Reaching Decisions on
Electrical Safety Standards

Cable Management Systems

Important Components in a Safe Electrical System

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News Flash !!!

50 Year Old Myth Exposed

Link between toasted bread and electric shock to children proven false.

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Electrical safety **is** an interactive process and results from compatibility both within and between systems.

A system depends on the effective performance of **each** separate component.

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Cable Management Systems - IEC SC 23A

Scope:

"…management of all types of cables, information and communication lines, electrical power distribution conductors and associated accessories.

Management includes support and/or containment and/or retention and/or protection against external influences."

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Objectives:

1. Provide a context for cable management products and product standards.
2. Associate products with the globally agreed electrical safety principles.
3. Identify approaches in standards that support electrical safety principles.
4. Compare and contrast product standards from our region with those in related IEC standards.

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Cable Management Systems

Wire and Cable Routing and Protection
- Electrical Conduit and Tubing
- Cable Tray Systems
- Trunking and Ducting Systems

Fittings for Electrical Conduit, Tubing and Cables

Support Devices

Electrical Boxes

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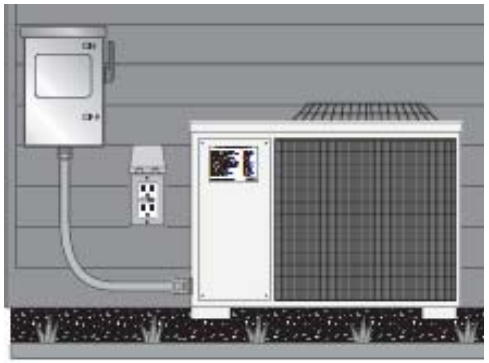
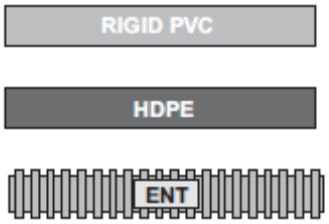
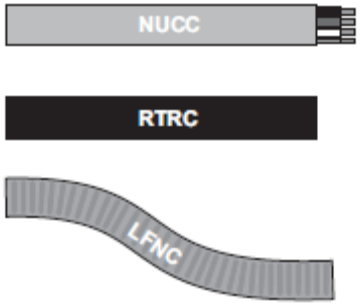
Cable Management Systems

Electrical Conduit and Tubing:







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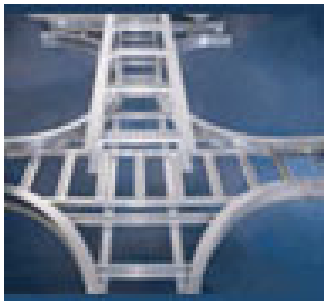
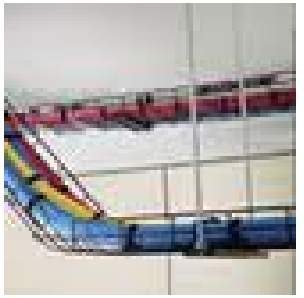
Cable Tray Systems:





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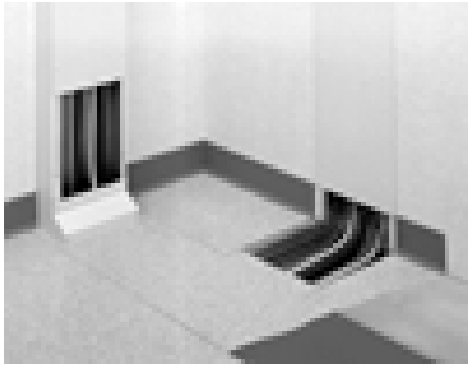
Cable Management Systems

Trunking and Ducting Systems:



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Fittings for Electrical Conduit, Tubing and Cables

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Electrical Conduit & Cable Fittings:

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Conduit and Cable Supports:

