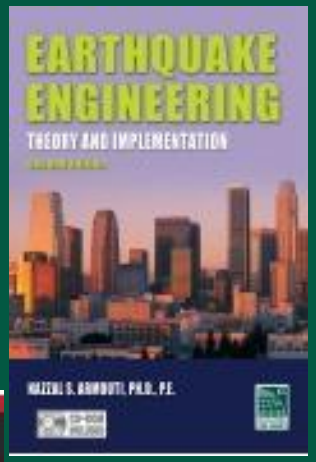
Publications of Interest to Inspection Engineers

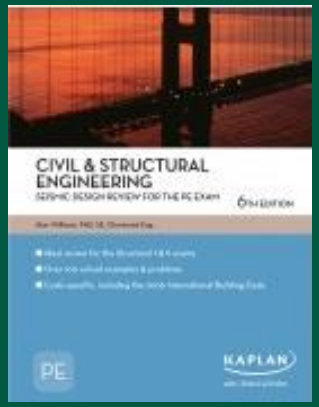
Examples











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Educational Opportunities for Inspection Engineers

Examples

- When Disaster Strikes
- IBC Special Inspector Certification Renewal Update
- Performing Commercial Electrical Inspections
- IBC Concrete and Masonry
- Inspecting for Structural Details
- Masonry Quality & Field Inspections

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ICC Membership Benefits
Professional Membership $150

- Technical Support … code interpretations
- Free Code - Latest Edition
- Access to "member only" area of the web site
- ICC Building Safety Journal
  Member Recognition
- Professional Development

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The following slides are examples on how the IBC and the IFC address fire sprinkler protection in fire areas.

If time permits

General Provision for all Group A's

F903.2.1 Group A. An automatic sprinkler system shall be provided throughout buildings and portions thereof used as Group A occupancies as provided in this section. The automatic sprinkler system shall be provided throughout the floor area where the Group A occupancy is located, and in all floors between the Group A occupancy and the level of exit discharge.

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Definition

- **Group A-1:** Assembly uses, usually with fixed seating, intended for the production and viewing of performing arts or motion pictures including but not limited to:
  - Motion picture theaters
  - Symphony and concert halls
  - Television and radio studios admitting and audience
  - Theaters

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F903.2.1.1 Group A-1. An automatic sprinkler system shall be provided throughout a fire area containing a Group A-1 occupancy where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m^2).

2. The fire area has an occupant load of 300 or more.

3. The fire area is located on a floor other than the level of exit discharge.

4. The fire area contains a multi-theater complex.

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DEFINITION

FIRE AREA. The aggregate floor area enclosed and bounded by fire walls, fire barriers, exterior walls or fire-resistance-rated horizontal assemblies of a building.

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Motion Picture Theater

11,000 sq. ft.
250 occupants

Does this building require sprinkler protection?

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Motion Picture Theater

>12,000 sq. ft.
>300 occupants

11,000 sq. ft.
250 occupants

NO SPRINKLERS REQUIRED

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Motion Picture Theater

11,000 sq. ft.
400 occupants

ARE SPRINKLERS REQUIRED?

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Motion Picture Theater

Even though the square footage is less than 12,000 square feet the occupant load exceeds 300.

11,000 sq. ft.
400 occupants

SPRINKLERS REQUIRED

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Motion Picture Theater

Total Bldg.
11,000 sq. ft.

