Electric Service Installations

for New, Changes, & Upgrades

Wisconsin Department of Safety and Professional Services Electrical and Lighting Program

- ✓ Proper Paperwork
- ✓ Service Rated Equipment
- ✓ Clear Working Space
- ✓ Bonding of Service Equipment
- ✓ Grounding of Service Equipment
- ✓ Conductor Sizes
- ✓ Overhead Electric Services
- ✓ Underground Electric Services
- ✓ Branch Circuits

Service Inspection Checklist & Overview

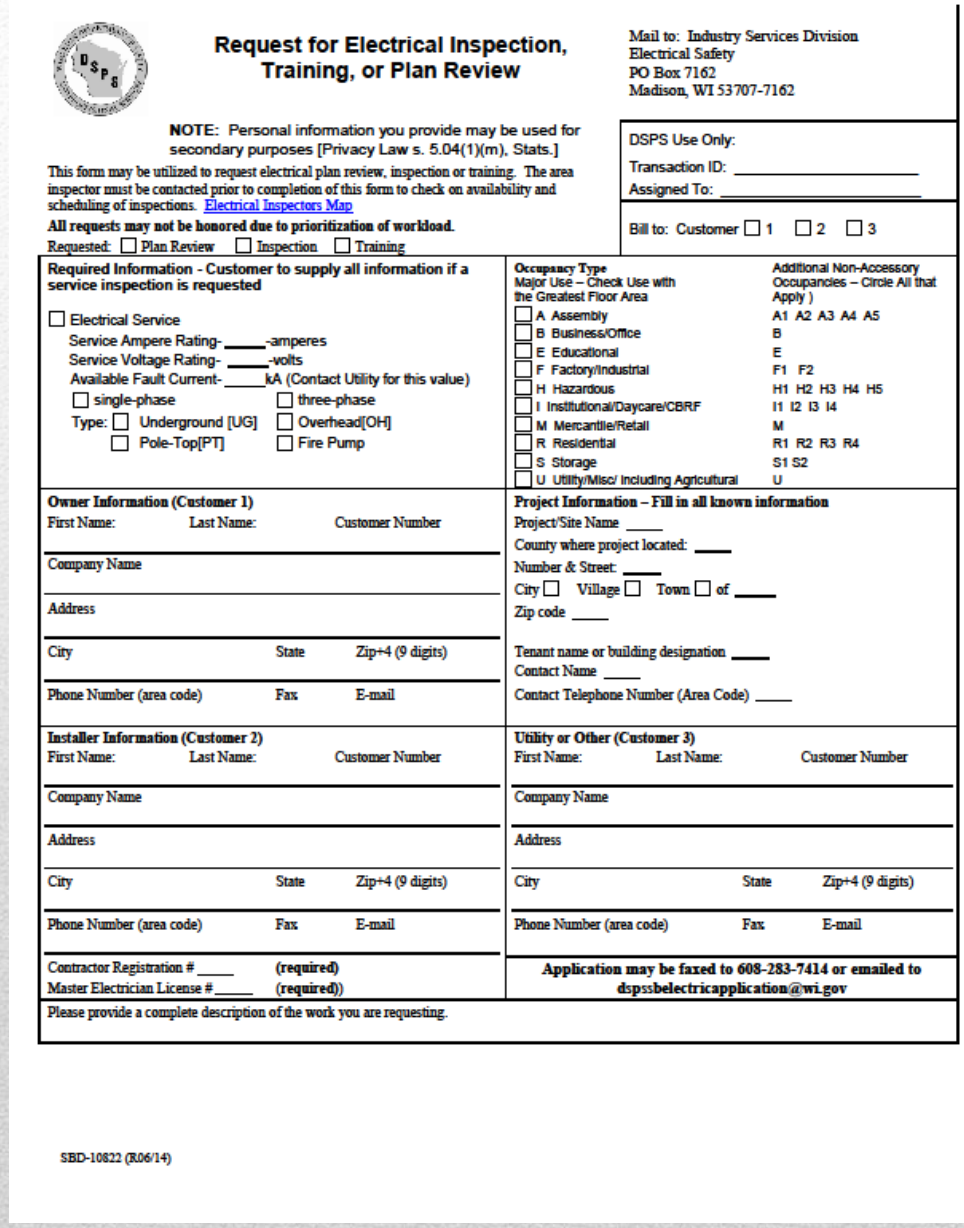
What Is Your Job?

- Inspector
- Contractor
- Electrician

- Application For Inspection
- Service Location Letter
- Service Rewire Application

Proper Paperwork

SPS 316.230(1) (a) Note it is recommended that the electric utility or cooperative supplying electric current be contacted prior to service equipment installations for any special requirements.



Request for Electrical Inspection, Training, or Plan Review

Mail to: Industry Services Division
Electrical Safety
PO Box 7162
Madison, WI 53707-7162

NOTE: Personal information you provide may be used for secondary purposes [Privacy Law s. 5.04(1)(m), Stats.]

This form may be utilized to request electrical plan review, inspection or training. The area inspector must be contacted prior to completion of this form to check on availability and scheduling of inspections. Electrical Inspectors Map

All requests may not be honored due to prioritization of workload.

Requested: ☐ Plan Review ☐ Inspection ☐ Training

DSPS Use Only:
Transaction ID: _____
Assigned To: _____

Bill to: Customer ☐ 1 ☐ 2 ☐ 3

Required Information - Customer to supply all information if a service inspection is requested

☐ Electrical Service
Service Ampere Rating- ____-amperes
Service Voltage Rating- ____-volts
Available Fault Current- ____kA (Contact Utility for this value)
☐ single-phase ☐ three-phase
Type: ☐ Underground [UG] ☐ Overhead[OH]
☐ Pole-Top[PT] ☐ Fire Pump

Occupancy Type Major Use – Check Use with the Greatest Floor Area	Additional Non-Accessory Occupancies – Circle All that Apply)
☐ A Assembly	A1 A2 A3 A4 A5
☐ B Business/Office	B
☐ E Educational	E
☐ F Factory/Industrial	F1 F2
☐ H Hazardous	H1 H2 H3 H4 H5
☐ I Institutional/Daycare/CBRF	I1 I2 I3 I4
☐ M Mercantile/Retail	M
☐ R Residential	R1 R2 R3 R4
☐ S Storage	S1 S2
☐ U Utility/Misc/ including Agricultural	U

Owner Information (Customer 1)
First Name: Last Name: Customer Number
Company Name
Address
City State Zip+4 (9 digits)
Phone Number (area code) Fax E-mail

Project Information – Fill in all known information
Project/Site Name ____
County where project located: ____
Number & Street: ____
City ☐ Village ☐ Town ☐ of ____
Zip code ____
Tenant name or building designation ____
Contact Name ____
Contact Telephone Number (Area Code) ____

Installer Information (Customer 2)
First Name: Last Name: Customer Number
Company Name
Address
City State Zip+4 (9 digits)
Phone Number (area code) Fax E-mail

Utility or Other (Customer 3)
First Name: Last Name: Customer Number
Company Name
Address
City State Zip+4 (9 digits)
Phone Number (area code) Fax E-mail

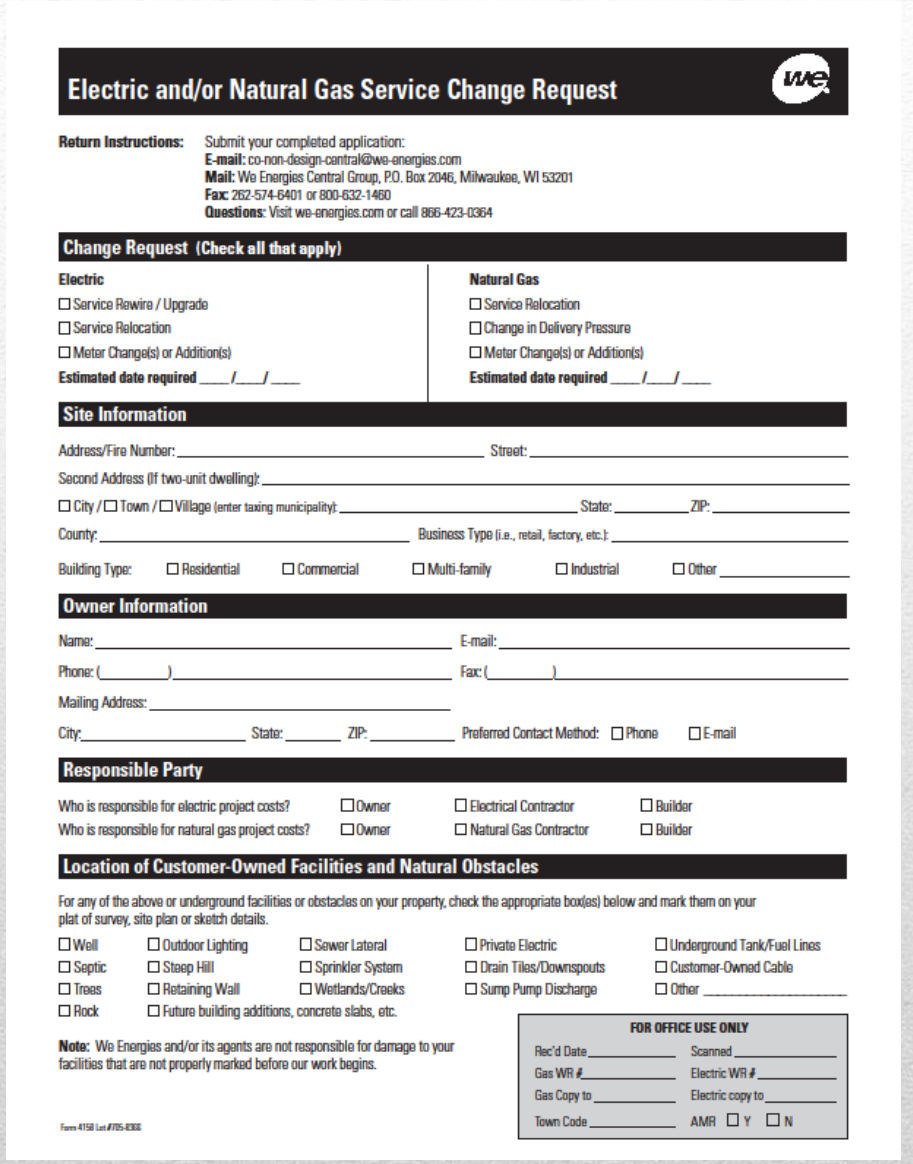
Contractor Registration # ____ **(required)**
Master Electrician License # ____ **(required))**

Application may be faxed to 608-283-7414 or emailed to dspssbelectricapplication@wi.gov

Please provide a complete description of the work you are requesting.

SBD-10822 (R.06/14)

Application For Inspection



Electric and/or Natural Gas Service Change Request

Return Instructions: Submit your completed application:
E-mail: co-non-design-central@we-energies.com
Mail: We Energies Central Group, P.O. Box 2046, Milwaukee, WI 53201
Fax: 262-574-6401 or 800-632-1460
Questions: Visit we-energies.com or call 866-423-0364

Change Request (Check all that apply)

Electric
- ☐ Service Rewire / Upgrade
- ☐ Service Relocation
- ☐ Meter Change(s) or Addition(s)

Estimated date required ____/____/____

Natural Gas
- ☐ Service Relocation
- ☐ Change in Delivery Pressure
- ☐ Meter Change(s) or Addition(s)

Estimated date required ____/____/____

Site Information

Address/Fire Number: _____ Street: _____

Second Address (If two-unit dwelling): _____

☐ City / ☐ Town / ☐ Village (enter taxing municipality): _____ State: _____ ZIP: _____

County: _____ Business Type (i.e., retail, factory, etc.): _____

Building Type: ☐ Residential ☐ Commercial ☐ Multi-family ☐ Industrial ☐ Other _____

Owner Information

Name: _____ E-mail: _____

Phone: (_____) _____ Fax: (_____) _____

Mailing Address: _____

City: _____ State: _____ ZIP: _____ Preferred Contact Method: ☐ Phone ☐ E-mail

Responsible Party

Who is responsible for electric project costs? ☐ Owner ☐ Electrical Contractor ☐ Builder

Who is responsible for natural gas project costs? ☐ Owner ☐ Natural Gas Contractor ☐ Builder

Location of Customer-Owned Facilities and Natural Obstacles

For any of the above or underground facilities or obstacles on your property, check the appropriate box(es) below and mark them on your plat of survey, site plan or sketch details.

☐ Well	☐ Outdoor Lighting	☐ Sewer Lateral	☐ Private Electric	☐ Underground Tank/Fuel Lines
☐ Septic	☐ Steep Hill	☐ Sprinkler System	☐ Drain Tiles/Downspouts	☐ Customer-Owned Cable
☐ Trees	☐ Retaining Wall	☐ Wetlands/Creeks	☐ Sump Pump Discharge	☐ Other _____
☐ Rock	☐ Future building additions, concrete slabs, etc.			

Note: We Energies and/or its agents are not responsible for damage to your facilities that are not properly marked before our work begins.

FOR OFFICE USE ONLY

Rec'd Date _____ Scanned _____

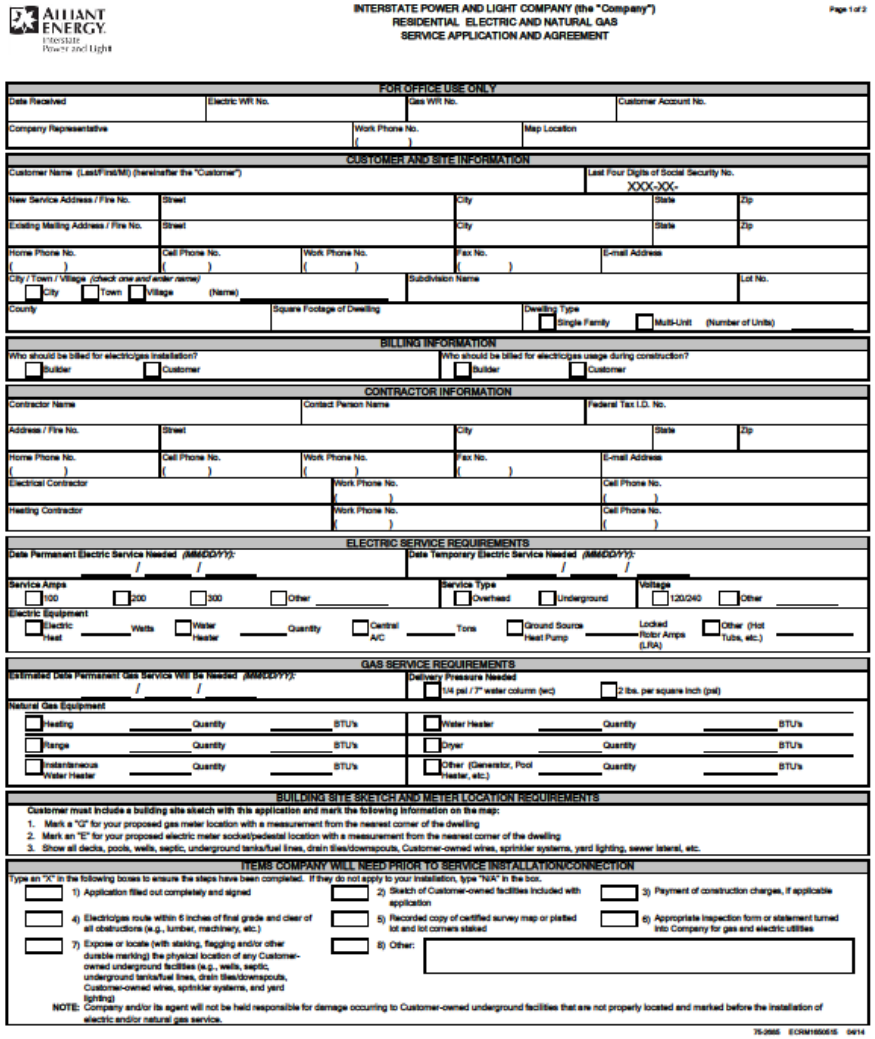
Gas WR # _____ Electric WR # _____

Gas Copy to _____ Electric copy to _____

Town Code _____ AMR ☐ Y ☐ N

Form 4158 Last #705-8308

Service Rewire Application



ALLIANT ENERGY
Interstate Power and Light

INTERSTATE POWER AND LIGHT COMPANY (the "Company")
RESIDENTIAL ELECTRIC AND NATURAL GAS
SERVICE APPLICATION AND AGREEMENT

Page 1 of 2

FOR OFFICE USE ONLY

Date Received	Electric WR No.	Gas WR No.	Customer Account No.
Company Representative	Work Phone No. ( )	Map Location	

CUSTOMER AND SITE INFORMATION

Customer Name (Last/First/MI) (hereinafter the "Customer")			Last Four Digits of Social Security No. XXX-XX-
New Service Address / Fire No.	Street	City	State / Zip
Existing Mailing Address / Fire No.	Street	City	State / Zip
Home Phone No. ( )	Cell Phone No. ( )	Work Phone No. ( )	Fax No. ( ) / E-mail Address
City / Town / Village *(check one and enter name)* ☐ City ☐ Town ☐ Village (Name)		Subdivision Name	Lot No.
County	Square Footage of Dwelling	Dwelling Type ☐ Single Family ☐ Multi-Unit (Number of Units)	

BILLING INFORMATION

Who should be billed for electric/gas installation? ☐ Builder ☐ Customer	Who should be billed for electric/gas usage during construction? ☐ Builder ☐ Customer

CONTRACTOR INFORMATION

Contractor Name	Contact Person Name	Federal Tax I.D. No.
Address / Fire No. / Street / City / State / Zip		
Home Phone No. ( ) / Cell Phone No. ( ) / Work Phone No. ( ) / Fax No. ( ) / E-mail Address		
Electrical Contractor	Work Phone No. ( )	Cell Phone No. ( )
Heating Contractor	Work Phone No. ( )	Cell Phone No. ( )

ELECTRIC SERVICE REQUIREMENTS

Date Permanent Electric Service Needed *(MM/DD/YY)*: / /	Date Temporary Electric Service Needed *(MM/DD/YY)*: / /
Service Amps ☐ 100 ☐ 200 ☐ 300 ☐ Other	Service Type ☐ Overhead ☐ Underground / Voltage ☐ 120/240 ☐ Other

Electric Equipment
☐ Electric Heat ____ Watts ☐ Water Heater ____ Quantity ☐ Central A/C ____ Tons ☐ Ground Source Heat Pump ____ Locked Rotor Amps (LRA) ☐ Other (Hot Tubs, etc.)

