

Considerations for Remote Powering in revision to the 2017 NEC

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Purpose: To provide information on the topic of Remote Powering in revision to the 2017 NEC. The considerations below were sent to NFPA 70 Code-Making Panel 3 requesting rejection of the second revision SR611 to NEC 725.144 and related clauses addressing LP cables and to defer proposed revisions in 2017 NEC concerning remote powering over communication cables to the 2020 code cycle.

Considerations for Remote Powering in revision to the 2017 NEC

Objective: Reject second revision SR611 to NEC 725.144 and related clauses addressing LP cables and defer proposed revisions in 2017 NEC concerning remote powering over communication cables to the 2020 code cycle.

Considerations for review:

- A. Fact Finding Report – Insufficient Technical Justification.
- B. No Case Made for LP Cable.
- C. Safety – A solution looking for a problem?
- D. Inconsistency of Panel decisions.
- E. Enforcement and potential liability.

A. Fact Finding Report - Insufficient Technical Justification

A Fact Finding Report from the Society of Plastics Industry (SPI report) was used as basis of for Article 725.144 revisions. SPI funded UL LLC to participate in the development of the report. The report included tables of information used to populate the proposed Table 725.144. The Table 725.144 is inconsistent with ampacity tables in TIA draft TSB-184-A TSB-184-A addendum to TSB-184 “Guidelines for Supporting Power Delivery Over Balanced Twisted-Pair Cabling.” The TIA TSB-184-A findings are a result of cooperative analysis of temperature rise versus current measurements from multiple cabling manufacturers, as well as modeling between standards organizations (IEEE/TIA/ISO/IEC). Table 725.144 is based solely on a single test report without collaboration by affected standards bodies.

The testing methodologies used as the basis for the proposed changes were not publically available prior to the comment submission deadline precluding public technical review. The SPI report was issued September 25.

At the date of the comment submission deadline, 25 September 2015, the specifications and availability of the referenced LP cabling were not publically available.

Regarding the report, there were a number of deficiencies:

- Lack of definitions: e.g., “bundle” does not have a precise meaning in the report
- 28 AWG cable not evaluated.
- Connecting hardware, patch cords, cross-connect wiring, patch panels, consolidation points not evaluated.
- Un-realistic test scenarios (all 4 pairs of every cable powered in plugged conduit) were chosen.

B. No case made for LP cable

One of the purposes of a structured cabling system is to allow for the upgrading of electronics without replacement of the cable plant. All cables are typically planned to carry a signal (e.g., voice, video, data and telemetry). Some cables might carry remote power (estimating less than 5% in a building from experience). Which cables are carrying remote power and at what amperage? It remains an unknown until a cable is activated and may change over time. The Code invites litigation between owner and contractors/designers when expectations are not met. "LP" cable should be marketed, not mandated. CMP "category" cables can be ordered for various temperature ranges and gauges, thus negating the need for an "LP" cable in the Code.

C. Safety - A solution looking for a problem?

There has been **no documented record** of life safety issues or property loss cases resulting from remote powering.

D. Inconsistency of Panel decisions

Inconsistency of Panel decisions may result in Correlating Committee involvement (e.g., Panel 16 requires use of ampacity tables only for remote power circuits above 60 W; Panel 3 requires them for all remote power circuits).

E. Enforcement and potential liability

The complexity of the revisions and ability of the end-user to easily switch from a non-powered data com link to a powered data com link, or, to, knowingly or unknowingly, exceed the ampacity to which a circuit is inspected, makes the code unenforceable. Therefore, the inspectors are left without sufficient criteria when they inspect cabling.