Standards-based Labelling: The Key to Effective Network Cabling Plan

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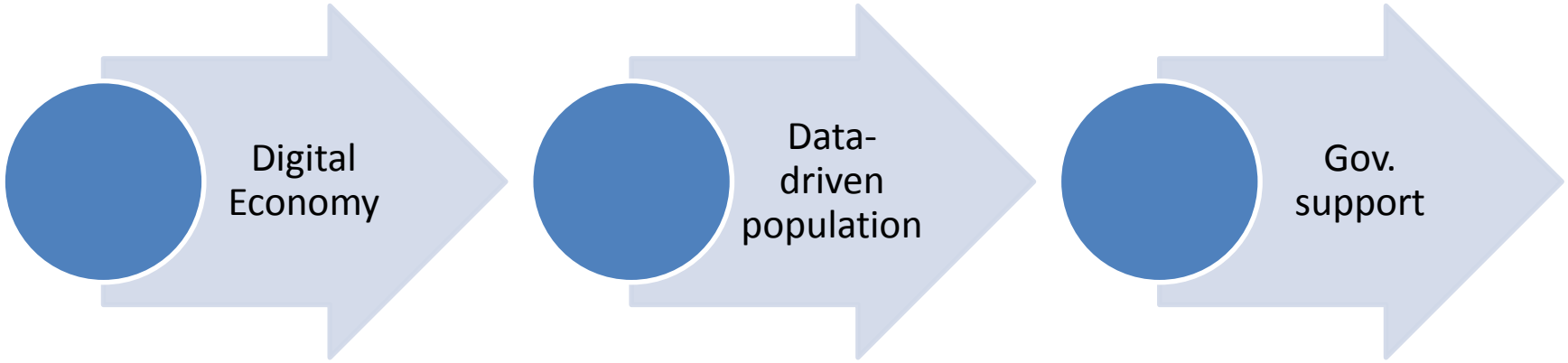
DATA CENTRE LANDSCAPE



Measurement tools	Infrastructure & standards	Cabling
Data centre design	Software management	Tracing and organising

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AGENDA PANEL

- A Systematic Labelling Scheme
- Value of End-to-end Labelling
- ANSI / TIA-606 Standards
- Importance of Standards for cable installers
- Data Centre Labelling Plan and Identifier Roadmap

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A SYSTEMATIC LABELLING SCHEME

Today's data centres house a large number of diverse bandwidth-related devices.

These devices are interconnected by networking equipment.

A systematic labelling scheme provides transmission pathways for mission-critical data to flow across the entire networked infrastructure.

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RAPID GROWTH IN DEMAND FOR DATA CENTERS IN ASIA PACIFIC

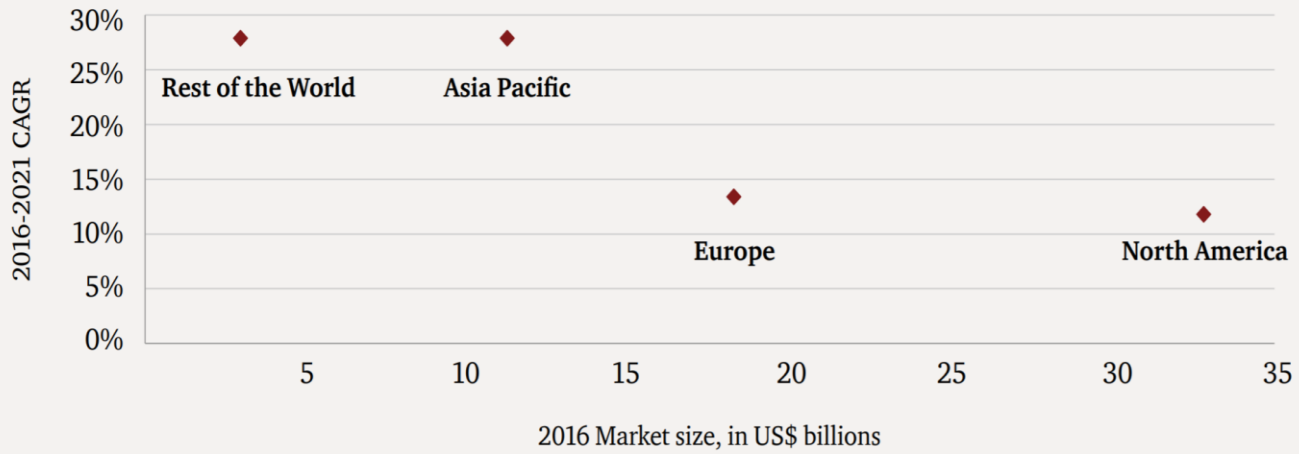
Asia Pacific's data centre services market size will exceed the European market size by 2021

The region's data centre services market size in 2016 is **US$12 bn** and is expected to grow by **27%** per annum (p.a.)