GAS SERVICE REQUIREMENTS

Estimated Date Permanent Gas Service Will Be Needed *(MM/DD/YY)*: / /	Delivery Pressure Needed ☐ 1/4 psi / 7" water column (wc) ☐ 2 lbs. per square inch (psi)

Natural Gas Equipment

☐ Heating	Quantity	BTU's	☐ Water Heater	Quantity	BTU's
☐ Range	Quantity	BTU's	☐ Dryer	Quantity	BTU's
☐ Instantaneous Water Heater	Quantity	BTU's	☐ Other (Generator, Pool Heater, etc.)	Quantity	BTU's

BUILDING SITE SKETCH AND METER LOCATION REQUIREMENTS

Customer must include a building site sketch with this application and mark the following information on the map:
1. Mark a "G" for your proposed gas meter location with a measurement from the nearest corner of the dwelling
2. Mark an "E" for your proposed electric meter socket/pedestal location with a measurement from the nearest corner of the dwelling
3. Show all decks, pools, wells, septic, underground tanks/fuel lines, drain tiles/downspouts, Customer-owned wires, sprinkler systems, yard lighting, sewer lateral, etc.

ITEMS COMPANY WILL NEED PRIOR TO SERVICE INSTALLATION/CONNECTION

Type an "X" in the following boxes to ensure the steps have been completed. If they do not apply to your installation, type "N/A" in the box.

☐ 1) Application filled out completely and signed
☐ 2) Sketch of Customer-owned facilities included with application
☐ 3) Payment of construction charges, if applicable
☐ 4) Electric/gas route within 6 inches of final grade and clear of all obstructions (e.g., lumber, machinery, etc.)
☐ 5) Recorded copy of certified survey map or platted lot and lot corners staked
☐ 6) Appropriate inspection form or statement turned into Company for gas and electric utilities
☐ 7) Expose or locate (with staking, flagging and/or other durable marking) the physical location of any Customer-owned underground facilities (e.g., wells, septic, underground tanks/fuel lines, drain tiles/downspouts, Customer-owned wires, sprinkler systems, and yard lighting)
☐ 8) Other:

NOTE: Company and/or its agent will not be held responsible for damage occurring to Customer-owned underground facilities that are not properly located and marked before the installation of electric and/or natural gas service.

75-2666 ECRM1650615 0/14

Service Location Letter

SERVICE RATED EQUIPMENT

NEC 230.66 Marking

- Panelboard or Disconnect suitable for use as service equipment
- Service equipment rated at 600 volts or less shall be marked to identify it as being suitable for use as service equipment.
- All service equipment shall be listed.

Marking

NEC 230.70
Disconnecting Means
Means shall be provided to disconnect all conductors in a building or other structure from the service entrance conductors.

SPS 316.230(3)(a)
Disconnecting means shall be provided to disconnect the utility wiring from the premises wiring at any point where utility wiring terminates and premises wiring extends overhead or underground to more than one building or structure.

09.19.2013

EATON
Circuit Breaker

CSR 25k

200 A 2 Pole
120/240 V~ 60Hz 40°C
Cat. CSR2200N
Style 7803C07G83

Interrupting Capacity
RMS Sym. Amperes

Volt	kA
120/240 ~	25

Terminal Wire	Wire Size	Torque Lb. In.
CU/AL	2 – 300	250

1413 MD5
66C

200

ON
TRIP
OFF

BOX NO. UCAJA NO.
CAT NO.
CH42B200X

NEC 230.70 (A)(1) Location

Readily Accessible Location. The service disconnecting means shall be installed at a readily accessible location either outside of a building or structure or inside nearest the point of entrance of the service conductors.


01/07/2015

Service Rated Equipment

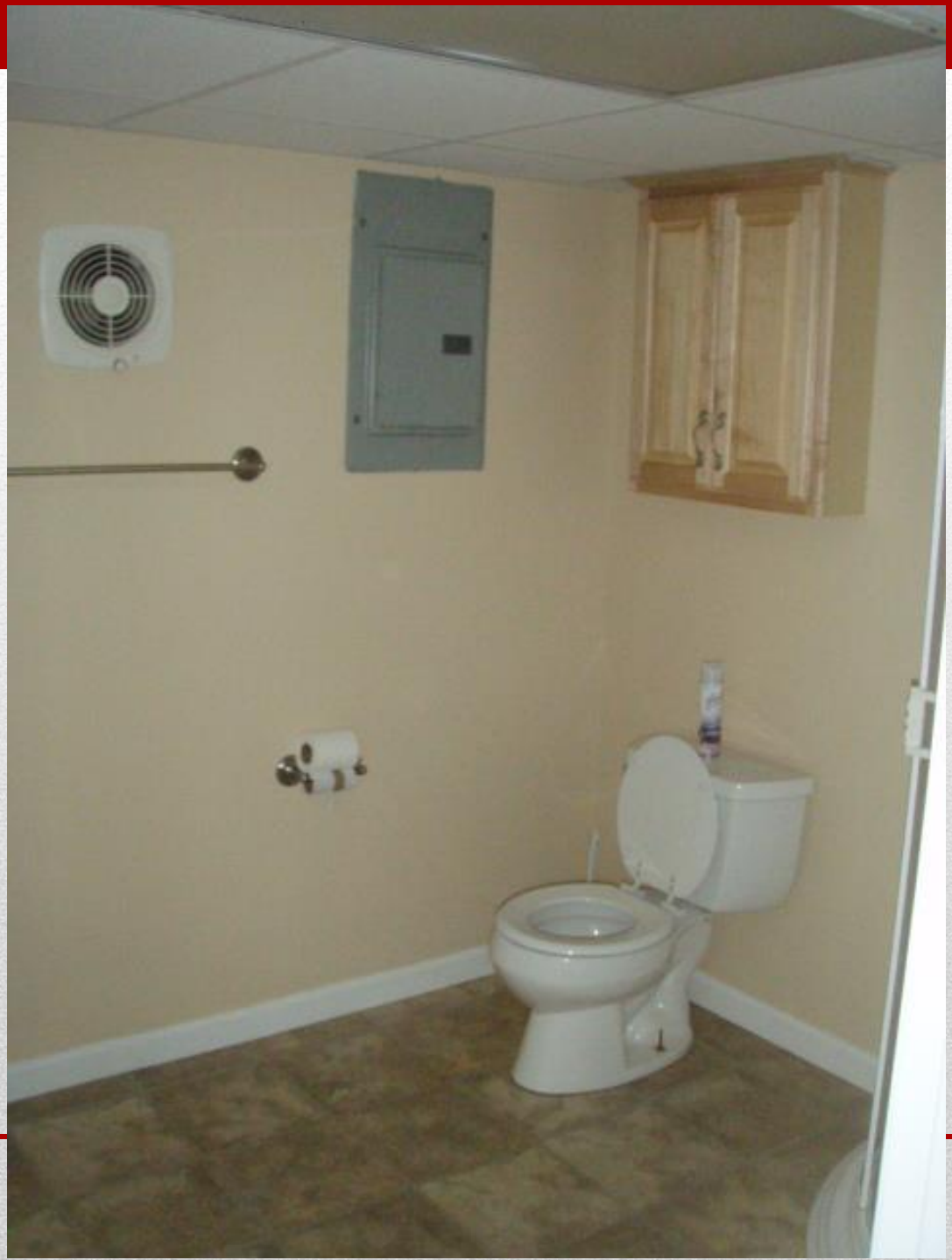
SPS316.230(b)

Race ways containing service conductors or cables, or service entrance cable not contained in a raceway, may not extend longer than 8 feet into a building to the service disconnect or the first service disconnect of a group of disconnects as permitted by NEC 230.71

Location

NEC 230.70 (A)(2)

Bathrooms. Service disconnecting means shall not be installed in bathrooms



- **(B) Marking.** Each service disconnect shall be permanently marked to identify it as a service disconnect

NEC 230.70 (B) Location


WARNING
UNDERGROUND ELECTRIC CABLE
Call Before Digging!
Toll Free Statewide:
Conn 1-800-922-4455
NH and MASS 1-888-DIG-SAFE
Call 72 hours ahead (48 hours: Conn.)
6/01
SERVICE DISCONNECT
702468-MO
MILBANK MFG.
UL LISTED POWER OUTLET 83WL
MILBANK MFG. CO.
KANSAS CITY, MO.
EL DORADO, ARK.
KOKOMO, IND.
TO RESET BREAKER
FIRST PUSH HANDLE TO "OFF" POSITION AND THEN TO "ON" POSITION
200
002

- **(C) Suitable for Use.** Each service disconnecting means shall be suitable for the prevailing conditions.
- Indoor (dry location)
- Outdoor (Wet location)3R

NEC 230.70 (1) Location

Meter socket….

Is it approved by the utility providing power?

Is it in the metering manual?

CLEAR WORKING SPACE

Space about Electrical Equipment

NEC 110.26 (A)(1)

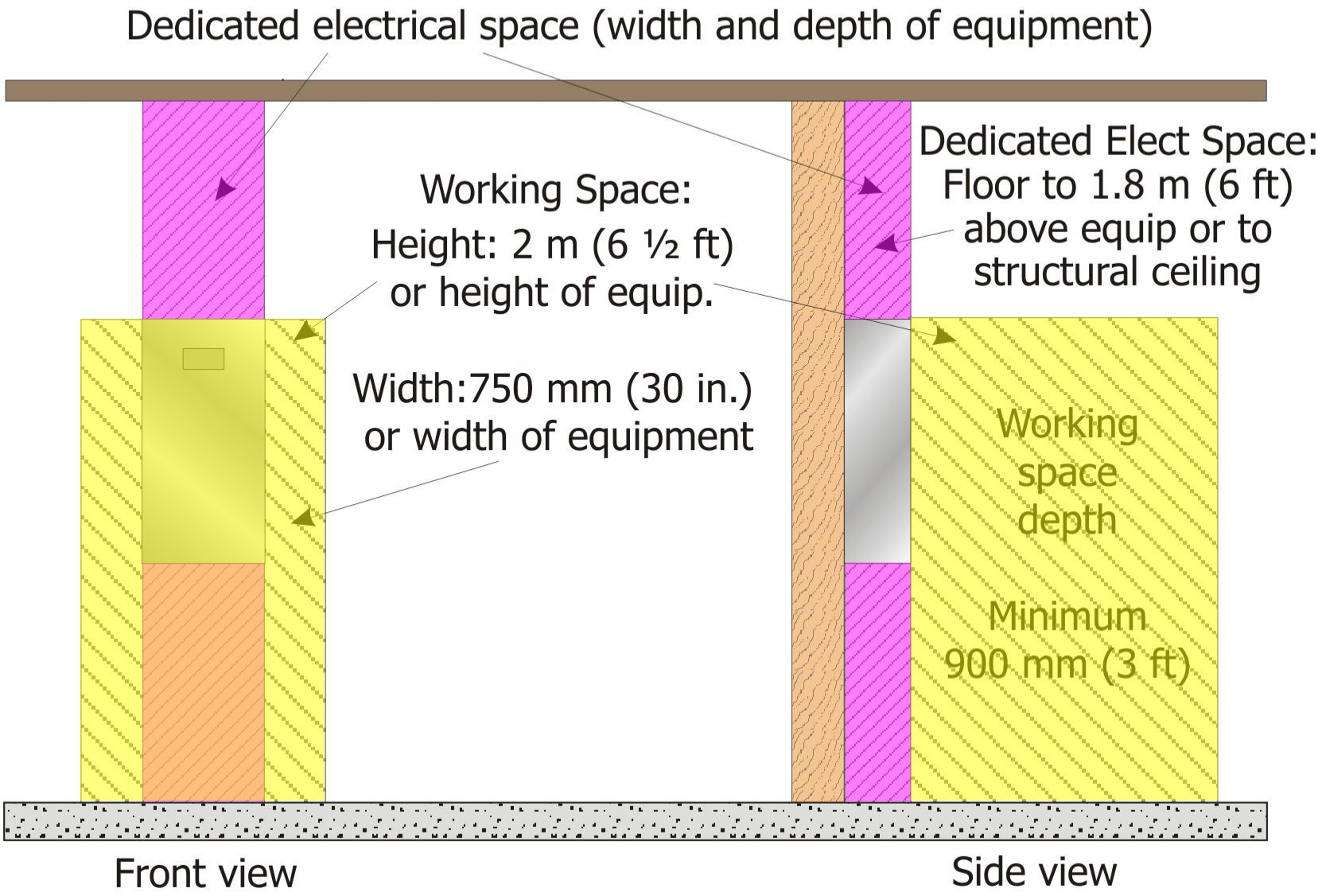
0-150 volts to ground

3 feet (Condition 1-2-3)

