

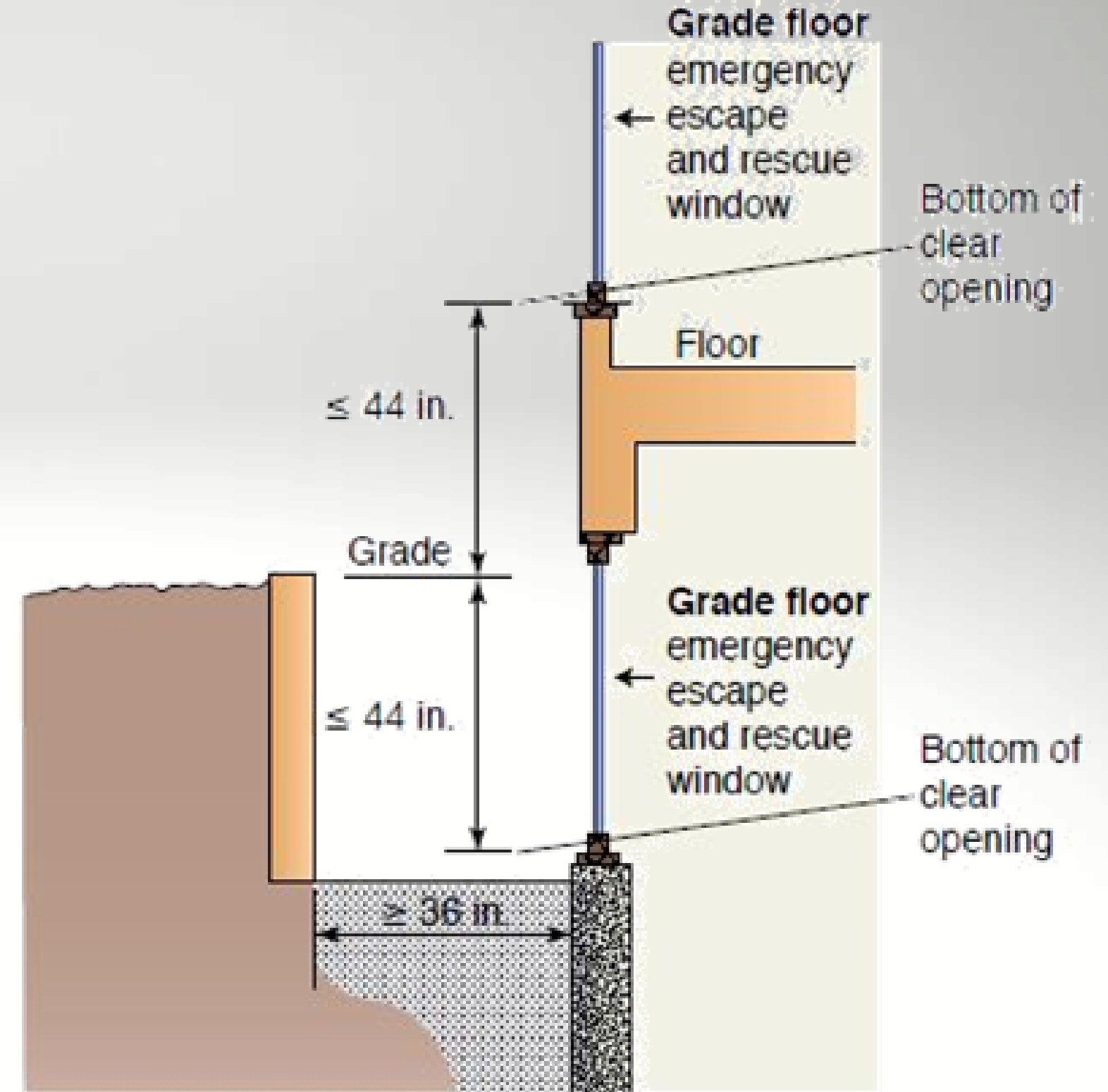


2021 IRC Significant Changes



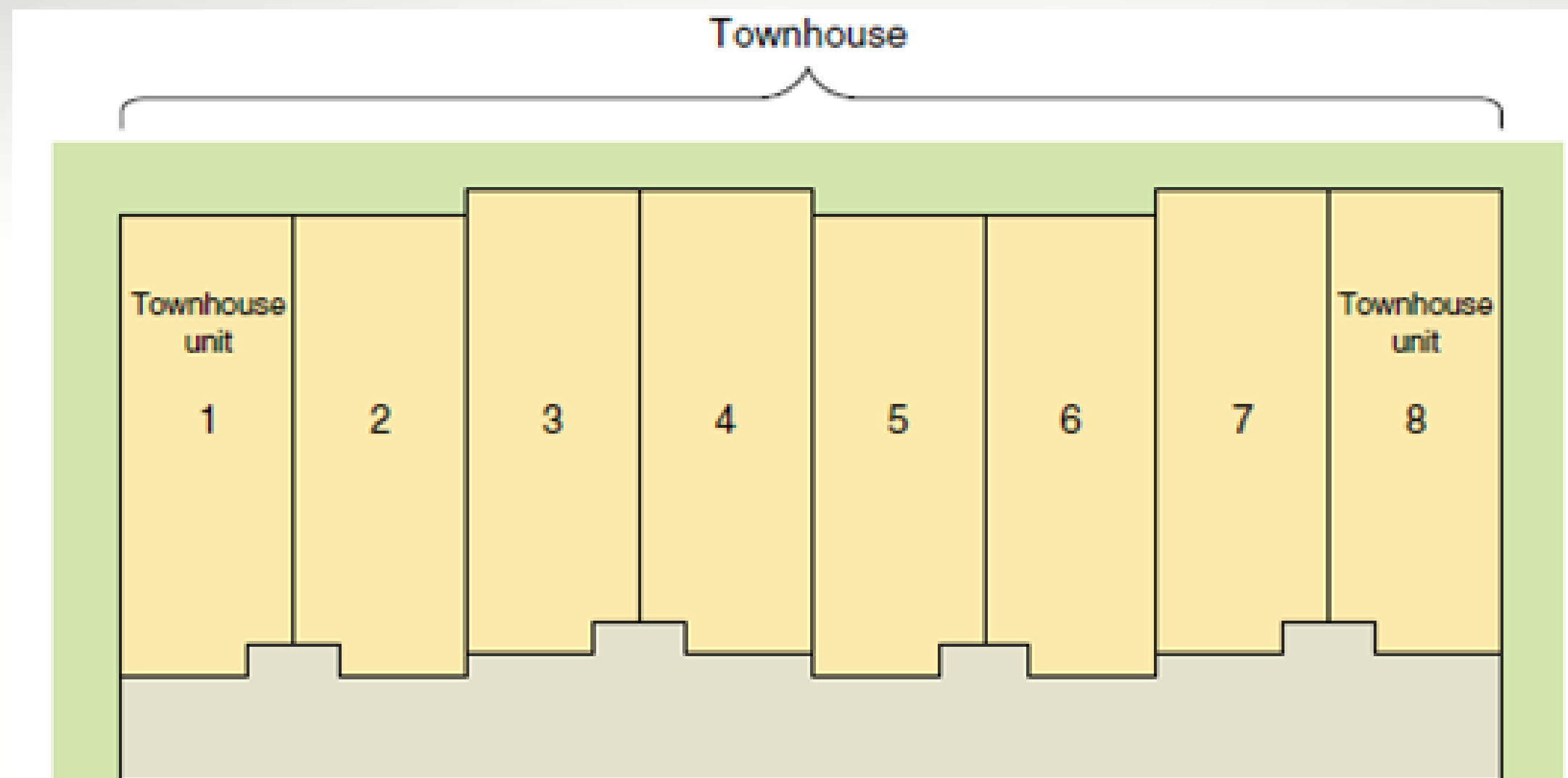
Grade Floor EERO

- Grade Floor Emergency Escape And Rescue Opening. ~~A window or other~~ An emergency escape and rescue opening located such that the ~~sill height~~ bottom of the clear opening is not more than 44 inches above or below the finished ground level adjacent to the opening.



Townhouse and Townhouse Unit

- **TOWNHOUSE.** Building that contains three or more attached townhouse units.
- **TOWNHOUSE UNIT.** A single-family dwelling unit in a townhouse that extends from foundation to roof and that has a yard or public way on not less than two sides



Intermodal Shipping Containers

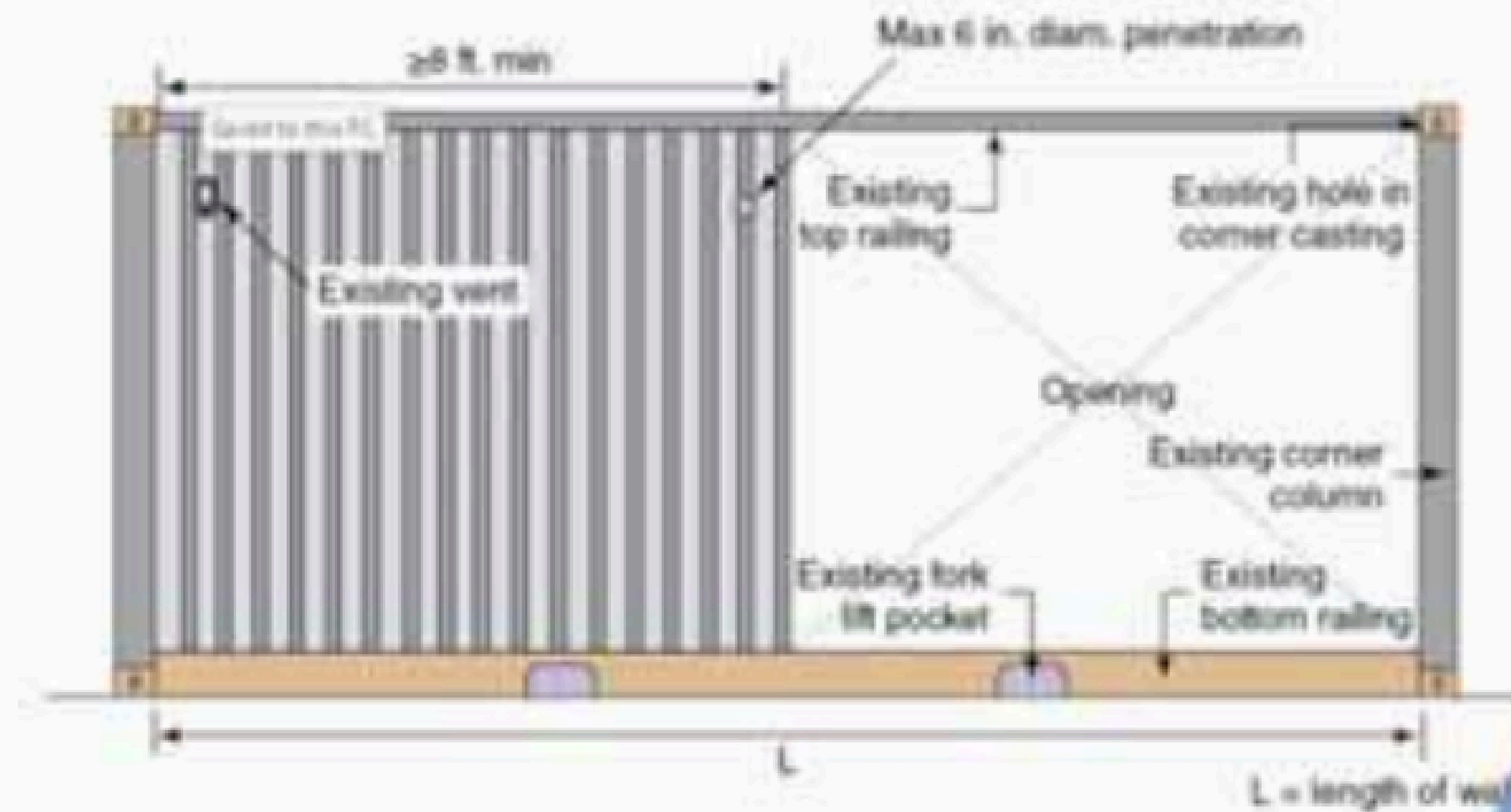
Provisions for construction with intermodal shipping containers added by referencing IBC Section 3315 and ICC G5

- Guideline for the Safe Use of ISO Shipping Containers Repurposed as Buildings and Building Components

R301.1.4



Intermodal Shipping Containers



§R301.1.4



Maximum penetration size in shipping containers used for bracing.



center

Wind Design

**Updated wind speed maps
match IBC and ASCE 7 maps with
a large portion of the country
having wind speeds less than
115mph**