Overtaking Europe by 2021

While Asia Pacific's data centre services market is currently behind that of Europe and North America, it is forecasted to catch up with the European market by 2021, driven by a faster growth rate of 27% p.a. compared to Europe (13%) and North America (12%).

Figure 1: Regional data centre services market growth rate, 2016 -2021

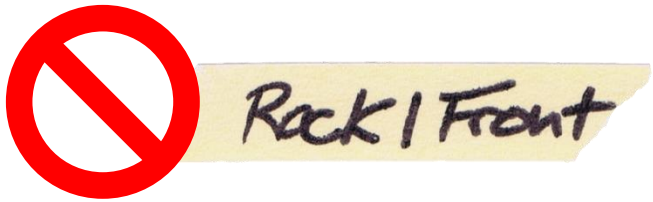


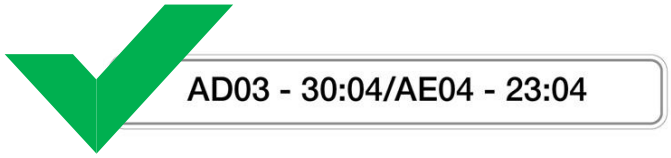
Source: Markets and Markets 2016

CONSISTENCY IS THE MARK OF A PRO

Why you should apply the labeling standards consistently

- Clear, structured labeling is the mark of a professional …
- These can help reduce errors and save time and money …
- These can provide greater warranty assurance …
- More complex customer sites make labeling standards more critical …





And most of all:

Sooner or later, there will be moves/adds/changes to your work; applying the standard now provides a logical path to follow for troubleshooting and to make those go faster and easier

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YOUR LABELS SAY A LOT ABOUT YOUR WORK

No labels at all –

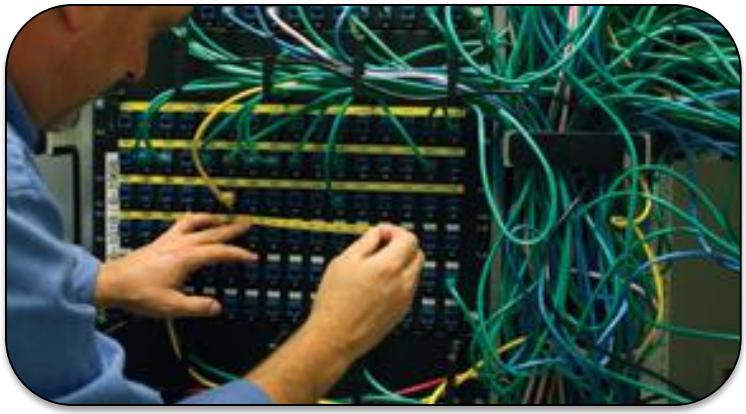
- Believe it or not, still happens

Homemade conventions –

- You make stuff up as you go along

Labels that fall off or smear –

- Fast and cheap is more important to you than good



And most of all:

None of these is going to leave a professional impression with your clients

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THE VALUE OF END-TO-END LABELLING

PROFESSIONAL

The purpose of using labels as part of a professional cable-management system can simplify troubleshooting activities.

ECONOMICAL

Lower total cost of ownership with a well-labelled cable installation – ease of update and accelerate cable tracing.

EFFECTIVE

Avoiding downtime is critical in any data centre operation throughout the entire project pipeline with accurate mapping of server installation.

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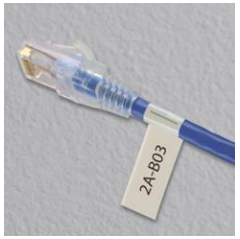
SO WHAT IS ESSENTIAL TO A STRUCTURED CABLING SYSTEM