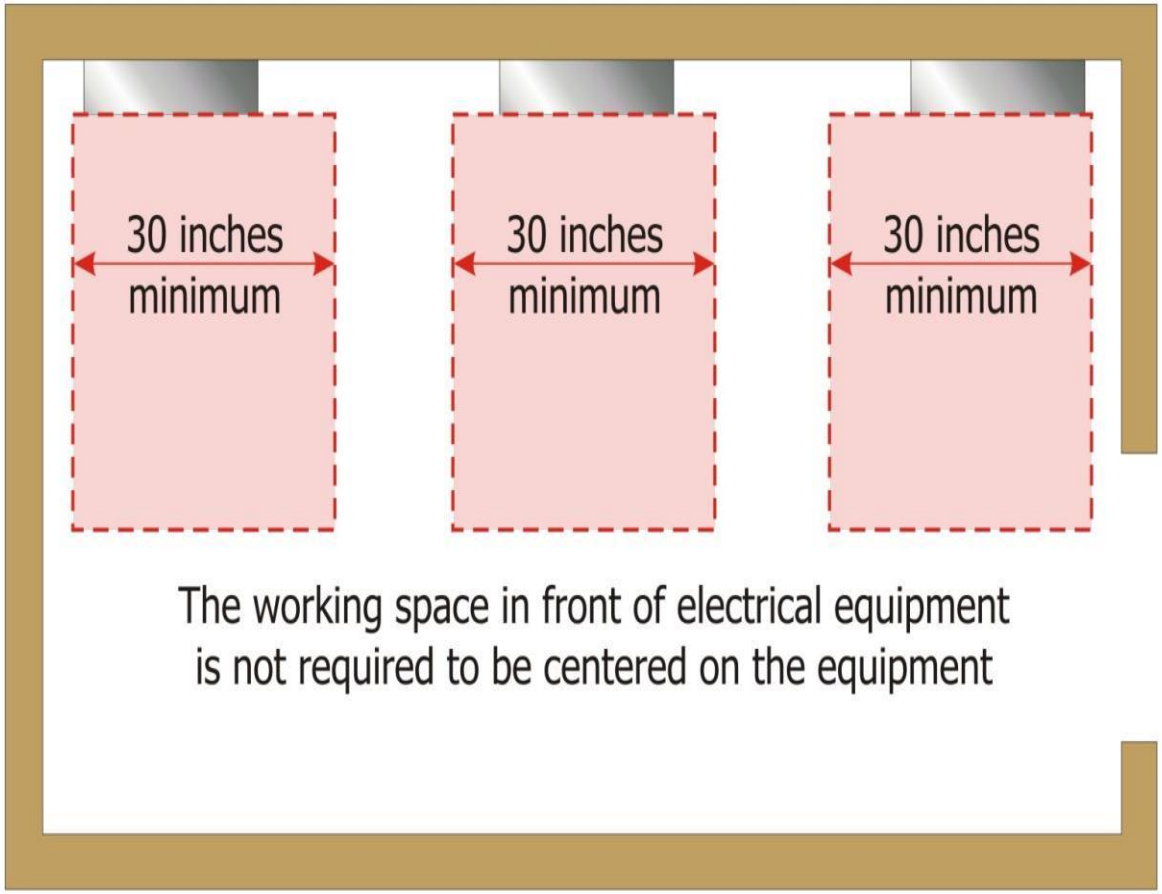
Clear Working Clearances

NEC 110.26

- 36” Clear space in front of Service Equip.
- 30” Clear space, side to side or the width of the equipment, whichever is greater



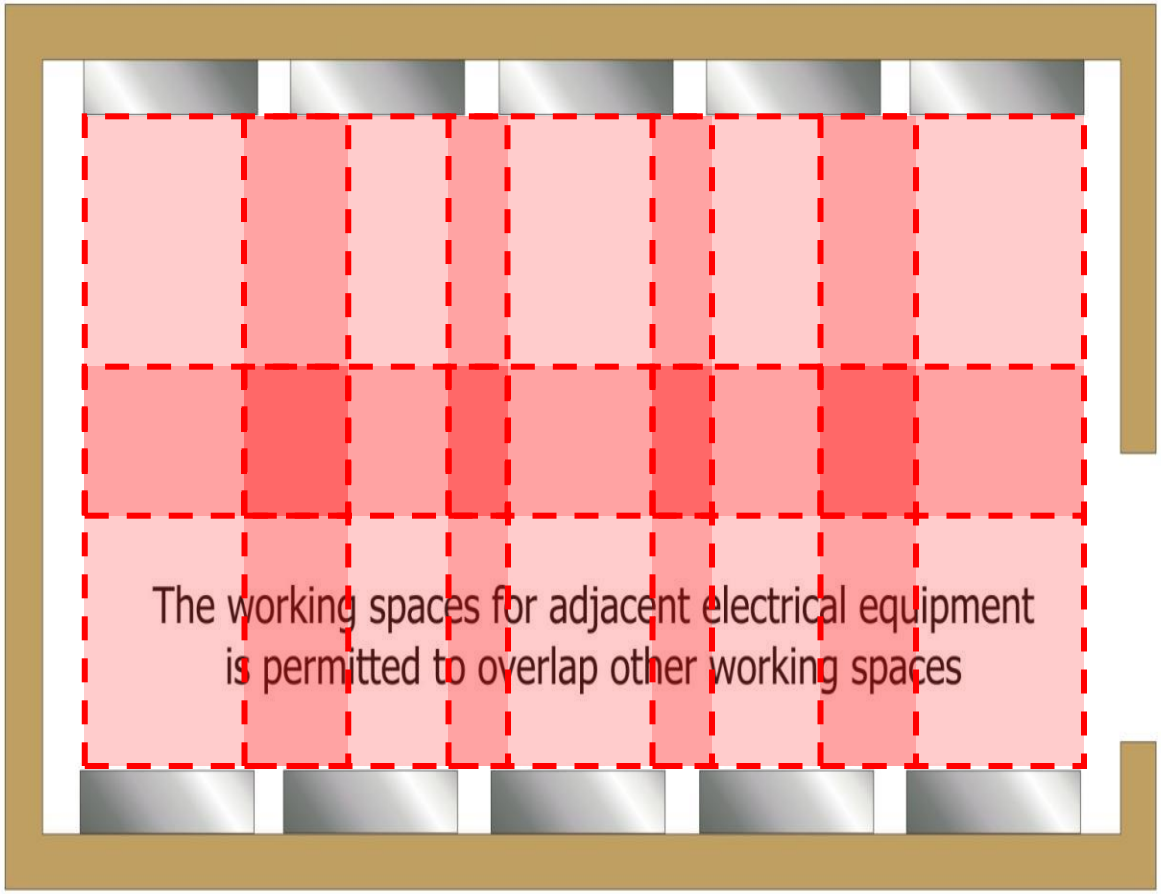
110.26(A)(2) Width of Working Space



The working space in front of electrical equipment is not required to be centered on the equipment

The width of the working space in front of electrical equipment is required to be not less than the width of the equipment or 762 mm (30 in.), whichever is greater

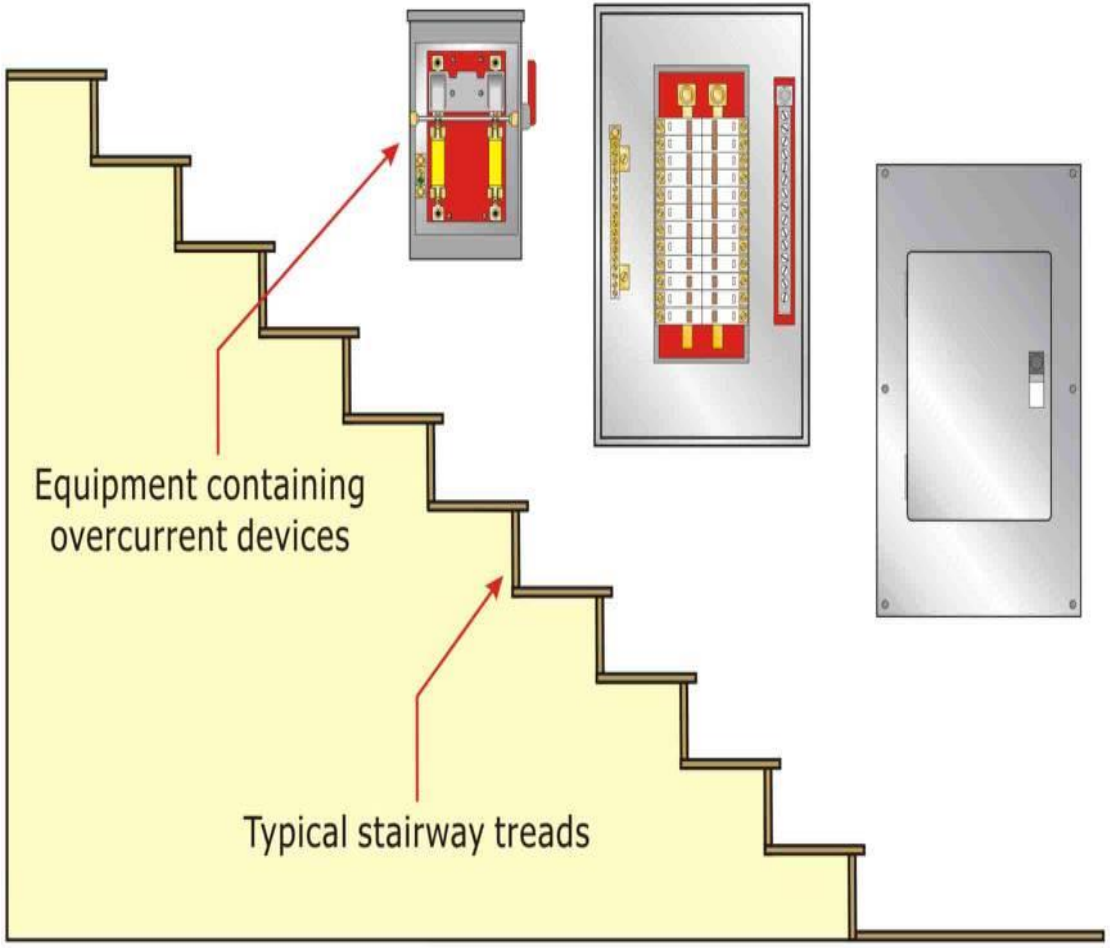
110.26(A)(2) Width of Working Space



The width of the working space in front of electrical equipment is required to be not less than the width of the equipment or 762 mm (30 in.), whichever is greater

240.24(F) Not Located Over Steps

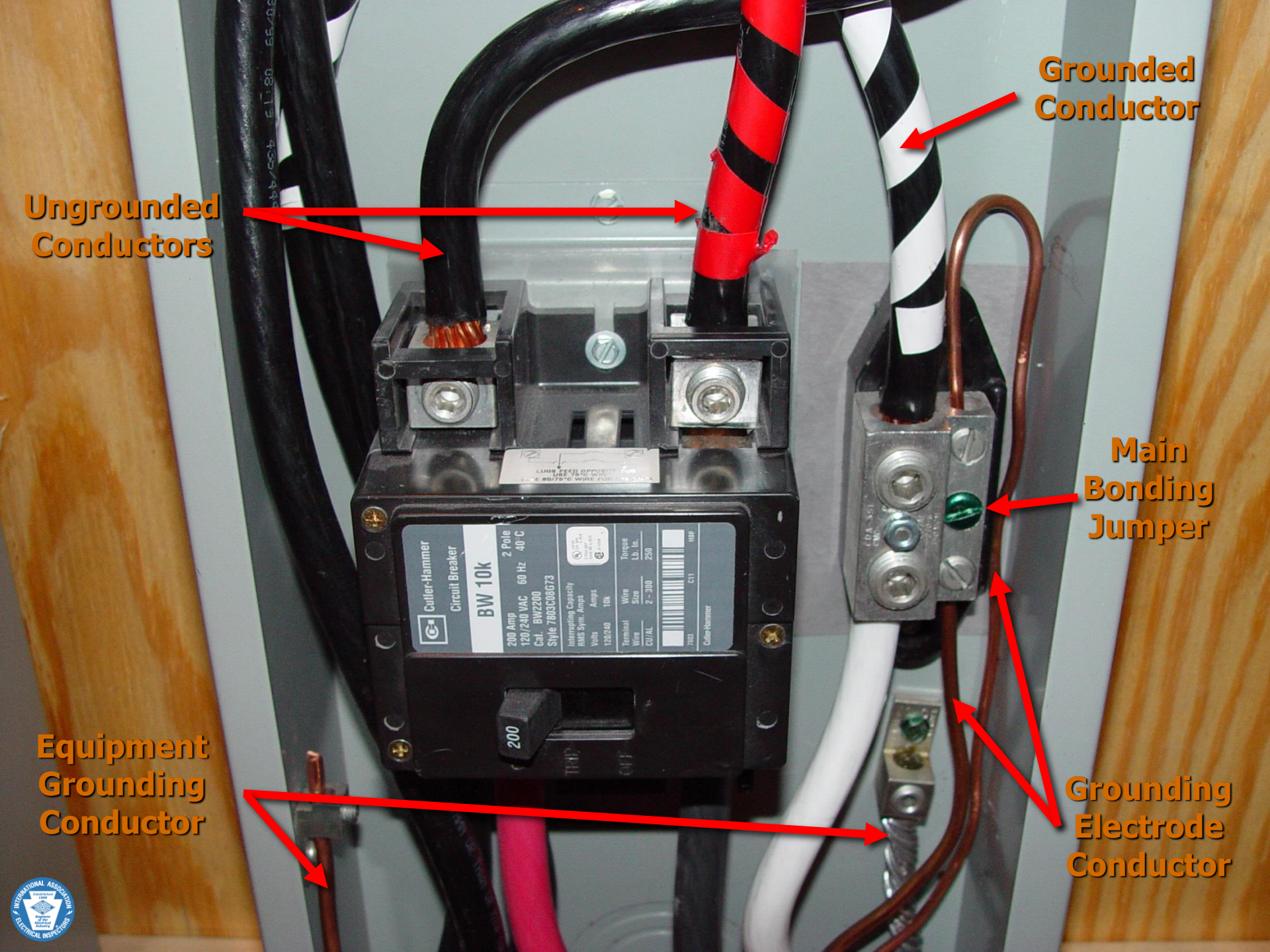
Overcurrent protective devices shall not be located over steps of a stairway.



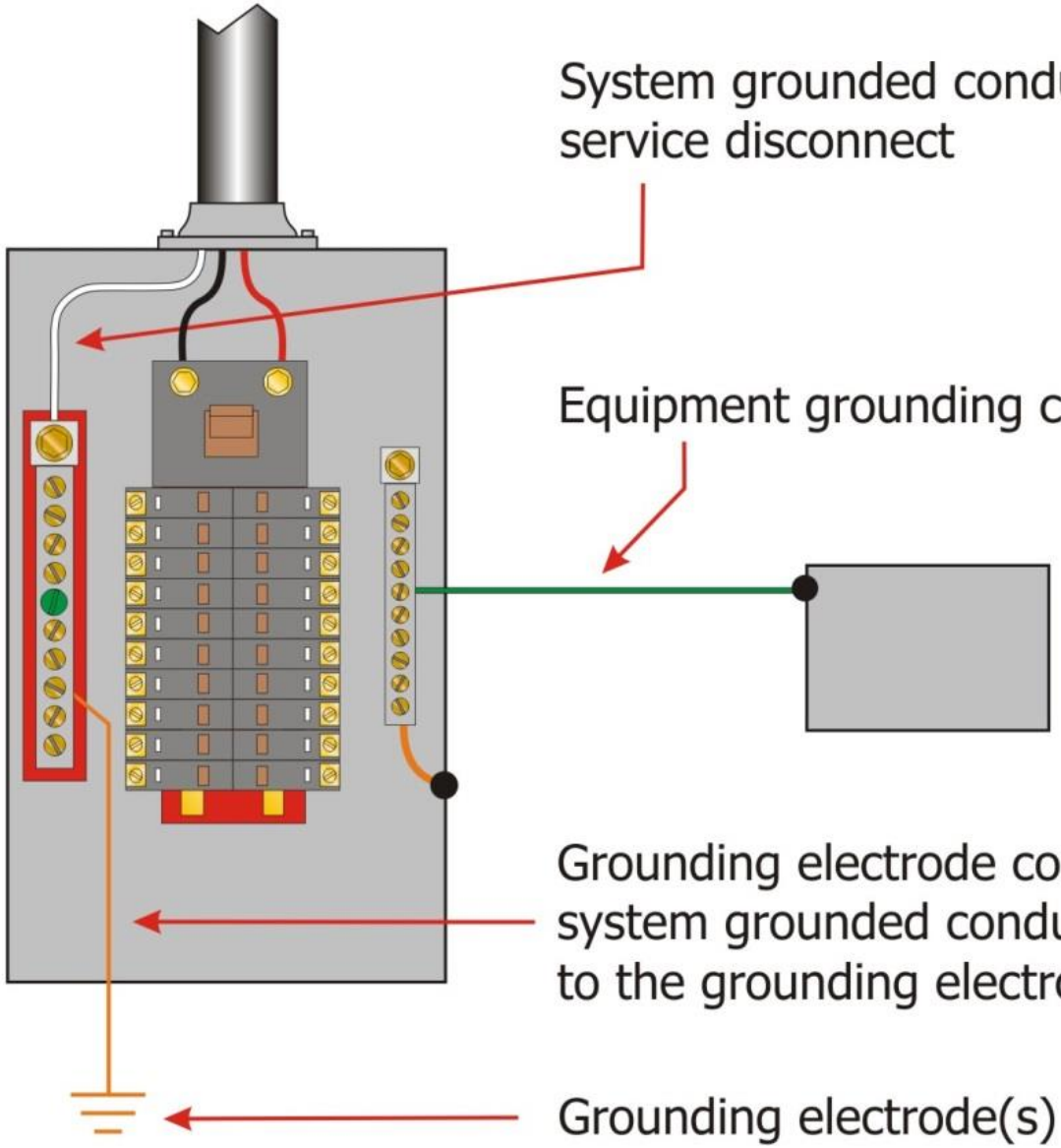
GROUNDING OF SERVICE EQUIPMENT

What is a grounding electrode conductor?