Story Height

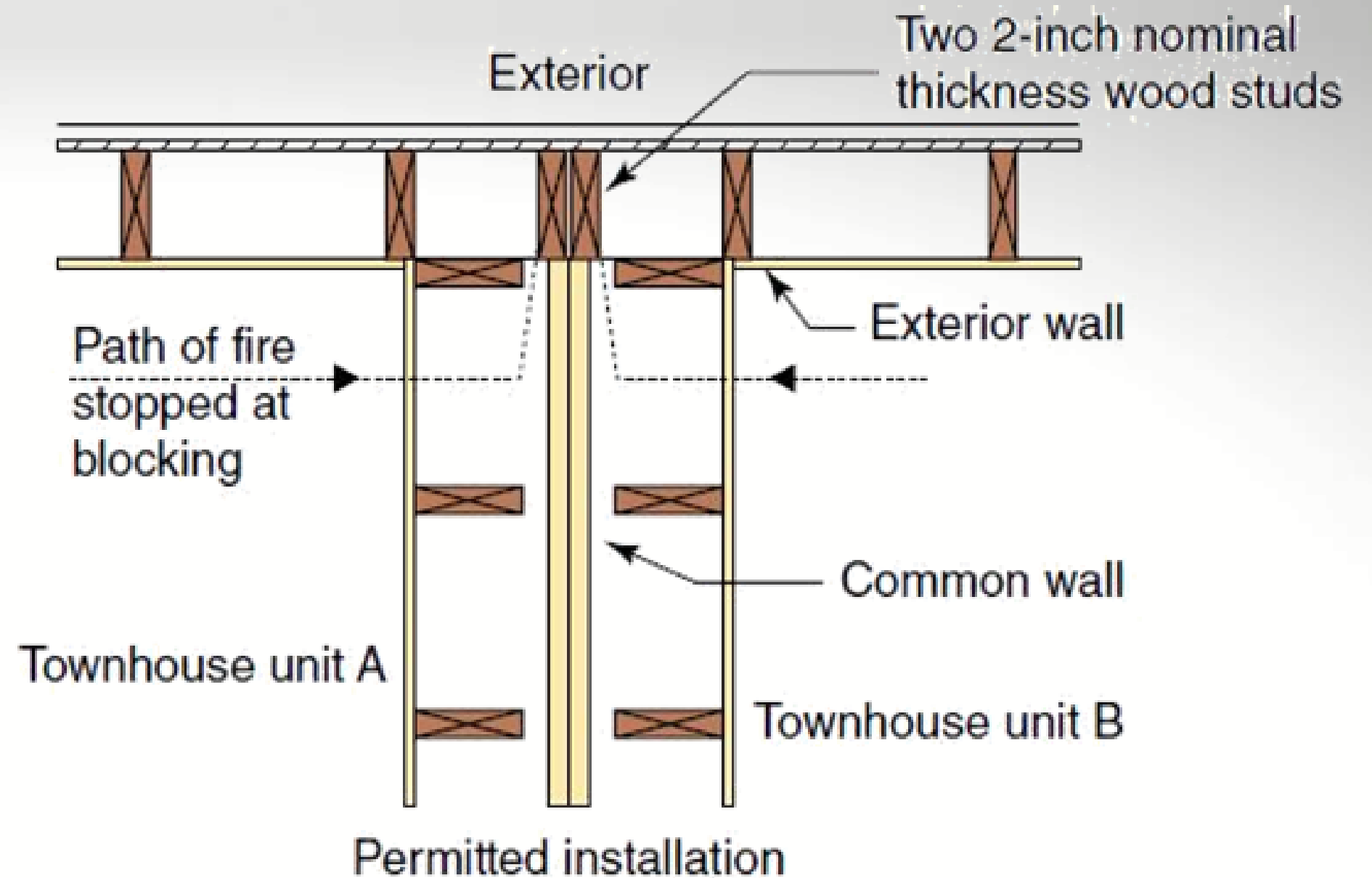


Load	Stud Height (feet)		
	≤ 10	10 to 12	≥ 12
Load Bearing Studs	No engineering required	Engineering required unless a Section R602.3.1 exception is met: Exc. 2 – snow load and tributary length limit Exc. 3 – snow load and span limits, only Exp B	Engineering always required
Non-loadbearing Studs	No engineering required	No engineering required for 2x4 and larger studs	Engineering required unless limits of Table R602.3(5) are met

R301.3

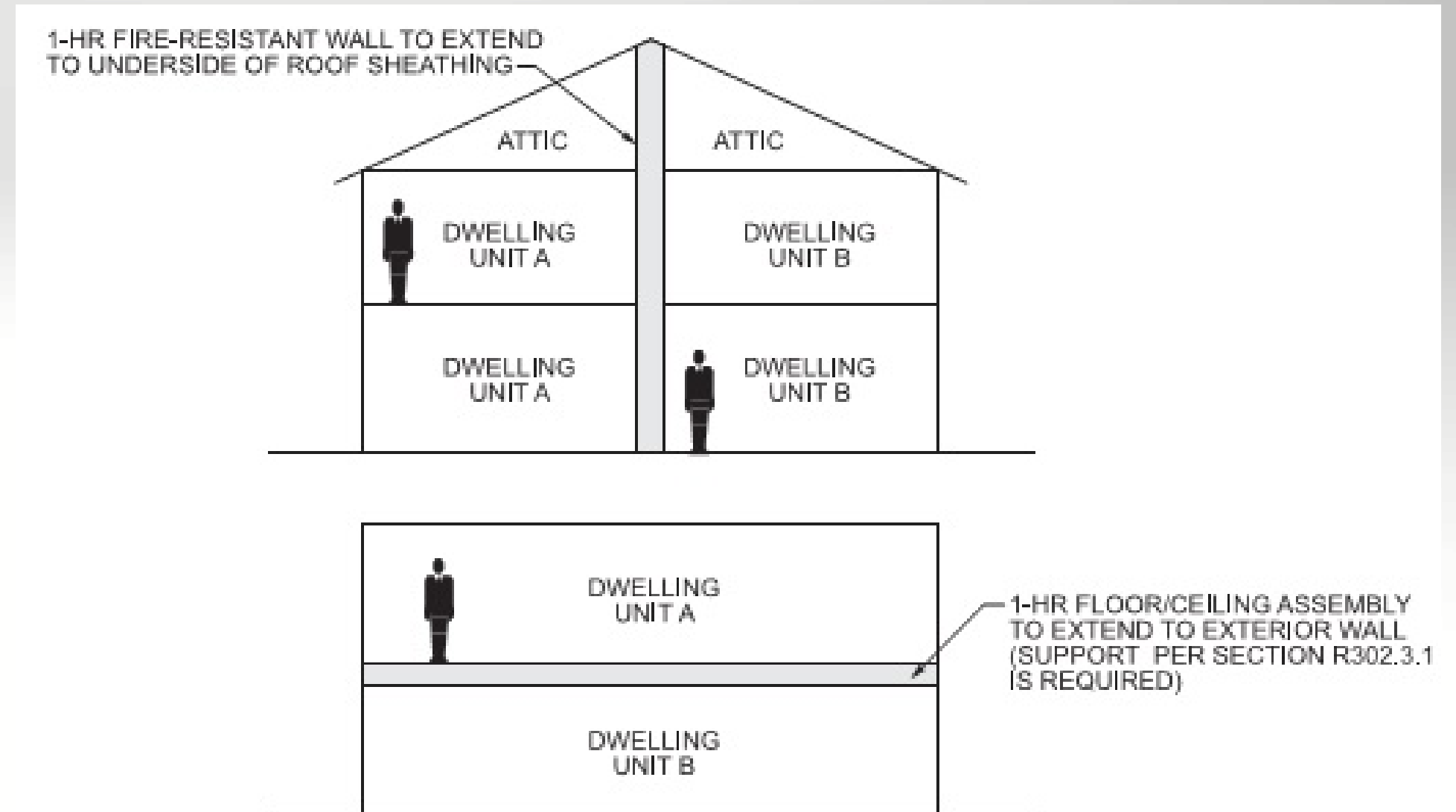
Townhouse Common Wall

Common walls separating townhouses can terminate at the inside of exterior walls
-Two 2" studs as fireblocking



TWO-FAMILY DWELLING SEPARATION

**1-hour
separation
whether or
not a lot line
exists
between
units**



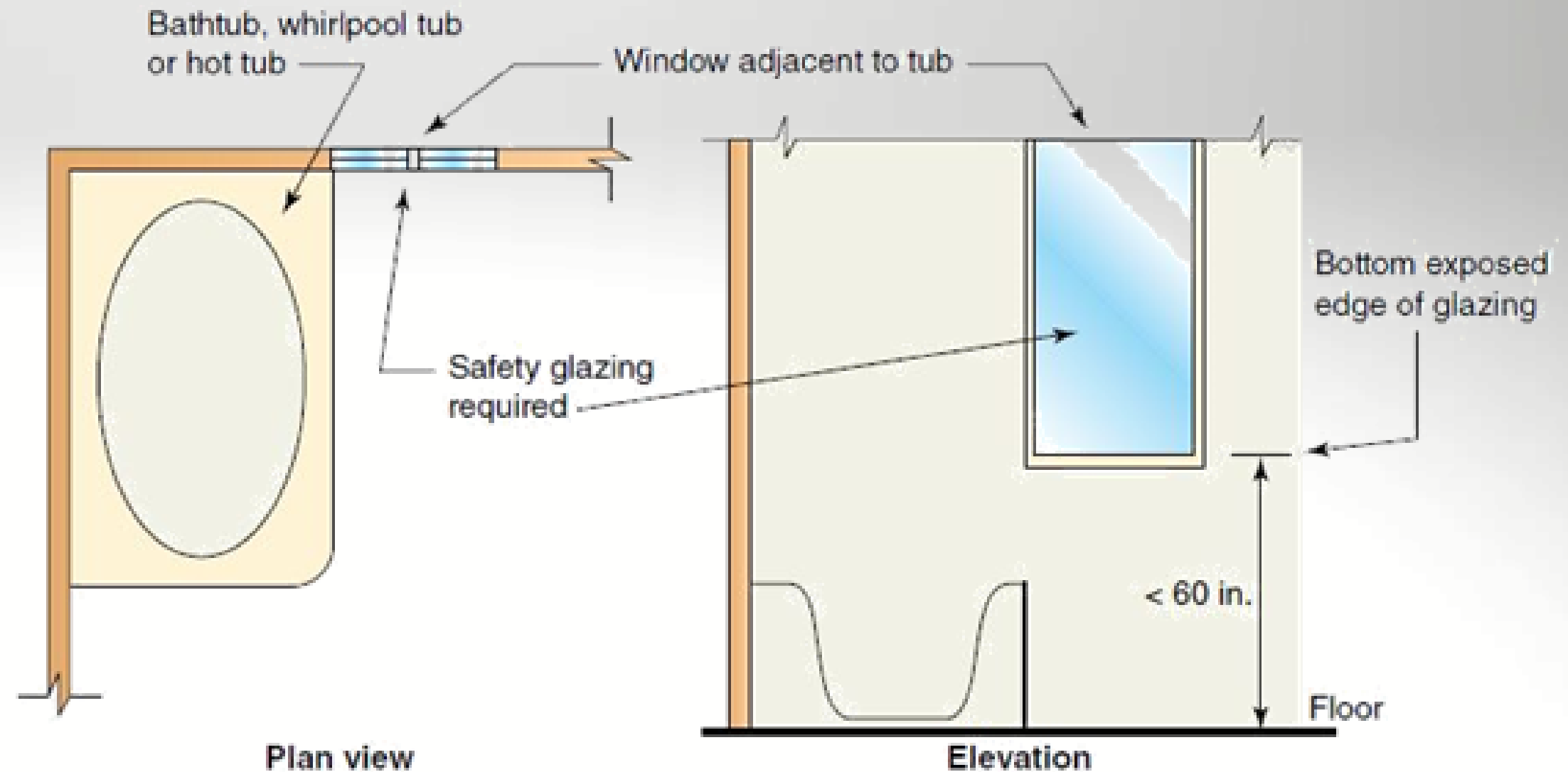
Mechanical Ventilation

- **Whole-house mechanical ventilation system or a mechanical ventilation system capable of producing 0.35 ACH in habitable rooms**
- **Local exhaust system is an acceptable substitute for natural ventilation in kitchens**



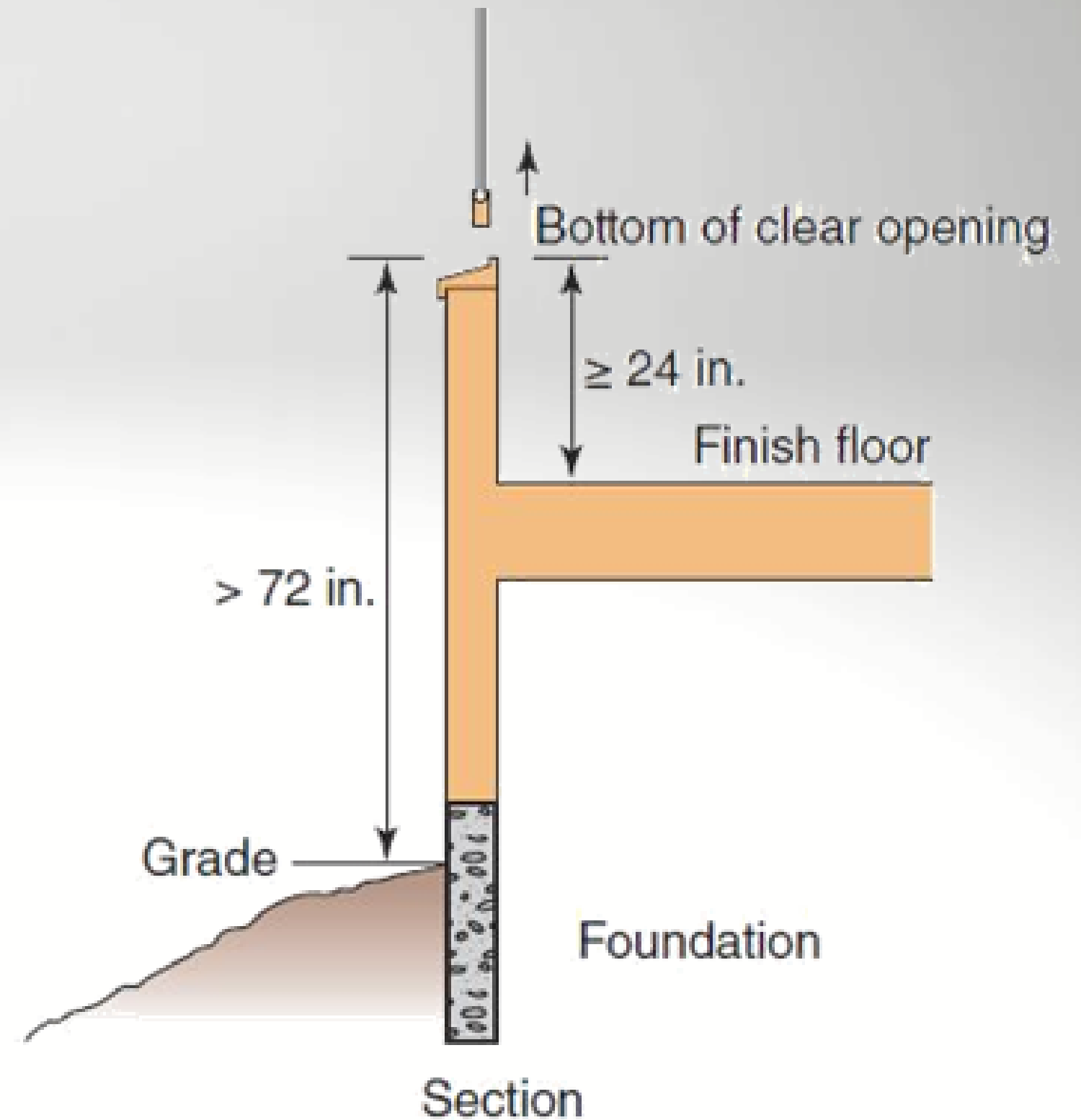
Glazing and Wet Surfaces

- Replaced the word “facing” with the words “adjacent to” for those elements related to wet surfaces.



