

Fact Sheet # 8 - Cable Trays

Cable trays are structural components of a facility's electrical system, and as such, are part of a planned cable management system. The use and installation of cable trays are covered by OSHA in 29 CFR 1910.305(a)(3) and within various provisions of the National Electric Code (NEC). When properly planned, installed, and serviced, cable trays provide safe routing of power, low voltage control, data, and telecommunications wiring. Cables in these trays are easy to mark, find, and remove.

If the cable tray system is not managed properly and overloading, mixing of cable classifications, improper grounding, and other Code non-conformances exist, a hazard can be created for anyone working in or near the trays. The best strategy is to review and follow the rules set forth by OSHA, the NEC and the tray manufacturer's installation guides.

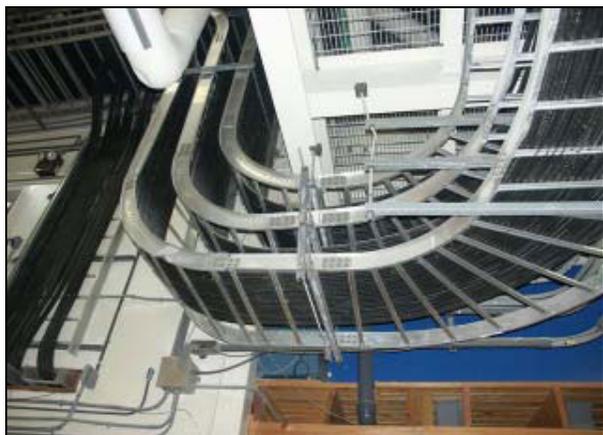


Figure 1 – Proper Cable Tray Installation

Since cable tray installations and the cables allowed in those trays are covered by OSHA and the NEC, the installations are also covered under BNL's Electrical Material and Installation Inspection (EMII) Program. Stated very simply under this program, **all** electrical equipment (including cable trays and associated components, electrical distribution equipment, etc.) shall **not** be put into service without first being accepted by the Authority Having Jurisdiction (AHJ) The AHJ for Brookhaven National Laboratory is the Laboratory Electrical Safety Committee (LESC) and their Authority is delegated down to EMII electrical Inspectors for acceptance.

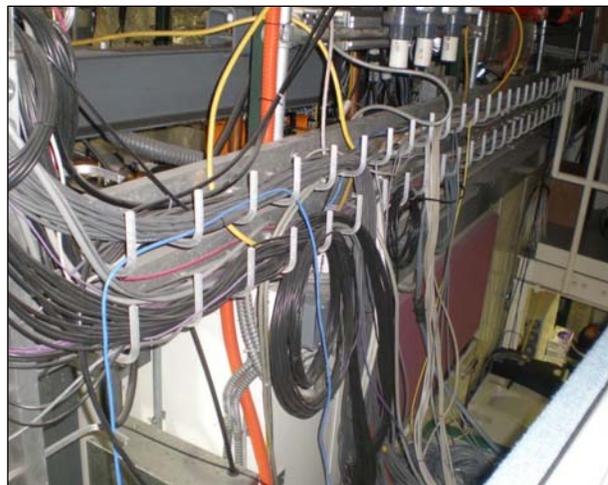


Figure 2 - Improper Cable Tray Installation

All cables and conductors approved for use in cable trays are required to be insulated. However, while the insulation of the conductors does provide some protection, it is important to use measures to prevent damage to the insulation when working around energized conductors and cables so as to avoid damaging the insulation. If an employee is performing work that could damage the insulation, such as adding boxes or other approved electrical equipment using screws or bolts, drilling into the cable tray, and pulling cables or conductors across each other, then all wiring in the tray must be de-energized. In general, 29 CFR 1910.333(a)(1) requires that live parts to which an employee may be exposed shall be deenergized before an employee works on or near them.

For the reasons mentioned here, the LESG has determined that only qualified staff should work in cable trays. The level of qualification is determined through the work planning process and can be task-based. It is the responsibility of line management to ensure proper work planning prior to starting the work; including checking the qualifications of staff, providing required supervision for working in cable trays and Code compliance of the installation.

If you have a question regarding work in cable trays or the Code compliance of an installation, contact your local ESH Coordinator or the Laboratory Electrical Safety Officer.