A conductor used to connect the system grounded conductor or the equipment to a grounding electrode or to a point on the grounding electrode system.


Grounded Conductor
Ungrounded Conductors
Main Bonding Jumper
Equipment Grounding Conductor
Grounding Electrode Conductor
Cutler-Hammer
Circuit Breaker
BW 10k
2 Pole
200 Amp
120/240 VAC
60 Hz
40°C
Cat. BW2200
Style 7803C08G73
200

Grounding Electrode Conductor (Grounded System)



System grounded conductor routed to service disconnect

Equipment grounding conductor

Grounding electrode conductor connects system grounded conductor and equipment to the grounding electrode

Grounding electrode(s)

Grounding of Service Equipment
NEC 250.50 SPS 316.250 (2)

- What makes up your grounding electrode system?
  1. Concrete-Encased Electrode (Ufer)
  2. Metal Underground Water Pipe
  3. Metal Frame of the Building
  4. Rod and Pipe Electrodes

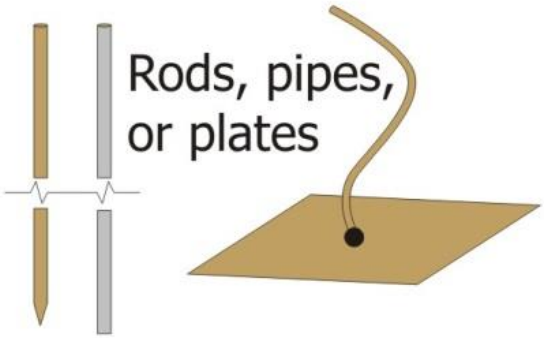
Grounding of Service Equipment
NEC 250.50 SPS 316.250 (2)

Where available, all the following grounding electrodes be bonded together to form a grounding electrode system.

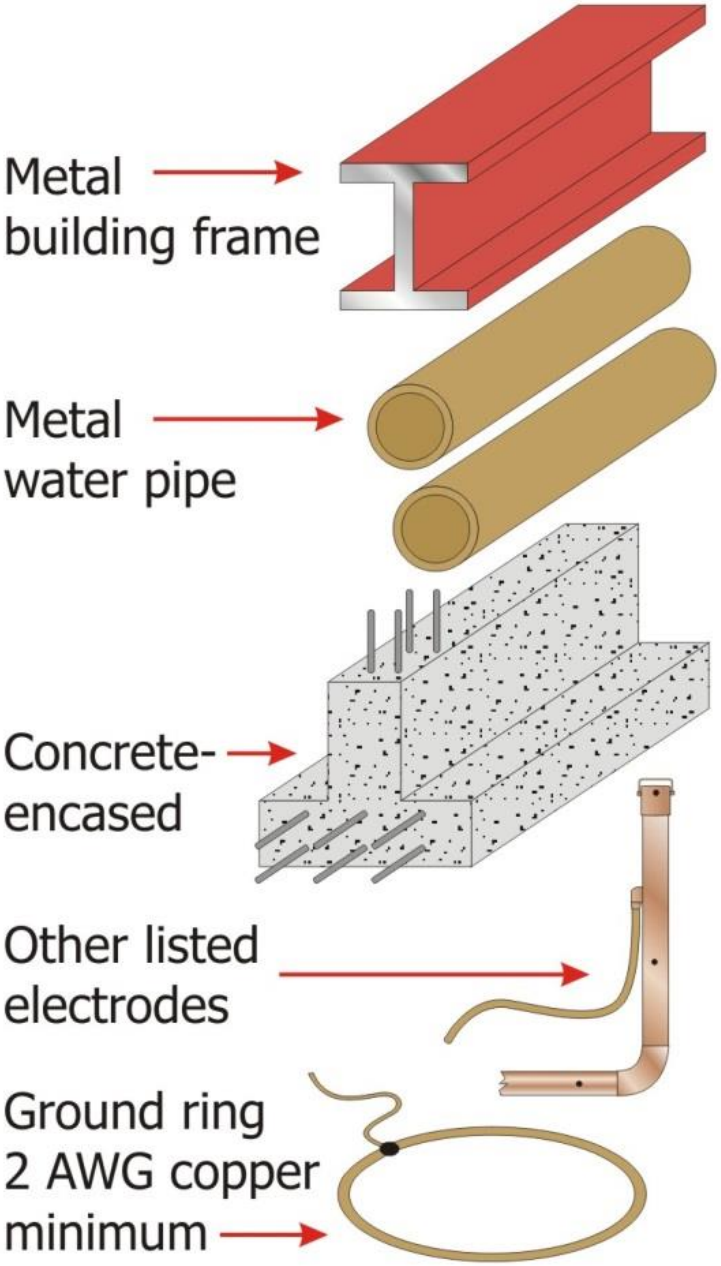
250.50 Grounding Electrode System

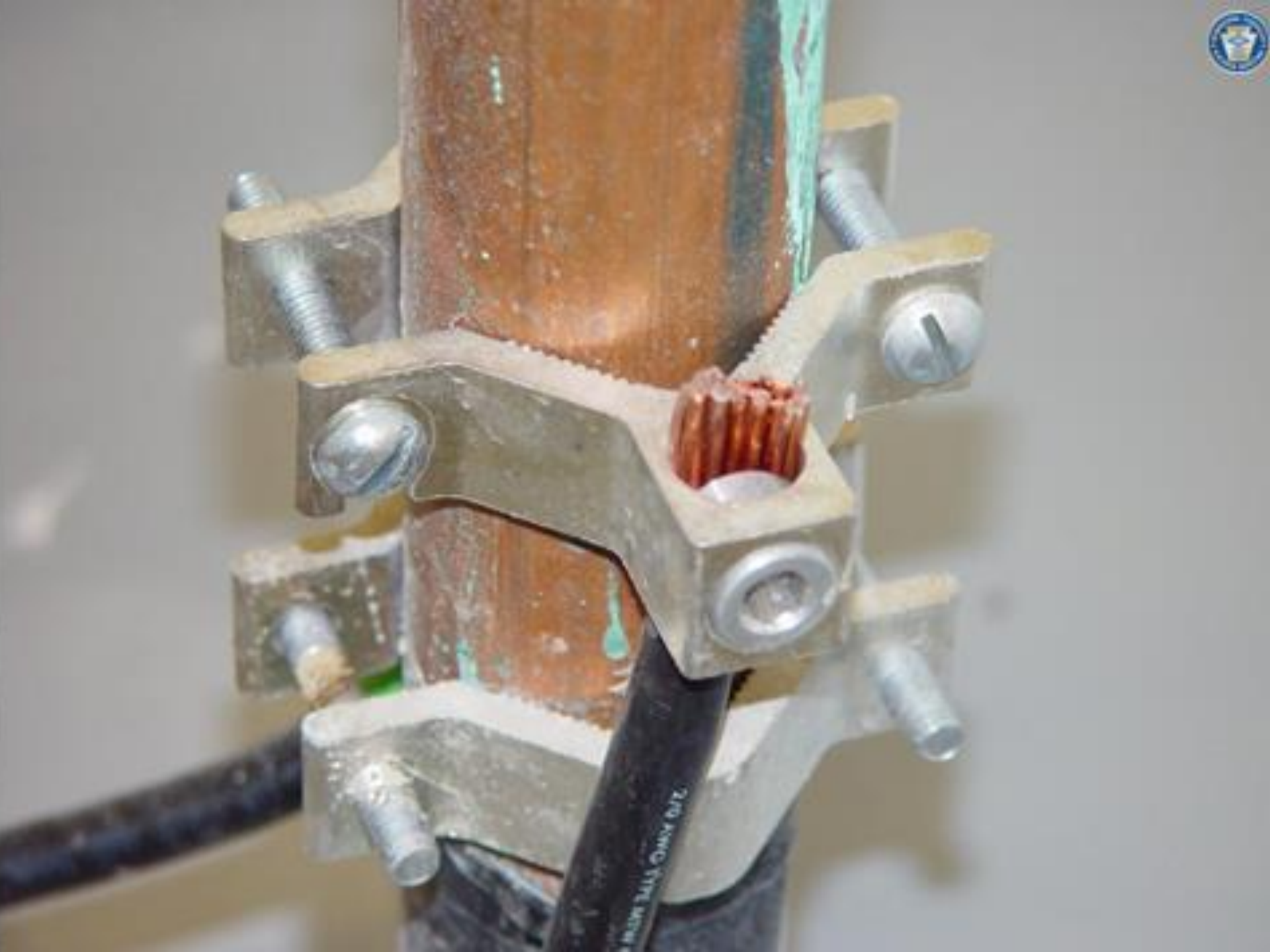
- Where present, grounding electrodes required to be used to form the grounding electrode system
- Includes electrodes that are an inherent component of the building construction *(metal structure, etc.)*
- By exception, existing concrete-encased electrodes not required to be used where doing so involves disturbing concrete footings of existing structures or buildings

Other metal structures



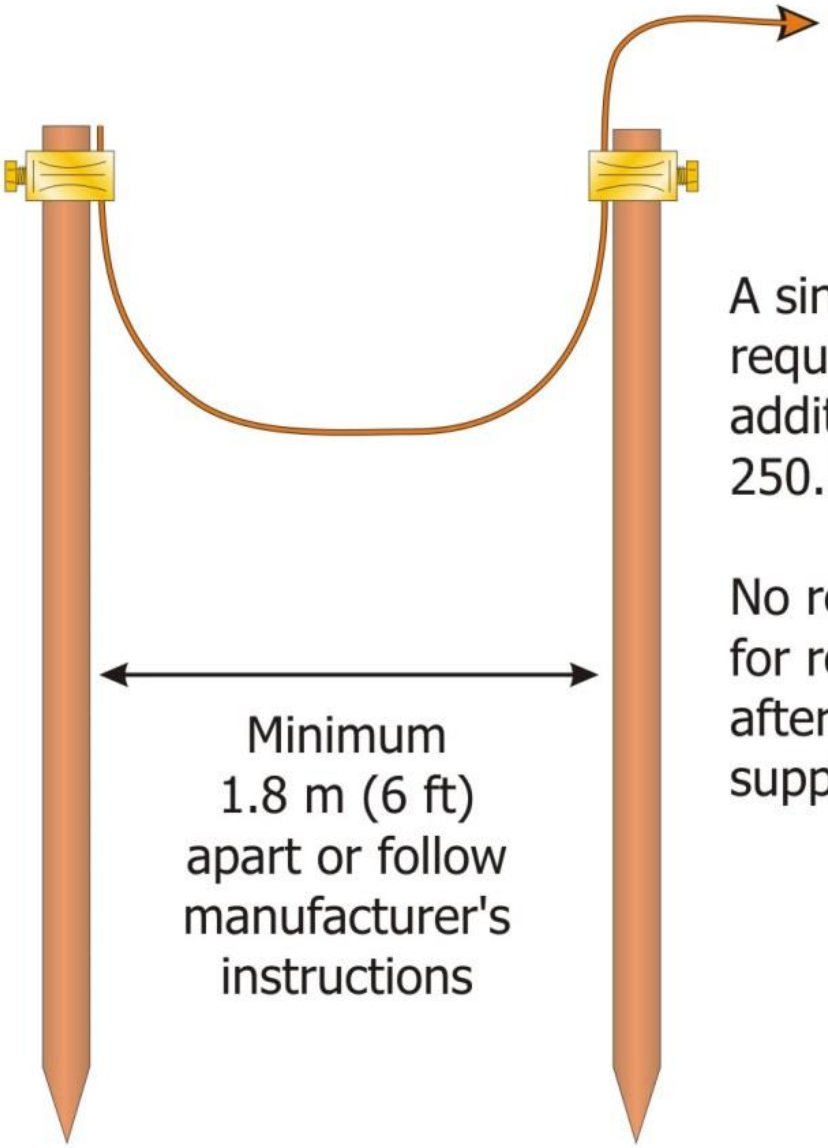
Rods, pipes, or plates





Concrete-Encased Electrode

Resistance of Rod, Pipe, and Plate Electrodes



A single rod, pipe or plate electrode required to be supplemented by an additional electrode as specified in 250.52(A)(2) through (A)(8)

No resistance measurement required for rod, pipe, and plate electrodes after these electrodes have been supplemented

Table 250.66 Grounding Electrode Conductor for Alternating-Current Systems

Size of Largest Ungrounded Service-Entrance Conductor or Equivalent Area for Parallel Conductors (AWG/kcmil)		Size of Grounding Electrode Conductor (AWG/kcmil)	
Copper	Aluminum or Copper-Clad Aluminum	Copper	Aluminum or Copper-Clad Aluminum
2 or smaller	1/0 or smaller	8	6
1 or 1/0	2/0 or 3/0	6	4
2/0 or 3/0	4/0 or 250	4	2
Over 3/0 through 350	Over 250 through 500	2	1/0
Over 350 through 600	Over 500 through 900	1/0	3/0
Over 600 through 1100	Over 900 through 1750	2/0	4/0
Over 1100	Over 1750	3/0	250


WISCONSIN DEPARTMENT OF SAFETY
AND PROFESSIONAL SERVICES
DSPS

BONDING

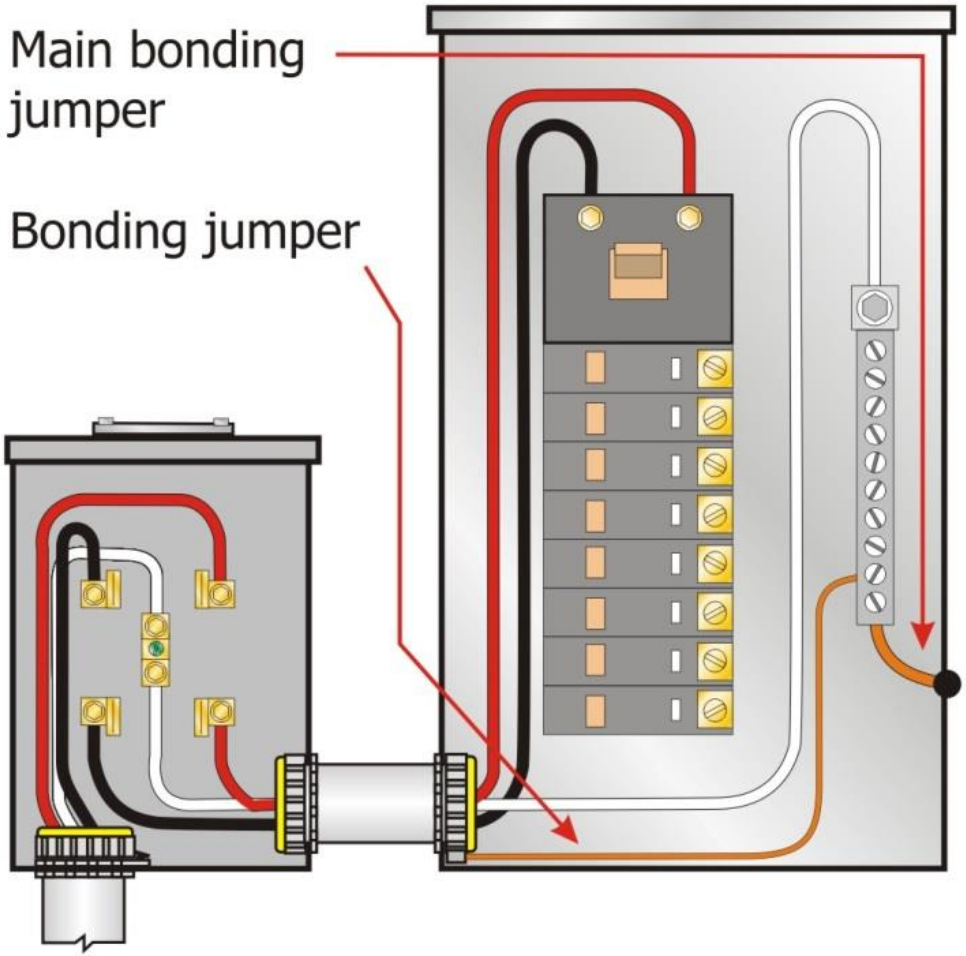
Bonding of Equipment for Services

NEC 250.92(A) Bonding of Equipment for Services
The normally non-current-carrying metal parts of equipment shall be bonded.

