

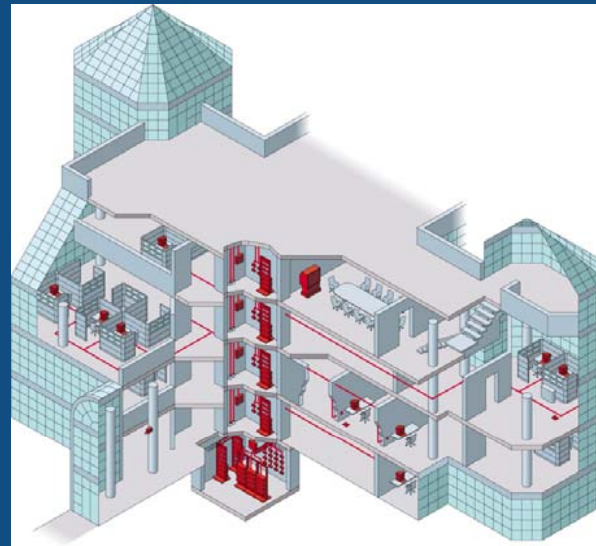
# LAN Standards, News & Trends

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Tyco Electronics AMP NETCONNECT



# Objectives

- Review the recent events and activities of the TIA Cabling Subcommittees
- Review the recent events and activities of the LAN application Subcommittees





# TIA

- A “full service trade association representing providers of communications and IT products and services for a global marketplace”
- An ANSI-accredited Standards body in information and communications technology (ICT)
- Over 10 main formulating plenary committees and several TAGs for international Standards bodies
- We're #4!!



# TIA TR-42 User Premises Telecommunications Cabling Infrastructure

- Nine Subcommittees
  - 42.1 Commercial Building Cabling
  - 42.2 Residential
  - 42.3 Pathways & Spaces
  - 42.4 Outside Plant (Inactive)
  - 42.5 Terms, Definitions and Abbreviations
  - 42.6 Administration
  - 42.7 Copper Components
  - 42.8 Optical Fiber Components
  - 42.9 Industrial
- Most recent meetings held February 4-8, 2008

# The 568-C Documents



## 568-C – Why?

- ANSI mandates a 5-year life for published standards
  - Revised, reaffirmed or withdrawn
- TIA-568B published May 2001
  - >5 years ago
  - Many addenda since publication
    - 6 addenda to 568-B.1
    - 9 addenda to 568-B.2
    - 1 addendum to 568-B.3



# Improvement Opportunity

- Complaint: Duplicated information
  - Cause: Synchronizing and updating multiple documents is complicated
  - Result: Conflicting information



# Improvement Opportunity

- Complaint: Lengthy development of new Standards
  - Cause: Creating new premise Standards is unnecessarily repetitive
  - Result: Time spent “reinventing the wheel”



# Improvement Opportunity

- Complaint: Gaps in Standards coverage
  - Cause: Standards tend to be too specific in scope
  - Result: 568-B (for office-oriented commercial buildings) applied to non-office-oriented locations



# A Generic Cabling Standard

- A new standard for generic cabling
  - Houses common information in one document
    - 568-B.1 & addenda content split between C.0 and C.1
  - Becomes the foundation for future Standards
  - Becomes the cabling Standard when documents specific to a premises are not available
- Will be numbered 568-C.0

