



Plans Review & Inspections

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# 2018-2024 Significant Building Updates IEBC, IBC, A117.1, IRC

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# International Existing Building Code



- Accessibility Upgrade and “Paper” Change of Occupancy.
  - Delete overbearing regulations--align with ADA.
- Accessible Means of Egress for Existing Buildings--Additions.
- Alterations to Areas of Primary Function.
  - Updated language to include toilets and drinking fountain in alteration budget.
- [1101.3](#) Additions and Risk Category Assignment.
- [908](#)-Emergency Responder Communications Enhancement System Coverage.

# Duties and Powers of the Building Official



104- Completely **rewritten** in all I-Codes.

- 104.2 Determination of Compliance.
- 104.2.1 Listed compliance.
- 104.2.2 Technical Assistance.
- 104.2.3 Alternative Methods.
  - 104.2.3.6.1 Evaluation Reports.
- 104.2.4 Modifications.
- 104.4.1 Warrants.
- 104.7 Official Records.

# 202-Change of Occupancy



Either of the following shall be considered a change of occupancy where this code requires a greater degree of safety, accessibility, structural strength, fire protection, means of egress, ventilation or sanitation that is existing in the current building or structure:

1. Any change in the occupancy classification of a building or structure.
2. Any change in the purpose of, or a change in the level of activity within, a building or structure.

# 202-High-Rise Building



A building with an occupied floor **or occupied roof** located more than 75 feet above the lowest level of fire department vehicle access.

# 202-Limited Verbal or Physical Assistance



Describes persons who, because of age, physical limitations, cognitive limitations, treatment or chemical dependency, may not independently recognize, respond or evacuate without limited verbal or physical assistance during an emergency situation. Limited verbal assistance includes prompting, giving and repeating instructions. Limited physical assistance include assistance with transfers to walking aids or mobility devices and assistance with egress.

# 202-Mass Timber



Structural elements of Type IV construction primarily of solid, built-up, panelized or engineered wood products that meet minimum cross-section dimensions of Type IV construction.

# 202-Occupiable Roof



An exterior space on a roof that is designed for human occupancy, other than maintenance or repair, and is equipped with a means of egress system meeting the requirements of this code.



# **202-Public-Occupancy Temporary Structure**



Any building or structure erected for a period of 1 year or less that serves an assembly occupancy or other purpose.



# Reference Standards



- **IBC, [Chapter 35](#)-Referenced Standards.**
  - 605 Referenced Standards, 57 SDOs.
  - **315** Updated from 2021 alone!
  - [A117.1-2017](#).
  - ASCE 7-2022.
- **IRC, [Chapter 44](#)-Referenced Standards.**
  - 828 Referenced Standards, 63 SDOs.
  - **563** Updated from 2021 IRC alone!

# 3-Use and Occupancy



- Group B-Business
- Group F-Factory
- Group H-High Hazard
- Group R-Residential
- Group S-Storage

# Group B-Business Occupancy



- Section [304.1-Business Group B](#).
- Data processing, formerly Group B is now more automated and now Group F.
- Data entry assigned to Group B.
- **Lithium-Ion** and **Lithium Metal** Battery Testing, Research and Development.
  - 2024 [International Fire Code](#) has significant new safety provisions for these types of occupancies that limit the hazards to that equal to Group B-Business.
  - Section [320-Lithium-Ion and Lithium Metal Battery Storage](#).
  - Section [322-Powered Micro-mobility Devices](#).
  - Section 903-Automatic Sprinkler Systems.
  - Section 907-Fire Alarm and Detection Systems.

# Group F-1, Factory-Industrial



- [Section 306.2.](#)
  - Beverages: over ~~46~~ 20-percent alcohol content.
  - Energy storage systems (ESS) and equipment containing lithium-ion or lithium metal batteries.
  - Lithium-ion Batteries.
  - Vehicles powered by lithium-ion or lithium metal batteries.
  - Water/Sewer treatment facilities.

# Group H, High Hazard



- [Section 307.1.1.](#)
  - Occupancy exemptions reorganized into a table format rather than a list format for useability.
  - Table items are 100% exempt from any hazardous material provisions of the IBC.
  - Hazardous material exemptions do not classify the list items from being hazardous, but that the IFC has significant enough provisions to manage the issues that may arise.

# Group S-Storage



- Section [311.2](#), [311.3](#).
- Beverages: over ~~46~~ [20](#)-percent alcohol content.
- [Lithium-Ion or lithium metal batteries](#).