Window Fall Protection

- Measurements for determining need for fall protection taken to bottom of clear opening of window



Smoke Alarm Locations

- **New location requirement addresses high ceilings adjacent to hallways serving bedrooms**



R314.3

Smoke Alarm Locations (Cont'd)

Smoke alarms identified as having resistance to common nuisance alarms from cooking sources permitted as close as 6' from cooking appliance

R314.3



Carbon Monoxide Alarms

- Repairs to existing fuel-fired mechanical systems now trigger retroactive requirements for carbon monoxide alarms

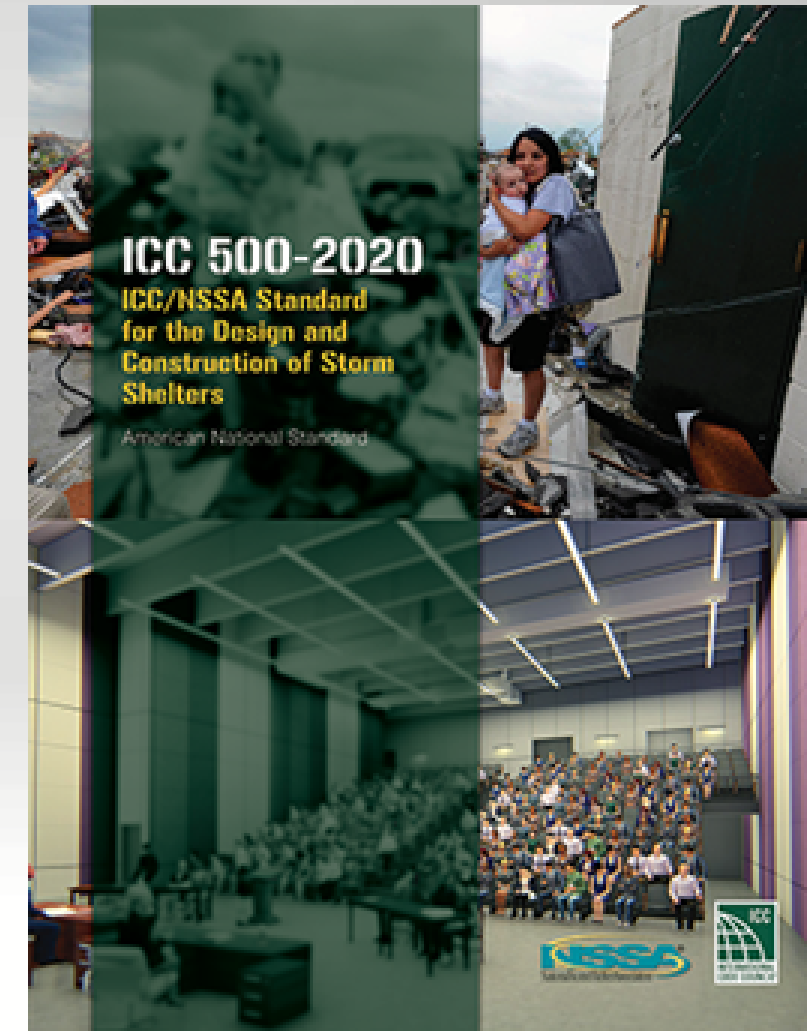


R315.2.2

Storm Shelters

- Engineered design required

R323.1.1



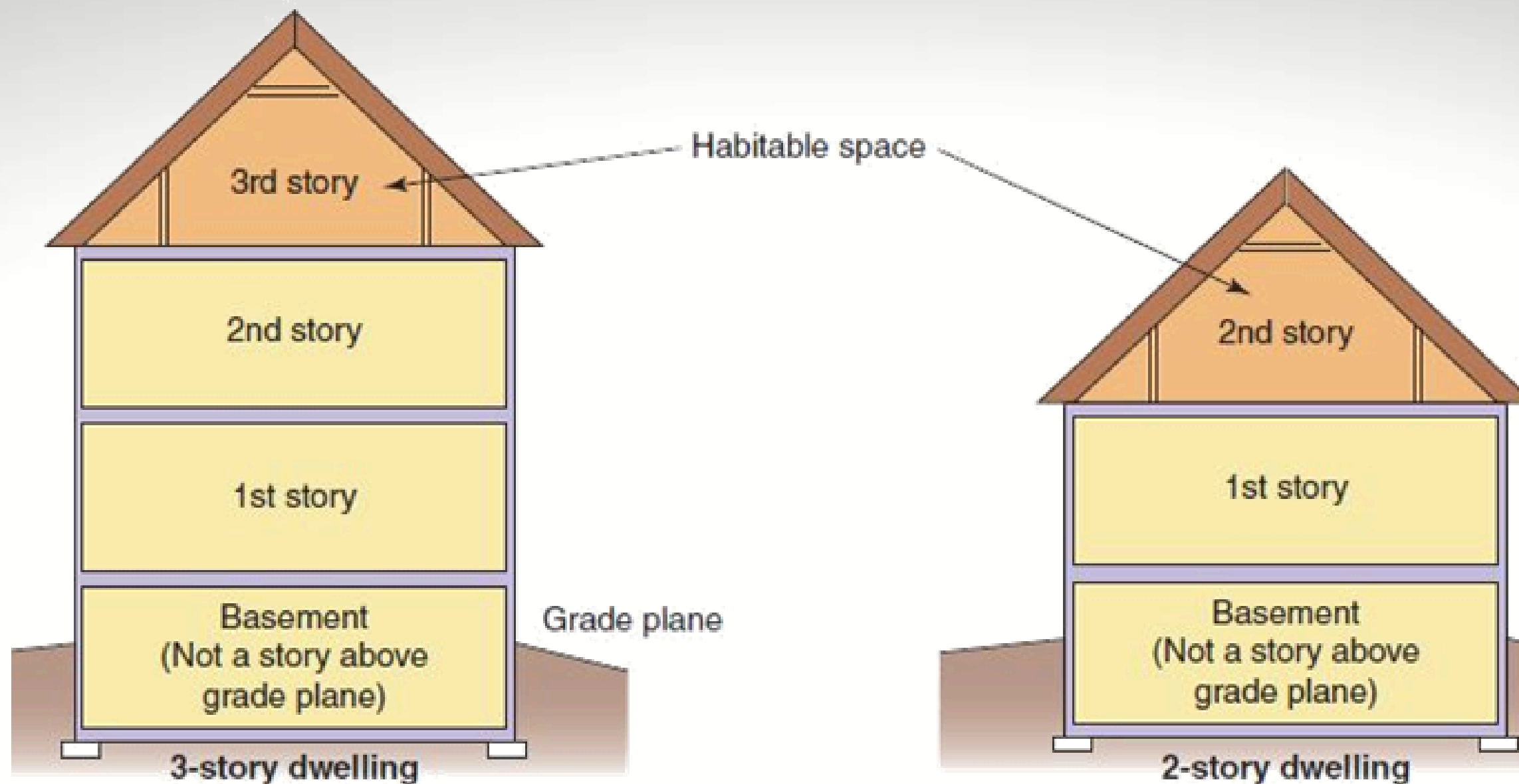
Photovoltaic Systems

**Building-integrated
photovoltaic (BIPV)
systems meeting specified
criteria do not require
firefighter access
pathways and setbacks**



Habitable Attics

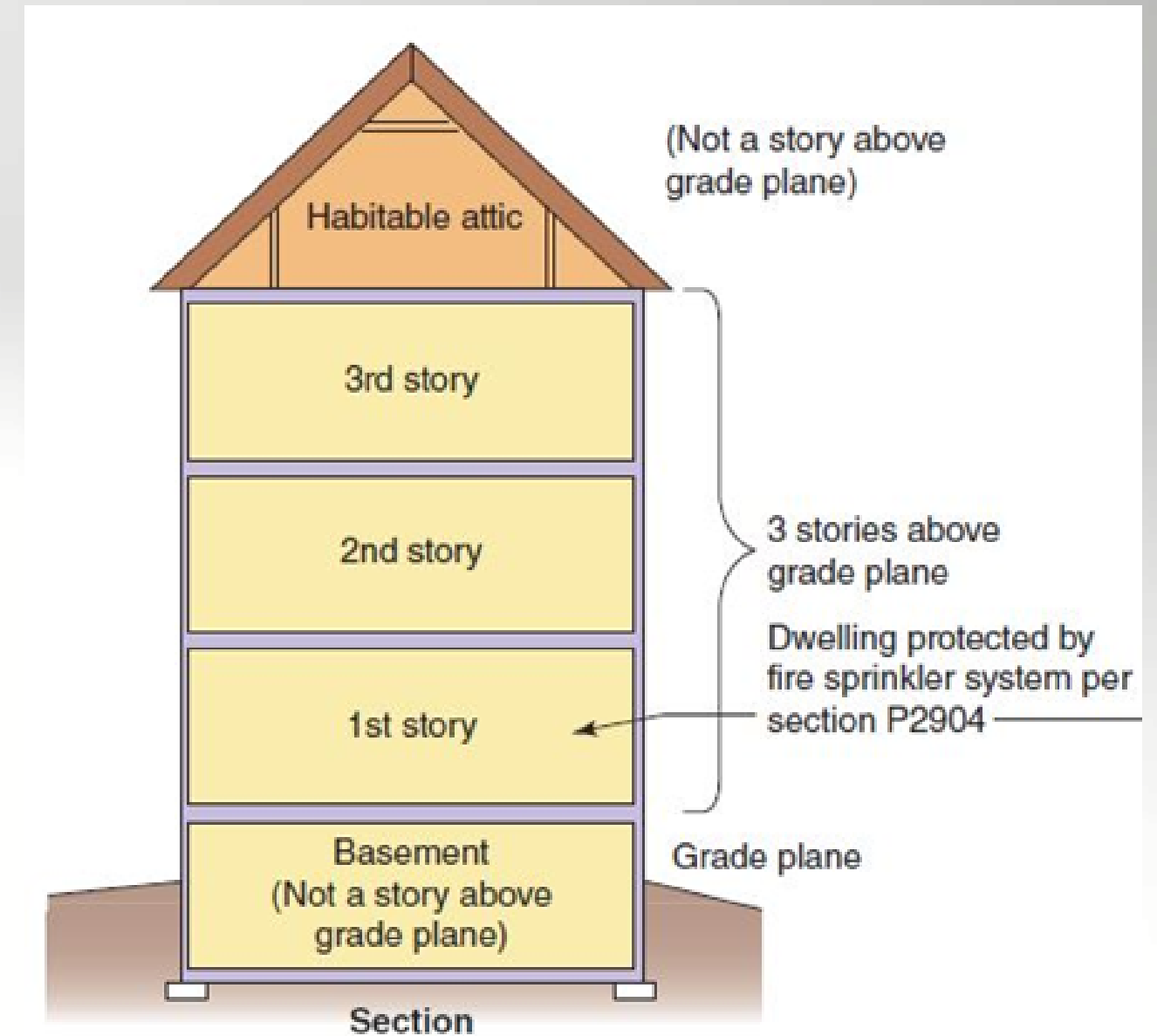
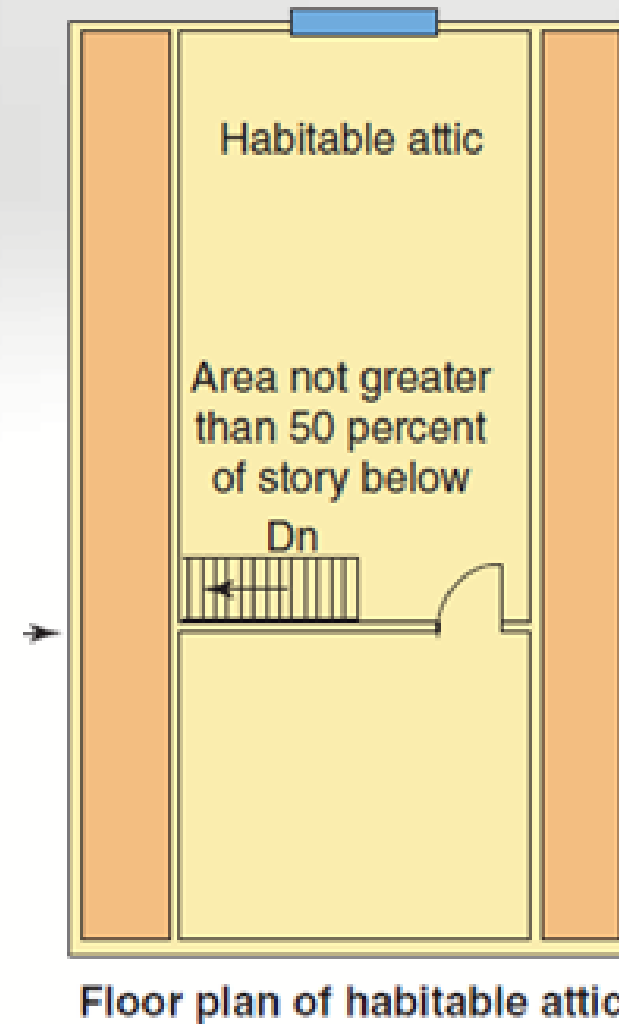
Habitable space above 2nd story or 1st story meets definition of story - no additional requirements



Habitable Attics

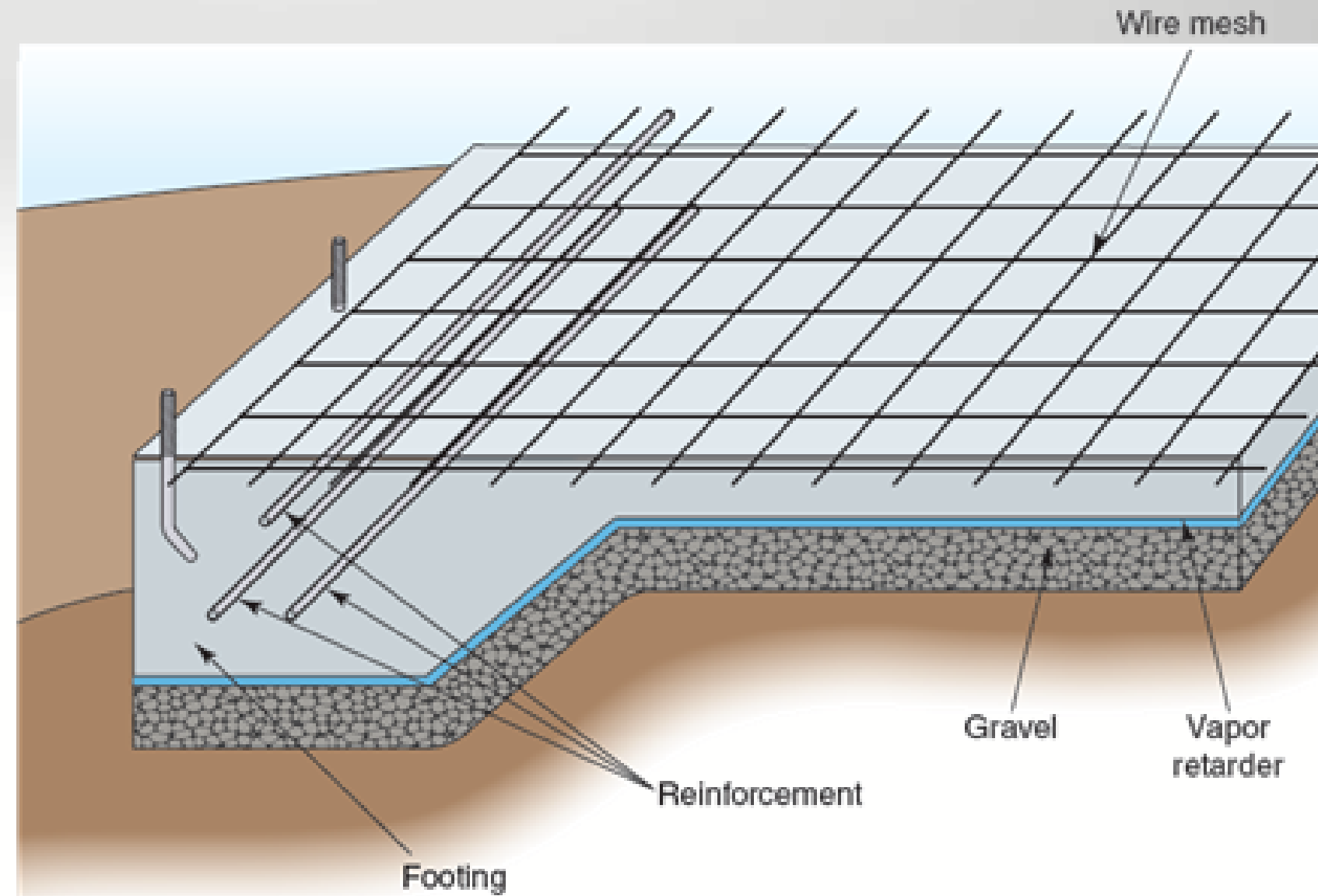
**Habitable attic
above 3rd story not
a story if:**