1. Standards-based Labelling

- The essential key to an effective network identification plan



ANSI
American National Standards Institute

2. Following proven standards

- A basic understanding of the ANSI/TIA-606-B Standard

3. Use the right labelling tool

- Know the difference between commercial grade and consumer grade

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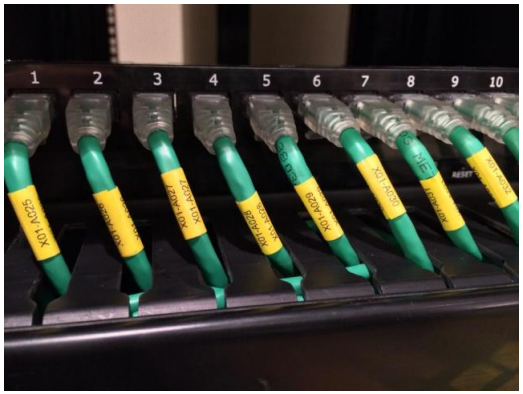
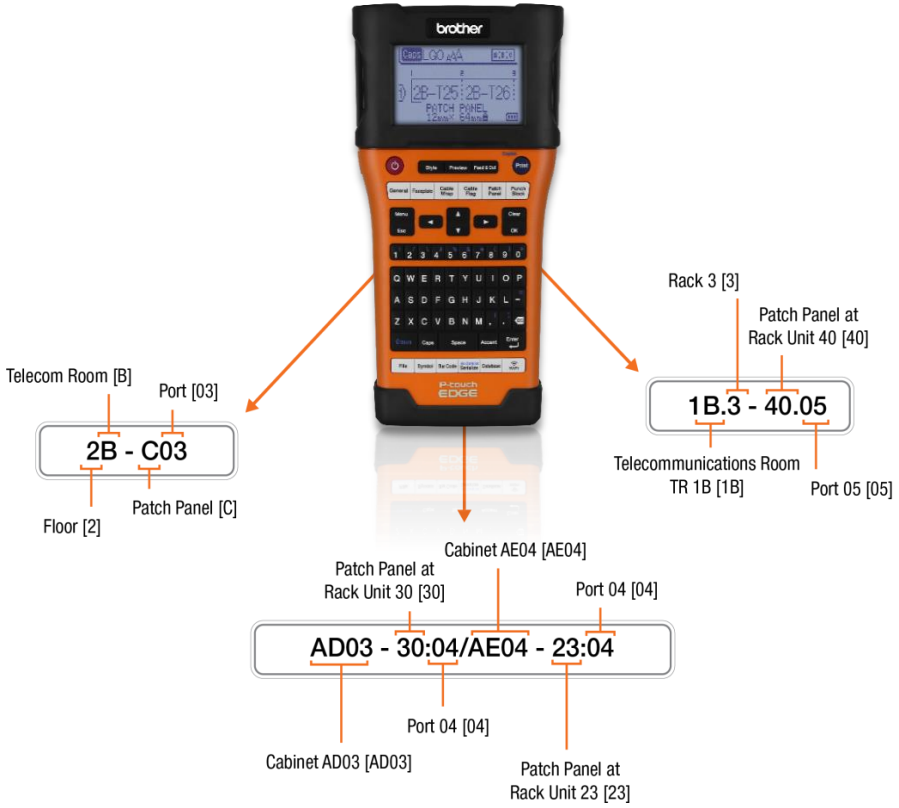
WHAT IS ANSI/TIA-606-B?

- **It extends the marking standards in ANSI/TIA-606-A**
- **TIA-606-B includes more identifiers than TIA-606-A**
  - 606-A covered: TS, Horizontal link, TMGB and TGB
  - 606-B includes: cabinets, racks, enclosures and wall segments; patch panels or blocks; and cables (between cabinets, racks, enclosures and wall segments)
  - Allows existing 606-A formats to continue where already in use
- **Not just for commercial data centers**
  - 606-B covers commercial, residential, industrial and healthcare facilities
- **It isn't mandatory, but …**
  - More and more building owners are requiring it and specifying it
  - Increasing numbers of contractors are adopting it as standard practice



WHY IS IT IMPORTANT FOR DATA CENTRE IDENTIFICATION?