# 5-General Building Heights and Areas



- [503.1.4.1](#)-Occupiable Roof Structures > 48”
- [Table 504.3](#) Mass Timber Construction
- [Table 504.4](#) Height in Stories for Mass Timber.
- [Table 506.2](#) Area- Group I-3, IIA Construction w/NFPA 13 now **60,000** rather than 45,000 for 2021 IBC.
- [506.3.2](#) Minimum frontage reduced from ~~30 feet~~ to **20 feet** (2021).
- [506.3.3](#) Frontage Increase:
  - Formula GONE in 2021.
  - New Table 506.3.3.



# **5-General Building Heights and Areas**



- **Table 509.1 Incidental Uses:** Automatic sprinkler increases added.
- **510.2 Horizontal Building Separation Allowance--Stairway Construction #4:** Combustible stair construction allowed when stair is 3 hour enclosure in the non-combustible podium (2021).
- **510.2 Horizontal Building Separation Allowance--Occupancies A, B, M, R or S,** located above the horizontal separation now have no occupant load limitations.
- **510.2 Horizontal Assembly Vertical Offsets:** Now allowed as a fire barrier with a minimum 3 hour rating.

# Mass Timber-Height and Area



- [Table 504.3](#) Height in Feet.
- [Table 504.4](#) Number of Stories.
- [Table 506.2](#) Allowable Area.

# 6-Construction Types

- Mass Timber Construction.



# 6-Mass Timber Construction



- **Table 601-Fire-Resistance Rating Requirement for Building Elements.**
  - Same fire performance as Type I construction.
  - **602.4** Type IV Construction completely re-written for 2021.
    - Typically mixed in with Type I and II construction.
    - Heavy Timber (a.k.a, “Mill Construction”) is now IV-HT.
    - MT Exit stairways and hoistways must be non-combustible.
    - Concealed spaces, if properly constructed, are now allowed in MT Construction.
    - Varying DETAILED levels of non-combustible covering for MT frame required to achieve fire ratings.
    - Subtypes of MT Construction regulate the exposure of combustibles: IV-A, IV-B, IV-C.
    - Regulation and inspection Concerns?

# 7-Fire and Smoke Protection Features



- [704.2](#) Protection of the Primary Structural Frame- heavily edited.
- [704.3](#) Protection of Secondary Structural Members- edited.
- [704.5.1](#) Secondary Attachments to Structural Members- clarified.
- [705.5](#) Exterior Wall Ratings- Table moved from Chapter 6 in 2021!
- [705.6](#) Continuity (Exterior Wall Fire-Resistance Ratings)
- [707.5](#) Exit Passage Way Enclosures- Rated ceiling now allowed.
- [715.2](#) Listed Continuity head-of-wall systems now addressed.

# 9-Fire Protection and Life Safety Systems



- **903.2 Sprinklers and Lithium-ion/Lithium Metal Batteries.**
  - [903.2.2.2](#) Laboratories Involving Testing, Research and Development.
    - Group B-Business occupancy rather than Group H-High Hazard.
    - Size of the fire area is immaterial.
    - Lack of track record or standards for the issues.
    - Sprinklers “Throughout the building”
    - Not an issue for parking or parking garages.
  - [903.2.4](#) Group F-1 occupancies used to manufacture lithium-ion and lithium metal batteries shall be protected.
  - [903.2.4](#) Group F-1 occupancies used to manufacture lithium-ion and lithium metal batteries, energy storage systems or vehicle manufacture where batteries are stored as part of the manufacturing process shall be protected.

# 9-Fire Protection and Life Safety Systems



- **903.2.4.2 Distilled Spirits**--Automatic sprinkler required for F-1 and S-1 regardless of fire area size (2021).
- **903.2.4.3 Upholstered Furniture**--Revised to require an automatic sprinkler where the fire area exceeds 2,500sq.ft (2021).
- **903.2.9.4 Self Storage Facilities**--Group S-1 fire area exceeding 2,500sq. feet requires an automatic sprinkler, except:
  - 1 story max agp and 100% access from exterior (2021). ~~12,000 fire area.~~

# 9-Fire Protection and Life Safety Systems



- [903.2.10](#) condition #3-Open Parking Garages. Fire areas >**48,000 sq.ft.** now require an automatic sprinkler system.
- [903.3.1.1.1](#) condition #1-Exempt Locations. “A room or space where sprinklers **constitute a serious life or fire hazard** because of the nature of the contents, where approved by the fire code official.
  - Undesirable ≠ Financial.
- [903.3.1.2](#) NFPA 13R Sprinkler--Fixed the 2021 mistake.



# 9-Fire Protection and Life Safety Systems



- **905.4 Standpipe Installations.**
  - Continued elimination of Class 2 and 3 standpipes from the codes.
  - Lastly--Stages in Group A-1 and A-2 with occupant loads > 1,000.
  - Clarified to require standpipe installations at exterior exit stairways and not only interior exit stairways.

