

# Flexible cords and cables (general industry)



Flexible cords and cables are used to connect electrical equipment to a power source — with an electrical plug or a permanent wire. Extension cords (cord sets), cables, and electrical cords are types of flexible cords.

## Summary of requirements

### 1910.303 – (Electrical) general

- Electric equipment shall be free from recognized hazards that are likely to cause death or serious physical harm.
- Listed or labeled equipment shall be used in accordance with any instructions included in the listing or labeling.

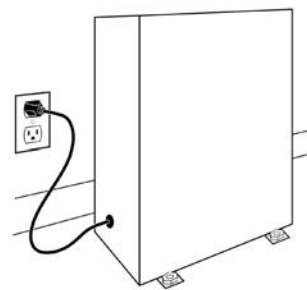
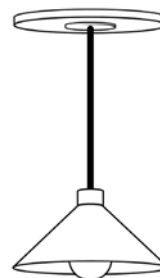
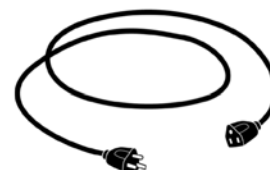
### 1910.304 – Wiring design and protection

A receptacle outlet must be installed where flexible cords with attachment plugs are used. Receptacles are not necessary in situations where flexible cords are allowed by code to be permanently connected.

### 1910.305 – Wiring methods, components, and equipment for general use

Temporary electrical power and lights that operate at 600 volts or less must be used only:

- During remodeling, maintenance, repair, or demolition work
- For experimental or developmental work
- During emergencies
- For holiday decorative lighting, carnivals, and similar events (for no more than 90 days)



Examples of flexible cords and their uses

Ensure that flexible cords and cables are not damaged by sharp corners, doorways, and other pinch points.

Use staples, cable ties, straps, or similar fittings to support cable assemblies and flexible cords. These must be used in a manner that will not damage the insulation properties of the cord.

Outlet box covers that have holes through which flexible cord pendants pass must have either bushings designed for that purpose, or smooth, well-rounded cord-bearing surfaces.

Flexible cords and cables must be rated for their conditions of use and their location – examples include dry, damp, and wet locations and areas exposed to direct sunlight.

**Use flexible cords and cables only for:**

- Pendants
- Wiring fixtures
- Connecting portable lamps and appliances
- Connecting portable signs
- Elevator cables
- Wiring cranes and hoists
- Connecting fixed equipment
- Preventing noise or vibration
- Connecting appliances that can be easily moved for maintenance and repair
- Data processing cables approved for data processing systems
- Connecting moving parts
- Temporary wiring

Use only the following types of flexible cords in show windows and showcases: S, SE, SEO, SEOO, SJ, SJE,

**Do not:**

- Use flexible cords and cables as a substitute for fixed wiring
- Run flexible cords and cables through holes in walls, ceilings, or floors
- Run flexible cords and cables through doorways or windows
- Attach flexible cords and cables to building surfaces
- Conceal flexible cords and cables behind building walls, ceilings, or floors
- Install flexible cords and cables in raceways unless another Oregon OSHA rule allows it



SJEO, SJEOO, SJO, SJOO, SJT, SJTO, SJTOO, SO, SOO, ST, STO, and STOO.

This does not apply to wiring for chain-supported lighting fixtures and supply cords for portable lamps and other display merchandise.

Flexible-cord conductors and cable conductors used as grounded conductors or as equipment-grounding conductors must be distinguishable from other types of conductors.

The following flexible cords and cables must be marked with their type, size, and number of conductors at intervals not exceeding 24 inches:

- Type S, SC, SCE, SCT, SE, SEO, SEOO, SJ, SJE, SJEO, SJEOO, SJO, SJT, SJTO, SJTOO, SO, SOO, ST, STO, and STOO flexible cords
- Type G, G-GC, PPE, and W flexible cables

Use flexible cords in continuous lengths without splicing or tapping them.

Splices in hard-service cord and junior hard-service cord (No. 14 and larger) can be repaired, but the splice must retain the insulation, outer sheath properties, and use characteristics of the cord.

Use strain relief when connecting flexible cords and cables so that tension — including tension from the weight of the cord — will not be transmitted to the conductor terminals. Examples of strain relief include knotting the cord, winding with tape, and use of fittings designed for that purpose.

Connectors used to connect cable in a run must lock firmly together and not open or close when they are energized. Use strain relief at the connections.

Do not use portable cords that have splices unless the splices are permanently molded or vulcanized.

Portable hand lamps that have flexible cords must have a molded composition (or similar) handle and an attached guard. Do not use metal shell or paper-lined lamp holders.

## 1910.334 - Use of equipment

Flexible electric cords connected to equipment must not be used for raising or lowering the equipment.

Flexible cords must not be fastened or hung in a way that could damage the outer jacket or insulation.

Portable cord-and-plug connected equipment and extension cords must be inspected before use on each shift for defects such as loose parts, deformed and missing pins, or damage to outer jacket or insulation and for evidence of internal damage such as a pinched or a crushed outer jacket.

Cord-and-plug connected equipment and extension cords that remain connected and cannot be damaged do not need to be inspected until they are moved.

Flexible cords used with grounded equipment must have grounding conductors.

Employees' hands must not be wet when they plug or unplug energized flexible cords and cord-and-plug connected equipment.



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