



Firestop Compliance for Overfilled Sleeves

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What is a Sleeve?



Short sections of raceway used to provide support or protection of cable assemblies from physical damage – NEC (NFPA 70:2014)

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What Trades Use Sleeves

- Plumbing/Mechanical
- Electrical
- Structured Cabling
- Sprinkler
- Specialty Firestop Contractor (SFC)



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Why Bother Using a Sleeve?

- **Electrical & Low-Voltage:** To protect circuits from being damaged
- **Sprinklers:** To ensure proper clearances are maintained per NFPA 13
- **Firestop Contractor:** To provide a surface to pack and seal against

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Traditional Firestop Sleeves

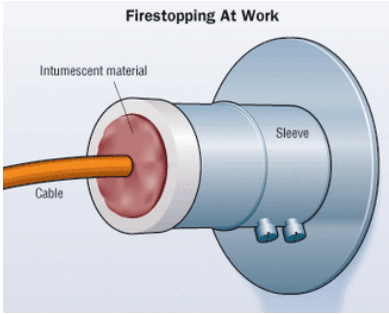
- Historically the “go to” solution for cabling
- Multitude of Third Party Tested Systems available
- Variety of Firestop Products used
 - Putty
 - Sealant
 - Pillows/Bags/Bricks
 - Plugs

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How Many Cables is Too Many?

- Cable Sleeve Firestop systems need room for the Firestop!
- One cable too many can make an installation non-compliant



Myths About Sleeves



MYTH: *Sleeve fill is determined by the NEC.*



Myths About Sleeves

National Electrical Code 2014

Chapter 9 Tables

Notes to Tables

(2) Table 1 applies only to complete conduit or tubing systems and is not intended to apply to sections of conduit or tubing used to protect exposed wiring from physical damage.

FACT: Although **continuous** conduit and tubing system fills are determined by the NEC, sleeve fill is exempted from these requirements and driven by Third-Party Tested Firestop Systems!

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3. **Cables** - Aggregate cross-sectional area of cables in steel sleeve to be max 48 percent of the aggregate cross-sectional area of the opening or sleeve. Cables to be bundled and rigidly supported on both sides of wall assembly. When the sleeve (Item 2) is installed, the annular space between the cables and the sleeve shall be min 0 in. (point contact) to max 1-1/2 in. (38 mm). When the sleeve (Item 2) is not used, the annular space between the cables and the opening shall be a min 0 in. (point contact) to a max 1/2 in. (13 mm). Cable bundle, using cables described below, may penetrate the wall at an angle not greater than 45 degrees. Any combination of the following types and sizes of copper conductor cable may be used:
- A. Max 200 pair No. AWG (or smaller) copper conductor cable with polyvinyl chloride (PVC) or plenum-rated jacketing and insulation.
 - B. Max 3/C No. 2/0 AWG (or smaller) aluminum or copper conductor service entrance cable with PVC insulation and jacket.
 - C. Max 3/C No. 8 AWG (or smaller) nonmetallic sheathed (Romex) cable with copper conductors, PVC insulation and jacket.
 - D. Max 7/C No. 2/0 AWG (or smaller) multiconductor power and control cables with XLPE or PVC insulation and XLPE or PVC jacket.
 - E. Max RG/U (or smaller) coaxial cable with fluorinated ethylene or plenum-rated insulation and jacketing.
 - F. Max 62.5/48 fiber optic cable with PVC or plenum-rated insulation and jacketing.
 - G. Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with PVC or plenum-rated insulation and jacket.
 - H. Max 4/C No. 2/0 aluminum or copper conductor aluminum or steel Metal-Clad# or Armored-Clad# cable.
 - I. Max 3/4-in. (19 mm) copper ground cable with or without a PVC jacket.

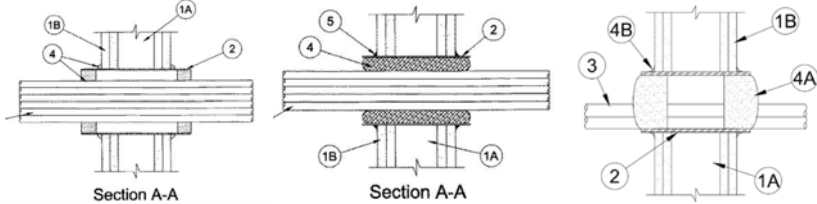
Excerpt from Underwriters Laboratories System No. W-L-3210

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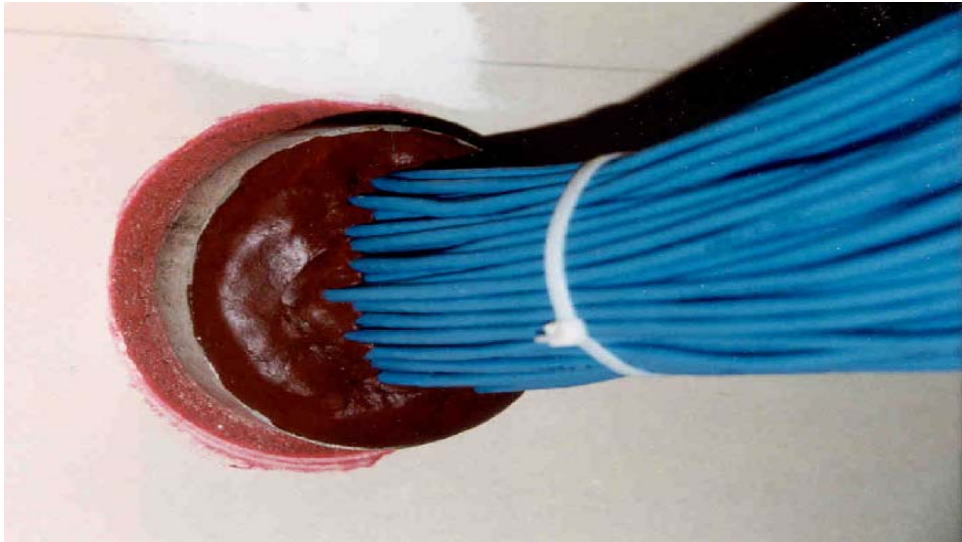


The Devil's in the Details

- Sleeve fill can vary between sealing methods and Manufacturers!
- Putties, Sealants, Plugs, Pillows/Bags each have different tested cable fills.
- Tested Ratings can impact allowable fill.