# 9-Fire Protection and Life Safety Systems



- **907.2.1 Group A Fire Alarms.**
  - New Exception #2 Group A-5 outdoor bleacher seating with:
  - New Exception #3-Manual fire alarms not required for temporary bleacher-type seating.
- **907.2.10.1 Group S Public and Self-Storage Occupancies.**
  - 2021 Requirement for 3 or more stories w/ exception for AFSS.
    - Not occupied like typical public spaces.
    - Problem? People do not react to fire alarms.

# **9-Fire Protection and Life Safety Systems**



- **907.2.11.3 Smoke Alarms Near Cooking Appliances.**
  - New alarms are intended to address nuisance alarms.
- **907.5.2.1.3 Audible Alarm Signal Frequency (2021).**
  - Groups I-1, R-1 and R-2: 520hz signal frequency where FA required.
  - Few smoke alarms can produce 520hz frequency.
- **911.1 Fire Command Centers**
  - Now all Group F-1 and S-1 occupancies with a building footprint of 500,000sq.ft.

# 10-Means of Egress



- **1006.2.1 Egress from Mechanical Rooms/Penthouses (2021).**
  - Unoccupied spaces are not required to comply with common path of travel limits, but still required to meet exit access travel distance.
- **1006.2.2.2 Refrigeration Machinery Rooms. Updates.**
- **1006.3 Egress from Stories and Occupiable Roofs.**
  - All spaces to have access to the required number of exits for the story.
  - No technical change, clarification.
- **1006.3.4 Single Exits--Inclusion and expanded for Occupiable Roofs.**
- **1008.2.1 Illumination Level Under Normal Power--increased to 10 ft candles.**
- **1008.3 Illumination Required by an Emergency Electrical System--finally a LIST!**

# 10-Means of Egress



- **1009.2.1 Elevators for Accessible Means of Egress.**
  - Occupiable roof now include in determination of AMOE Elevator.
  - Clarify that the “Level of exit discharge” is the STORY at the LED.
- **1009.2.2 Maneuvering Clearance at AMOE.**
  - Clarify that maneuvering clearances at exits, AOR or EAAR required in the direction of travel.
  - Maneuvering clearances at doors leading to an AOR or EAAR, where re-entry is possible shall have clearance on both sides.
- **1009.6.2 Area of Refuge.**
  - New exception for interior AOR at the LED the provides direct acces to an exterior door.

# 10-Means of Egress



- **1010.2.4 Condition #2 Locks and Latches.**
  - Allows doors to be locked by key held by clinical staff. Consistent with healthcare guidelines for Group I-1, Condition #1 and Group I-2.
- **1010.2.4 Condition #4 Locks and Latches.**
  - New Table! Manual bolts, automatic flush bolts, constant latching bolts.
  - Clarifications for MAIN DOORS and locking, multiple main doors?
- **1010.2.4 Condition #8 Locks and Latches.**
  - New language for 2021.
  - Occupiable roofs and courts.

# 10-Means of Egress



- **1010.2.14 Elevator Lobby Exit Access.**
  - 8 New provisions for electrically locked exit access doors.
- **1011.6 Stairway Landings.**
  - 2 new exceptions for landing sizes non-rectangular landings.
- **1013.2 Low Level Exit Signs in Group R-1.**
  - Deleted where protected by 903.3.1.1 or 903.3.1.2 AFSS.
- **1014.3 Lateral Location of Handrails.**
  - New language--6 inch criteria. How is it measured???????
- **1014.7 Handrail Extensions.**
  - Measurement now from the nosing and not the tread.
- **1015.3 #2 Guard Height in R-2 and R-3.**
  - Reduces to 36", regardless of the number of stories, maximum 25 foot vertical elevation.

# 10-Means of Egress



- 1029.3 Egress Courts.
  - Opening protection reduced where located at grade and direct and unobstructed access to two or more independent paths.
- 1030.16 Handrails at Social Stairs.