# • Three Document Types

## – Common Standards

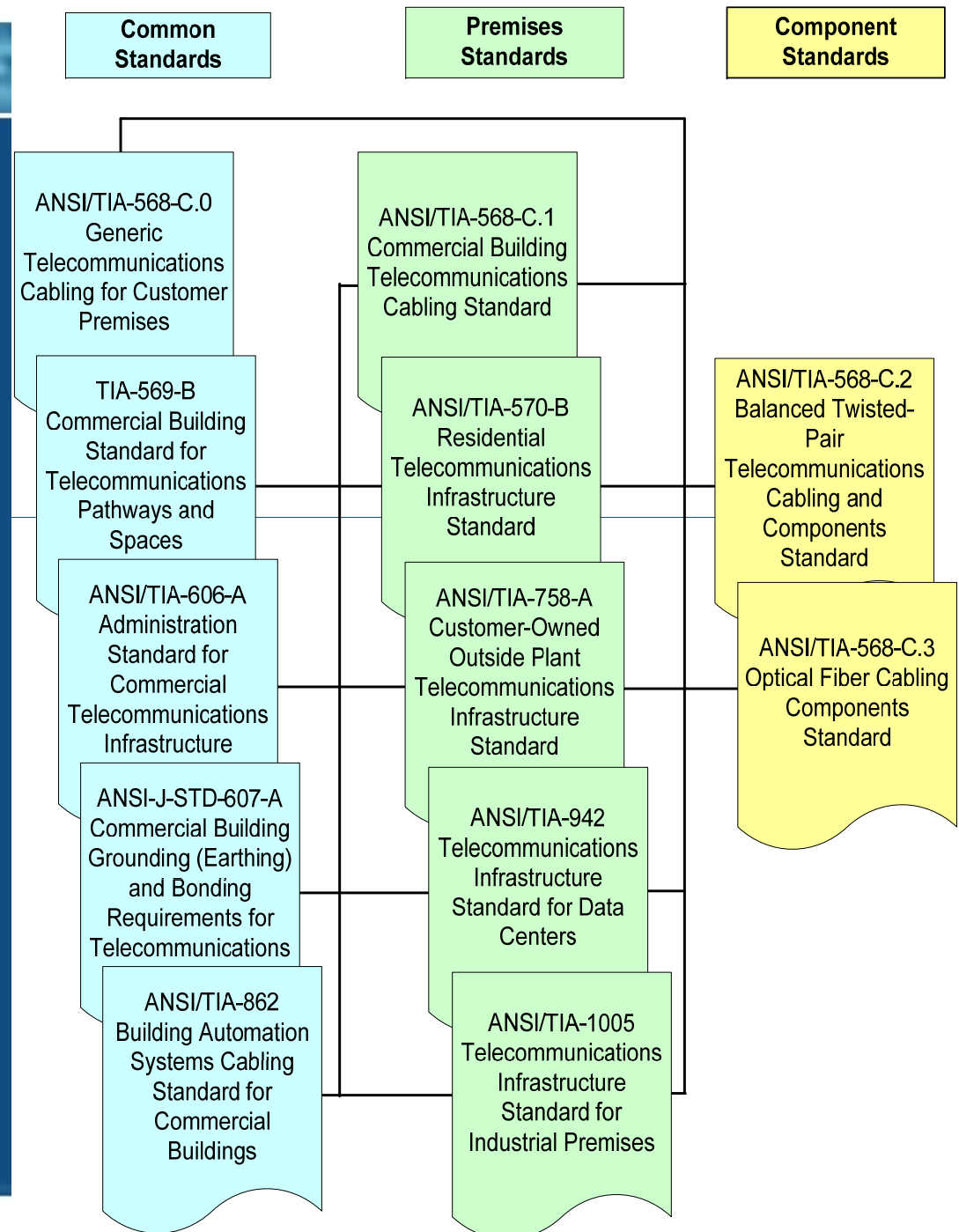
- Generic
- Pathways & Spaces
- Administration, etc.

## – Premise Standards

- Commercial Building
- Residential
- Data Centers, etc.

## – Component Standards

- Copper UTP
- Optical Fiber)



## • Three Document Types

### – Common Standards

- Generic
- Pathways & Spaces
- Administration, etc.

### – Premise Standards

- Commercial Building
- Residential
- Data Centers, etc.

### – Component Standards

- Copper UTP
- Optical Fiber)

*User-focused Documents*

*Manufacturer-focused Documents*



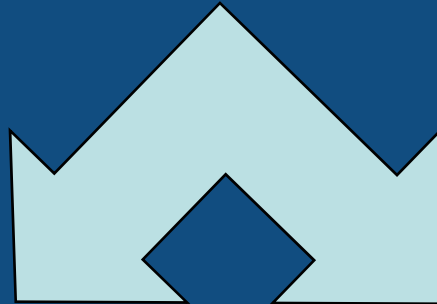
# 568-C Series Documents

- One New Standard (568-C.0)
  - 568-C.0 – Generic Structured Cabling
- Three Revisions
  - 568-C.1 – Commercial Building Cabling
    - Office-oriented buildings
  - 568-C.2 – Copper Cabling Components
  - 568-C.3 – Fiber Cabling Components



# Splitting 568-B.1

568-B.1  
(94 pgs)



568-C.0  
Generic  
(~60 pgs)



568-C.1  
CBC  
(~35 pgs)