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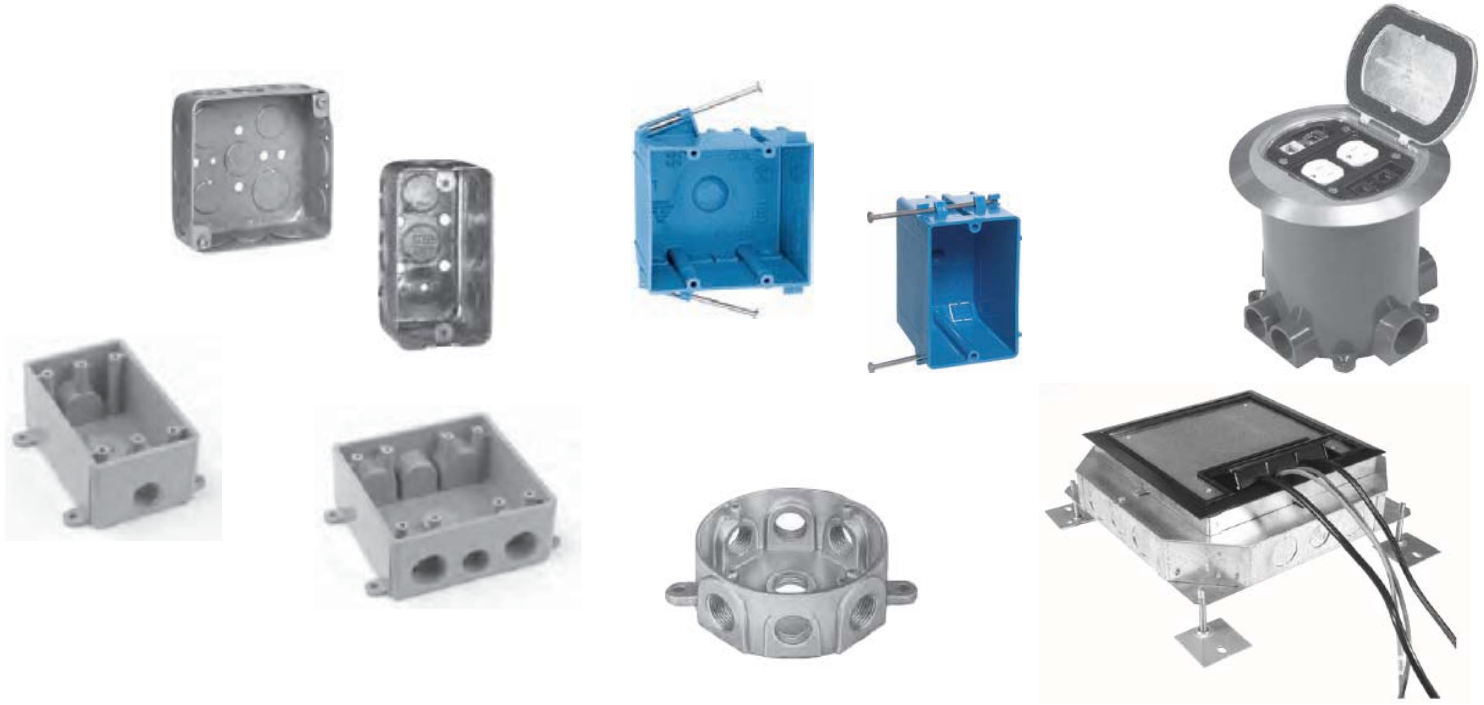
Electrical Boxes:



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Cable Management Systems

Contribution to Electrical Safety:

Fundamental Principles

General

- Shock currents
- Excessive heat (burns, fires, other)

Protection against electric shock (contact with live parts)

- Protection against direct contact (enclosure, clearance)
- Protection against indirect contact (grounding, bonding)

Protection against thermal effects

Protection against overcurrent

Protection against fault currents

Protection against overvoltage

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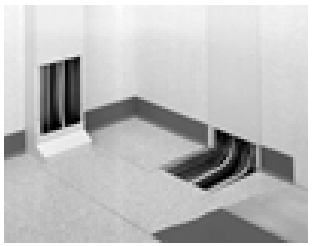
Cable Management Systems

Contribution to Electrical Safety:

Electrical Conduit, Tubing and Cable Tray, and Trunking

- Safely route conductors and cables
- Provide degrees of protection from physical damage present in the installed areas
- Provide protection from environment effects
- Some can help shield electromagnetic emissions



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Cable Management Systems

Contribution to Electrical Safety:
Fittings for Conduit, Tubing and Cable

- Integral to the conduit, tubing or cable system
- Standards assure compatibility with mating systems
- Resistance to pull and/or twisting forces
- Provide protection from environment effects (sealing)
- Ensure electrical continuity at joints

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Cable Management Systems

Contribution to Electrical Safety:
Supports for Conduit, Tubing and Cable

- Standards assure compatibility with mating systems
- Supports static loads exerted by systems they support and determined spacing intervals
- Resistant to environment effects

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Cable Management Systems

Contribution to Electrical Safety:
Electrical Boxes

- Internal volume capacity – a key N. A. classification
- Integral to the wiring system – maintains its integrity
- Contain and limit access to live electrical parts
- Contain potentially damaging arcs and sparks





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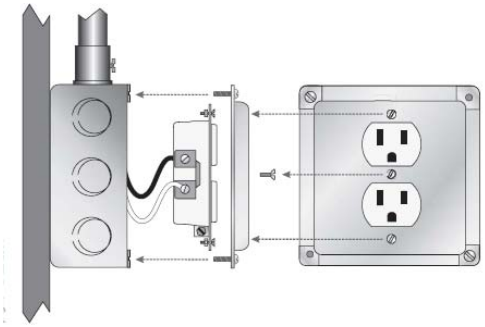
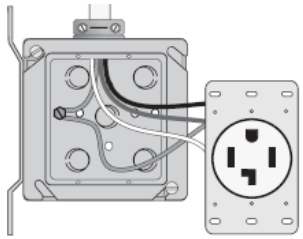
Contribution to Electrical Safety:

Electrical Boxes

- Standards assure compatibility between boxes, covers, wiring devices and wiring systems
- NEMA standards define compatibility of North American components
- Secure retention of wiring systems





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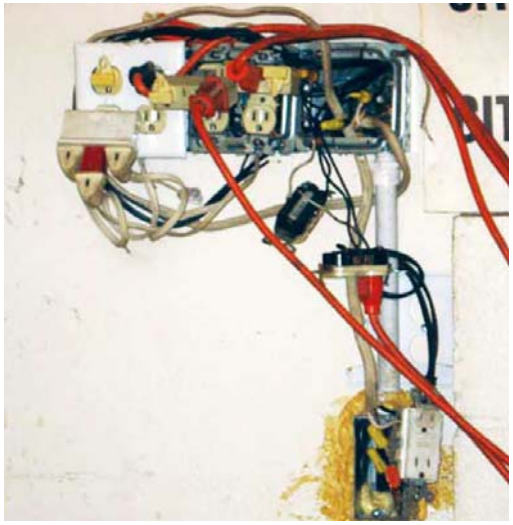
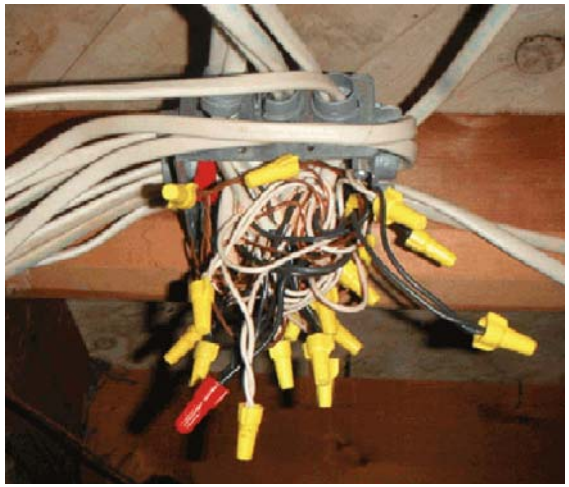
Contribution to Electrical Safety:

Electrical Boxes

- Internal volume capacity – a key N. A. classification
- Under-sizing or over-crowding boxes a serious safety hazard





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Action Required !

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