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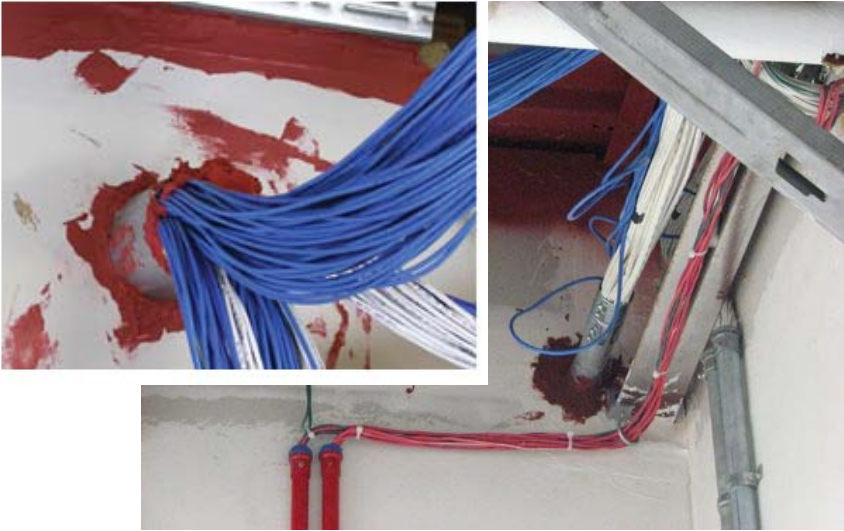




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When Good Sleeves Go Bad



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Nobody Plans to be Non-Compliant

- Cable overfill is a constant challenge with Traditional Sleeve Firestopping
 - The older the infrastructure the more overfilled sleeves you'll have
 - Often the result of Day 1 "Cost Savings"
 - Expensive and time consuming to remediate!

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The Joint Commission's SOC™



- Statement of Conditions™ changed as of August 1st
 - Plans for Improvement (PFI) no longer acceptable for Life Safety (LS) deficiencies

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Updated SOC™ Requirements

- Maximum of 60 Days to remediate Life Safety deficiencies
- Removed six month automatic extension
- No longer granting requested extensions
 - Replaced with Time Limited Waiver process

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Remediating Existing Conditions



- Cable Abatement
- Firestop Collars
- Purpose Built Firestop Devices

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Cable Abatement

- Remove abandoned/defunct circuits
 - Codes and Standards already require this!
- Pull back and relocate active circuits through new openings

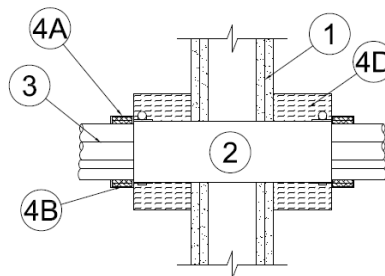


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Firestop Collars

- Install Firestop Collars on both sides of the assembly.
 - Time consuming to install correctly
 - Not a UL Tested System!

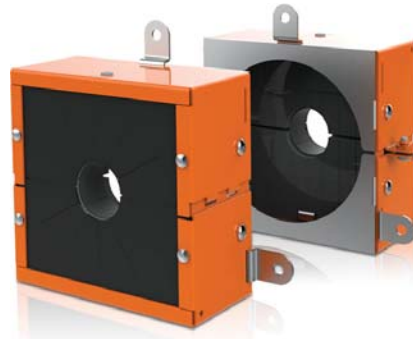


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Overfilled Firestop Sleeve Devices

- Installed over end of sleeve/stub or directly to assembly
- Restores Fire and Smoke/Air Leakage Seals
- UL Tested Solution!



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Planning for Compliance

- Conduct regular pathway inspections and audits
- Document all penetrations and their configurations.
- Ensure that anyone working in the ceiling space is aware of installation limits.

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Fire-Rated Pathways

- Available from most Firestop manufacturers
- Factory Defined dosage of Firestopping
- Cannot be overfilled with cables



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No Training Needed

- Once installed anyone can do work without risking non-compliance
 - No Calculating sleeve fill
 - No Re-inserting of putties or foam plugs

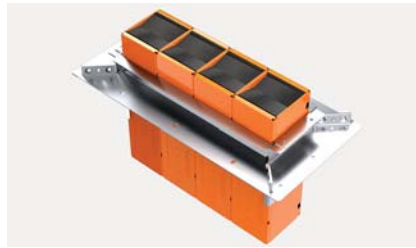


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Eliminate Guesswork

- Accommodate for a range of cable types and sizes
- Consistent protection at a variety of cable fills



*Refer to individual Manufacturer's UL Tested Systems for Details

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Design for Success from Day 1

- Avoid Traditional Firestop Sleeves wherever possible
 - Permanently seal and abandon existing sleeves
 - Install purpose built Fire-Rated Pathway Solutions

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When in Doubt Contact the Manufacturer

- Each Firestop Manufacturer has a Engineering/Technical Service Team
 - Provide guidance on proper Product Selection
 - Recommend solutions for new and existing conditions
 - Provide technical information regarding products and testing



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Questions?

For more Information:
Visit us in Booth #1124

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