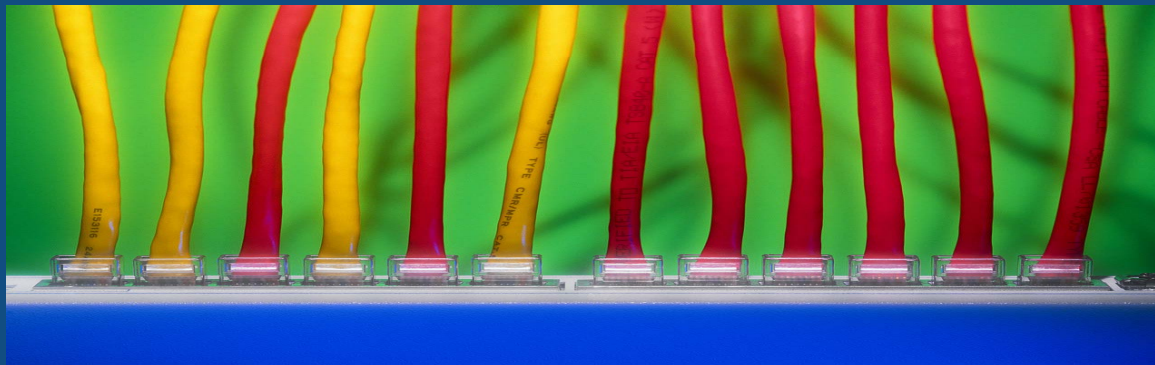


# Looking Forward

- Then What? (3-5 years)
  - Other premises Standards revised to acknowledge 568-C.0
    - List appropriate exceptions and allowances
  - Existing common Standards modified to broaden scope
    - Replace “commercial building” focus and terminology
    - Become more generic in nature
- New Standards built on 568-C.0

# TR-42.1 Generic and Commercial Building Cabling

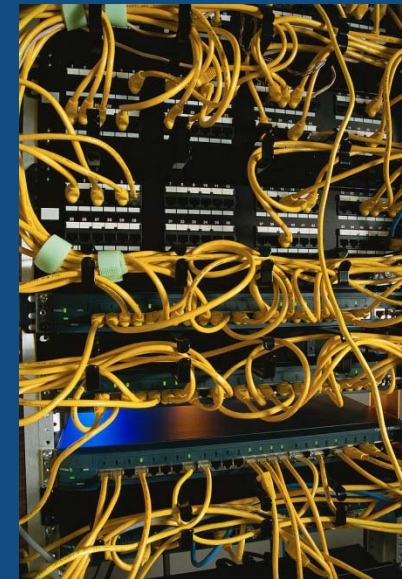
