Welcome to the
2019 Annual Conference
Educational Sessions

Session: IBC Overview for Permit Techs
Objectives
- Better understanding of the scope and purpose of Building Codes.
- Administrative functions
  - Documentation
  - Required inspections
  - Terminology
- Legal Processes
- Occupancy Groups & Construction Types
- Record retention and destruction laws

Building Codes
- Safety of the occupants
- Reduce panic in emergencies
- Safety of first responders
- Safety and protection of other properties
- Safety and protection of own property
Building Codes

- IBC
  - Apartments
  - All other buildings
  - Dependant upon additional codes
    - IPC
    - IMC
    - NEC
    - IFGC
    - and others

- IRC
  - Detached one and two family dwellings
  - Townhouses
  - Not more than three stories
  - Accessory structures
  - All inclusive

All Code Books

Definitions
Chapter 2
Words with definitions will appear in italics

Index in rear
- Will provide code section
- Need to think of other terms
  - Eg. Roof vents required

APPENDIX

IBC
- A- Employee Qualifications
- B- Board of Appeals
- C- Agricultural Buildings
- D- Fire Districts
- E- Supplemental accessibility
- F- Rodent-proofing
- G- Flood Resistant Construction
- H- Signs
- I- Patio Covers
- J- Grading
- K- ICC Electrical Code
- L- Earthquake Recording Instrumentation
- M- Tsunami- Generated Flood Hazard

IRC
- A- Size & Capacity for Gas Piping
- B- Size of venting systems serving appliances
- C- Exit terminals of Mech. Venting
- D- Procedure for inspection of appliance installs
- E- Manufactured Housing
- F- Radon control
- G- Ponds and Spas
- H- Pools
- I- Sewage Disposal systems
- J- Existing Bldgs/Structures
- K- Sound Transmission
- L- Permit fees
- M- Home Day Care
- N- Venting Methods
- O- Automatic Gates
- P- Siting of Water Piping
- Q- Electrical Cross referencing
Chapter 1  
Scope and Administration

- Scope - Covers all buildings - exception
  Construction, alteration, relocation..., repair..., demolition, of every building
  Or structure
  Or appurtenances connected or attached to

- Intent - MINIMUM STANDARDS

- Application - Most restrictive shall govern
  Including Federal, State or Local laws

- References to other codes and standards

Duties and Powers

Section 104

Gives BO the RIGHT to:
- create new rules/laws
- issue permits
- issue notices and orders
- inspect
- of entry
- keep records
- make modifications from the code
- approve use of alternate methods and materials
- conduct testing

104.8- Liability

- BO, Board of Appeals, any employee enforcing the codes
- While acting for the jurisdiction in good faith and without malice
- Shall not be personally liable for any damage to persons or property.
- Jurisdiction shall cover all legal expenses defending employee
- Ministerial Acts

Section 105  Permits

- When required
  - Annual permits
  - Work exempt
  - Mechanical, electrical and plumbing
  - Emergency repairs
  - What is req’d on application
  - Time limits and extensions

- 105.6
  - Revoke if issued in error or on the basis of inaccurate info,
  - Incomplete info
  - Or if in violation of any ordinance, regulation or provision of the code.
Permits

Application 105.3

Legal terminology
- Protect jurisdiction
- Make applicant liable for code compliance
- Give right to inspect

Submittal documents 107

- Provide location, nature and extent of work
- Details showing compliance with codes, laws & ords.
- Scope of the project
- Legal description
- Drawn to scale - measurements
- Different views of the project
- Materials

Complete submittals

Ask yourself-
- **Who** is submitting?
  - Owner/Builder
  - Contractor
- **What** is the project?
  - Architect designed
- **Where** is it being built?
  and
- **How** is it being constructed?
- What else may be needed?
  - MEP, calcs, soils report, etc.

Permit and Review timelines

- Permit applications good for 180 days from issuance
  - Renewable upon inspection
- Reviews good for 180 days from date of review
  - Renewable upon subsequent submittals
Design Professionals

- Architects
- Engineers
- Designers
- Drafters

What is a registrant?

Seals

- Type
  - Engineering, Architectural
  - Civil, Structural, Mechanical, Electrical
- State
- Name
- Number
- Signature line
- Date line
- Wet Seal

What type of plans need a stamp?

- Residential
  - The rendering of any architectural service required in the erection, enlargement, alteration, or repair of any building, where such building is to be, or is used as a single or multiple family residence exceeding three (3) units or three (3) stories in height.
  - Commercial: 3,000 square feet, any span greater than 60 feet

Section 109 FEES

- Permit is not valid until fees are paid.
- Right to charge fees to cover services
- Extra charge for work done or started w/o permit
- Adopted fee schedules
- Valuation of work
- Materials, labor, & MEP

What to look for:

- Type
- Engineering, Architectural
- Civil, Structural, Mechanical, Electrical
- State
- Name
- Number
- Signature line
- Date line
- Wet Seal
**Inspections**
- Required inspection of project progress
  - Foundations
  - Frame or masonry
  - Electrical
  - Mechanical
  - Plumbing
  - Flood Plain
  - Special Inspections
  - Fire rated construction
  - Energy Efficiency