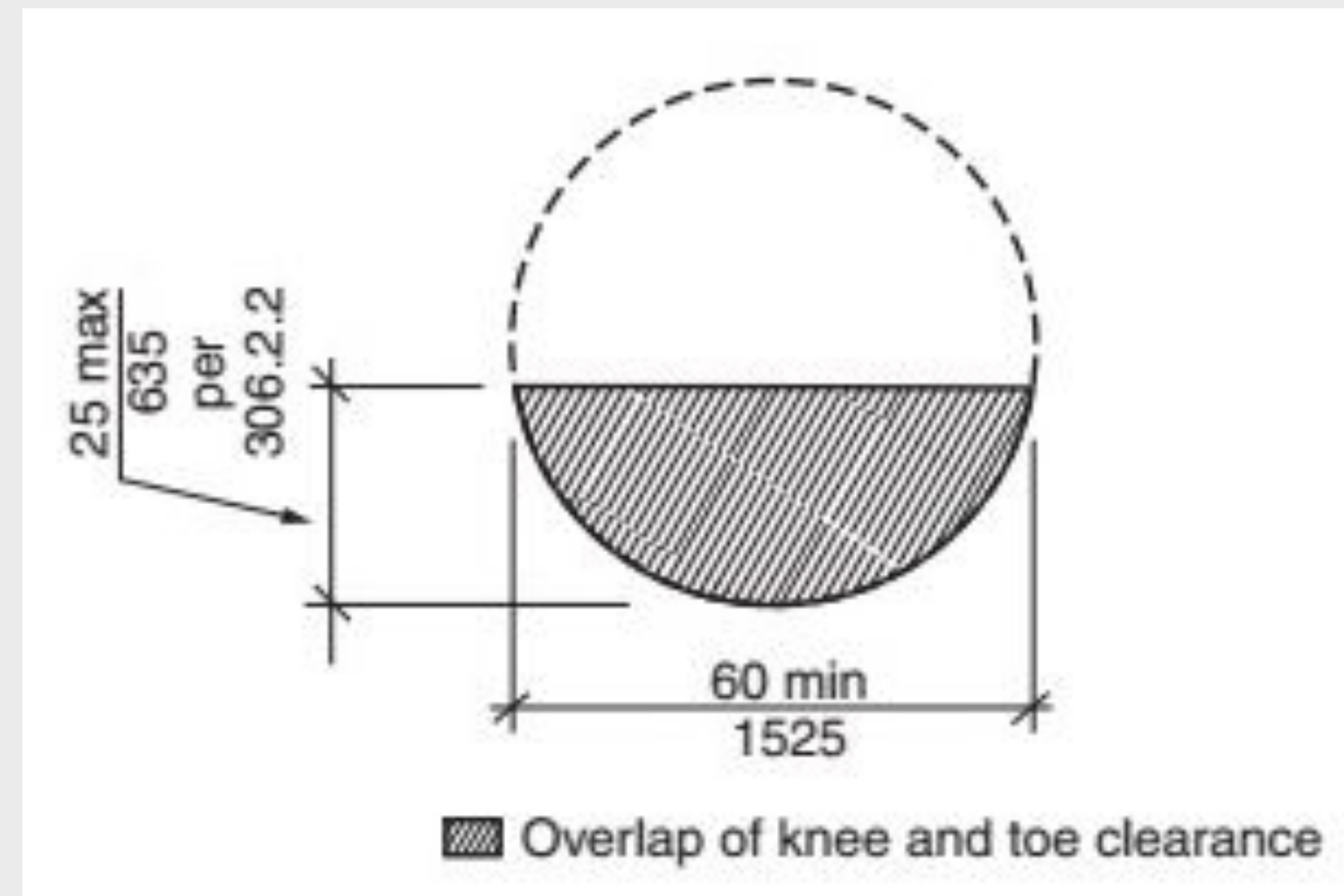