## 568-C.0 Generic Cabling



**Bicsi**

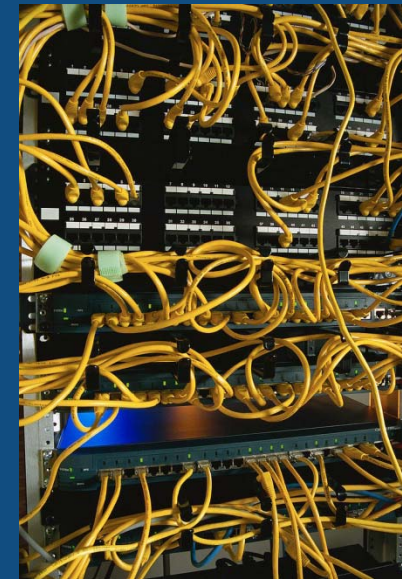
# 568-C.0 Generic Cabling

- Common information in one document
  - Cabling system structure
    - Topology
    - Recognized cabling
    - Distances
    - Generic nomenclature



# 568-C.0 Generic Cabling

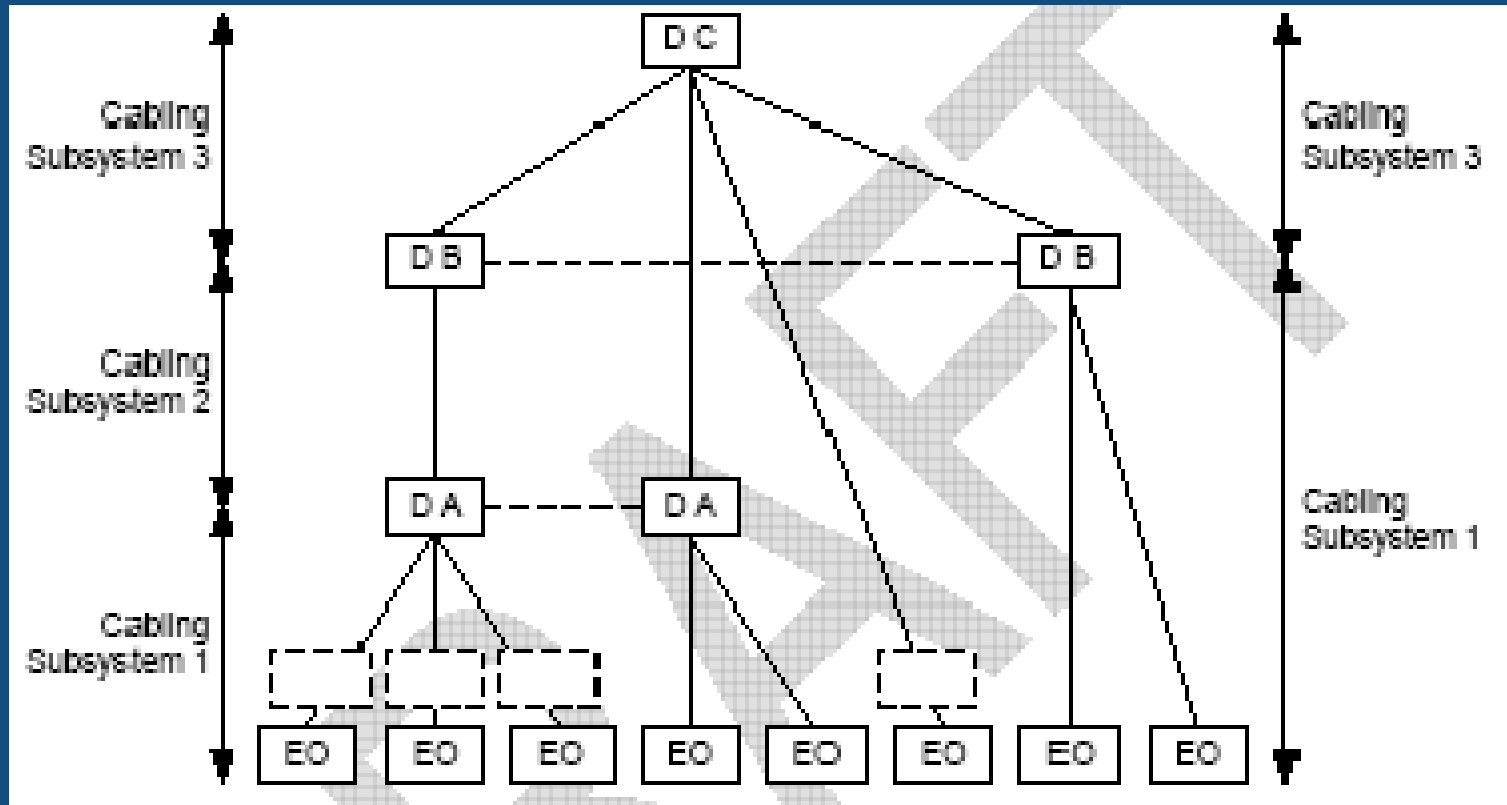
- 568-C.0 Generic Cabling Nomenclature
  - Equipment Outlet (EO)
  - Cabling Subsystem 1
  - Distributor A
  - Cabling Subsystem 2
  - Distributor B
  - Cabling Subsystem 3
  - Distributor C



