NTSP 2005 International Telecommunications Safety Conference
St. Louis, Missouri
September 13-15, 2005

Fire Safety in Telecommunications Facilities / NFPA 76
Telecommunication Facilities – Yesterday

- Bell Company Central Office
  - Fortified Concrete / Masonry Buildings
  - Bellcore (now Telecordia) Technology Equipment Standards
  - Well Trained Craft & Operating Personnel
  - Years of Proven Methodologies
Telecommunication Facilities – Today

- Legacy & Non-Legacy Central Office & Telecommunications Switching Facilities
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  - Legacy CO Buildings, Switching Facilities in Commercial High Rise, Mega Data Centers, Cellular Switching Facilities
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  - Both Telecordia Technology Equipment & IT Standard Technology Equipment
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Legacy & Non-Legacy Central Office & Telecommunications Switching Facilities

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- Both Telecordia Technology Equipment & IT Standard Technology Equipment
- Minimum Craft & Operating Personnel & Outsourced Contractor Services
Telecommunication Facilities – Today

- Legacy & Non-Legacy Central Office & Telecommunications Switching Facilities
  - Legacy CO Buildings, Switching Facilities in Commercial High Rise, Mega Data Centers, Cellular Switching Facilities
  - Both Telecordia Technology Equipment & IT Standard Technology Equipment
  - Minimum Craft & Operating Personnel & Outsourced Contractor Services
  - Wide Variety of Standards
What are Today’s Likely Telecom Fire Scenarios?

- Ignition Source – Energized Electrical (Class C)
- Overheating Technology Equipment – Power Watts/ft²
- Power & Mechanical Infrastructure Equipment
- Operational Activities
What are Today’s Likely Telecom Fire Scenarios?

- Ignition Source – Energized Electrical (Class C)
  - Technology Equipment
  - Electrical Distribution
  - Power Conversion Equipment
What are Today’s Likely Telecom Fire Scenarios?

- Overheating Technology Equipment – Power Watts/ft²
  - Recent CO Equipment = 15-25 watts/ft²
  - Latest IT Equipment = 50-200 watts/ft²
What are Today’s Likely Telecom Fire Scenarios?

- Power & Mechanical Infrastructure Equipment
  - DC Plant & UPS Power Conversion
  - Computer Room Air Conditioning (CRAC)
  - Storage Battery Arrays
  - Diesel Generators
What are Today’s Likely Telecom Fire Scenarios?

- **Operational Activity**
  - Technology Equipment Expansions
    - Increase Human Activity
    - Packing Combustibles
  - Power Equipment Hot Work
    - DC Plant Bus & Distribution
    - Power Cuts
What’s in Jeopardy When a Fire Threatens a Telecom Facility?

- Emergency communications (911) circuits and cellular are at risk
- Business, Government and Medical institution communications potentially disrupted
- Voice services may cease
In April of 1996, NFPA Standards Council formed Technical Committee on Telecommunications

This Action in Response to FCC “Network Reliability Council”

Issued by Standards Council Effective February 7, 2005
Fire Protection for Telecommunications Facilities

NFPA 76 - Standard Practice for Fire Protection of Telecommunications Facilities 2005

- A performance-based document
- Includes prescriptive solutions by hazard area
- Based on the best practices of the telecommunications industry
NFPA 76 - Highlights

Scope of NFPA 76

- Fire Protection Requirements for telecommunications facilities serving telephone, data, cellular, internet, voice over internet protocol and video to the public.
Chapter 4 - Risk Considerations

- Establish a Fire Protection Program Considering:
  - Exposure Threat Internal / External
  - Importance of Facility Service to Public
  - Business Risk Management
  - Service Continuity Risks
NFPA 76 - Highlights

Chapter 5 – Performance-Based Design

- Performance Objectives:
  - Life Safety Egress Provisions
  - Design Protect from Worst Credible Fire
  - Document Design Assumptions
  - Address Fire Scenarios
  - Methods of Assessing Performance
  - Documentation of Design
Chapter 6 – Prescriptive-Based Design

- Prescriptive Requirements:
  - Defines Specific Areas of Protection
  - Requirements for Building Services HVAC Equipment
  - Compartmentation
  - Very Early & Early Warning Fire Detection
  - Depowering
  - Generator Fuel Control
NFPA 76 - Highlights

- Chapter 7 – Redundant or Replacement - Based Design
  - Redundancy Onsite or Off Site
  - Replacement Facility
Chapter 8 – Fire Protection Elements

- Identifies Prescriptive Design Elements
  - Construction
  - Compartmentation
  - Alarm Processing
  - Detection
  - Automatic Fire Suppression
  - Equipment Ignition & Fire Resistance
Chapter 9 – Fire Prevention
- Housekeeping
  - Storage Hazards
- Use of Ignition Sources
  - Open Flame Limitations
- Limiting Operations Hazards
- Prevention Awareness
- Cable Management
Chapter 10 – Pre-emergency Planning Provisions

- Content of Plan
- Fire Department Participation
- Depowering Procedures
- Emergency Recovery Procedures
Questions?

Fire Safety in Telecommunications Facilities / NFPA 76
Thanks for Your Attention

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