Two Theaters without a rated wall between them

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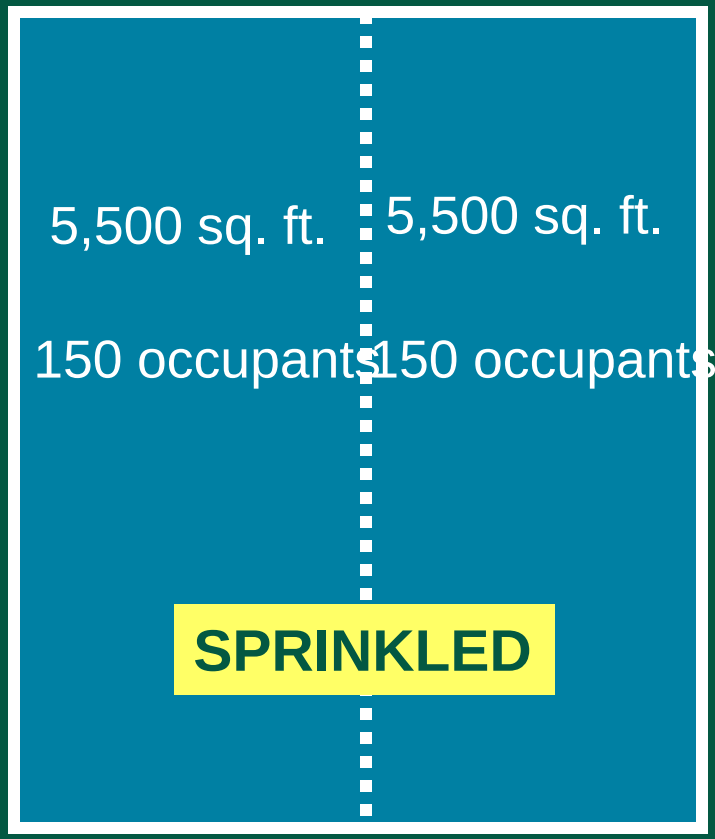
Motion Picture Theater

Regardless of the square footage, multiple theaters within the same fire area are required to be sprinklered.



Total Bldg.
11,000 sq. ft.

Two Theaters without a rated wall between them

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Motion Picture Theater

Two Theaters with a rated wall between them

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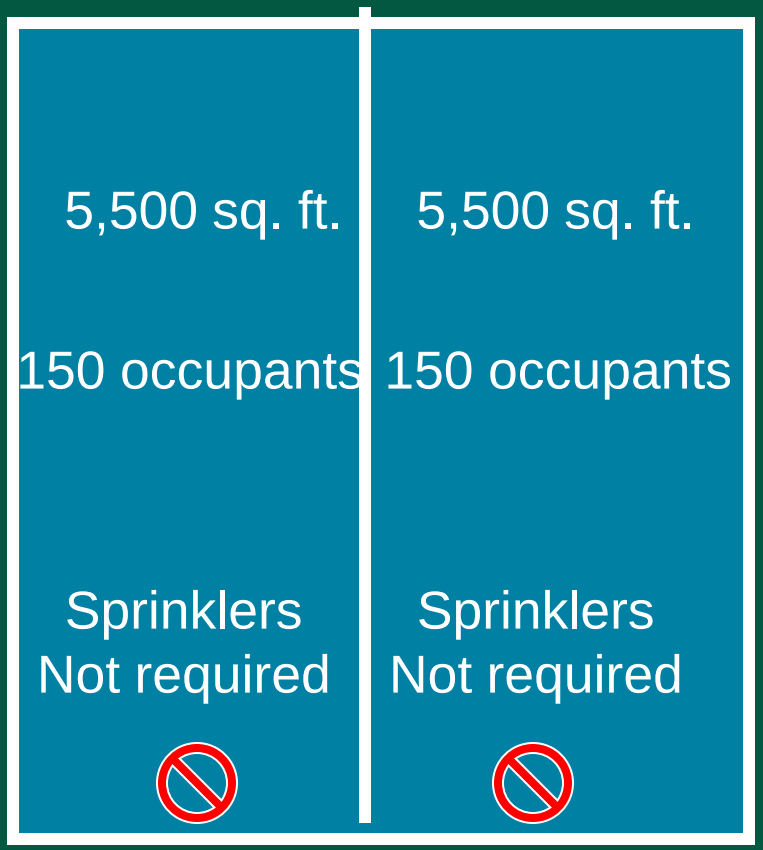
Motion Picture Theater

In this example there is no theater fire area that exceeds 12,000 sq. ft.

Therefore sprinklers are not required in either theater.



Two Theaters with a rated wall between them

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Motion Picture Theater

16,000 sq. ft.