•NOTE: Specific nomenclature assigned in premises Standards




# 568-C.0 - Structure



## Legend:


- EO Equipment Outlet
- DA Distributor A
- DB Distributor B
- DC Distributor C
- Optional cabling

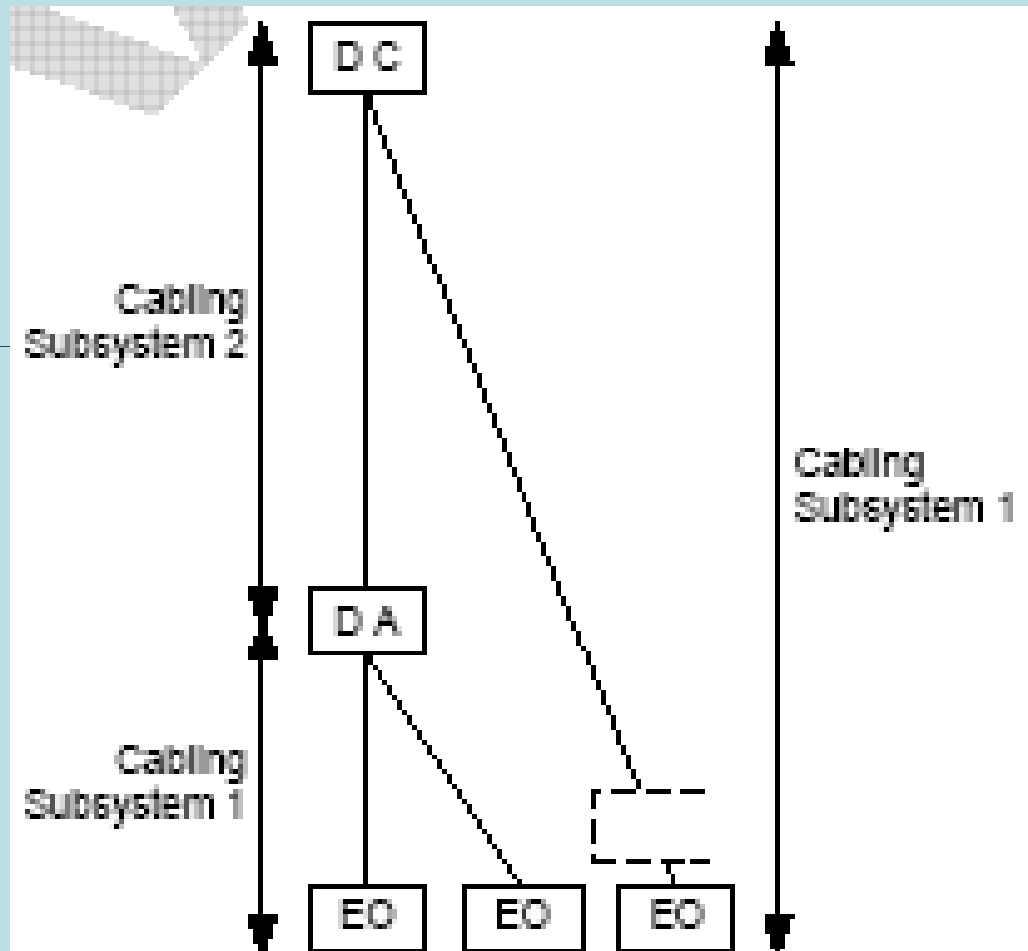
 Optional consolidation point

# 568-C.0 - Structure

## Legend:

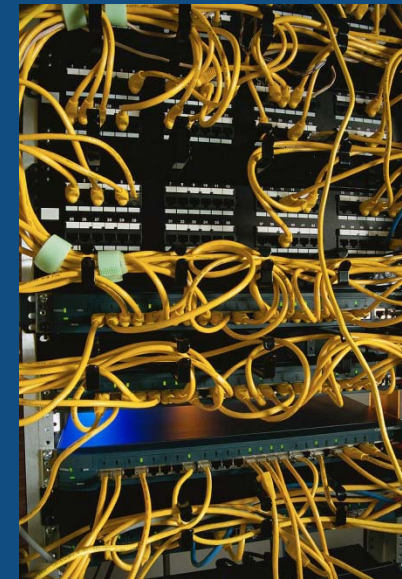
- E O Equipment Outlet
- D A Distributor A
- D B Distributor B
- D C Distributor C
- Optional cabling

 Optional consolidation point



# 568-C.0 Generic Cabling

- Common information in one document
  - Cabling system structure
    - Topology
    - Recognized cabling
    - Distances
    - Generic nomenclature
  - Installation requirements
  - Optical fiber performance, testing
  - Polarity
  - Application support tables



## 568-C.0 – Technical Changes

- Minimum bend radius for balanced twisted-pair cable installation
  - 4xOD for both shielded and unshielded
    - Note: Worst case MBR is now 1.5 inches (not 1.0)
- Patch cable bend radius for balanced twisted-pair cabling
  - Changed to “1xOD” from “0.25 inches”
- Augmented Category 6 allowed



# 568-C.0 – Generic Cabling - Status

- Update on the Document Progress
  - Fourth industry (SP) ballot closed in December 2007
    - 21 Approve & Approve w/ comments; 7 Do Not Approve
  - Comments were resolved in February meeting
    - ~90 technical comments (additional 97 editorial comments)
  - Default ballot issued
    - ~17 technical issues on ballot
  - Anticipated timeline:
    - Go to publish in June 2008 meeting
    - Second default ballot is a possibility – would mean August 2008 or later