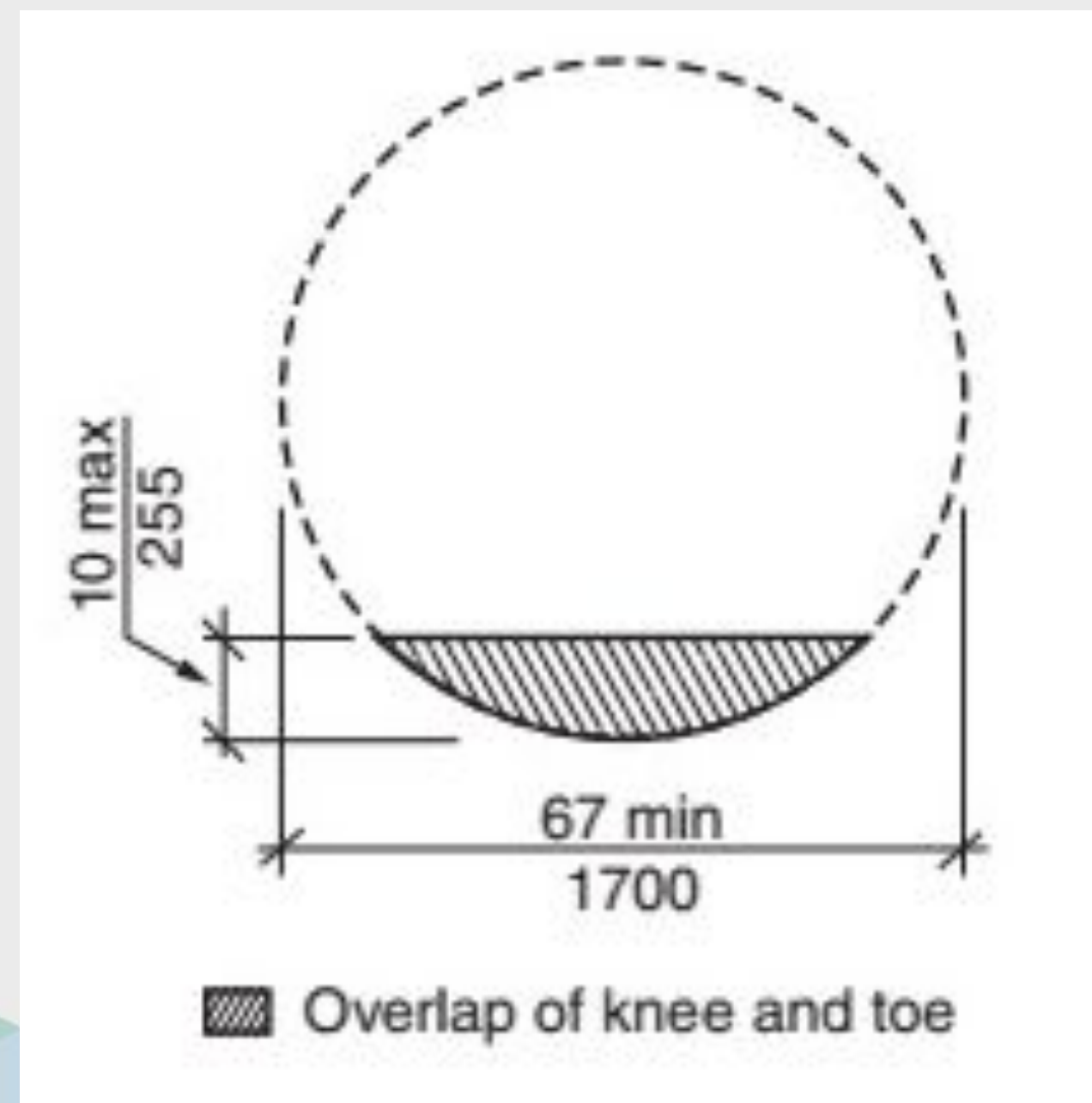