- **Sprinkler system**
- **Area limited to
one-half area of
story below**



Vapor Retarder

- Thicker vapor retarders now required below slabs on grade
- Minimum 10 mil (0.01") thick



Cripple Walls - Fully Sheathed

Applies only to exterior cripple walls



R602.9

Garage Door Labelling

Garage doors shall be labeled with permanent label provided by manufacturer

Label shall identify

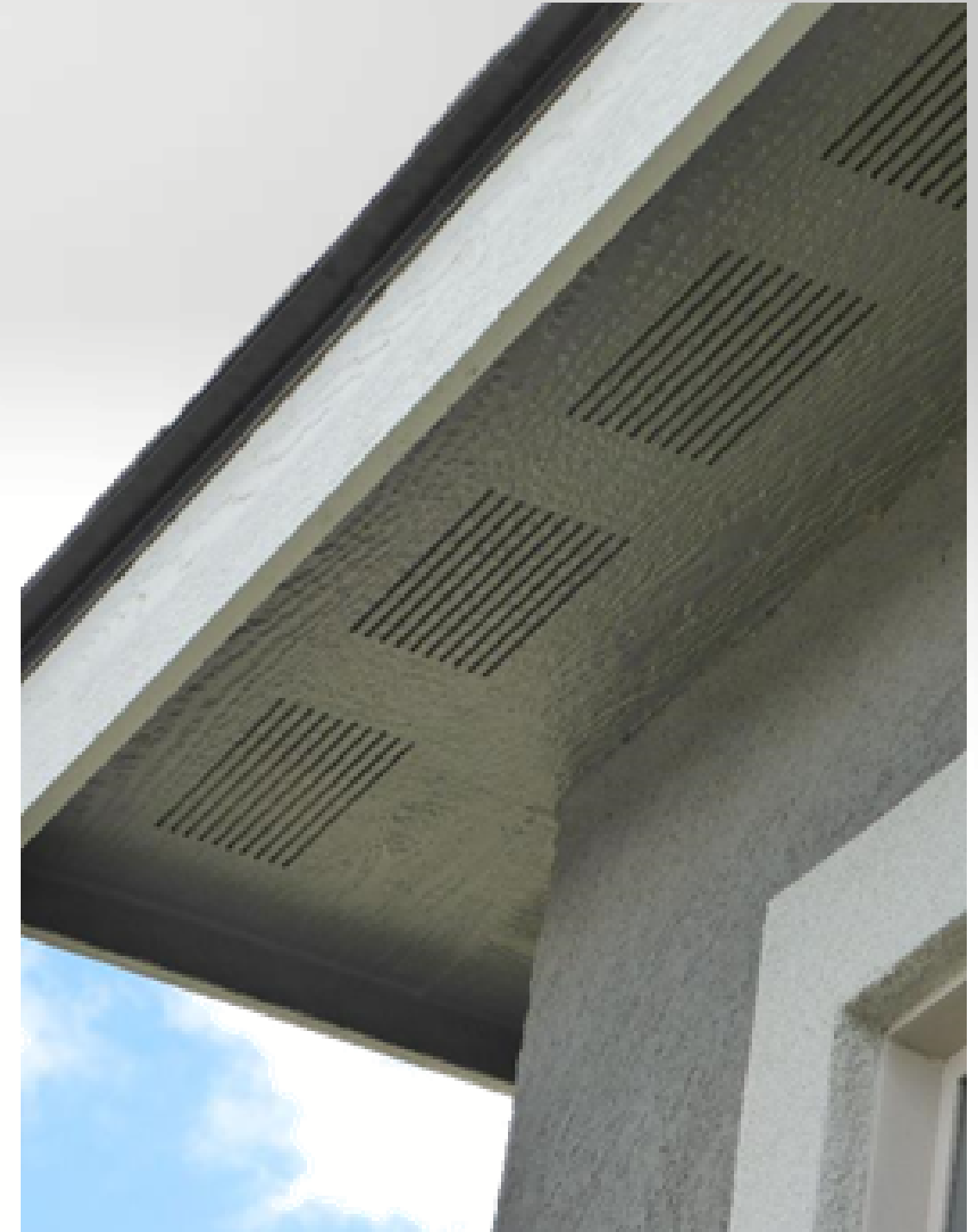
- manufacturer**
- model/series number**
- positive and negative design wind pressure rating**
- installation instruction drawing reference number**
- applicable test standard**



Soffits

**Requirements for soffit
material and installation
expanded in a new
section**

R704



Soffits

R704.1 General wind limitations

R704.2 Soffit installation where design wind pressure < 30 psf

R704.2.1 Vinyl soffit panels

R704.2.2 Fiber-cement soffit panels

R704.2.3 Hardboard soffit panels

R704.2.4 Wood structural panel soffit

R704.3 Soffit installation where design wind pressure > 30 psf

R704.3.1 Vinyl soffit panels

R704.3.2 Fiber-cement soffit panels

R704.3.3 Hardboard soffit panels

R704.3.4 Wood structural panel soffit

Metal Roof Shingle Wind Resistance

- **Requirements for metal shingle wind resistance added**



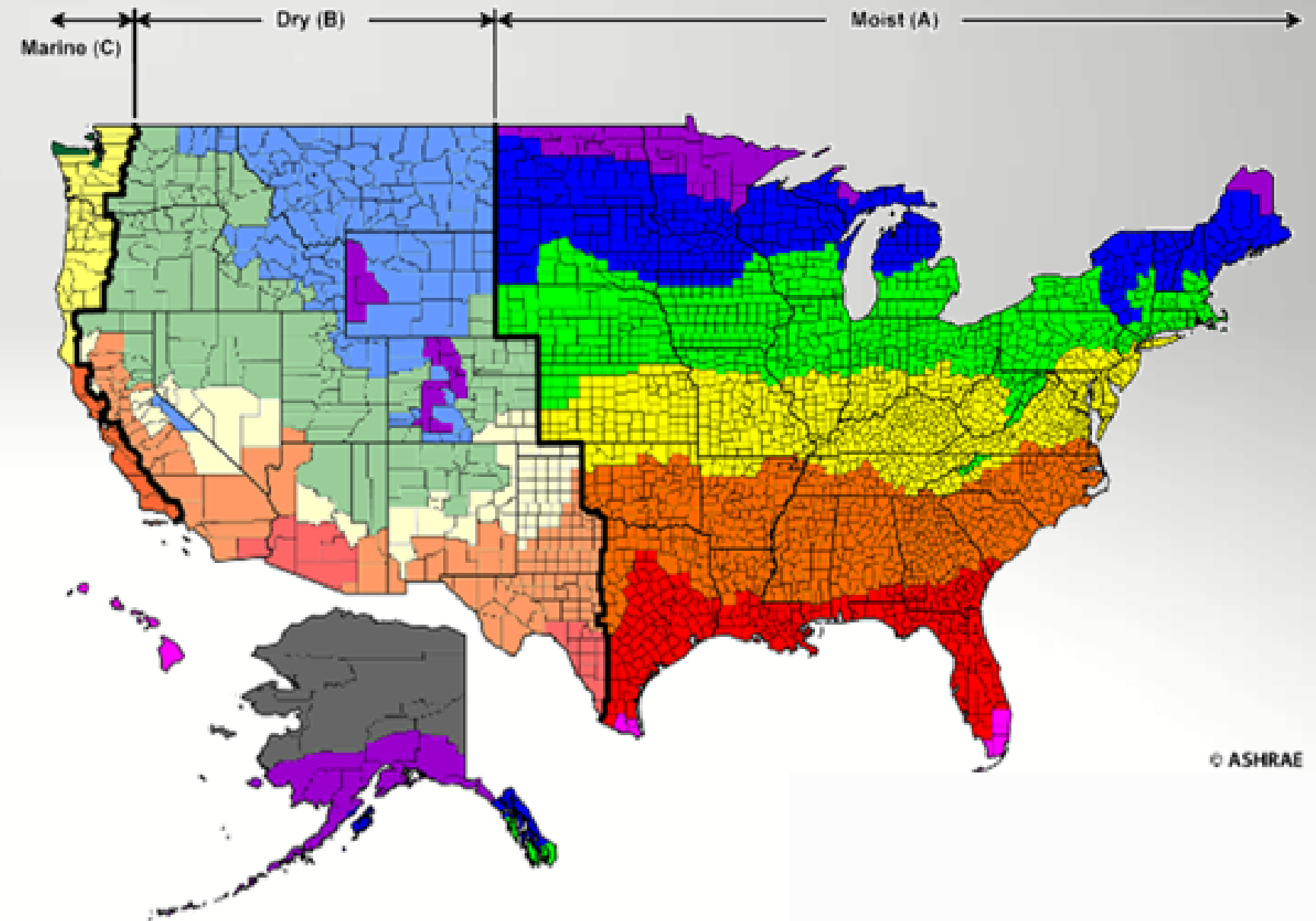
High-Efficacy Light Sources

- **Definition revision**
- **Lamps ≥ 65 lumens/W**
- **Luminaires ≥ 45 lumens/W**
- **Reflects current technology and federal standards**



Climate Zones

- **Comprehensively updated**
- **New Climate Zone 0**
- **Approximately 10% of US counties assigned new climate zone**



Compliance Options

- **Options revised**
- **Prescriptive and mandatory labels in section titles removed**



Compliance Options (Cont'd)

- **Prescriptive Compliance**
- **Total Building Performance**
- **Energy Rating Index**
- **Tropical Climate Region**



Permanent Energy Certificate

- Additional information • Building thermal envelope
- Solar energy
- Energy Rating Index (ERI)
- Code edition



Energy Efficiency Certificate

Insulation rating	R-Value	R-Value
Ceiling/Roof	_____	Floor/Foundation _____
Wall	_____	Ductwork _____

Glass & door rating	U-Factor	SHGC	U-Factor	SHGC
Window	_____	_____	_____	_____
Door	_____	_____	_____	_____

Heating & cooling equipment	Efficiency
Heating system: _____	_____
Cooling system: _____	_____
Water heater: _____	_____

Building air leakage and duct test results	
Building air leakage _____	Name of tester _____
Duct test _____	Name of tester _____

Photovoltaic (PV) panel system	
Array capacity _____	Panel tilt _____
Inverter efficiency _____	Orientastion _____

Energy Rating Index (ERI)	
ERI w/o on-site generation _____	ERI with on-site generation _____

Additional energy efficiency option used: _____

Name: _____ Date: _____

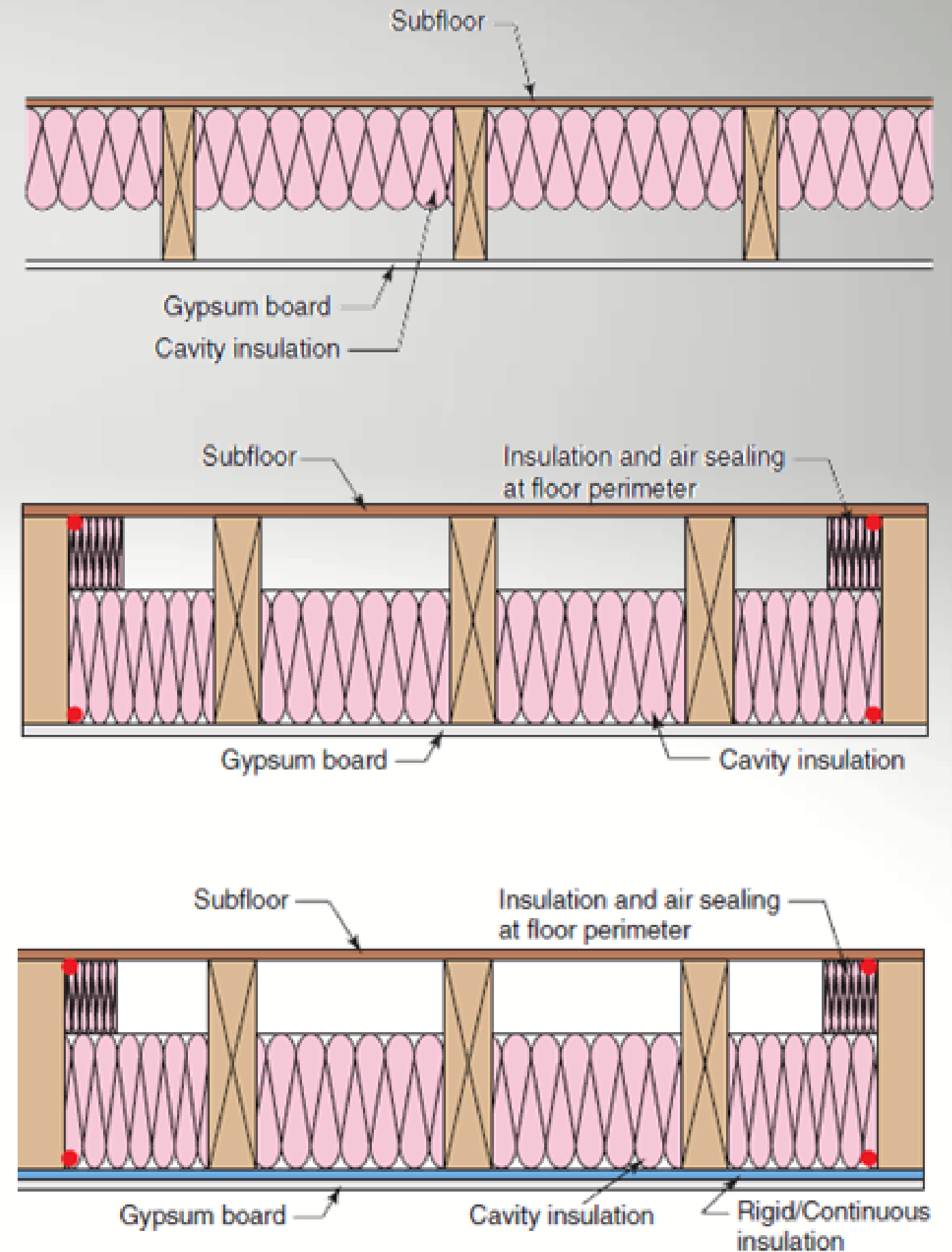
N1101.14

N1102.2.4 Access Hatches and Doors

- Prescriptive provisions for insulation levels and mandatory provisions for installation (weather-stripping and baffles) have been placed in separate sections.**
- Provisions addressing pull-down stairs have been added.**