1. All raceways, service cable armor or sheath
2. All enclosures containing service conductors
3. All meter fittings, boxes, cable trays, auxiliary gutters,

250.92(A) Bonding Service Equipment Enclosures

The normally non–current-carrying metal parts of service equipment required to be bonded together include:



Service raceways and cable armor or sheath

Service equipment enclosures including meter enclosures

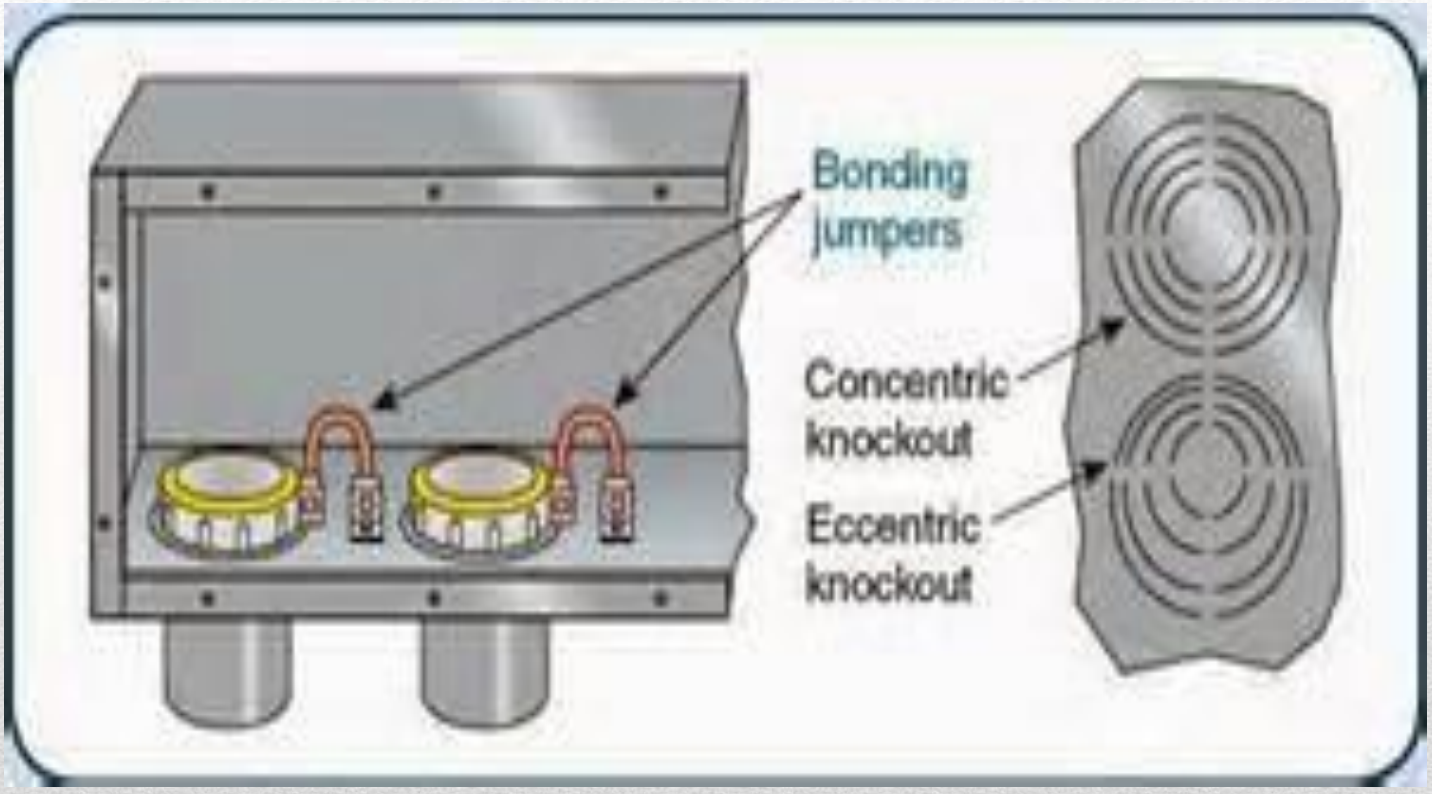
Note: Bonding required around impaired connections, such as reducing washers or oversized, concentric, or eccentric knockouts

Bond together in a method specified by 250.92(B) and size bonding jumpers per sizes in Table 250.102(C)(1)

Bonding of Equipment for Services

NEC 250.92(B) Method of Bonding at the Service

Bonding jumpers shall be used around impaired connections, such as reducing washers or oversized, concentric, or eccentric knockouts. Standard locknuts or bushings shall not be the only means for the bonding required by this section.


Bonding jumpers
Concentric knockout
Eccentric knockout

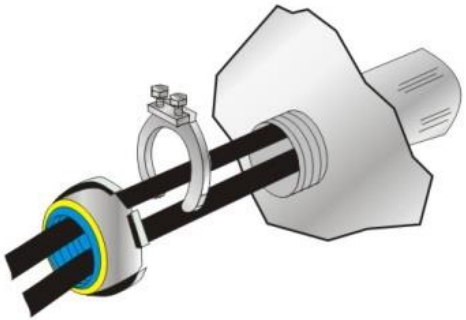
Bonding of Equipment for Services

NEC 250.92(B) Method of Bonding at the Service

1. Bonding type locknuts
2. Bonding bushings
3. Bushings with bonding jumpers
4. Bonding Wedges

250.92(B) Bonding Fittings

Bonding Locknut — Used where no concentric or eccentric knockouts remain
(Standard locknut permitted on opposite side)



Bonding Wedge — Use with bonding jumper around concentric or eccentric knockouts; with or without bonding jumper where no concentric or eccentric knockouts
(Standard locknut permitted on opposite side)

Courtesy of Thomas and Betts

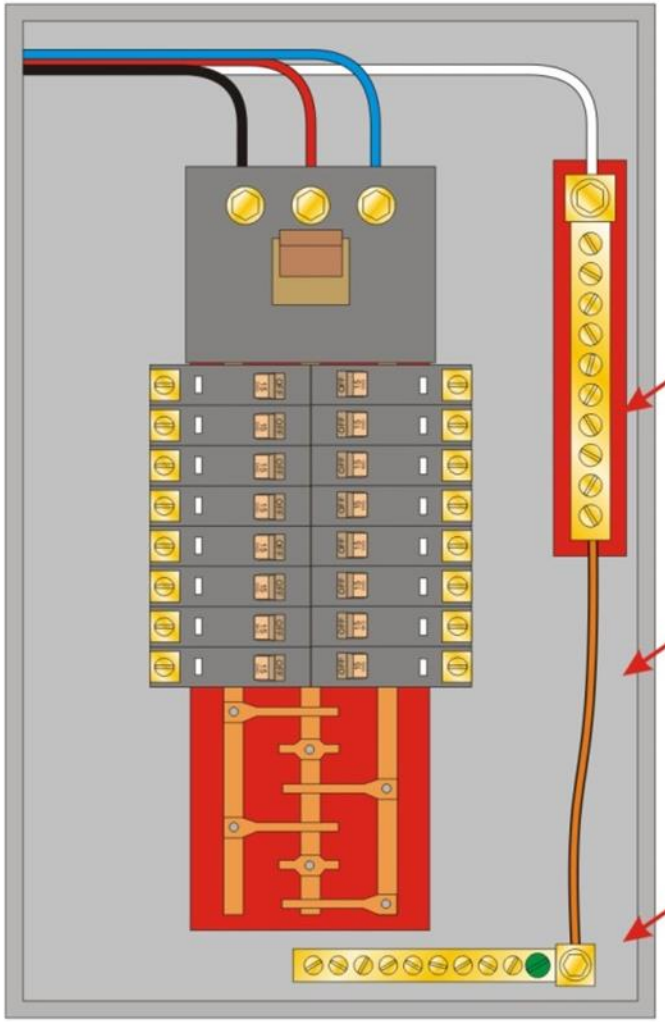
Bonding Conductors and Jumpers

NEC 250.102

(A) Material Bonding jumpers shall be of copper or other corrosion-resistant material. A bonding jumper shall be a wire, bus, screw or similar suitable conductor.


ALCAN 250 KCMIL COMPACT

250.28 Main Bonding Jumper



Bus for neutral or grounded conductor

Main bonding jumper may be wire, bus or screw *(green finish if it is a screw)*

Equipment grounding bus bonded to enclosure *(by green screw)*

Bonding Conductors and Jumpers

NEC 250.102(C)

Size- -Supply-side Bonding Jumper

The supply side bonding jumper shall not be smaller than the sizes shown in table 250.66 for grounding electrode conductor.

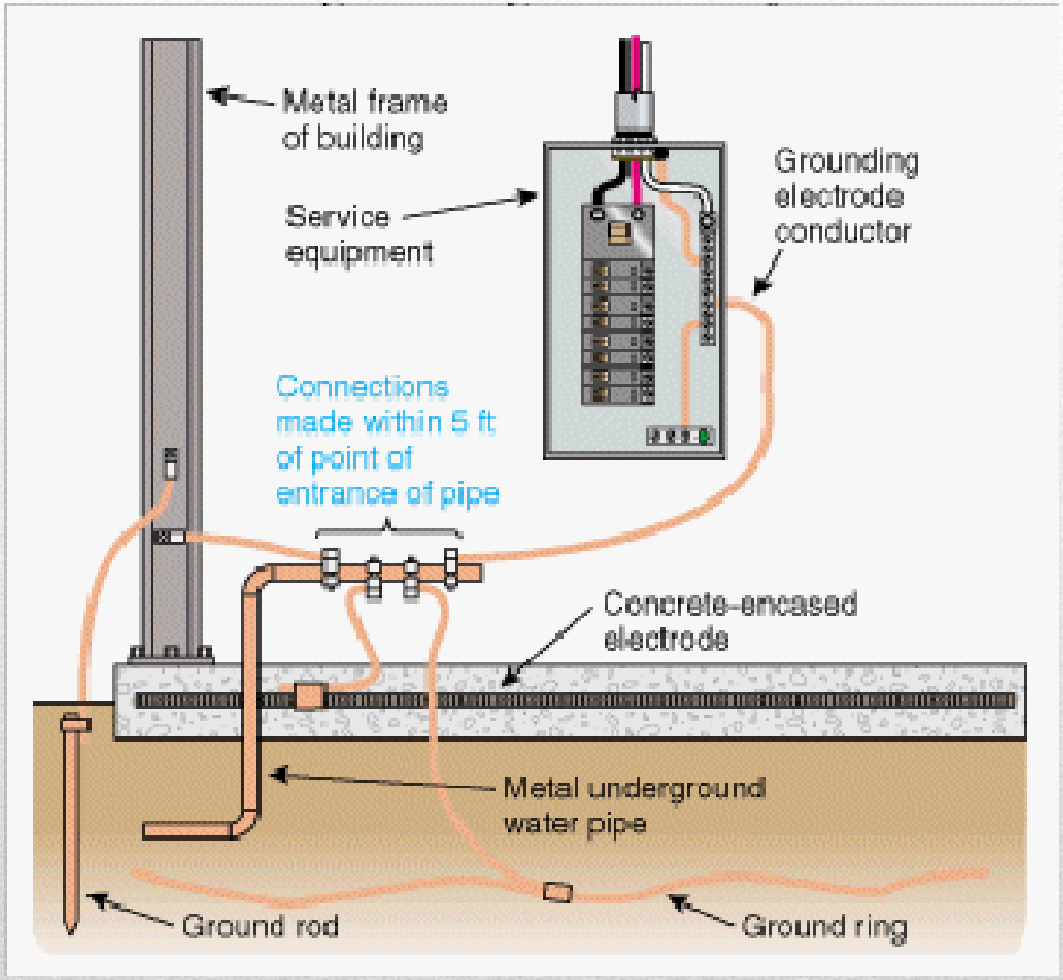
Table 250.66 Grounding Electrode Conductor for Alternating-Current Systems

Size of Largest Ungrounded Service-Entrance Conductor or Equivalent Area for Parallel Conductors (AWG/kcmil)		Size of Grounding Electrode Conductor (AWG/kcmil)	
Copper	Aluminum or Copper-Clad Aluminum	Copper	Aluminum or Copper-Clad Aluminum
2 or smaller	1/0 or smaller	8	6
1 or 1/0	2/0 or 3/0	6	4
2/0 or 3/0	4/0 or 250	4	2
Over 3/0 through 350	Over 250 through 500	2	1/0
Over 350 through 600	Over 500 through 900	1/0	3/0
Over 600 through 1100	Over 900 through 1750	2/0	4/0
Over 1100	Over 1750	3/0	250

Bonding of Piping Systems

NEC 250.104(A)

Metal water piping systems and exposed structural steel shall be bonded to the service equipment enclosure, the grounded conductor at the service, the grounding electrode conductor where of sufficient size, or to one or more grounding electrodes used.


Metal frame of building
Service equipment
Grounding electrode conductor
Connections made within 5 ft of point of entrance of pipe
Concrete-encased electrode
Metal underground water pipe
Ground rod
Ground ring

Bonding of Piping Systems

NEC 250.104(B)

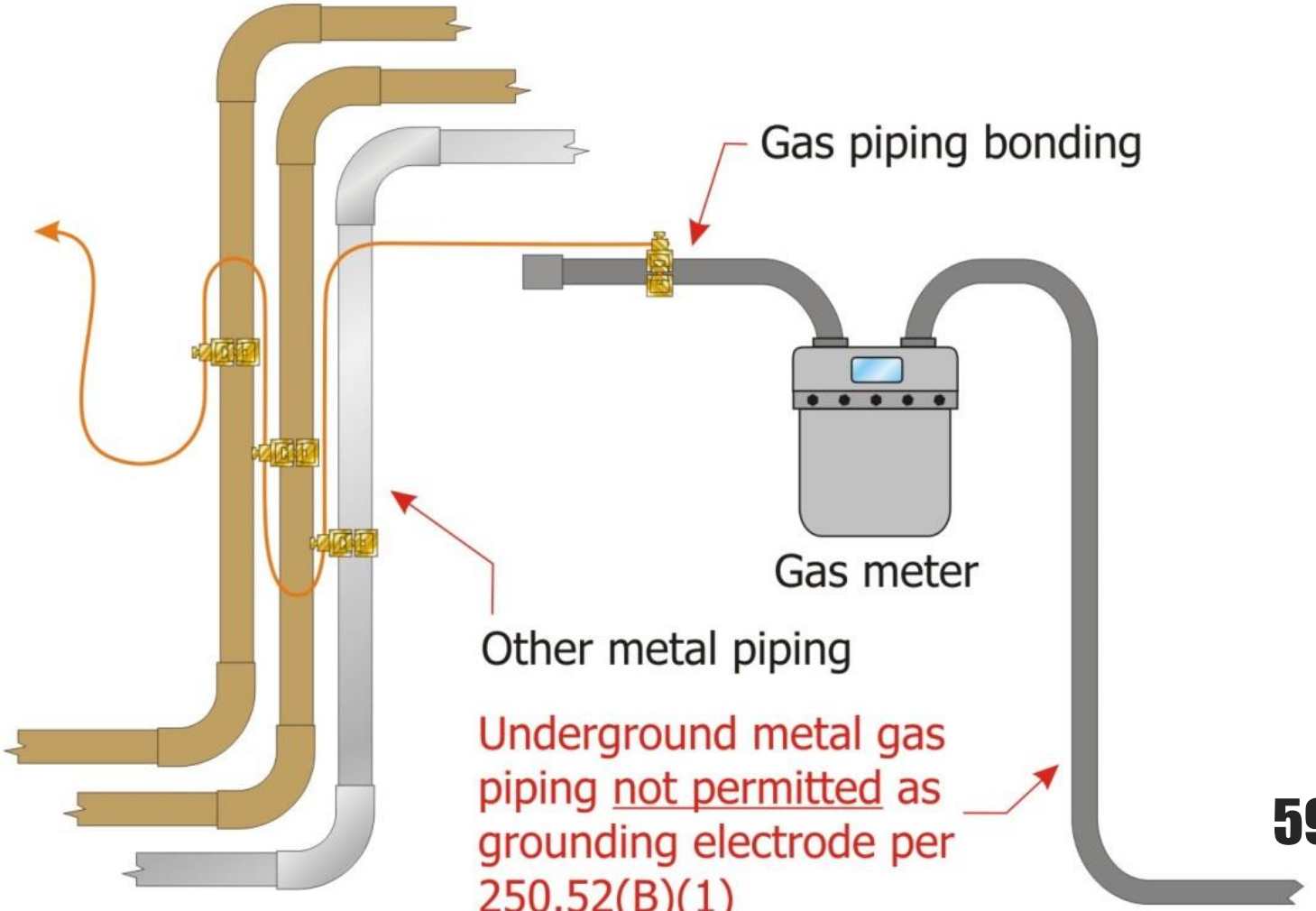
Metal piping systems, including gas piping, that is likely to become energized shall be bonded to the service equipment enclosure: the grounded conductor at the service: the grounding electrode conductor, if of sufficient size

The bonding jumper shall be sized in accordance with NEC 250.122, using the rating of the circuit that is likely to energize the piping system.

