

Extension cords, power bars, and multi-tap receptacles are widely used in residential, commercial, and industrial environments to provide flexible access to electrical power. Their portability and ease of deployment make them a common solution where fixed receptacles are limited, inconveniently located, or unable to keep pace with changing operational needs. While they are simple in design, their use without clear guidelines or periodic reassessment can introduce electrical and fire risks that may not be immediately apparent. These risks are often influenced by how the devices are used, how long they remain in service, and the physical and environmental conditions in which they operate.

This guide provides an overview of common use scenarios, highlights key risk considerations, and outlines practical measures to help manage the risks associated with extension cords, power bars, and multi-tap receptacles.

Use Scenarios

Extension cords, power bars, and multi-tap receptacles are typically introduced as a convenience or temporary solution, rather than as part of a planned electrical design. Their use often expands over time as equipment needs evolve or as workspaces are reconfigured without corresponding changes to permanent electrical infrastructure.

Common use scenarios include:

- Office and administrative areas where workstation layouts limit access to wall receptacles
- Power bars used to support multiple devices at desks, workstations, or control panels
- Temporary power extensions for portable tools, maintenance activities, or service work
- Server rooms, communications closets, or equipment rooms with multiple continuously energized devices
- Retail or customer-facing spaces where receptacle placement is constrained by layout or aesthetics
- Storage, warehouse, or back-of-house areas where power needs are intermittent or variable

Because these devices are easy to deploy, they are often installed incrementally and remain in place longer than originally intended. Over time, what begins as a short-term solution can become a permanent part of daily operations without formal review.



Risk Factors

Extension cords, power bars, and multi-tap receptacles share several characteristics that influence how electrical risk develops. All three are plug-connected devices that rely on flexible conductors and connections, making them sensitive to electrical demand, duration of use, physical condition, and placement.

Across all plug-connected devices, risk most often develops through a combination of the following factors:

- **Electrical draw and combined use:** Connected equipment may draw significant current individually or in combination, allowing total load to approach or exceed what the device can reliably support.
- **Extended or continuous use:** Devices intended for intermittent or short-term use may remain energized for long periods, increasing thermal stress.
- **Incremental change:** Additional equipment is often added one device at a time, allowing load and reliance to grow without reassessment.
- **Limited visibility of condition:** Placement behind furniture, equipment, or storage can make signs of overheating or deterioration difficult to observe.
- **Physical wear and environmental exposure:** Flexible cords and plug connections are subject to bending, compression, vibration, and environmental conditions that can affect performance over time.

Risk Reduction Practices

Loss associated with extension cords, power bars, and multi-tap receptacles is most effectively managed through clear expectations around use, condition, and duration.

Practical controls to reduce loss potential include:

- 1. Certification:** Devices should be certified for use in Canada by a recognized organization such as CSA, cUL, or cETL. Certification provides assurance that the product has been evaluated against applicable Canadian safety standards and is suitable for use in commercial settings.
- 2. Appropriate rating:** Devices should be suited to the electrical demand of the connected equipment. Regular operation at or near maximum capacity can increase stress on internal components, particularly when multiple loads are connected.
- 3. Environment and placement:** Devices should be appropriate for the conditions in which they are used and placed where their condition can be readily observed. Concealed placement can allow deterioration or overheating to go unnoticed.
- 4. Configuration:** Connecting devices in series, such as plugging a power bar into an extension cord or another power bar, increases electrical stress and should be avoided.
- 5. Condition:** Devices showing signs of wear, damage, overheating, or modification should be removed from service rather than repaired. Minor defects can progress over time if left unaddressed.
- 6. Recurring use:** Repeated reliance on cords or power bars in the same location may indicate that fixed electrical capacity has not kept pace with how the space is being used. Addressing underlying power needs can reduce long-term reliance on temporary solutions.

Equipment that warrants caution

Certain types of equipment are more likely to increase exposure when used with extension cords, power bars, or multi-tap receptacles due to sustained operation or higher electrical demand.

Examples include:

- Portable space heaters
- Microwaves and cooking appliances
- Refrigerators, freezers, and dehumidifiers
- Large printers and copiers
- Portable air conditioners
- Industrial tools or shop equipment

Use of these devices may warrant closer review of configuration, duration of use, and whether fixed electrical capacity is appropriate for the application.

In Summary

Extension cords, power bars, and multi-tap receptacles are common in many residential, commercial, and industrial environments and are often introduced incrementally as needs change. Their widespread use can make it difficult to recognize when configurations and electrical demand have evolved beyond what was originally intended.

Loss potential is influenced less by the presence of these devices and more by how they are selected, configured, and relied upon over time. Use of properly certified equipment, appropriate ratings, and thoughtful placement helps reduce exposure, while recurring reliance in the same location may indicate a need to reassess fixed electrical capacity.

References

Electrical Safety Authority | Hazards due to misuse of extension cords

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https://esasafe.com/assets/files/esasafe/pdf/Fire_Services/Factsheet-Extension-Cords-Multi-tap-Receptacles.pdf

Electrical Safety Authority | Indoor Safety

<https://esasafe.com/safety/home-electrical-safety/indoor-safety/>

Electrical Safety Foundation International | Extension Cord Safety Tips

<https://www.esfi.org/extension-cord-safety-tips/>