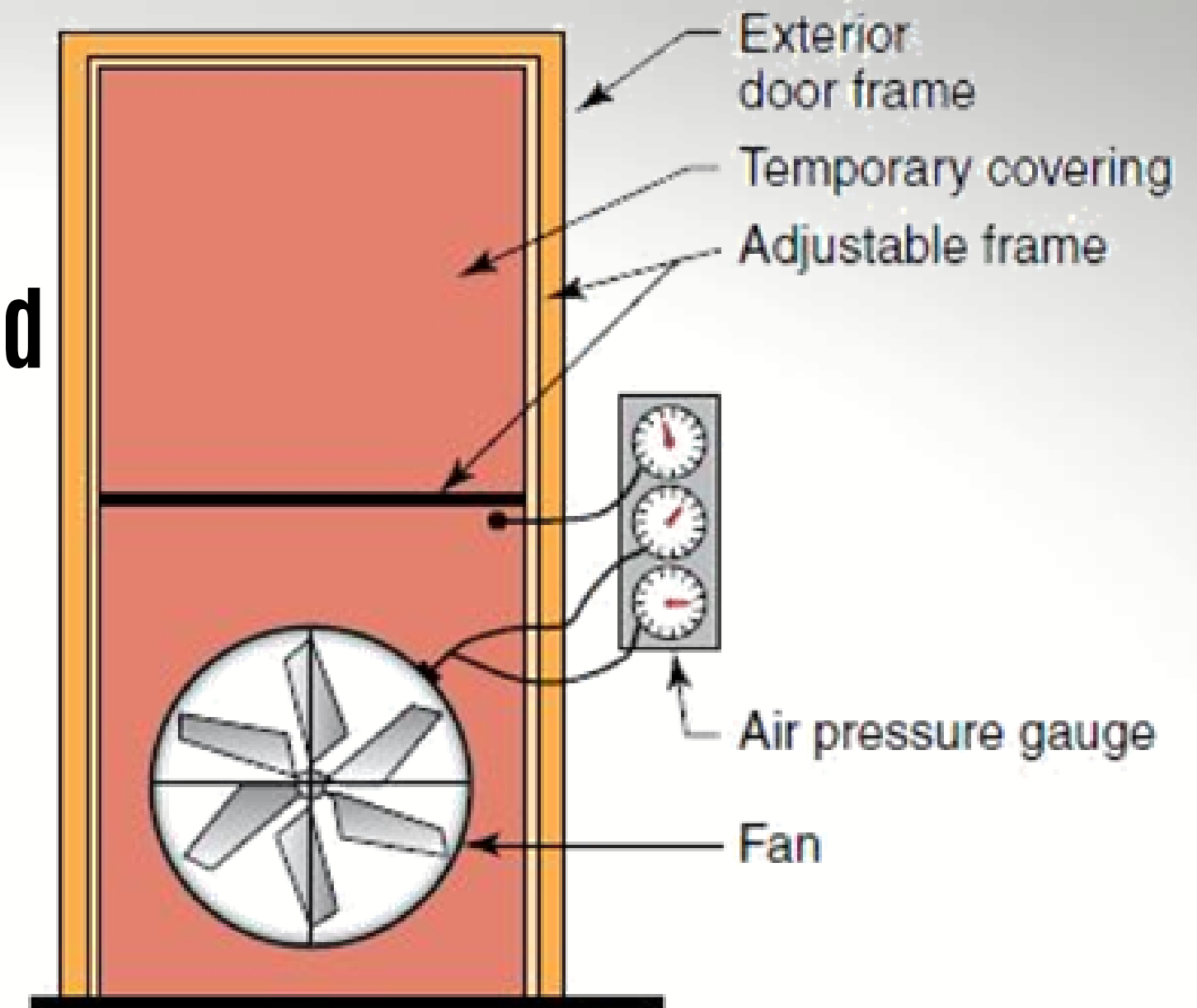
Floor Insulation

- Cavity insulation compliance
- Underside of subfloor
- Top side of ceiling
- Continuous insulation top side of ceiling



Building Air Leakage and Testing

- 5 ACH for all compliance paths
- 3 ACH for prescriptive path in climate zones 3-8
- Heated attached and detached garages field verified for air barrier and insulation
- Exception to quantify air leakage in attached and small volume dwelling units
- Changes throughout Air Barrier, Air Sealing, and Insulation Installation table



Building Air Leakage and Testing



ANSI/RESNET/ ICC 380-2016

Standard for Testing
Airtightness of Building
Enclosures, Airtightness
of Heating and Cooling
Air Distribution Systems,
and Airflow of Mechanical
Ventilation Systems

American National Standard

RESNET

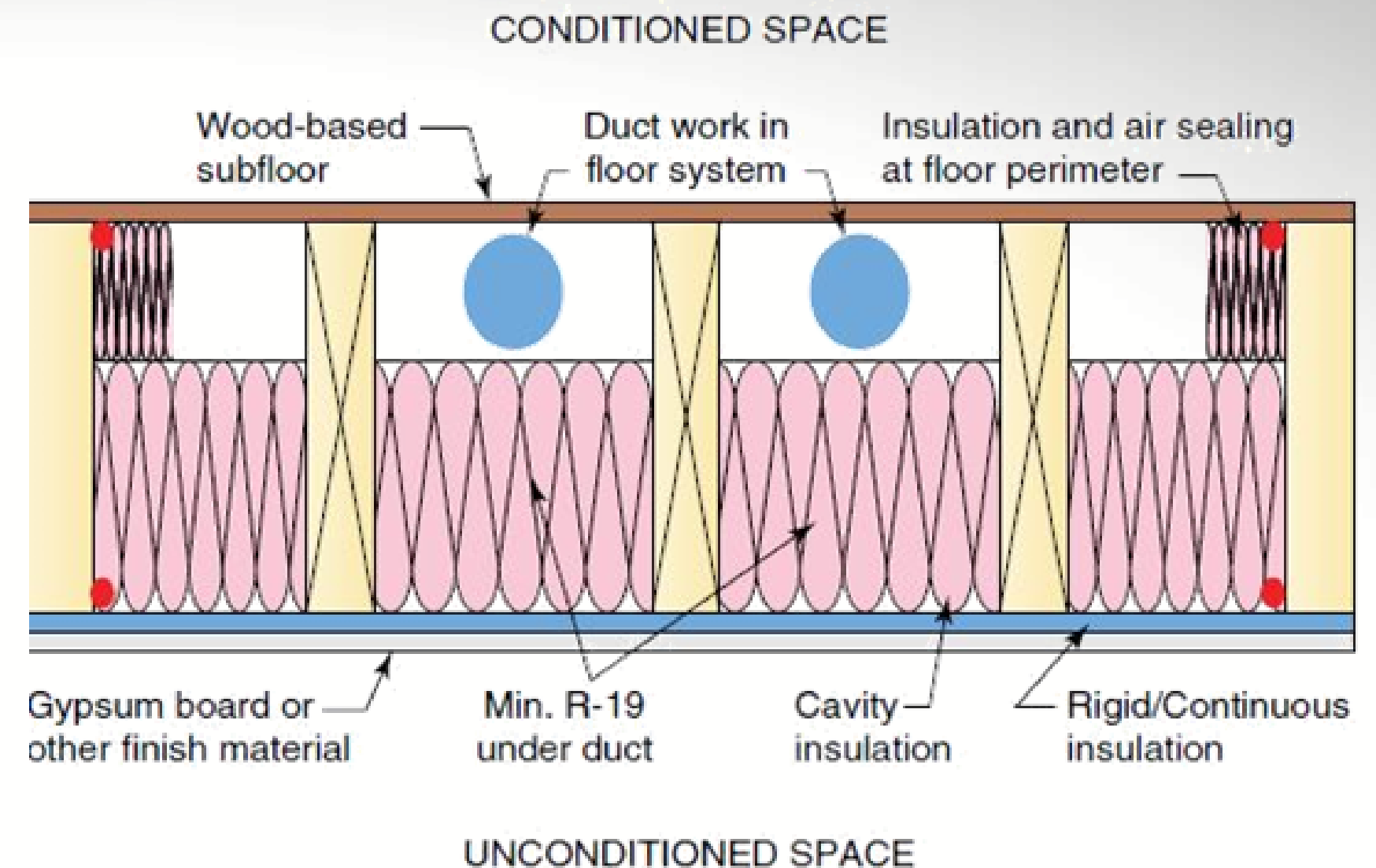


Air-Sealed Electrical Boxes

- **Electrical and communication outlet boxes in thermal envelope**
- **Sealed**
- **Tested NEMA OS 4**
- **Marked "NEMA OS 4" or "OS 4"**
- **Installed per manufacturer's instructions and NEMA OS 4**

Duct Installation

- Where ductwork qualifies as being in conditioned space
- Duct system completely within continuous air barrier and thermal envelope
- Duct work in ventilated attic and buried in ceiling insulation
- Duct work in floor cavities over unconditioned space
- Duct work in exterior walls



Duct Testing

- Exception for testing ducts in conditioned spaces deleted



Lighting Equipment

- **High-efficacy lighting now required in all permanent lighting fixtures**
- **New provisions regulate lighting controls for interior and exterior lighting**



Through-the-wall Vent Terminals

Figure Clearance	Clearance Location	Minimum Clearances for Direct-vent Terminals	Minimum Clearances for Nondirect-vent Terminals
A	Clearance above finished grade level, veranda, porch, deck, or balcony	12 inches	
B	Clearance to window or door that is openable	6 inches: Appliances $\leq$ 10,000 Btu/hr 9 inches: Appliances $>$ 10,000 Btu/hr $\leq$ 50,000 Btu/hr 12 inches: Appliances $>$ 50,000 Btu/hr $\leq$ 150,000 Btu/hr Appliances $>$ 150,000 Btu/hr, per manufacturer's instructions $\leq$ clearances specified for Row B nondirect-vent terminals	4 feet below or to side of opening or 1 foot above opening
C	Clearance to non-openable window	None unless otherwise specified by appliance manufacturer	

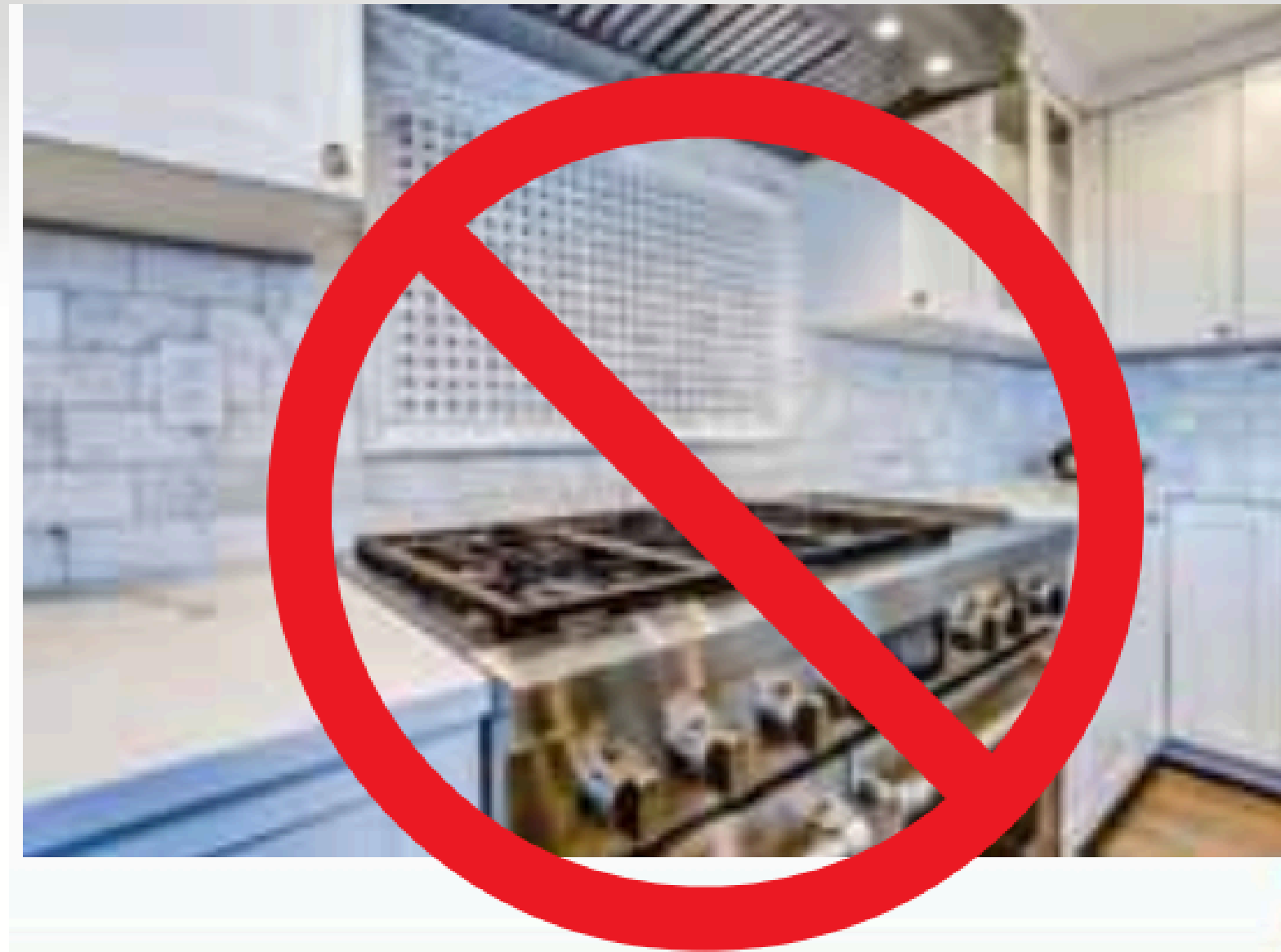
Makeup Air for Dryer Installed in a Closet

- The requirement for a transfer opening for supplying makeup air to a closet designed for a gas dryer has been moved into a separate section.