The equipment grounding conductor for the circuit that is likely to energize the piping shall be permitted to serve as the bonding means

Bonding of Other Metal Piping Required

Bonding of other metal piping systems *(including metal gas piping systems)* is required per 250.104(B)



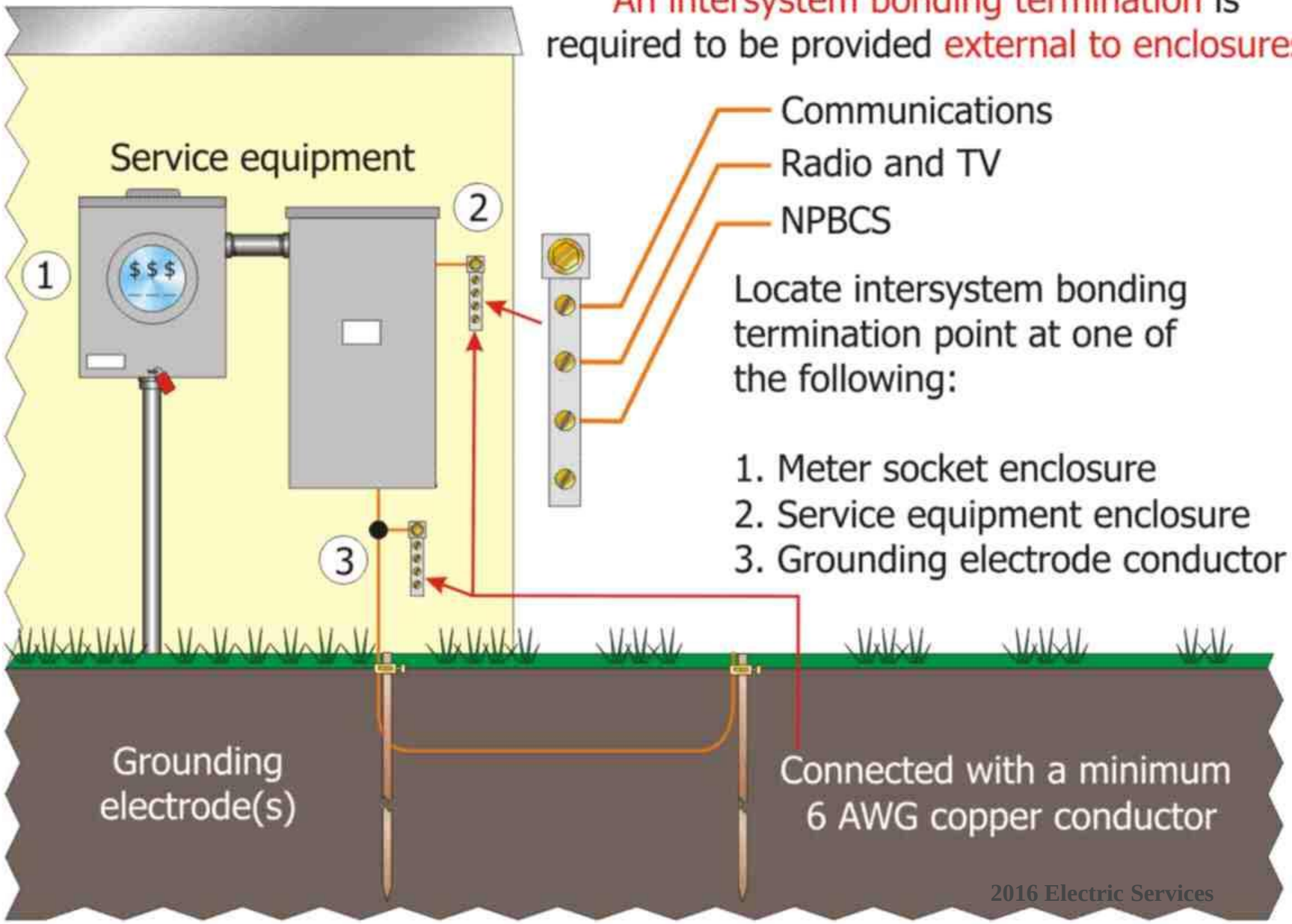
Bonding for other Systems

NEC 250.94

An intersystem bonding termination for connecting intersystem bonding conductors required for other systems shall be provided external to service equipment enclosures.

An intersystem bonding termination shall be connected to the service equipment with a minimum #6 AWG copper conductor.

250.94 Bonding for Other Systems



Bonding for other Systems

NEC 250.94 *Exception:*

In existing buildings or structures where any of the intersystem bonding and grounding electrode conductors required by 770.100(B)(2), 800.100(B)(2), 810.21(F)(2), 820.100(B)(2), and 830.100(B)(2) exist, installation of the intersystem bonding termination is not required.

CONDUCTOR SIZES

Minimum Size and Rating

NEC 310.15(B)(7)
Conductor Types and Sizes for 120/240-Volt, 3 Wire Single Phase Dwelling Services.

Use the table;
100 amp service can be fed with a #4 AWG CU wire
#2 AWG Al. wire
200 amp service can be fed with a #2/0 AWG Cu wire
#4/0 AWG Al. wire

Minimum Size and Rating

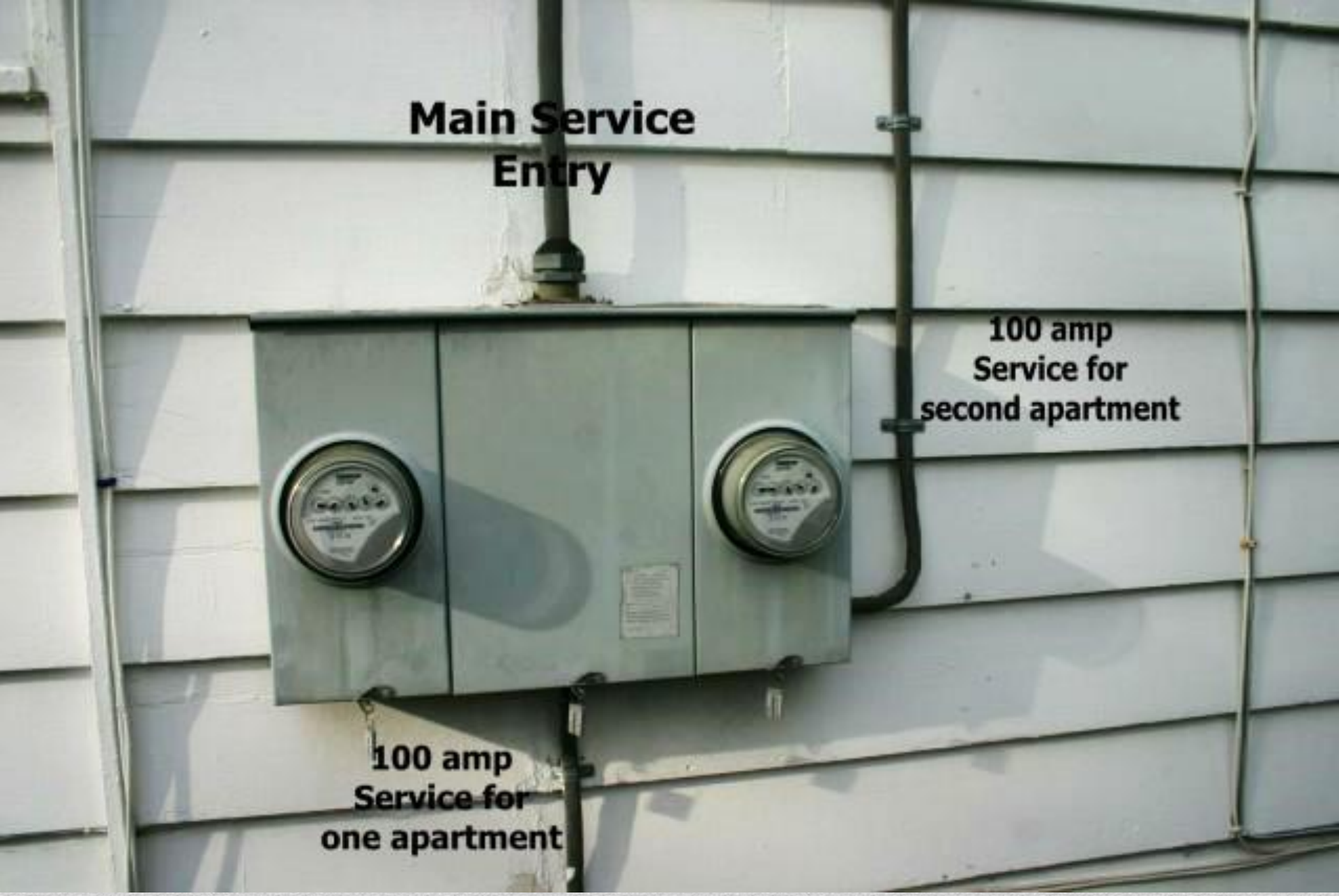
Conductor (AWG or kcmil) Service or Feeder		
Rating (Amperes	**Copper**	**Aluminum or Copper-Clad Aluminum**
100	4	2
110	3	1
125	2	1/0
150	1	2/0
175	1/0	3/0
200	2/0	4/0
225	3/0	250
250	4/0	300
300	250	350
350	350	500
400	400	600

Minimum Size and Rating

SPS 316.230(4)(A)

Two or Multifamily dwelling.

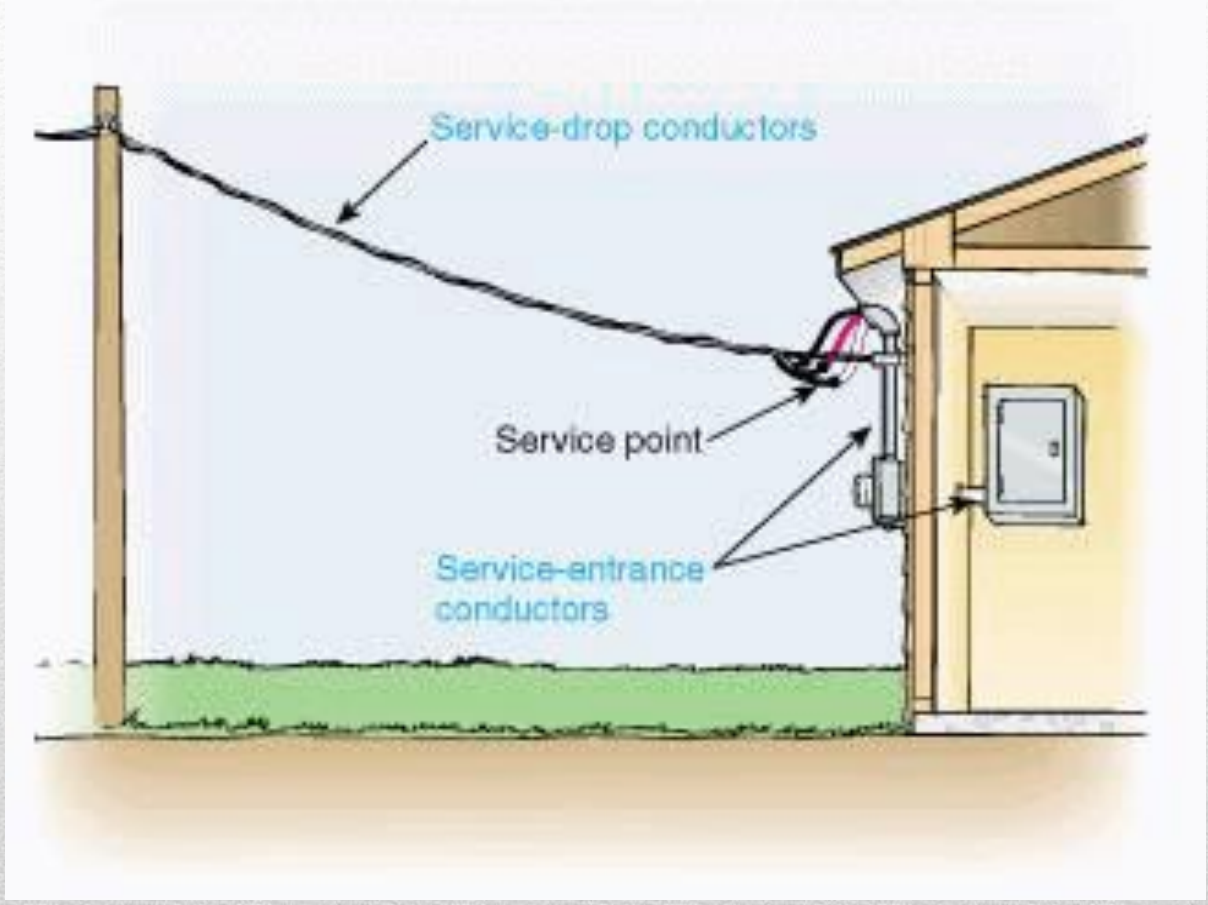
The service equipment shall have a rating of not less than 150 amperes, 3-wire or 4-wire.


Main Service
Entry
100 amp
Service for
second apartment
100 amp
Service for
one apartment

OVERHEAD SERVICES

Service Drops, General

A service drop includes the overhead service conductors between the utility electric supply system and the service point.