TR-42.1 Generic and  
Commercial Building Cabling

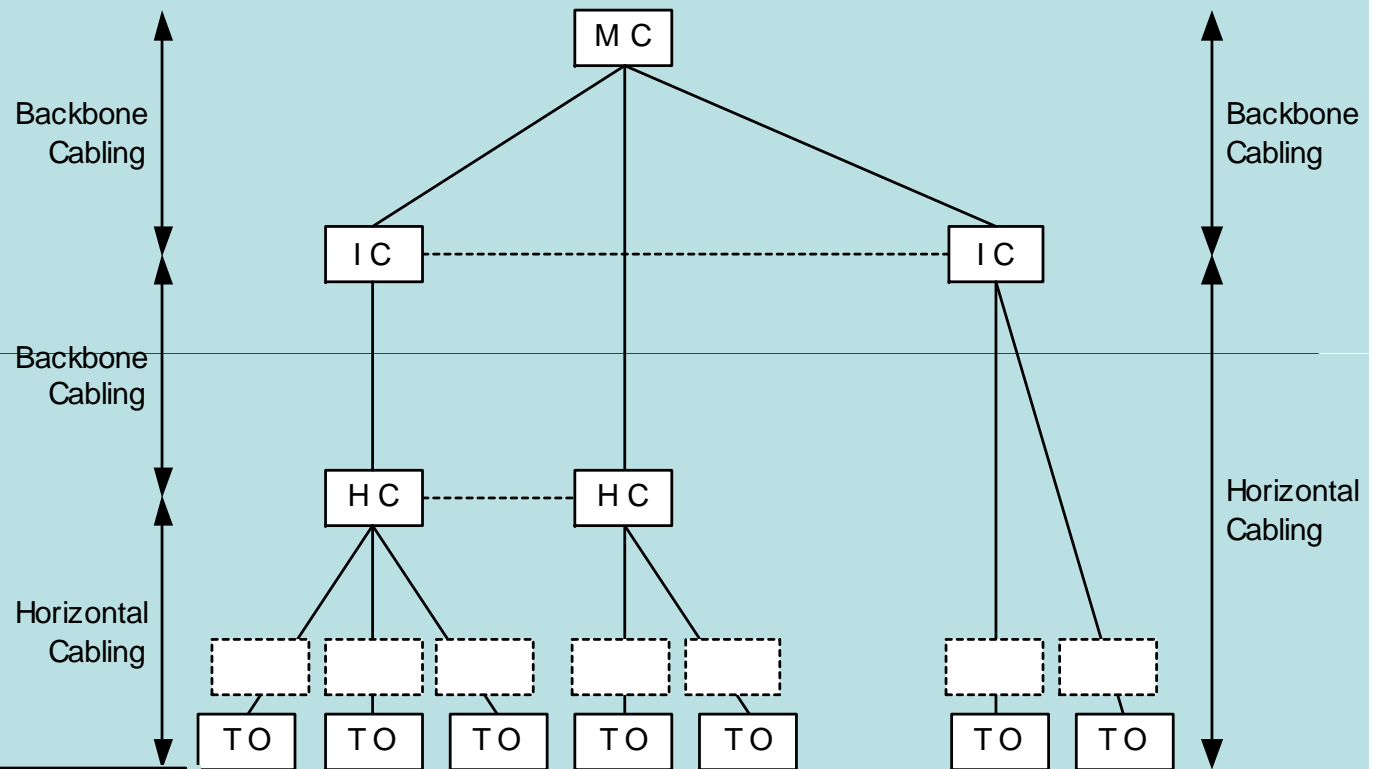
568-C.1 Commercial Building  
Cabling



# 568-C.1 – Commercial Building

- Allowances and exceptions to 568-C.0 specific to office-oriented commercial building cabling
- Retains use of 568-B.1 nomenclature
  - The Telecommunications Outlet (Equipment Outlet)
  - Horizontal cabling (Cabling Subsystem 1)
  - Horizontal Cross-connect (Distributor A)
  - Intrabuilding backbone cabling (Cabling Subsystem 2)
  - Intermediate Cross-connect (Distributor B)
  - Interbuilding backbone cabling (Cabling Subsystem 3)
  - Main Cross-connect (Distributor C)

# 568-C.1 – Star Topology




## Legend:

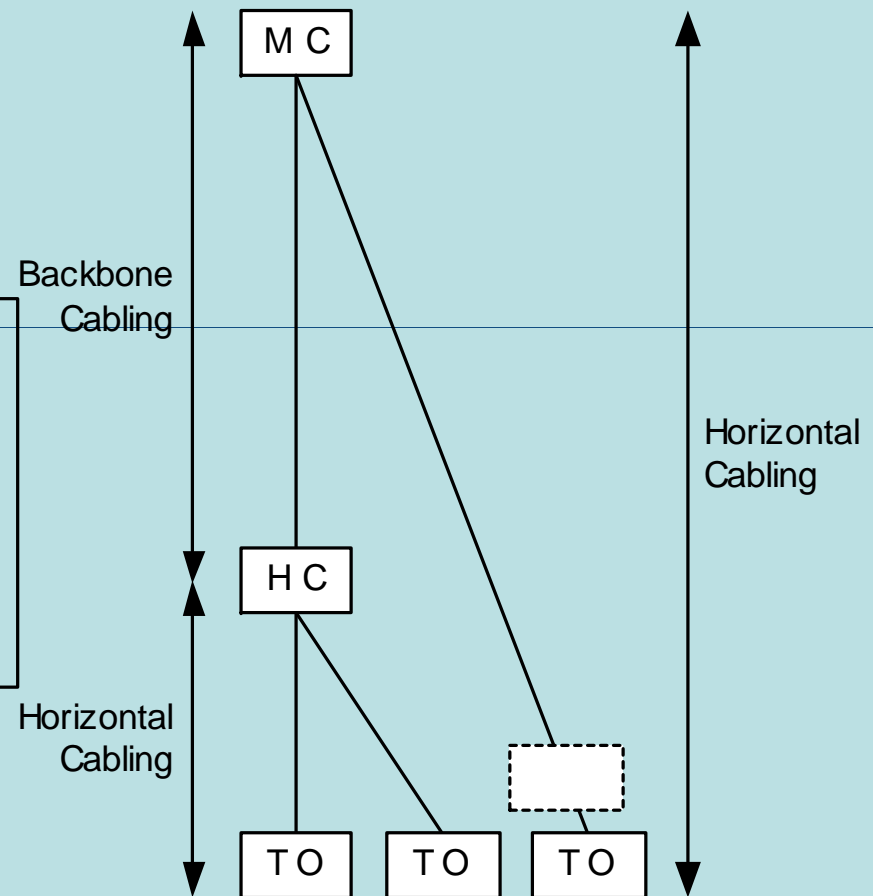
- TO Telecommunications Outlet (Equipment Outlet)
- HC Horizontal Cross-connect (Distributor A)
- IC Intermediate Cross-connect (Distributor B)
- MC Main Cross-connect (Distributor C)
- Optional cabling
- Optional consolidation point