Commercial Cooking Appliances

- Prohibited



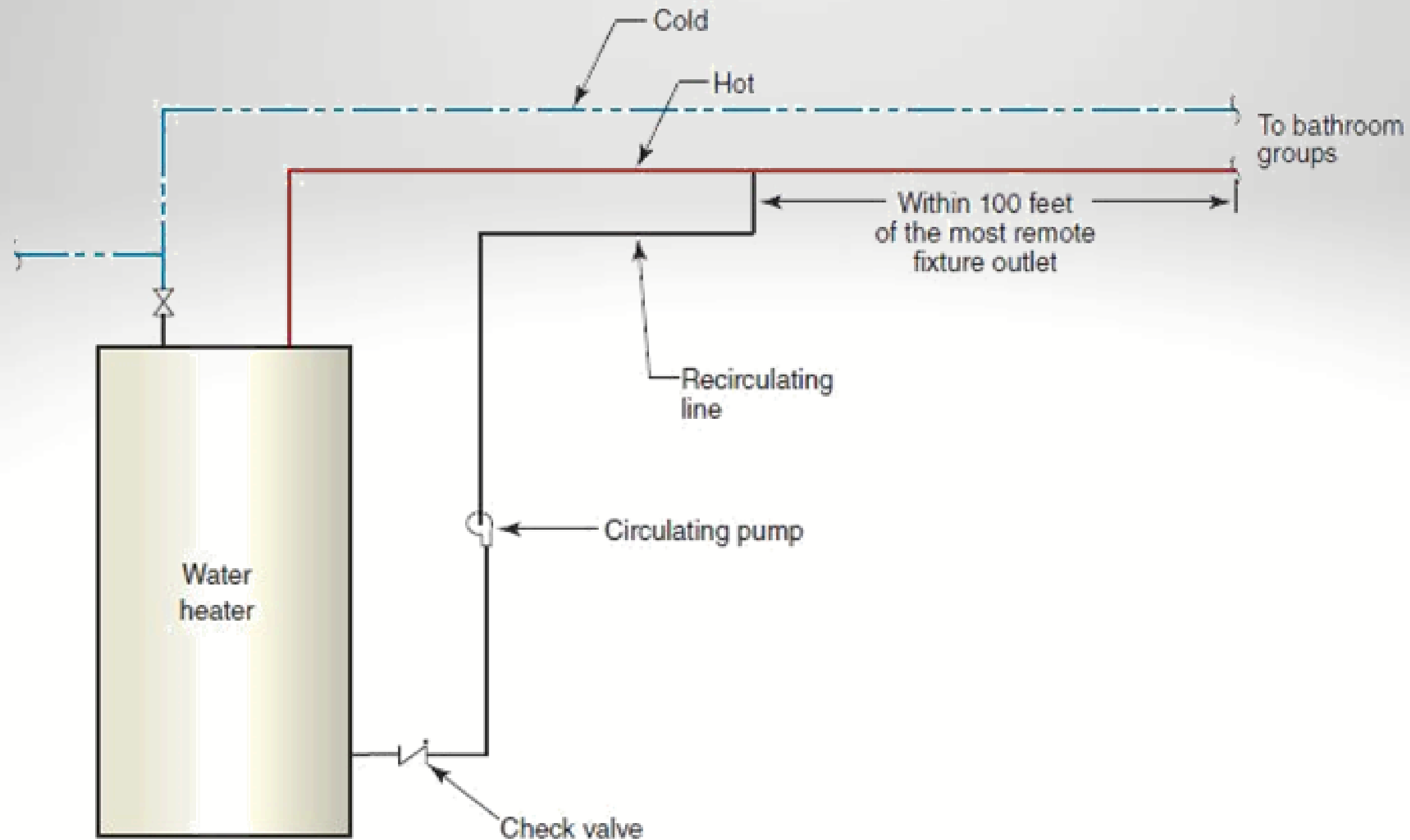
Shower & Bathtub Control Valves

- Addresses field adjustment and access to shower control valves
- Lower flow shower heads need to be compatible with shower control mixing valve



§ P2708.4
& P2713.3

Hot Water Piping Length to Fixtures



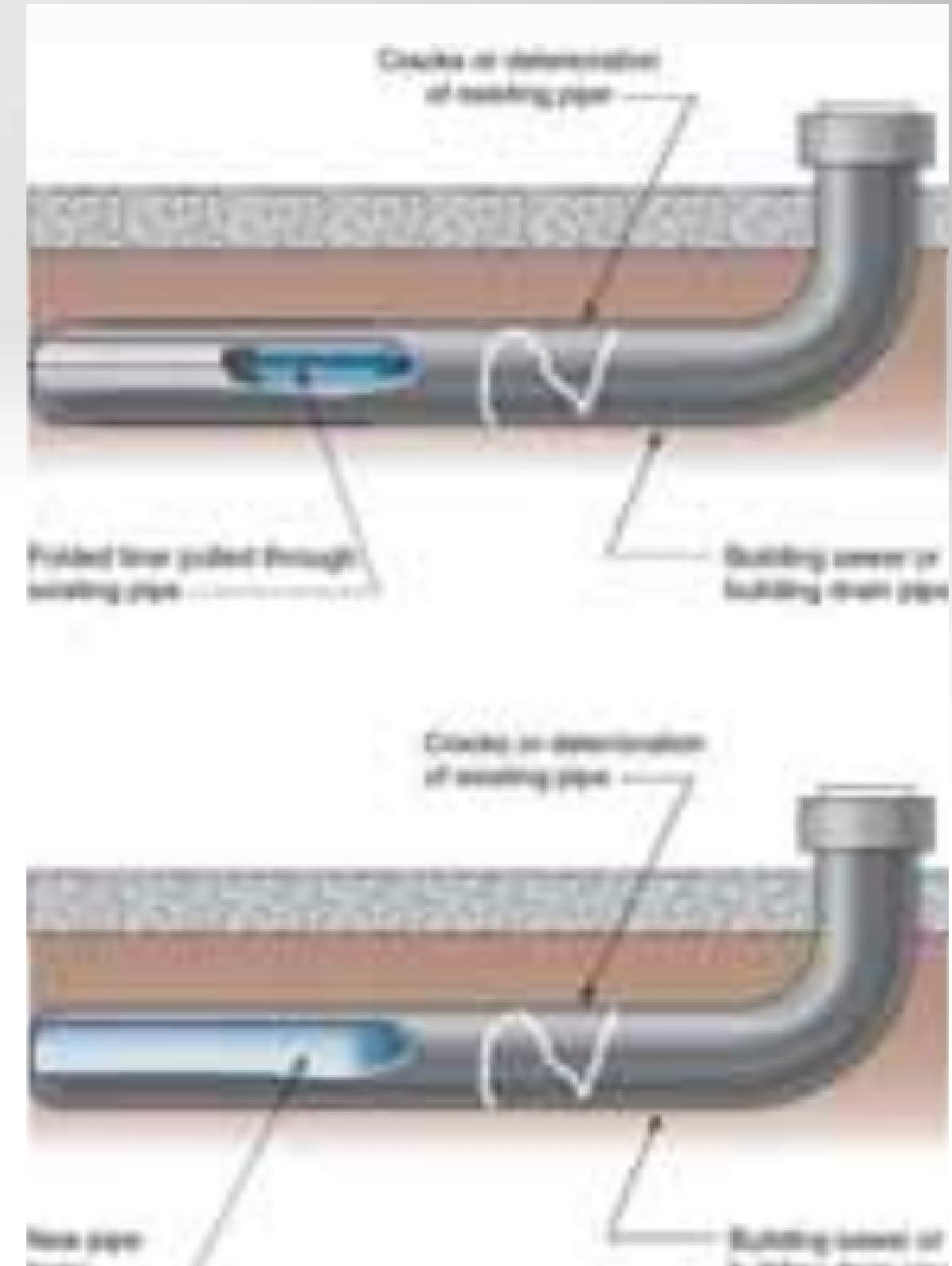
Fixture Traps as Cleanouts

- **Removable traps and removeable fixtures with integral traps acceptable for use as cleanouts**



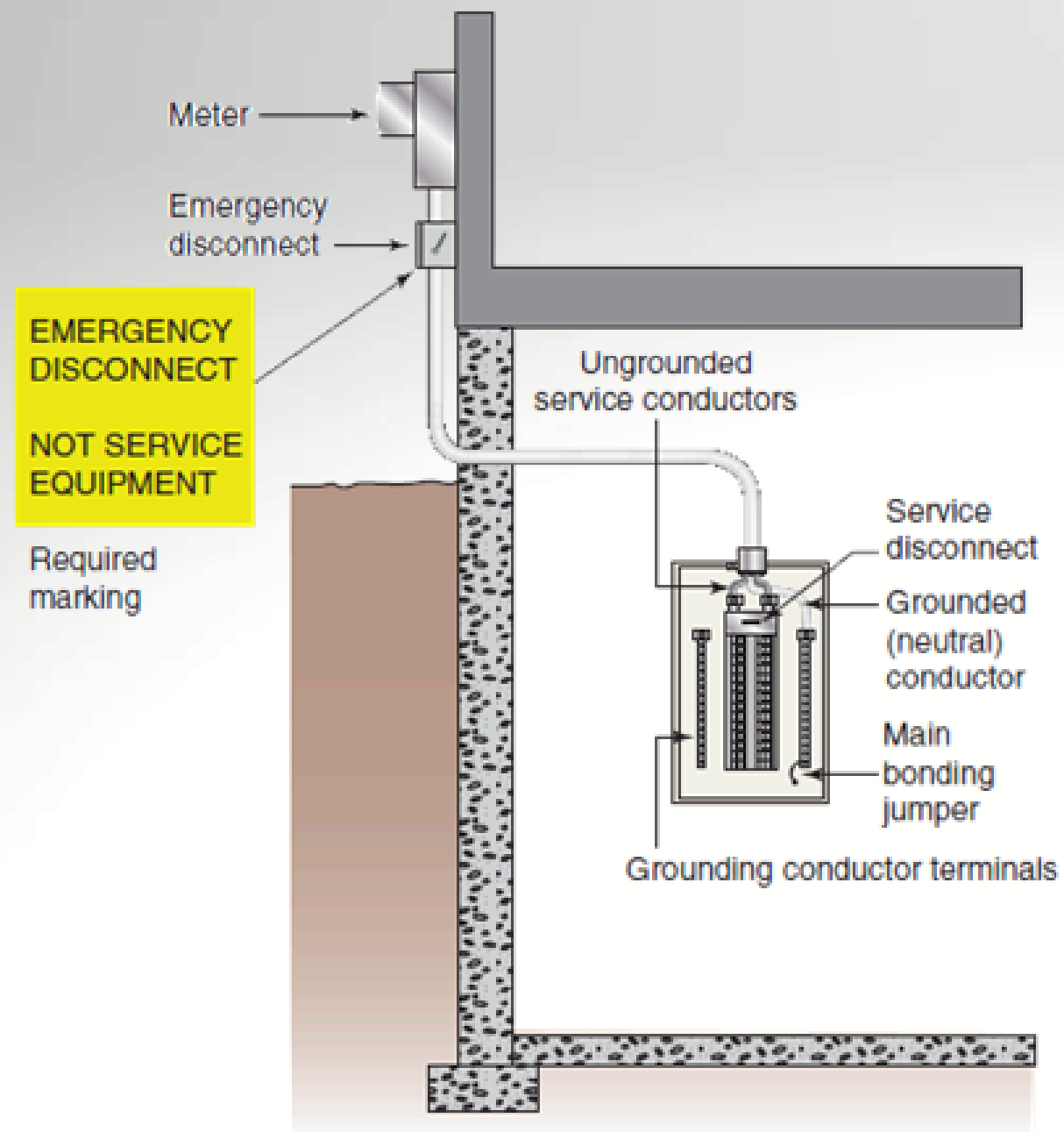
Relining of Building Sewers and Building Drains

- Recognizes various available technologies for relining of existing building sewer and building drainage piping
- Clarifies inspection procedures