# 11-Accessibility



- **2017 A117.1 Updates!**
  - Reorganization.
  - Existing Building Exceptions.
  - Turning Spaces.
  - Maneuvering Clearance.
  - Parallel Parking Spaces
  - Angled Parking Spaces.
  - Parking Meters and Pay Stations.
  - Electric Vehicle Charging.
  - Sales Service Counters and Windows--Revised Language.

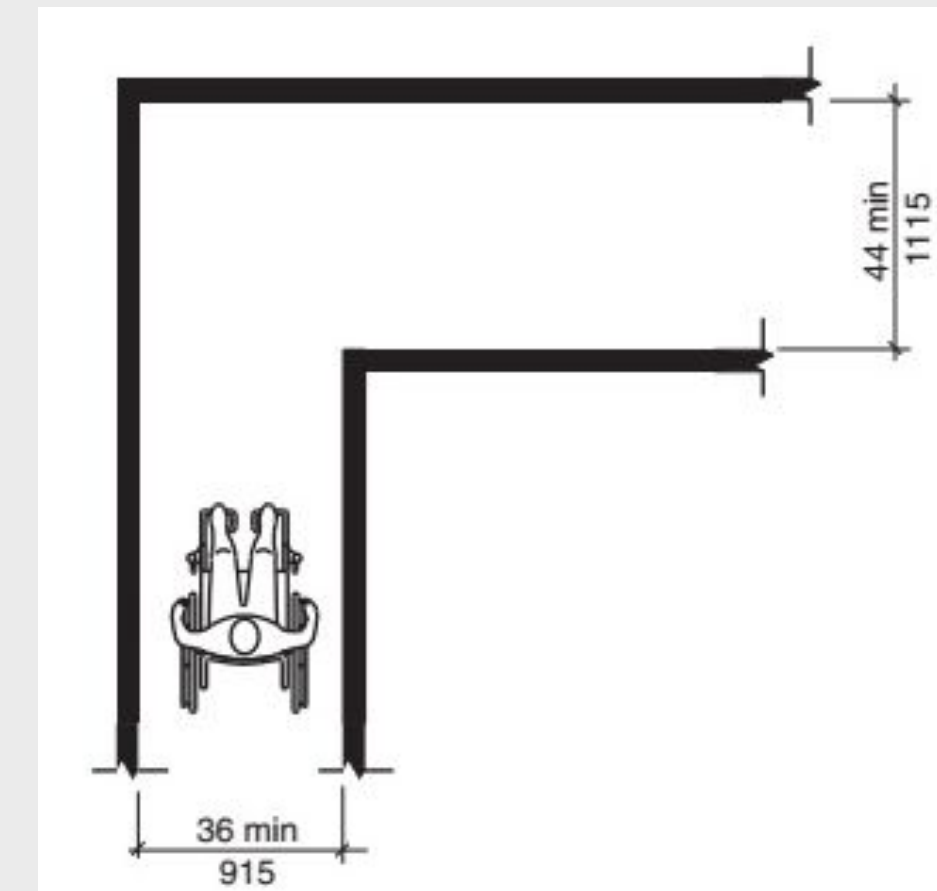
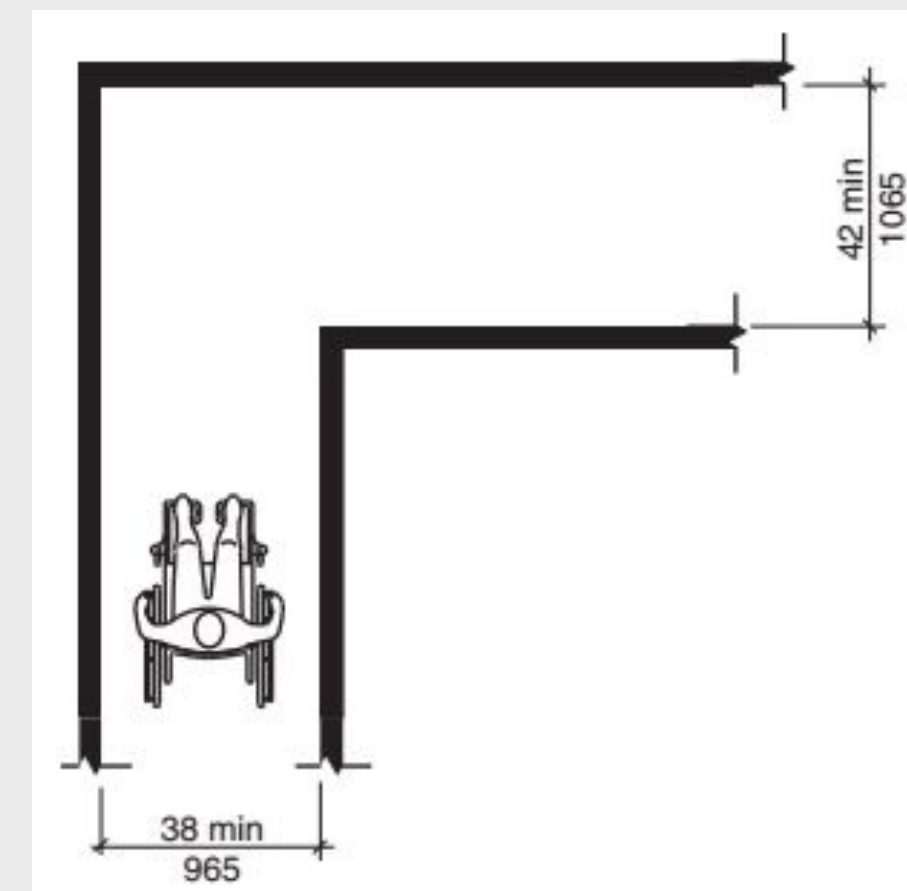
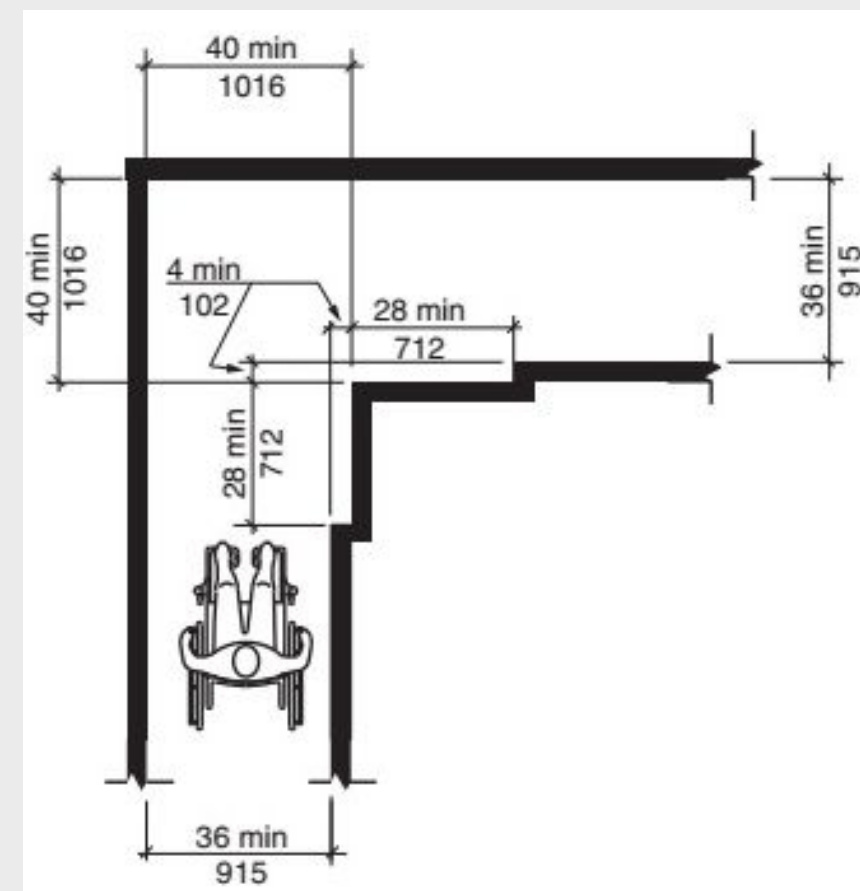
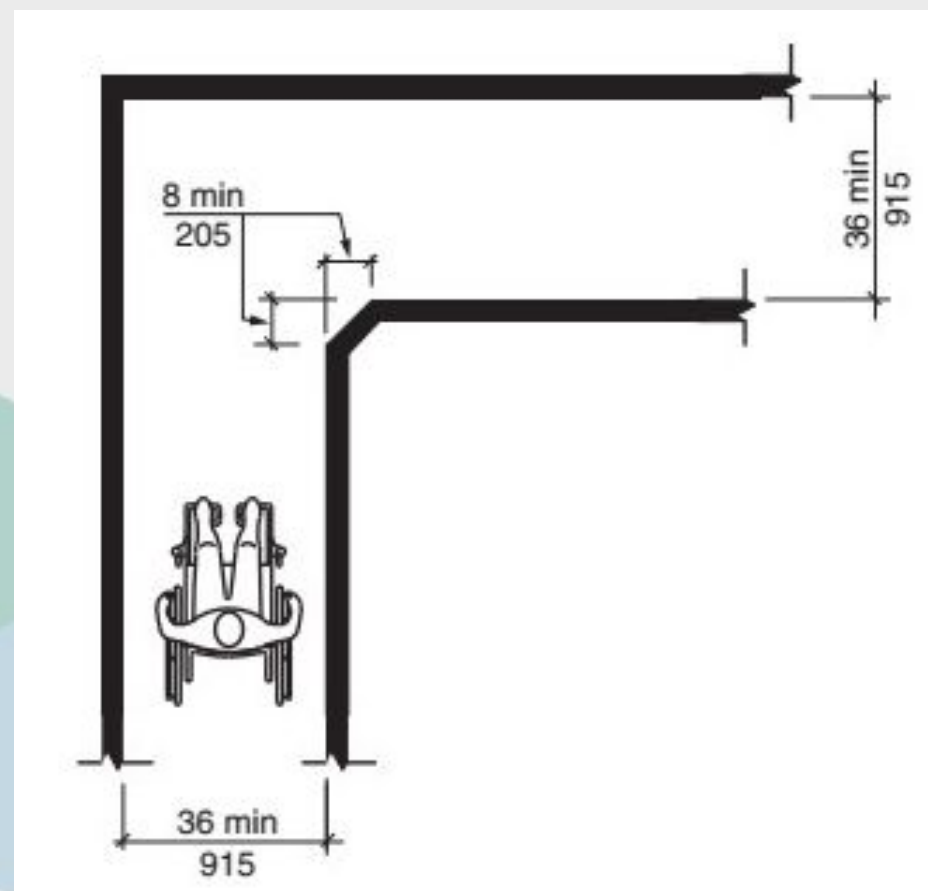
# A117.1-2017 Circular Turning Spaces