# 568-C.1 – Star Topology

## Legend:

- TO Telecommunications Outlet (Equipment Outlet)
- HC Horizontal Cross-connect (Distributor A)
- IC Intermediate Cross-connect (Distributor B)
- MC Main Cross-connect (Distributor C)
- Optional cabling

 Optional consolidation point



# 568-C.1 – Technical Changes

- Additions
  - Category 6
  - Augmented category 6
  - 850 nm laser-optimized 50/125  $\mu\text{m}$  MM fiber
  - Recommendation to select 850 nm LOF as the multimode fiber for commercial buildings
  - Telecommunications enclosures (TEs)
  - Centralized cabling



# 568-C.1 – Technical Changes

- Deletions

- Common information

- Moved to 568-C.0

- 150-Ohm STP cabling

- Category 5 cabling

- 50-ohm and 75-ohm coaxial cabling

- Balanced twisted-pair cabling performance and test requirements

- Will be in the ANSI/TIA-568-C.2 document

- 568-B.1 and -B.2 in interim



# 568-C.1 – Commercial Building

- 568-C.1 Progress Update
  - Fourth industry (SP) ballot closed in January
    - 21 Approve & Approve w/ Comments; 3 Do Not Approve
  - Comments resolution completed in February
    - 52 technical comments (additional 59 editorial comments)
  - Anticipated timeline:
    - Go to publish in June 2008 meeting
    - Second default ballot is a possibility – would mean August 2008 or later

# TR-42.1 Generic and Commercial Building Cabling

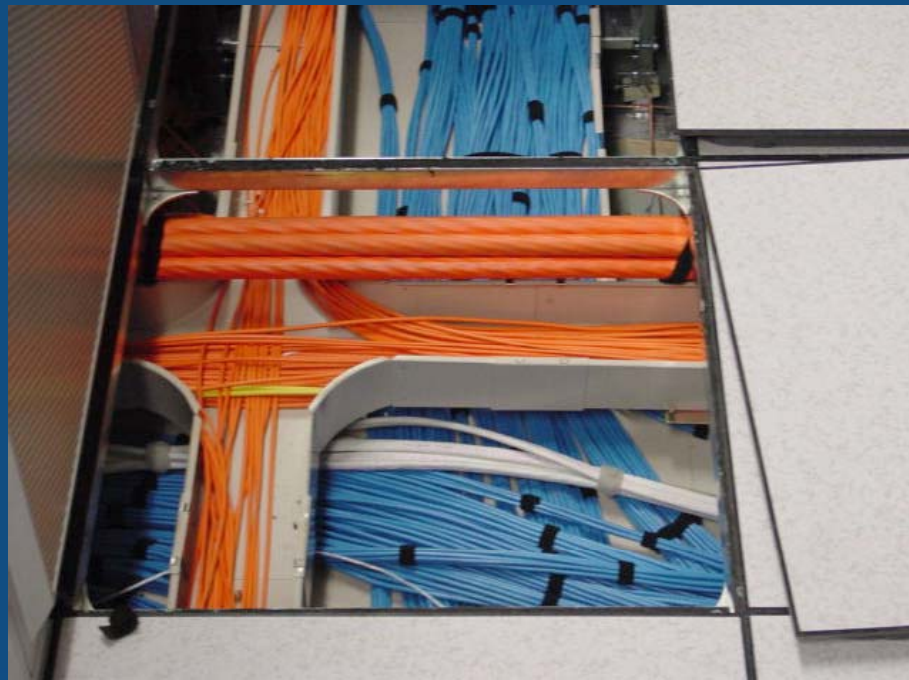
## Healthcare Facility Cabling



# Healthcare Facility Cabling Project

- Task Group is creating a draft Standard based on 568-C.0 document
- Draft may be available for review for the June meeting
- TR-49 is a new TIA Engineering Committee for healthcare communications technology (HCT)