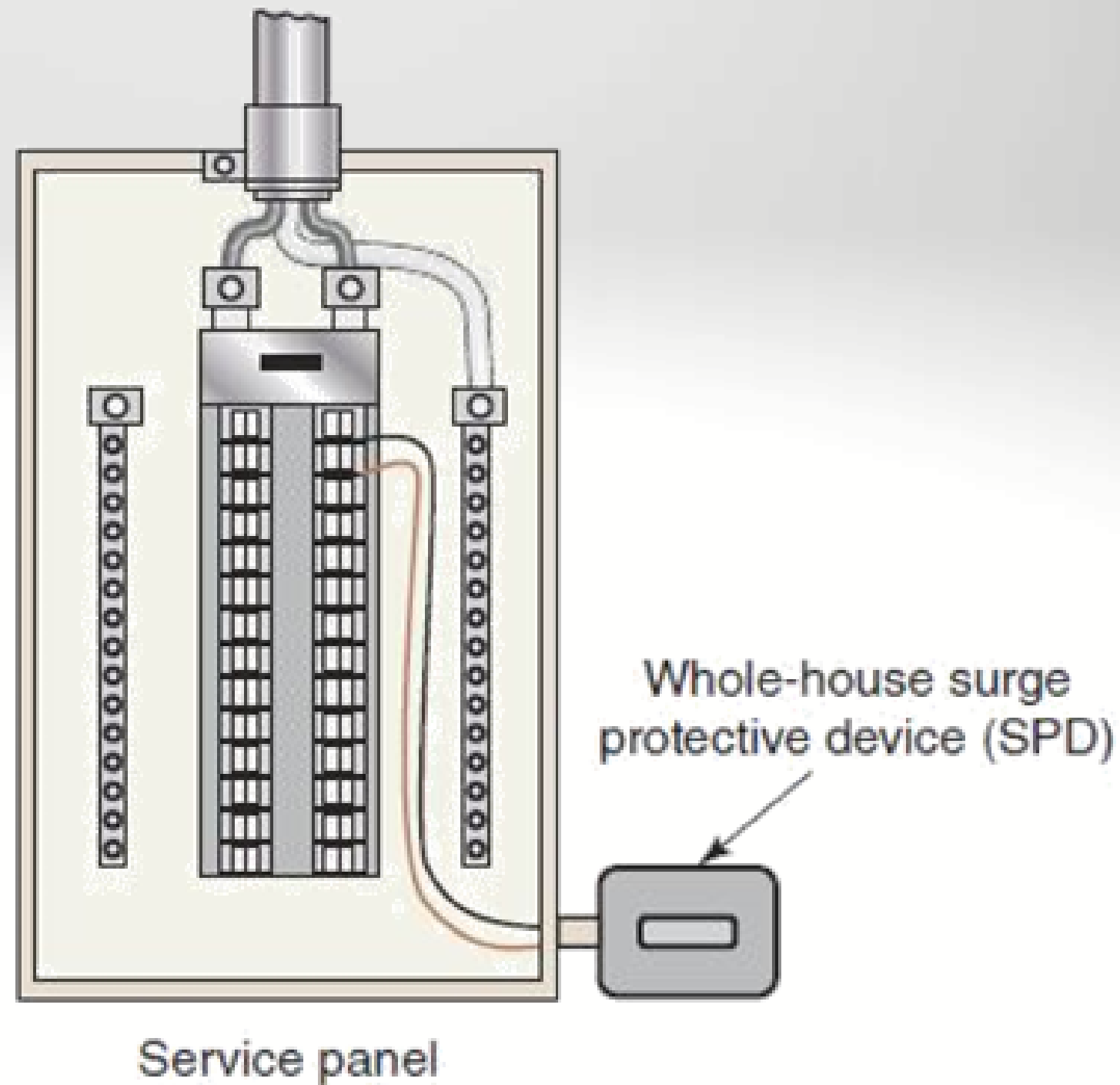
Emergency Service Disconnects

**Required in a readily
accessible outdoor
location**



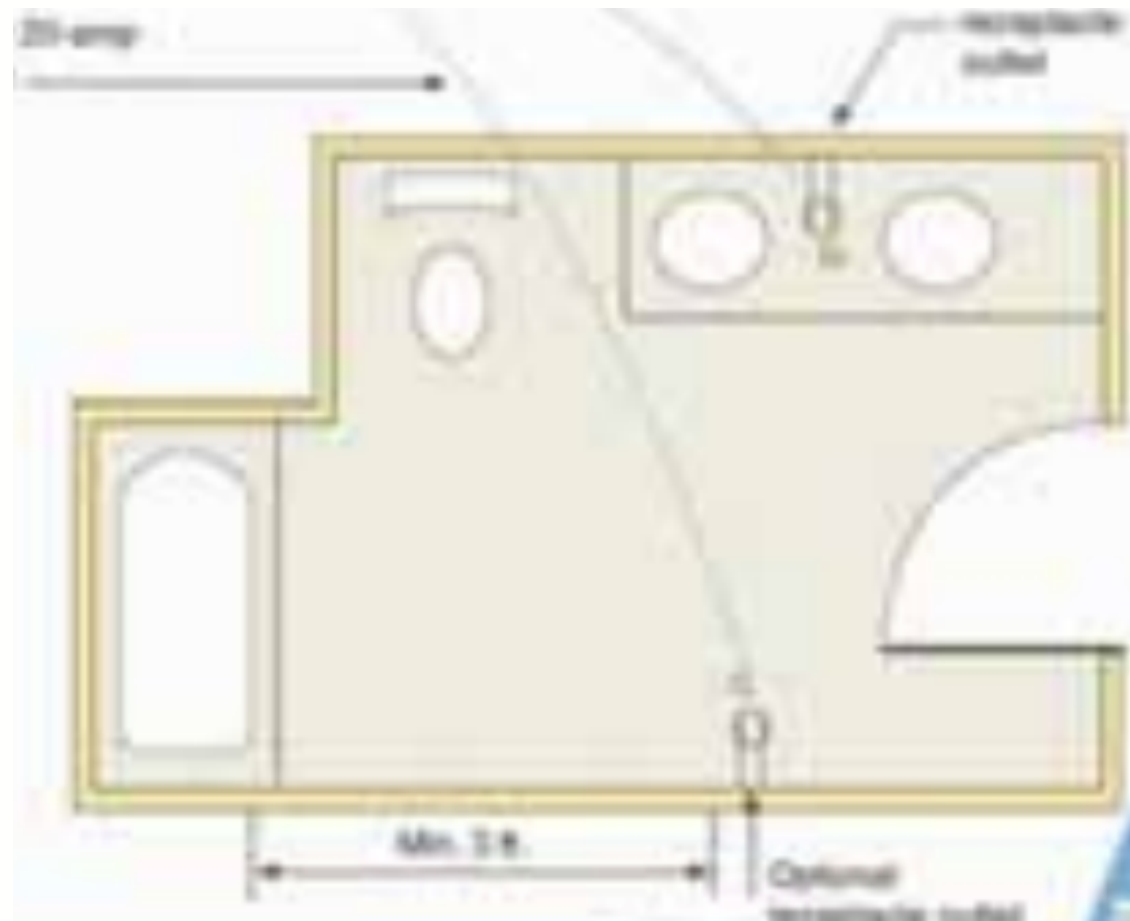
Service Surge-Protective Device

**SPD now
required at
service
panel**



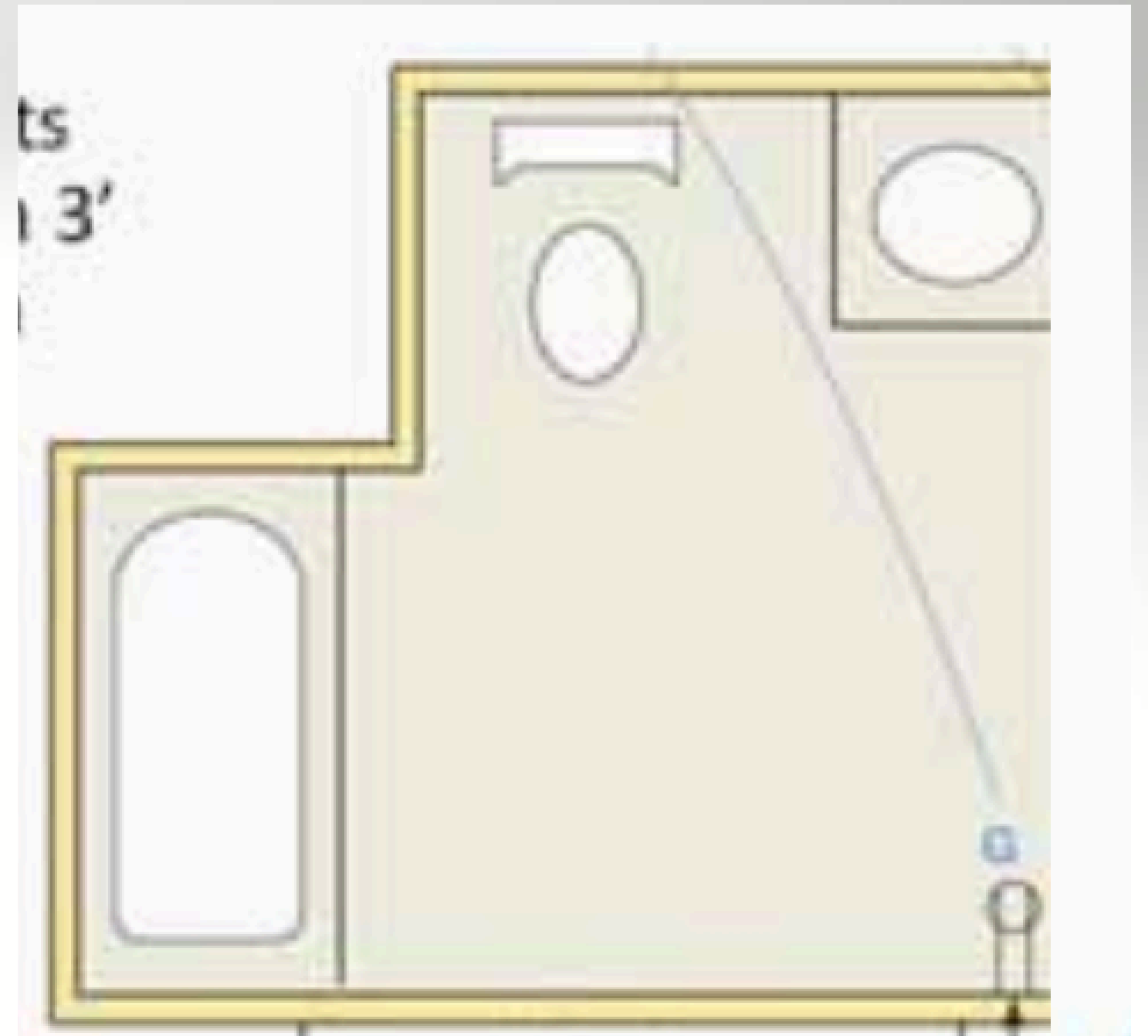
Bathroom Branch Circuits

- **Dedicated 20-amp circuit for required outlets or those serving a countertop only**



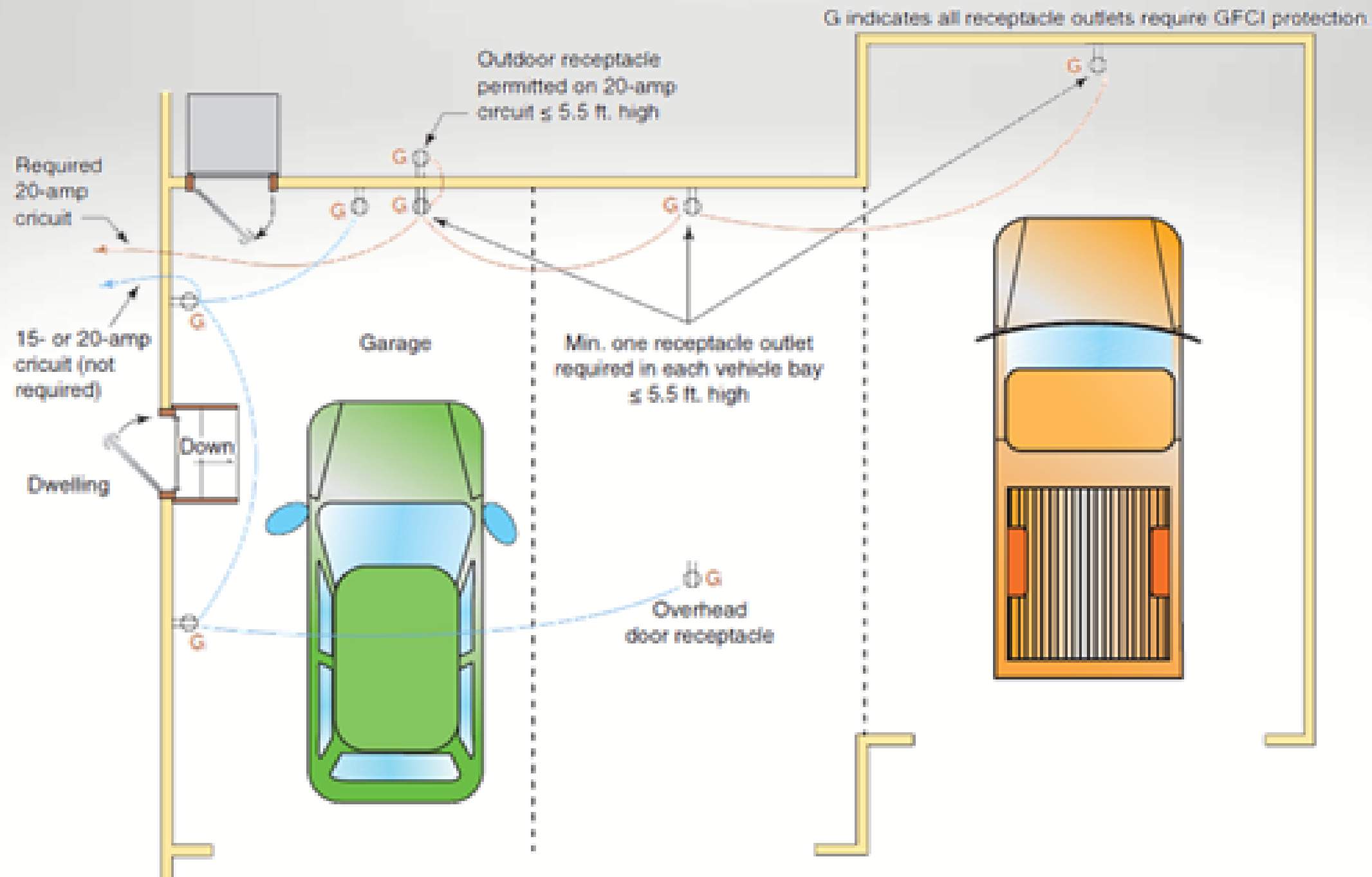
Bathroom Branch Circuits

- Receptacle outlets prohibited within 3' horizontally from bathtub rim or shower stall threshold