# A117.1-2017 90 Degree Turns



- 2017 A117.1 [403.5.3](#) Updates!
  - New buildings.
  - 4 options.
  - 90 degree turns.



# 11-Accessibility



- **1105.1.1 Power Operated Doors at Public Entrances.**
  - Introduced in 2021, based on occupant load. 2 new exceptions.
- **1106.7.1 Accessible Parking: R-2, R-3, R-4.**
  - Parking beneath buildings.
- **1107.2 Electric Vehicle Charging Stations.**
  - Section totally revised for electric vehicles.
- **1108.5, 1110.2 Assisted Toileting and Bathing.**
  - Code playing 'catchup' to healthcare industry.

# 11-Accessibility



- **1110.4 Adult Changing Stations.**
  - New!
- **1110.6 Laundry Equipment.**
  - Accessibility previously not addressed or required by the IBC.
- **1112.6 Tactile Room ID Signs.**
  - New and clear requirements for room or space ID signage.

# 12-Interior Environment



## 1207-Enhanced Classroom Acoustics.

- Compliance with A117.1-2017 Section 808.
- Group E classrooms volume of 20,000cu.ft. or less.

# 12-Interior Environment



## 1208-Interior Space Dimensions.

- 1208.3 Dwelling Units shall have a minimum of 190 sq.ft. of habitable space.
- Measurement clarifications:
  - ~~The unit shall have a living room of not less than 190sq.ft.~~

# 13-Energy Conservation



- IBC Chapter 13, IRC Chapter 11, IECC--Not published as of 8.5.2024.
- 6 provisions challenged as ‘greenhouse gas emissions related,’ rather than directly affect building energy efficiency.
- 3 provisions preempted by the [Federal Energy Policy and Conservation Act](#).
- Proposals moved to an Appendix (optional).
- Scope of the IECC, “providing minimum efficiency requirements for buildings that result in the maximum level of energy efficiency that is safe, technologically feasible, and life cycle cost effective considering economic feasibility, including potential costs and saving for consumers and building owners, and return on investment.”



# **16-Structural Design**



- **Risk Category updates for III and IV.**
- **ASCE 7-2022 Update.**
  - [1613](#) Earthquake Loads--Seismic Design Category.
  - [1609.5](#) Tornado Loads.

# **17-Special Inspections and Tests**



- **1704.6 Structural observation** now required for Risk Cat III.
- **1705.2.6 Metal building systems.**
  - Now require special inspections after construction
- **1705.5.3 MT Construction.**
  - Special inspections.
- **1705.18 Firestopping--Group R fire areas > 250 occupants.**
  - joints, through penetrations, membrane penetrations.

# 29-Plumbing Fixtures



- **2902.1.1 Fixture Calculations.**
  - Updates to calculations for mixed gender facilities.
  - Table revisions to fixture ratios for mostly Institutional Uses.
- **2902.3.3 Toilets in Storage Occupancies.**
  - Maximum travel distance removed from Group S:
- **2902.3.6 Door Locking.**
  - Multiple occupant toilet facility now lockable by authorized keyholder.

# 31-Special Construction



- **3103.1 Temporary Structures:** Covid remainders.
  - Public-occupancy temporary structures.
- **3114 Intermodal Shipping Containers (2021)**
  - General requirements.
  - Construction documents.
  - Container information.
  - Decay and Termites.
  - Underfloor ventilation
  - Roof Assemblies.
  - Joints and Voids--concealed spaces.
  - Structural, foundations and supports.
  - Anchorage.
  - Stacking
  - Welding
  - Structural Design--Extensive criteria, illustrations.

# International Residential Code



- **Excludes Chapter 11-Energy Conservation.**
- **Appendices Reorganized.**
- **New Appendices.**
  - [BC](#)-Accessory Dwelling Units (new).
  - BK-Cob Construction (new).
  - BL-Hemp-Lime, Hempcrete (new).
  - BM-3D Printed Building.

# 3-Building Planning



## **Total Reorganization of Chapter:**

- R301-307 Structural, Including Passive Fire Resistance.
- R308-311 Active Fire Resistance.
- R312-317 Rooms and Spaces.
- R318-321 Means of Egress.
- R322-323 Accessibility and Elevators.
- R324-328 Home Safety.
- R329-332 Energy.

# 3-Building Planning



- **Total Reorganization of Chapter.**
- **6 New Sections:**
  - [R320](#) Handrails.
  - [R316](#) Habitable Attics.
  - [R315](#) Sleeping Lofts.
  - [R330](#) Energy Storage Systems.
  - [R331](#) Stationary Engine Generators.
  - [R332](#) Stationary Fuel Cell Power Systems.

# R302 Fire-Resistant Construction



- Clarifications for multiple buildings on a lot, imaginary lot lines and fire separation.
- Two-family dwellings and Reality.
  - Clarifications for stacked dwellings,
    - . Common problems and solutions.
    - . Geometry is not as simple in the real world.
  - **NEW** Shared accessory areas and rooms:
    - . Fire separation similar to a dwelling unit and attached garage.