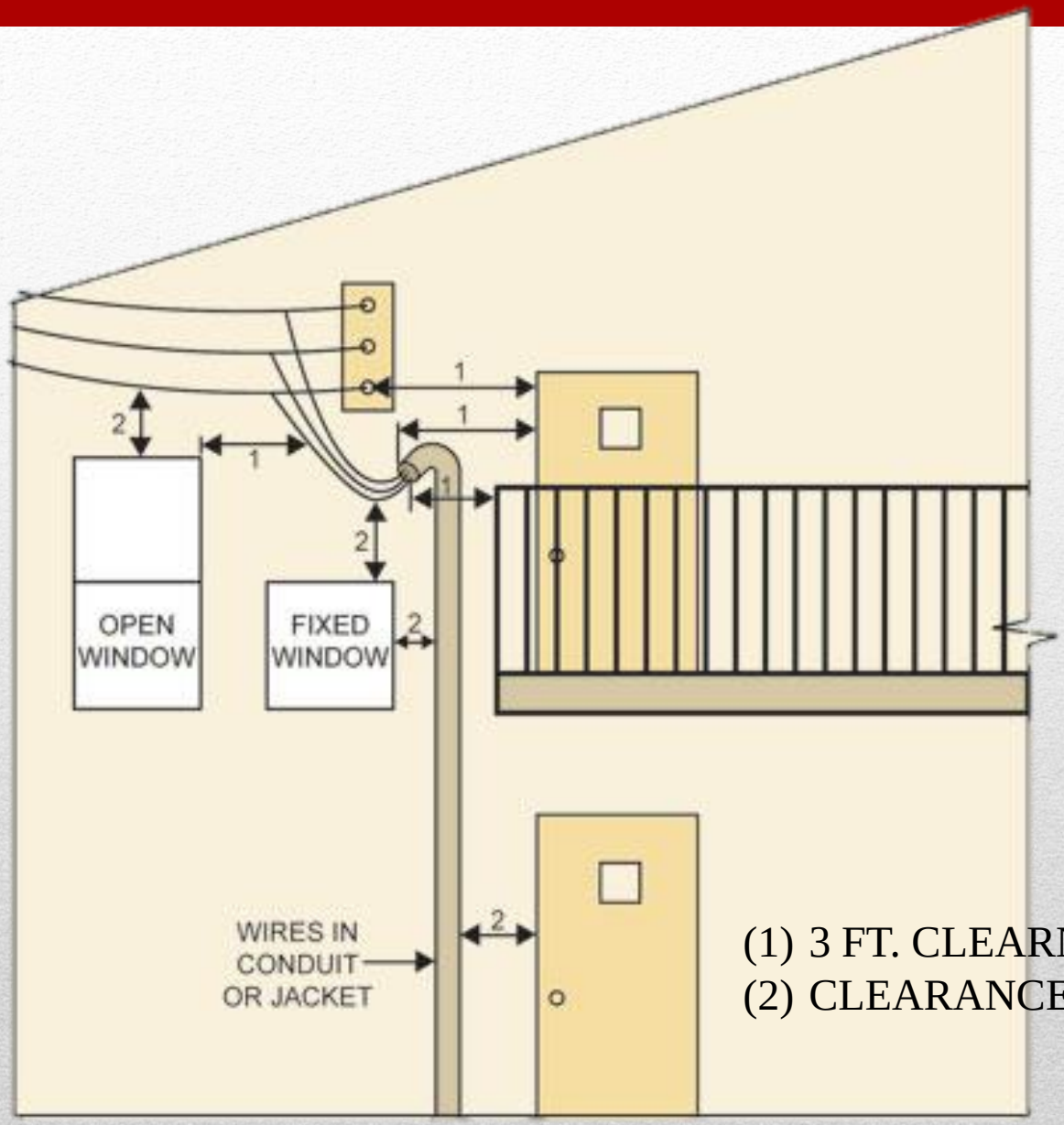

Service-drop conductors
Service point
Service-entrance
conductors

Service Drop Clearances

NEC 230.9(A)

Service conductors installed as open conductors or multiconductor cable without an overall outer jacket shall have a clearance of not less than 900 mm (3 ft) from windows that are designed to be opened, doors, porches, balconies, ladders, stairs, fire escapes, or similar locations.

Exception: Conductors run above the top level of a window shall be permitted to be less than the 900-mm (3-ft) requirement.



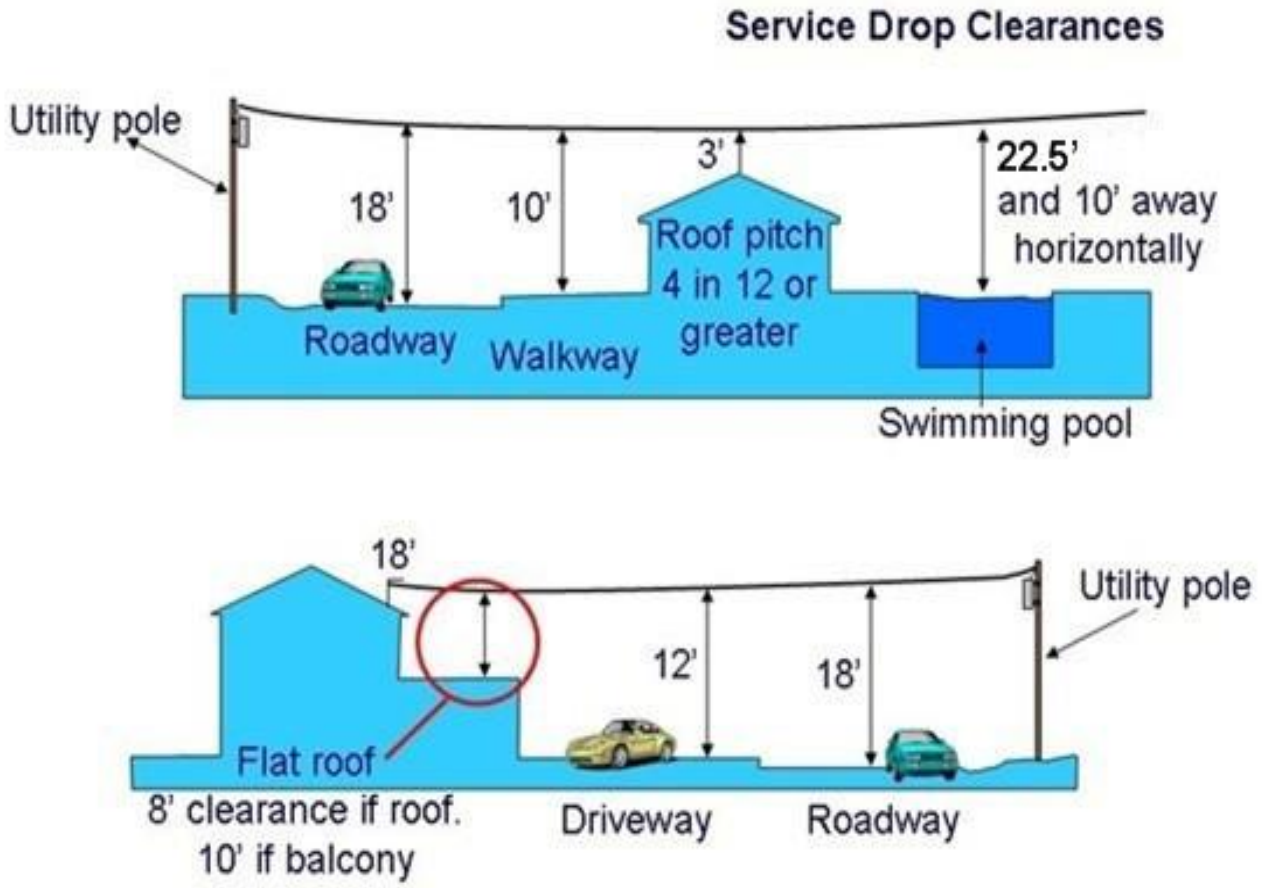
(1) 3 FT. CLEARNCE REQUIRED
(2) CLEARANCE NOT REQUIRED

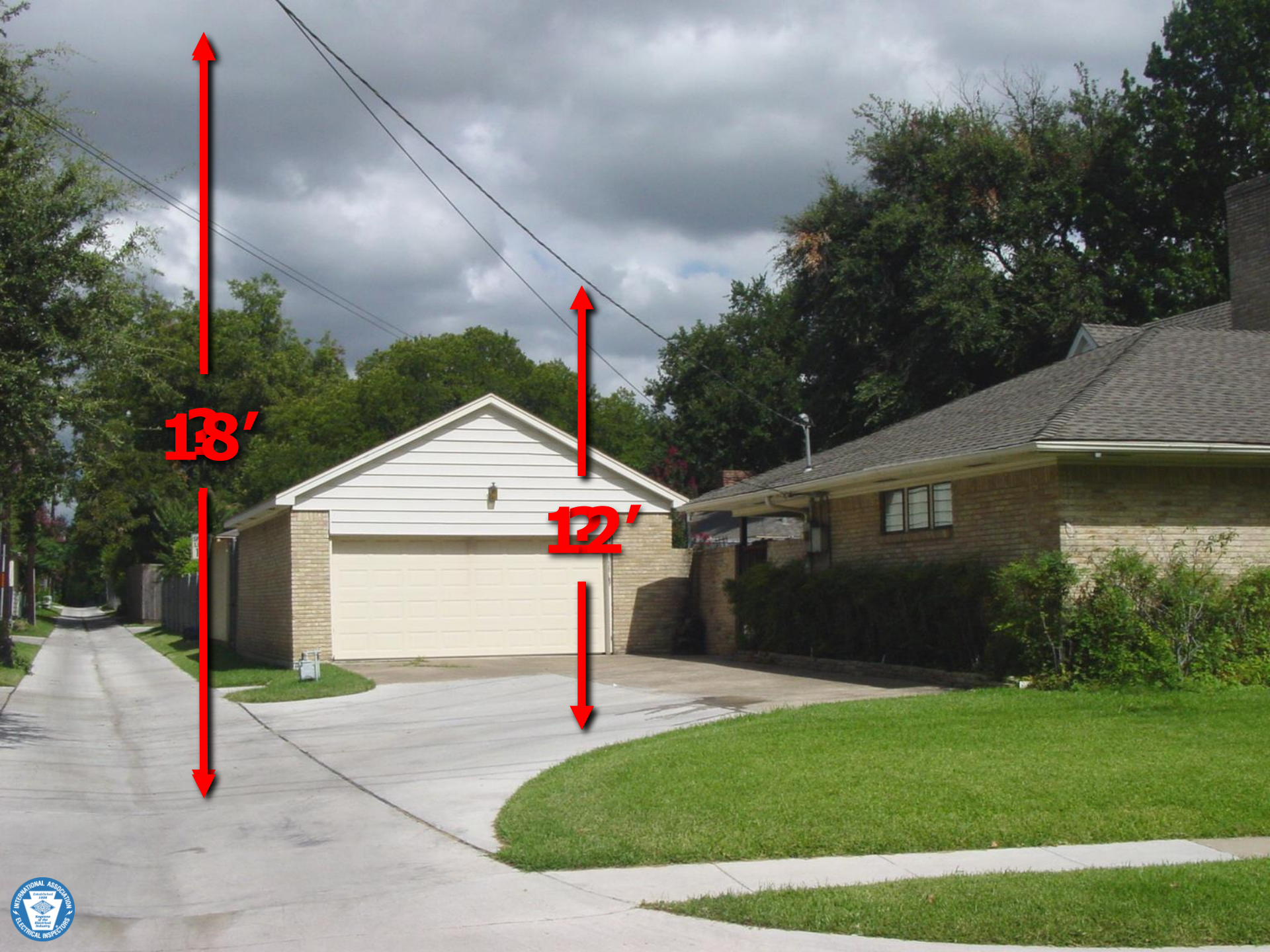
Service Drop Clearances

NEC 230.24 (B)(1)-(4)
Vertical Clearance.

Clearances from grade
10’ at service entrance or drip loop max. 150v to ground
12’ over residential property and driveway
(maximum 300 volts to ground)

Service Drop Clearances




18′
12′

Service Drop Clearances

NEC 230.24(A)

(A) Above Roofs. Conductors shall have a vertical clearance of not less than 2.5 m (8 ft) above the roof surface. The vertical clearance above the roof level shall be maintained for a distance of not less than 900 mm (3 ft) in all directions from the edge of the roof.

Service Drop Clearances

NEC 230.24(A)

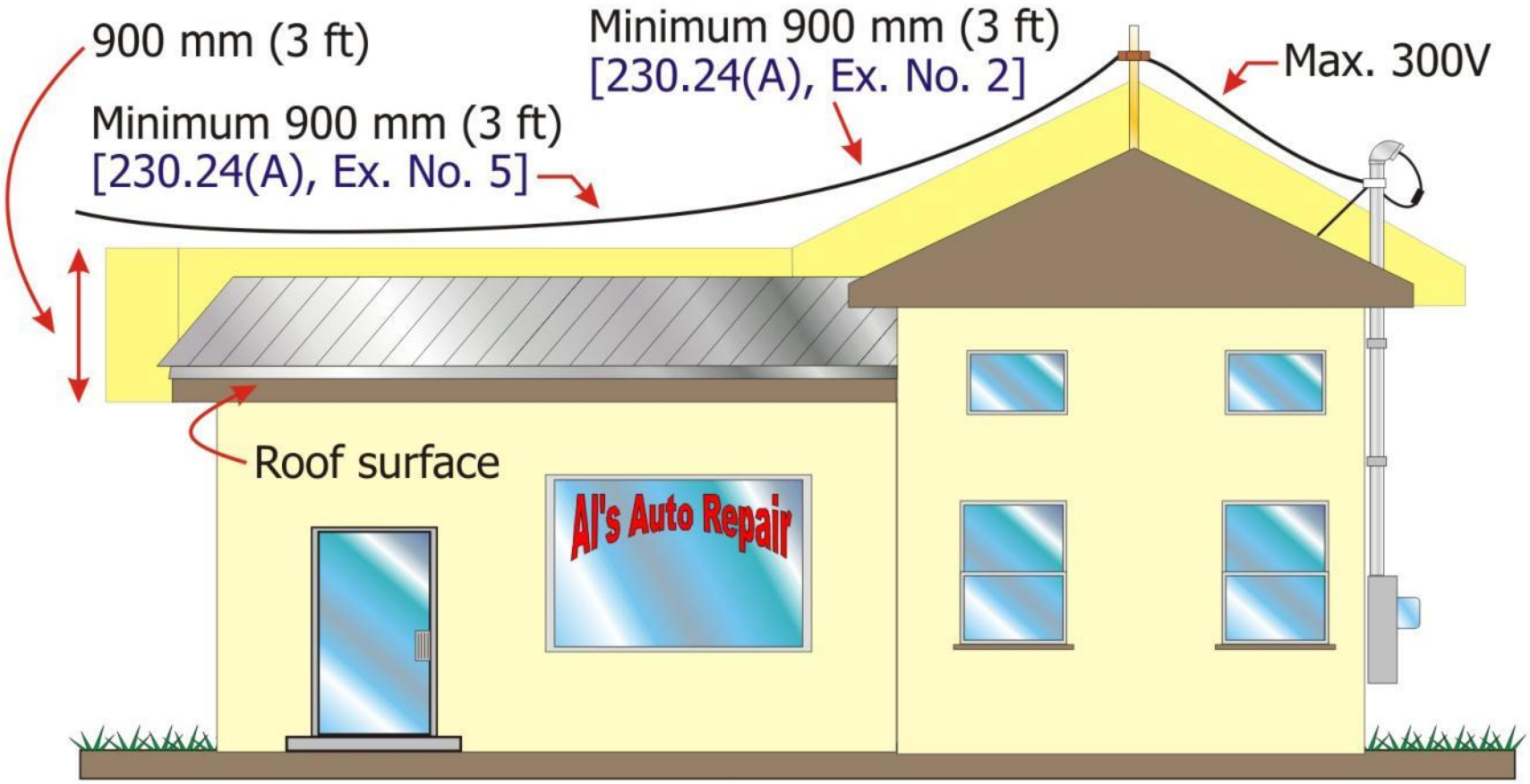
Exception No. 1: The area above a roof surface subject to pedestrian or vehicular traffic shall have a vertical clearance from the roof surface in accordance with the clearance requirements of 230.24(B).

Exception No. 2: Where the voltage between conductors does not exceed 300 and the roof has a slope of 100 mm in 300 mm (4 in. in 12 in.) or greater, a reduction in clearance to 900 mm (3 ft) shall be permitted.