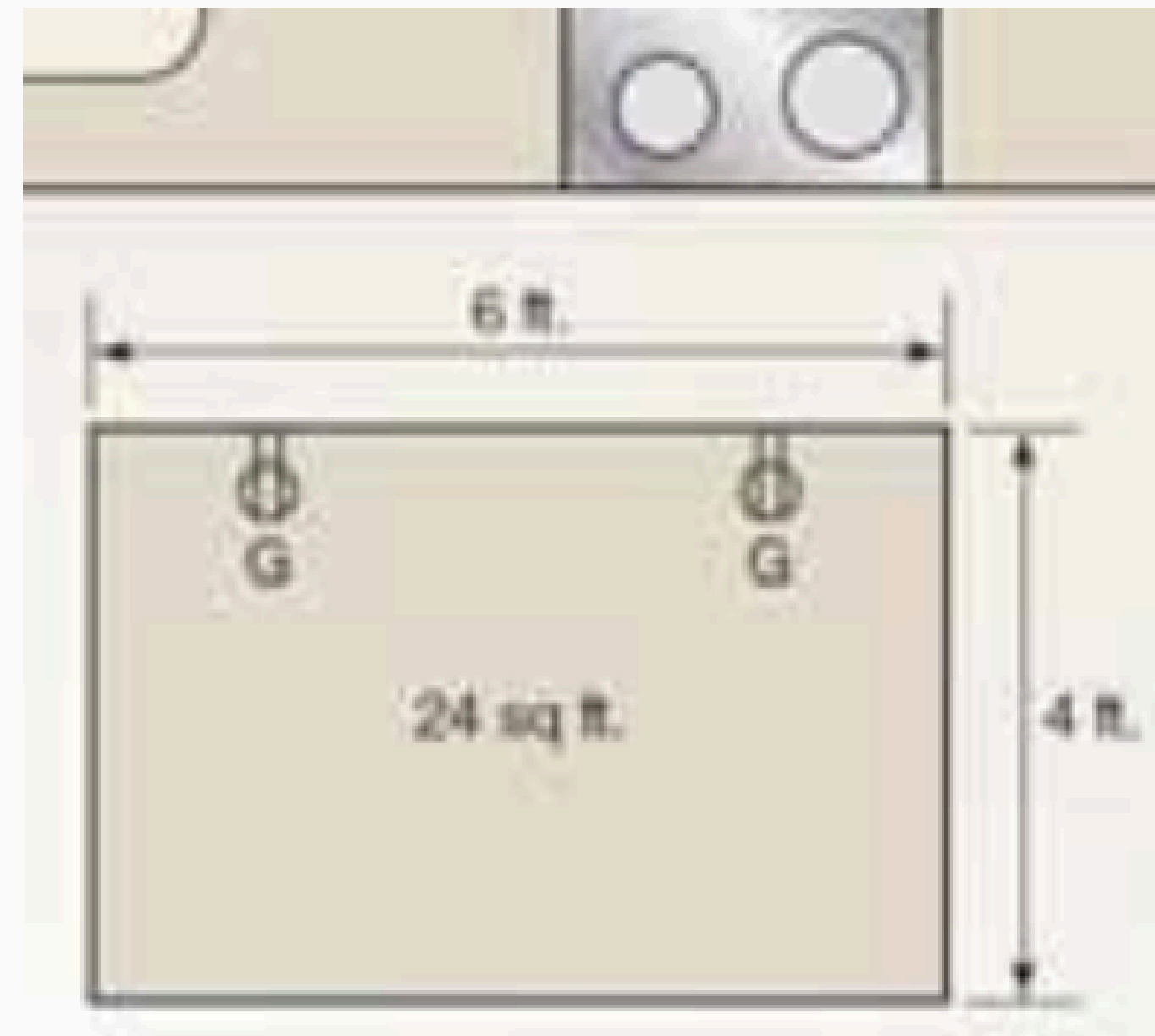
Garage Branch Circuits

Dedicated 20-amp circuits for required outlets only



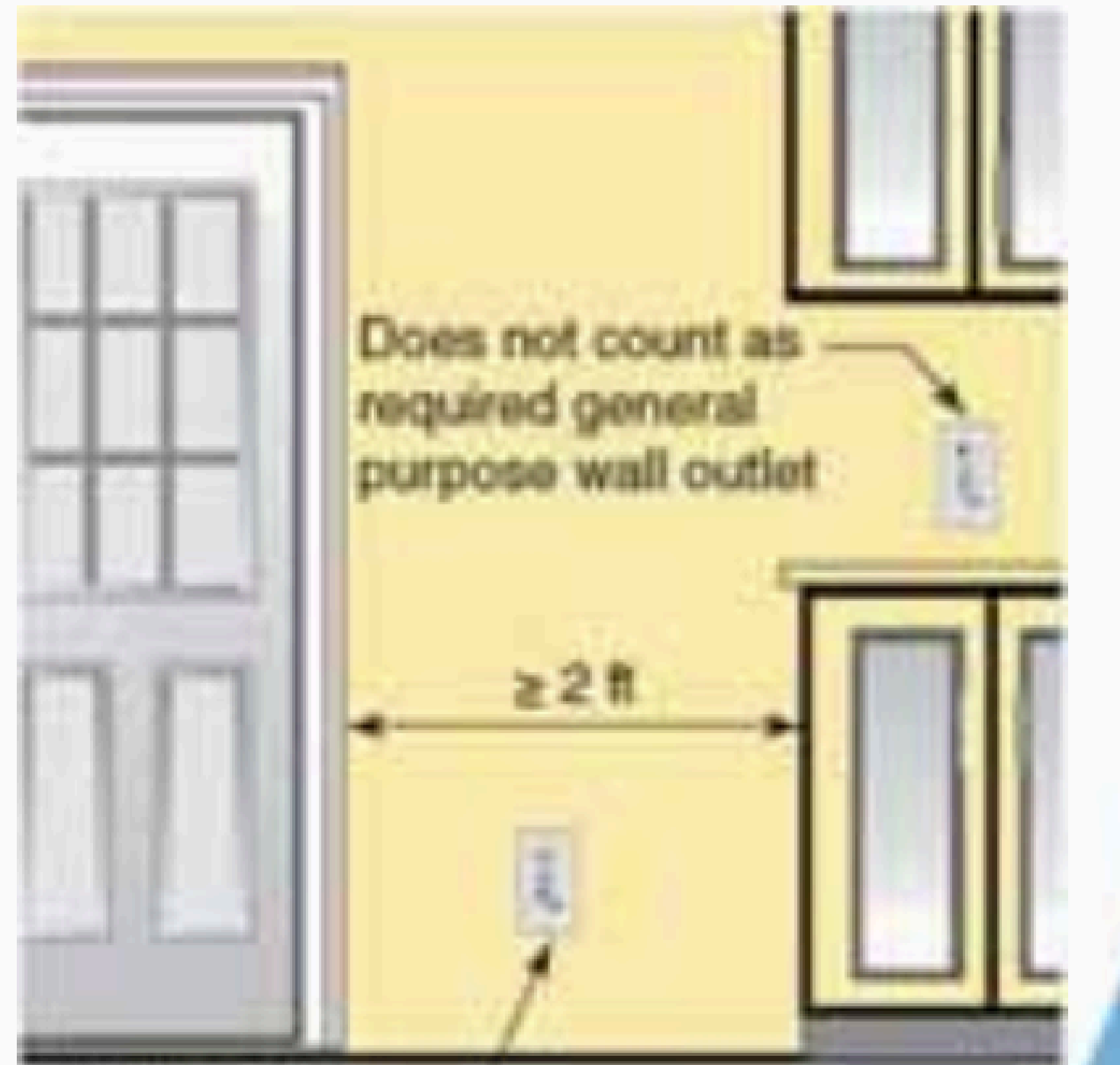
Kitchen Countertop and Work Surface Receptacles

- Number of outlets required for peninsulas and islands determined by countertop surface area
 - One for first 9 ft² or fraction thereof
 - One for every additional 18 ft² or fraction thereof



Kitchen Countertop and Work Surface Receptacles

- Does not count as required general-purpose wall space receptacle outlet

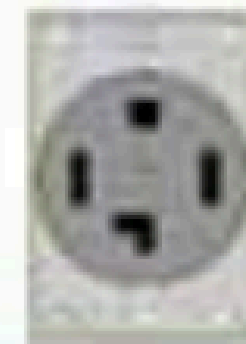


§ E3901.4

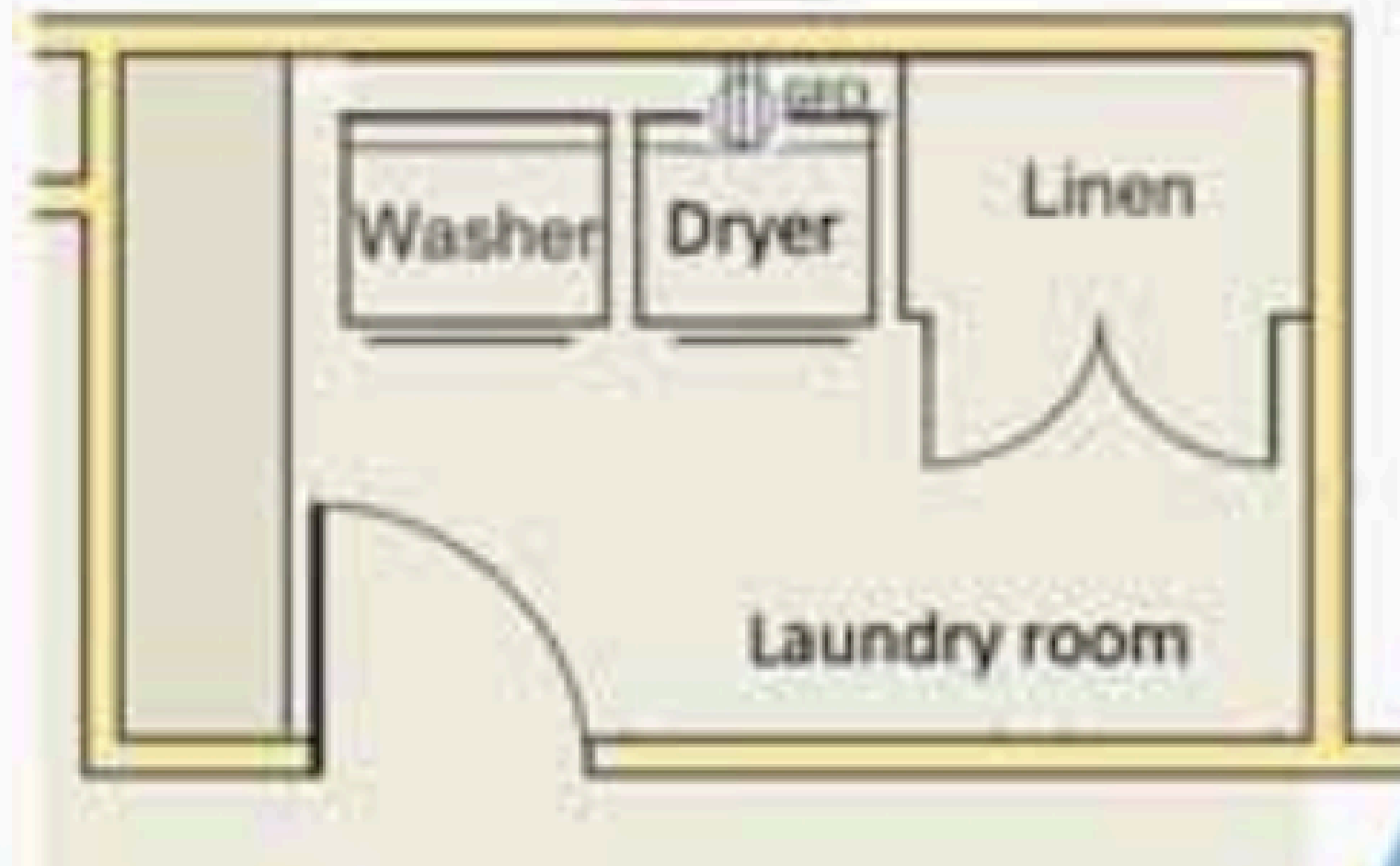


GFCI 250-Volt Receptacles

- Required in identified areas
- 20-amp limitation removed



250v dryer
receptacle

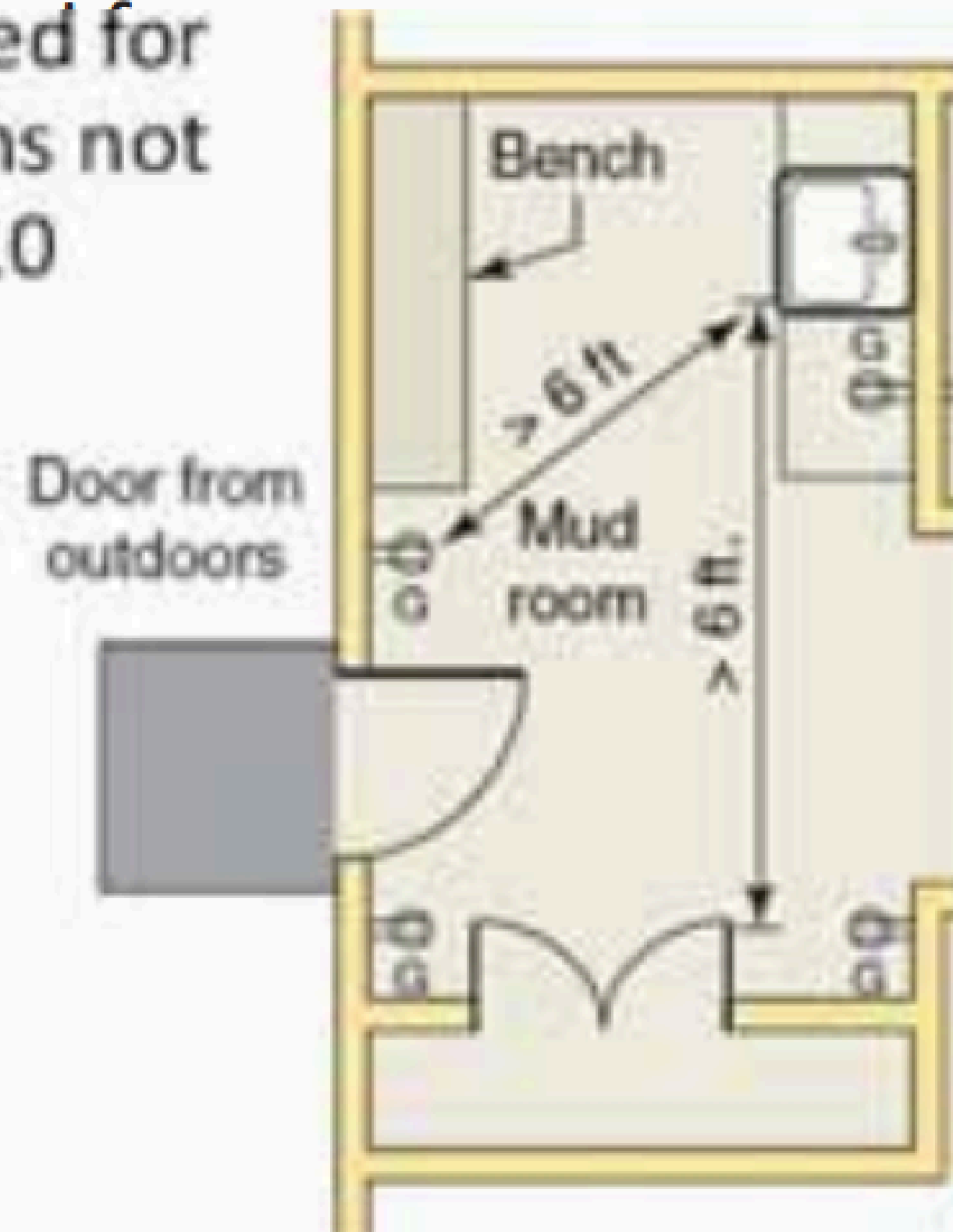


§ E3902



GFCI for Indoor Damp Locations

- Protection now required for damp and wet locations not included in the other 10 areas requiring GFCI protection



§ E3902.10