**Foundations**
- The system which provides a supporting base or grounding of the structure in the soil

**Basement Wall/ Stem wall**
- Reinforcing, grout or concrete, moisture-proofing, venting, egress

**Framing**
- Strap and Shear
**Structural**

- Rafters or trusses
- Beams
- Headers
- Studs
- Post
- Masonry
- 4 foot lift
- Grout
- Reinforcing rebar size spacing

**Electrical**

- Box spacing/location
- Secured wires, boxes
- Type of wire used/location
- Protection
- Panel

**Mechanical**

- Equipment location/install
- Duct size/locations/support
- Condensate lines
- Service area
Plumbing

- Under-slab or below floor
- Under pressure
- Size, clean outs, connection to sewer & water service/septic
- Top out- under pressure
- Size of vents, traps, thru roof
- Water lines
- Gas lines

Flood Plain

- Venting
- Grading
- Drainage

Special Inspections

- Post tension slab
- Welding
- Structural steel
- Bolts, etc.

Fire-Rated Construction
Energy

Roof sheathing & nailing

Drywall nail & Drywall shear

Moisture Protection
Vapor Barrier

Final Inspection

Certificate of Occupancy
- IBC and IRC Section 110
- Must contain specific information

Certificate of Completion
- Used for non-occupied spaces
  Shell buildings
  Vanilla Shell
  Grey Shell
  Equipment installation
  Spec Suites

Must specify no occupancy
Temporary Certificate of Occupancy

- Section 110.3
- Must specify a time/date the temporary use is valid.
- Building and Fire have no life-safety issues

Change in Occupancy

When a building or suite changes from one “use” to a different occupancy group a new C/O must be issued.

For example: An old warehouse building is converted into apartments and lofts.
An old house is remodeled into a boutique shop or restaurant.

USE AND OCCUPANCY

Classification IBC Chapter 3

- Section 302 - 26 CLASSIFICATIONS

  - Based on use of building and contents
  - A – Assembly (5)
  - B - Business
  - E - Education
  - F - Factory and Industrial (2)
  - H – Hazardous (5)
  - I - Institutional (4)
  - M - Mercantile
  - R - Residential (4)
  - S – Storage (2)
  - U - Utility and Miscellaneous

Section 303- Assembly- A

- Places where people gather for civic, social or religious functions; recreation, food or drink consumption or awaiting transportation.

  Exceptions:
  - Occupant load less than 50 (B)
  - Room or space with less than 50 people that is part of another use OR
  - A room less than 750 square feet and part of a larger use area - both cases may be B or same as main use.
  - Assembly areas accessory to Religious or Educational occupancies
Assembly A-1

Low light levels
Bands, music, crowd noise
Tables and seats
Arrangements are ill-defined

Assembly A-2

Low fuel load

Assembly A-3

Lower Occupant loads
Comparatively low fuel load
Catch all classification for Assembly groups

Assembly A-4

Indoor
Low B on sports floor
dense elsewhere
Spectator seating
Low fuel load
Assembly

A-5

OUTDOOR

Viewing or participating in sport activity.
Non-combustible loads
Dense occupant loads

Business- Group B

- Building or portion of building used for office, professions or service-type transactions
- Includes record and account storage areas
- Outpatient Clinics

Group E- Education (K-12)

Colleges/ University classrooms
Not an “E”. They’re a B!
Factory F1 Moderate Hazard

Rule out what it is not:
- Not Hazardous or Storage?
- Bakeries
- Dry Cleaners
- Furniture Plants
- Printing and Publishing
- Aircraft Manufacturing

Factory (Low Hazard)  F-2

No significant fire danger
- Non-alcoholic beverage bottlers,
- Foundries, Metal Fabrication,

Group H- High Hazard

- Buildings or portions of buildings that involve:
  - Manufacturing
  - Processing
  - Generation
  - Or storage of materials that constitute a physical* or health hazard

* Building or structural damage may occur

H-1  Detonation Hazard

Explosives, unstable materials, and any detonable materials or gasses
**H-2 - High Hazard**
- Buildings containing materials which would accelerate burning

**H-3 - High Hazard**
- Buildings containing materials that support combustion or that pose a physical hazard

**H-4 - High Hazard**
- Buildings containing materials that are health hazards: highly toxic, corrosive.

**H-5 - High Hazard**
- Semiconductor plants, research and development areas in which hazardous materials are used
INSTITUTIONAL GROUP- I
- Where people are cared for or live in a supervised environment due to physical limitations because of health or age, medical or care treatment, or correctional purposes.