Exception No. 3: Where the voltage between conductors does not exceed 300, a reduction in clearance above only the overhanging portion of the roof to not less than 450 mm (18 in.) shall be permitted if (1) not more than 1.8 m (6 ft) of overhead service conductors, 1.2 m (4 ft) horizontally, pass above the roof overhang, and (2) they are terminated at a through-the-roof raceway or approved support

230.24(A) Ex. No. 5 Clearances Above Roofs

Service conductors are generally required to have a vertical clearance of not less than 2.5 m (8 ft) above the roof surface

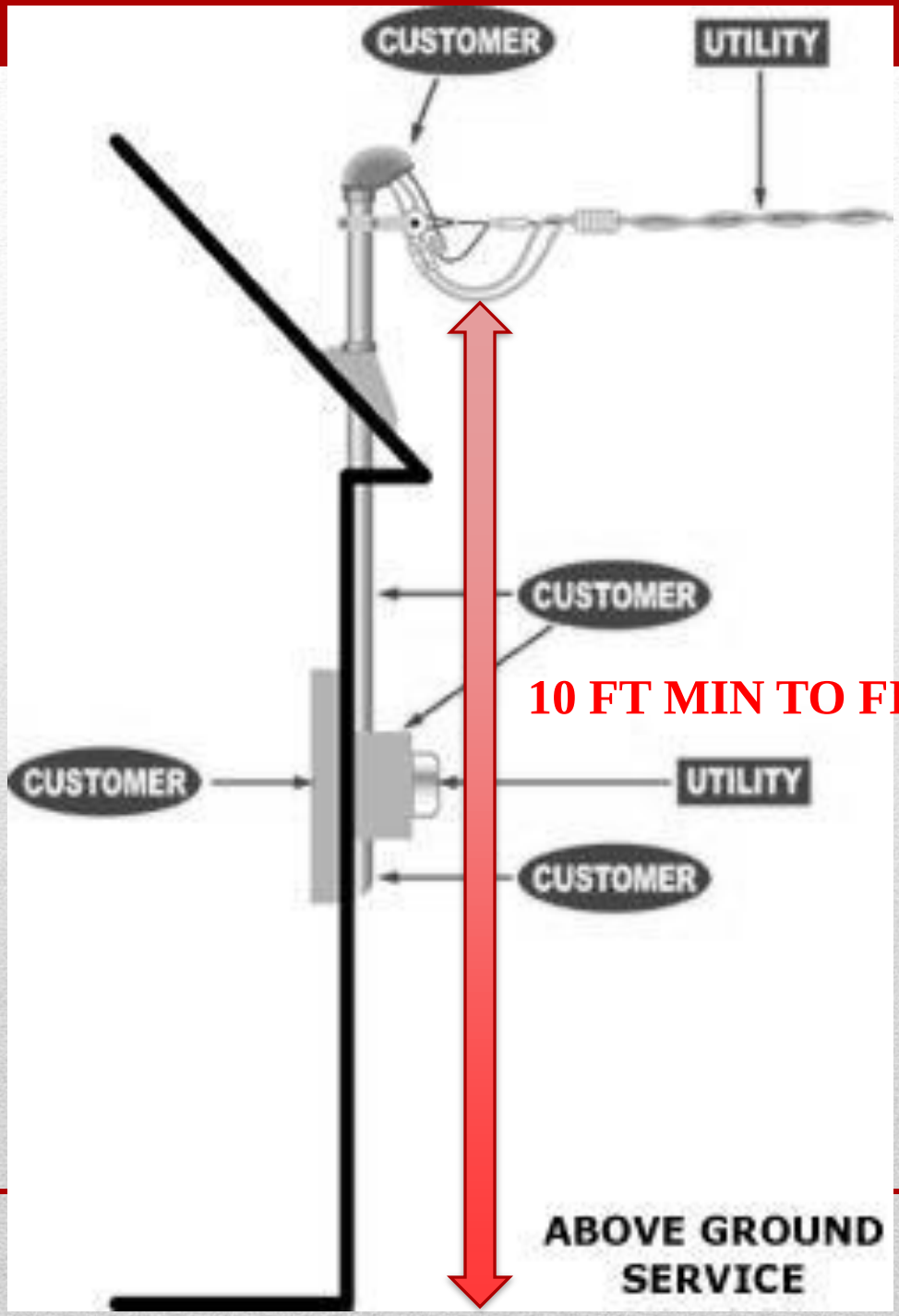


A reduction of clearance for overhead service conductors above a roof of 900 mm (3 ft) is permitted where the roof area is guarded or isolated

Point of Attachment

NEC 230.26

The point of attachment of the service-drop conductors to a building or other structure shall provide the minimum clearances as specified in 230.9 and 230.24. In no case shall this point of attachment be less than 3.0 m (10 ft) above finished grade.



10 FT MIN TO FINISHED GRADE

Service Mast

NEC 230.28

Service masts used for the support of service drops must have adequate strength to withstand safely the strain imposed by the service drop or be supported by braces or guys

Check with local utility company and use their metering manuals

Service Head

NEC 230.54(A)

Service raceways shall be equipped with a service head at the point of connection to service drop or overhead service conductors.

The service head shall be listed for use in wet locations.

Service Head or Gooseneck

NEC 230.54(A)

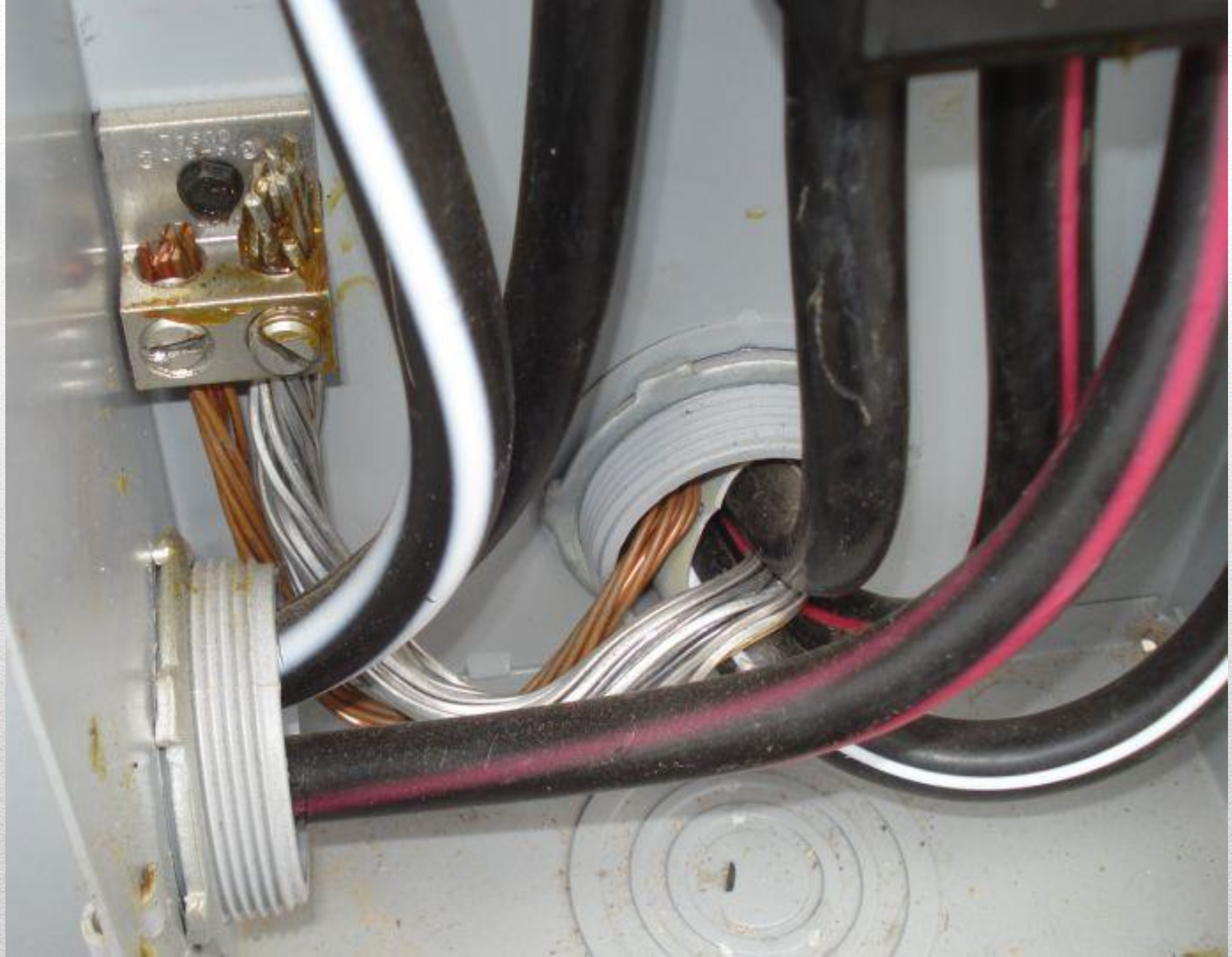
Service Head shall be located above the point of attachment of the service drop or overhead service conductors to the building.

Service Head or Gooseneck

NEC 230.54(G)

Service-Entrance and overhead service conductors shall be arranged so that water will not enter service raceway or equipment.

Overhead Service conductors



WHAT NEEDS TO BE REPLACED?

SPS 316.003(4)

REPAIRS. Repairs to electrical installations shall conform to the electrical code that applied when the installations were installed. A repair may be required to be brought into compliance with the current code's requirements by the department and within the time period determined by the department when a hazard to life, health or property exists or is created by the repair.

Overhead Service Storm Damage


CAUTION

- Can we leave the 60 amp panel and replace only the meter socket? YES
- When I put a 100 amp meter socket on, can I refeed it with 100 amp wire? YES
- Do I have to drive two ground rods? NO

Overhead Service Storm Damage

BRANCH CIRCUITS

BRANCH CIRCUITS

NEC 210.3 Rating.

Branch circuits recognized by this article
shall be rated in accordance with the maximum permitted ampere rating or setting of the overcurrent device.

BRANCH CIRCUITS

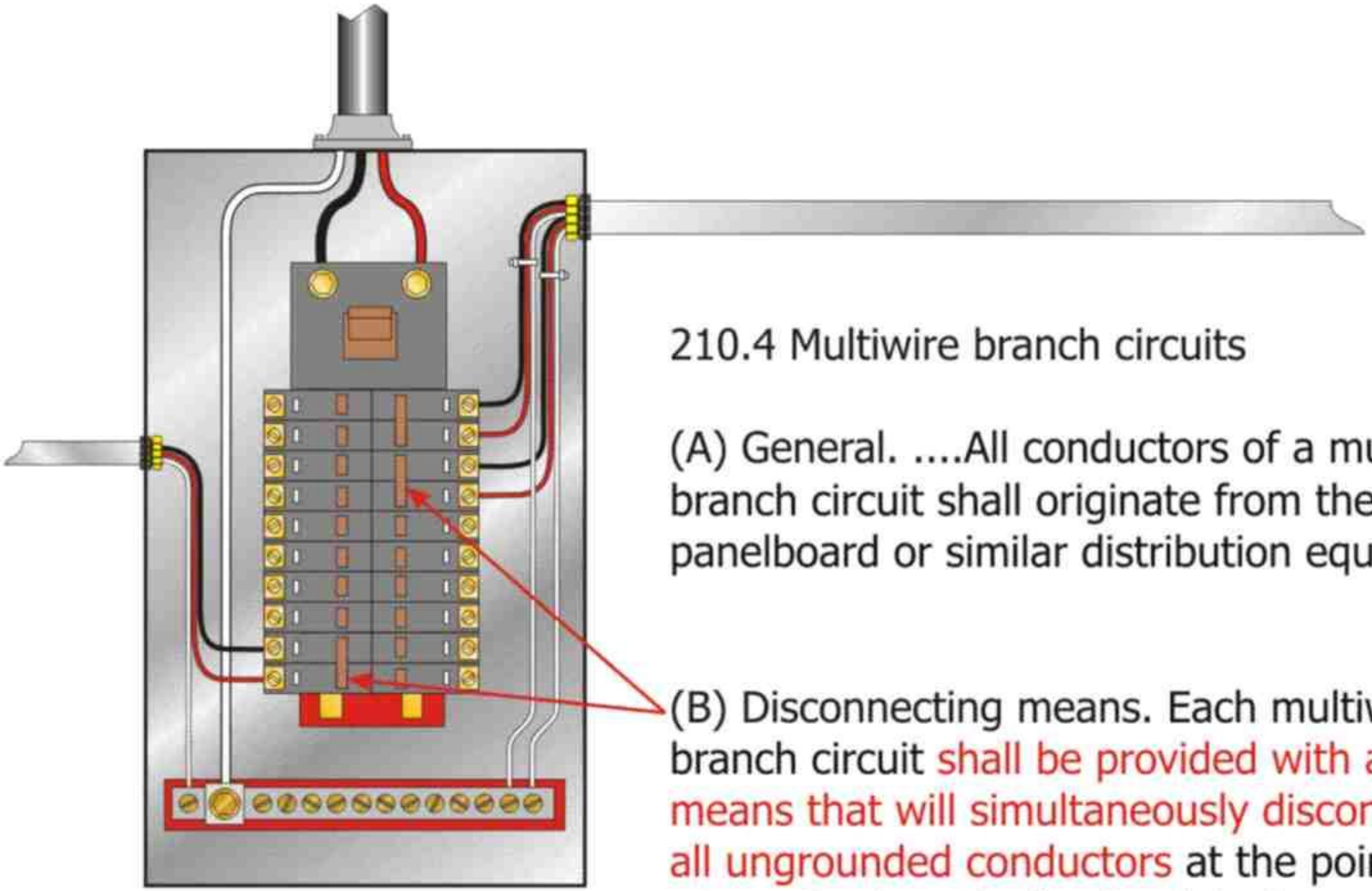
NEC 210.4 (A) Multiwire Branch Circuits

All conductors of a multiwire branch circuit shall originate from the same panelboard or similar distribution equipment.

NEC 210.4 (B) Disconnecting Means.

Each multiwire branch circuit shall be provided with a means that will simultaneously disconnect all ungrounded conductors at the point where the branch circuit originates.

210.4 Multiwire Branch Circuits



210.4 Multiwire branch circuits

(A) General. ....All conductors of a multiwire branch circuit shall originate from the same panelboard or similar distribution equipment

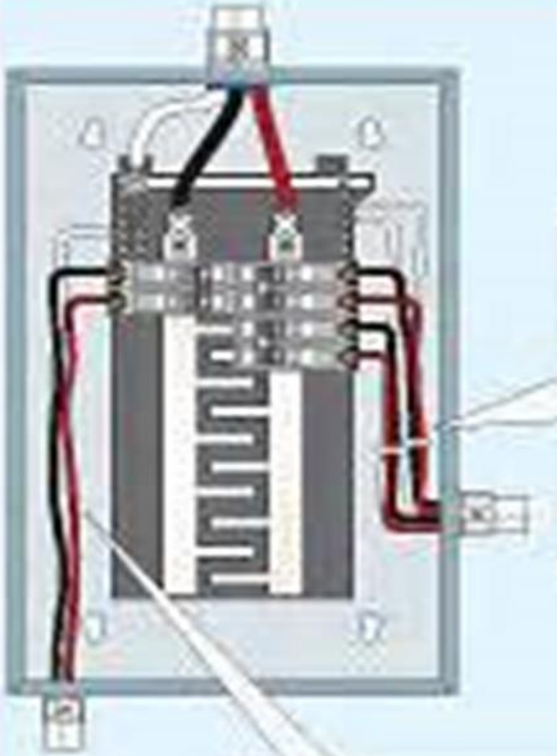
(B) Disconnecting means. Each multiwire branch circuit shall be provided with a means that will simultaneously disconnect all ungrounded conductors at the point where the branch circuit originates.

BRANCH CIRCUITS

NEC 210.4 (D) Grouping

The ungrounded and grounded circuit conductors of each multiwire branch circuit shall be grouped by cable ties or similar means in at least one location within the panelboard or other point of origination.

Multiwire Circuit - Grouping
Section 210.4(D)



The ungrounded and neutral conductors of a multiwire branch circuit must be grouped together in at least one location by wire ties or similar means at the point of origination.

Grouping is not required where the conductors are in a single raceway or cable [210.4(D) Ex].

BRANCH CIRCUITS

When I do a service change do I need to install AFCI breakers on the existing circuits.

NO, Not on the existing branch circuits.

Yes, If you add a circuit that requires AFCI

BRANCH CIRCUITS

When I do a service change do I need to install a Two pole breaker on a existing multiwire branch circuit?

NO.

- **Yes, if you add a new multiwire branch circuit**
- **Handle ties may be used in place of a two pole breaker**

BRANCH CIRCUITS

When I do a service change and I have to splice the conductors to reach the new breaker location in the panel do I have to install AFCI on that circuit?

NO, You are only extending the existing circuit

NEC 210.12(B) Does not apply in Wisconsin per SPS 316.210 (4)

BRANCH CIRCUITS

When I change the electric service do I have to install a GFCI outlet in the basement of an existing home?

NO

However, if you add an outlet, it is required to be GFCI

Any questions?

DSPSSBElectrictech@wi.gov

ElectricTech Voicemail 608-264-7823

http://dsps.wi.gov/Home