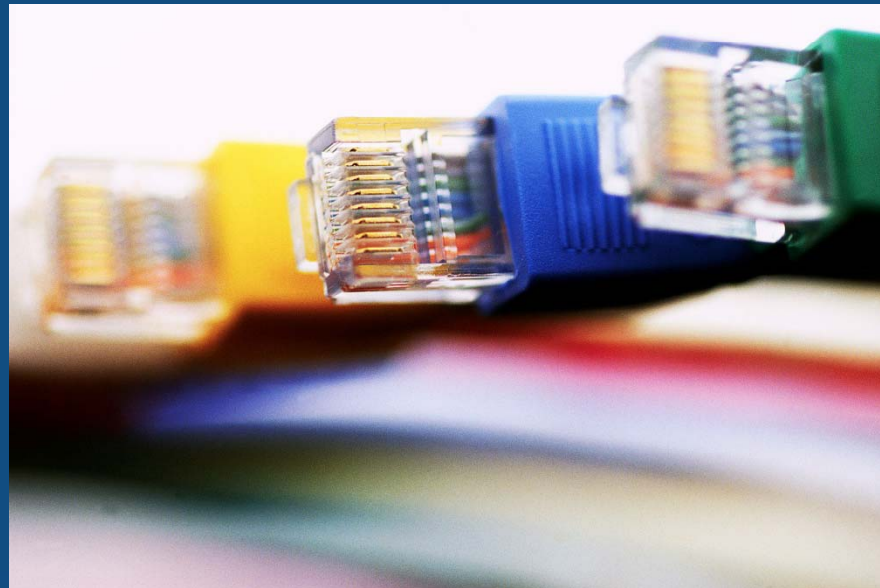
# TR-42.3 Pathways and Spaces



# Bonding & Grounding Standard

- J-STD-607-A is at it's five-year life limit
- Contributions indicate a revision is necessary
- TR-42.3.1 Working Group established to revise the bonding and grounding standard
  - TR-41, NIPP (Network Interface, Power, and Protection Committee) and BICSI participating
  - Monthly teleconferences continue

# TR-42.7 Copper Cabling Components



## Augmented Category 6 (Cat 6A)

- 568-B.2 Addendum 10, *Transmission Performance Specifications For 4-pair 100Ω Augmented Category 6 Cabling*
- Final default ballot closed February 4th
  - 30 Approve
  - 0 Comments
- Released for publication
  - May be available in late March 2008

## 568-C.2 Copper Components

- Editing committee created the first draft
  - Incorporates Cat 3, Cat 5e, Cat 6 and Cat 6A
- The draft will go out for first committee ballot
  - Interim meeting in March to review document comments
- Plan is to push for publication in mid-2009

# TR-42.8 Optical Fiber Cabling Components



# 568-C.3 – Optical Components

- Released for Publication
  - Pending final editorial modifications from 568-C.0 and 568-C.1 edits
  - Expected in early April 2008



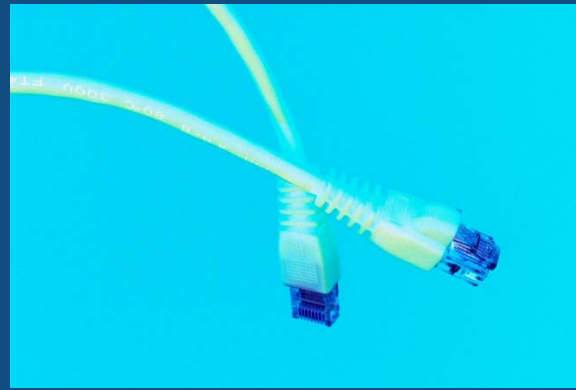
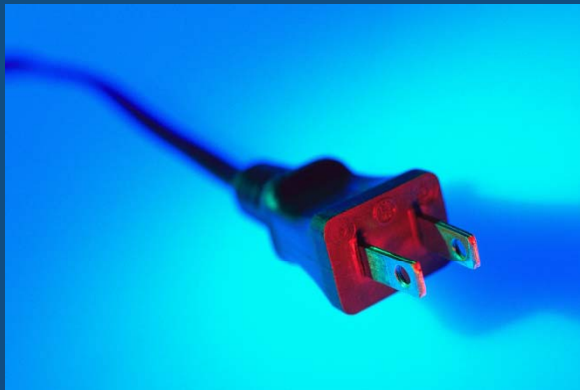
# 568-C.3 – Optical Components

- Technical Changes
  - Added ISO 11801 nomenclature (OM-1, OM-2, etc.) to Table 1
  - Connector and adapter color coding refined, but not mandatory
  - Minimum OFL bandwidth for 62.5/125 $\mu$ m fiber raised to 200/500 MHz·km (from 160/500)
  - Annex A test parameters align with IEC 61753-1, Category C

# Application Standards Activity

# Power over Ethernet Plus

- Task Group 802.3at
  - Shooting for 36W, 50-57 VDC with 720mA
  - Still looking at current capacities of data cabling
  - Timeline shows publication in June 2008, but that is likely to slip



**Bicsi**

# 40G/100G

- Task Group 802.3ba
  - 100 Gigabit Ethernet and 40 Gigabit Ethernet
    - Single-mode options beyond 10km
    - Multimode options on OM3 fiber to 100m
    - May be WDM, parallel or some combination
  - Timeline shows publication in June 2010

# Purchasing Standards

# Purchasing Standards

- TIA releases published documents IHS
- IHS acts as a clearing house for order processing for multiple Standards Developing Organizations (SDOs)
  - [www.ihs.com](http://www.ihs.com)
- News:
  - Formerly Global Engineering Documents

Thank You



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