ARE SPRINKLERS REQUIRED?

Motion Picture Theater

16,000 sq. ft.

SPRINKLERS
ARE REQUIRED?

Sprinklers are required regardless of occupant load
Because the fire area exceeds 12,000 sq. ft.

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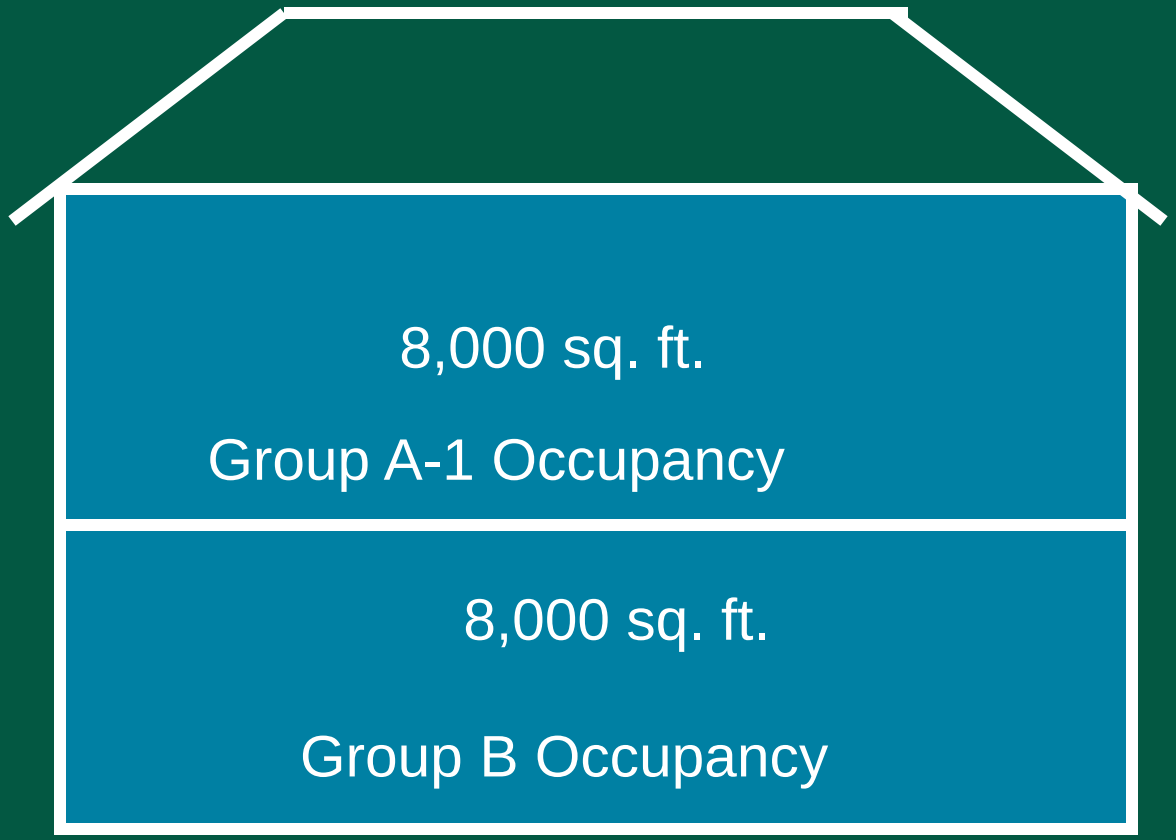
Motion Picture Theater EXAMPLE



Does either floor require sprinkler protection?

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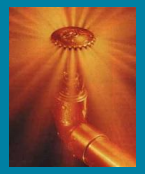
Motion Picture Theater EXAMPLE

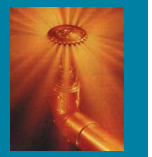
8,000 sq. ft.

Sprinklers are required because
the fire area is <u>on a floor other than the level of exit discharge</u>.



8,000 sq. ft.

Sprinklers are required because Section 903.2.1 states that sprinklers are required on all floors between a Group A occupancy and the level of exit discharge.



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Questions?