Group I-1
- Housing 16 or more people 24 hours basis.
- Capable of responding without assistance.
  - Drug Rehab
  - Halfway House
  - Convalescent Homes
  - Assisted Living

- 5 people or fewer: R-3
- 6-16 is R-4

Group I-2- New Definitions included!!
- More than five people on a 24 hour basis
- Not capable of self preservation
  - Hospitals (incl. mental)
  - Detox Facilities
  - Skilled care nursing homes
  - 24 Hour child care for <5 children (2 ½ yrs or less)

Group I-3
- More than 5 people under restraint or security
- Conditions 1-5..... Based on freedom of movement
Group I-4
- Day Care - any age
- Less than 24 hour care for more than 5 people

MERCANTILE-M

RESIDENTIAL - GROUP R
- Use of a building or structure for sleeping purposes

Group R-1
- Hotels and Motels (transient lodging)
- Boarding houses
- Congregate housing for less than 10
- Not familiar with exits, usually no cooking
R-2- Apartments, Dorms, Convents, Monasteries, and Live/Work units

- Non-transient, primarily permanent

R-3- Single Family or Duplex

R-4- Orphanages, Residential Care, Assisted Living

- Residential Care for more than 5 and less than 16 residents, excluding staff.

STORAGE- GROUP S-1

Moderate Hazard
Group S-2 Low Hazard Storage

Utility and Misc.- Group U
- Buildings or structures not classified in any specific occupancy

IBC CHAPTER 6- Types of Construction
- Classification of all building types based on the fire-resistance of the building materials
  - Type I and II
  - Type III
  - Type IV
  - Type V

Type I and II Construction
- All elements (in Table 601) are non-combustible or fire-treated material.
Type III Construction
- Exterior elements are non-combustible. Interior may be anything allowed by code.

Type IV (Heavy Timber HT)
- Exterior: non-combustible.
- Interior: solid wood but no concealed spaces

Type V Construction
- Any material allowed by code

Allowable area
- Is it an A or B?
Protected or Not Protected

- Table 508.4

<table>
<thead>
<tr>
<th>Building Type</th>
<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
<th>C6</th>
<th>C7</th>
<th>C8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home made of rammed earth and recycled tires</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
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<tr>
<td>Masonry anchor store in strip mall</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>All concrete storage facility</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Log post &amp; beam barn with metal exterior</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Medieval castle</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>All steel grain silo</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Casino with attached hotel</td>
<td>5</td>
<td>5</td>
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<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Steel and glass skyscraper</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

What Construction Type?

1. Home made of rammed earth and recycled tires
2. Masonry anchor store in strip mall
3. All concrete storage facility
4. Log post & beam barn with metal exterior
5. Medieval castle
6. All steel grain silo
7. Casino with attached hotel
8. Steel and glass skyscraper

Egress - Chapter 10

Occupant Load

- The number of persons for which the means of egress of a building or portion thereof is designed.

Table 1004.1.1

Maximum Occupancy

125
Required Plumbing Fixtures

- Chapter 29
- Table-
  - Look up using Occupancy Type & Occupant load

Violations - 114

Unlawful Acts
- Person, firm or corporation
- Erect, construct, alter, extend, repair, remove, demolish, or occupy
- Any building, structure or equipment
- Regulated by this code

NOV
- Serve NOV or Stop Work Order
- Immediate discontinuance
- Abatement
- 114.3- If not complied with:
  - Legal counsel
  - Request law to restrain activity or assist in removing occupants

Penalties

Back to Chapter One
Service Utilities - 112

Turn service on

Turn services off

Stop Work Orders - 115

BO has authority to determine unsafe or unlawful conditions
- Must be in writing
- Given to owner/agent
- Or contractor
- State reasons for order
- Penalties
Unsafe Structures and Equipment

- When become unsafe, unsanitary.
- or lacks proper egress, light and ventilation
- Or is a fire hazard or otherwise dangerous to humans or public welfare
- Illegal or improper occupancy
- Lack of maintenance

Serve owner, agent or responsible person
In writing state the occupancy & nature of problem
Specify abatement/ timeline
Deliver personally
Certified or registered mail
Deliver in any other manner as prescribed by local law
Post in a conspicuous place

Building Codes- Dangerous

- Structural stress that exceeds the original intended design.
- Structural member that is likely to fail, detach or collapse
- Structural member that is not strong enough to support or stable, attached or anchored enough to resist wind pressure.
- Likely to collapse due to dilapidated conditions, decay or damage from natural causes.
- Structural members that are out of plumb.

What if property is not secure?

- Have measures in place to secure structures
- Public Works
- Contractors
- Post all sides
- Notify authorities to monitor
- Photograph/document

Posting for demolition

- Notify owner of condemnation
- Registered mail
- Legally served
- Specify timeline for removal
- Post property on all sides of building
- Photograph posting in place
- Notify Police or Sheriff
Records Retention - City or County

Permanent records:
- Permits
- C of C
- C of O
- Demolition Permits
- Permit Registers/Logs

Electronic records, not listed in the table are not authorized for destruction.

Records Retention

Construction plans: 6 months after final
- Residential and Commercial

Expired/denied/withdrawn applications: 6 months

Code Enforcement, incl. ‘no permits issued’: 3 years after resolution

Inspection records: SFD and Commercial: 3 Years after final
all others: 1 year

Pools: Residential: 6 months
Commercial/Public Pools: 5 Years

Destruction forms
- http://www.azlibrary.gov/records
- Fillable form online
- Retain as Permanent record

Building Codes
- Safety of the occupants
- Reduce panic in emergencies
- Safety of first responders
- Safety and protection of other properties
- Safety and protection of own property
Questions?

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Thank You For Attending