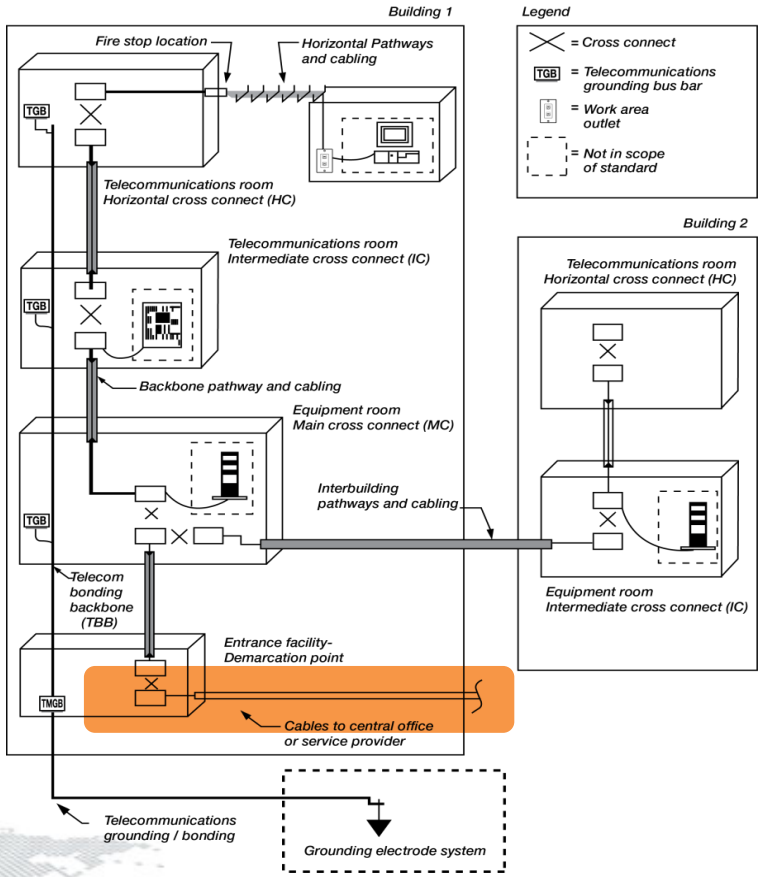
- It sets a **predictable, logical system** of identifying key network assets and connections, where they are located, and how and to what each are connected
- It **simplifies data center labelling** scheme, and also adjusting onsite when "as built" doesn't equal "as planned"
- Once an infrastructure is properly marked in accordance with the standard, it becomes **easier and more efficient to troubleshoot** any potential errors unknown during installation



WHAT NEEDS TO BE LABELLED?

- Telecommunications spaces
  - Entrance (where telecom networks enter the building)
  - Telecommunications room
  - Equipment room with switches, servers and routers
- Pathways & Cabling
  - Horizontal pathways
  - Backbone pathways
  - Interbuilding pathways
- Fire Stopping Locations
- Bonding Locations
- Grounding Locations

Telecommunications infrastructure



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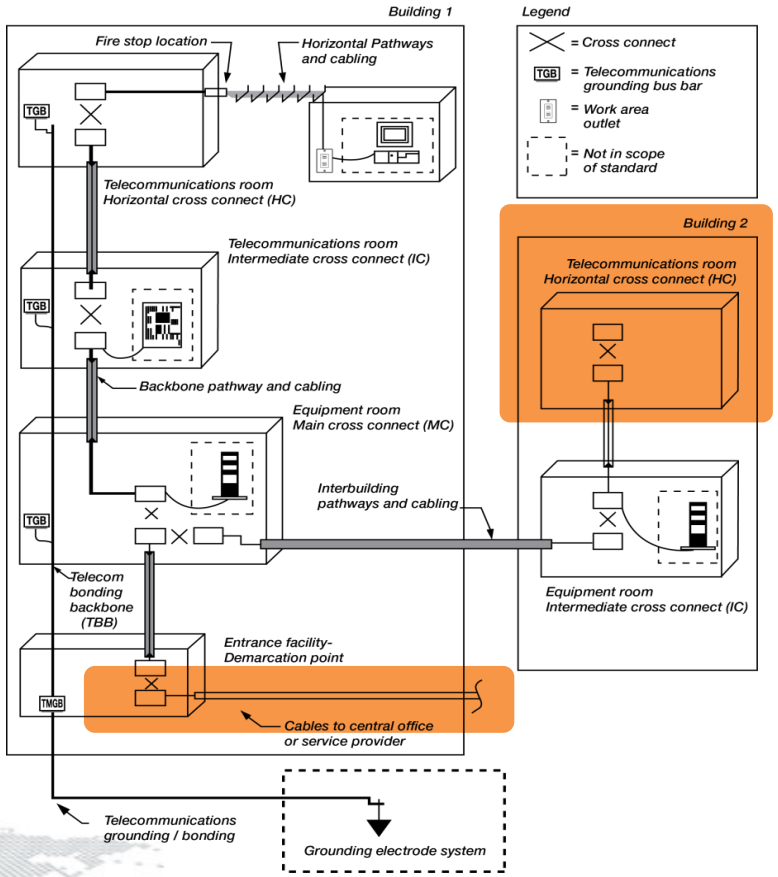

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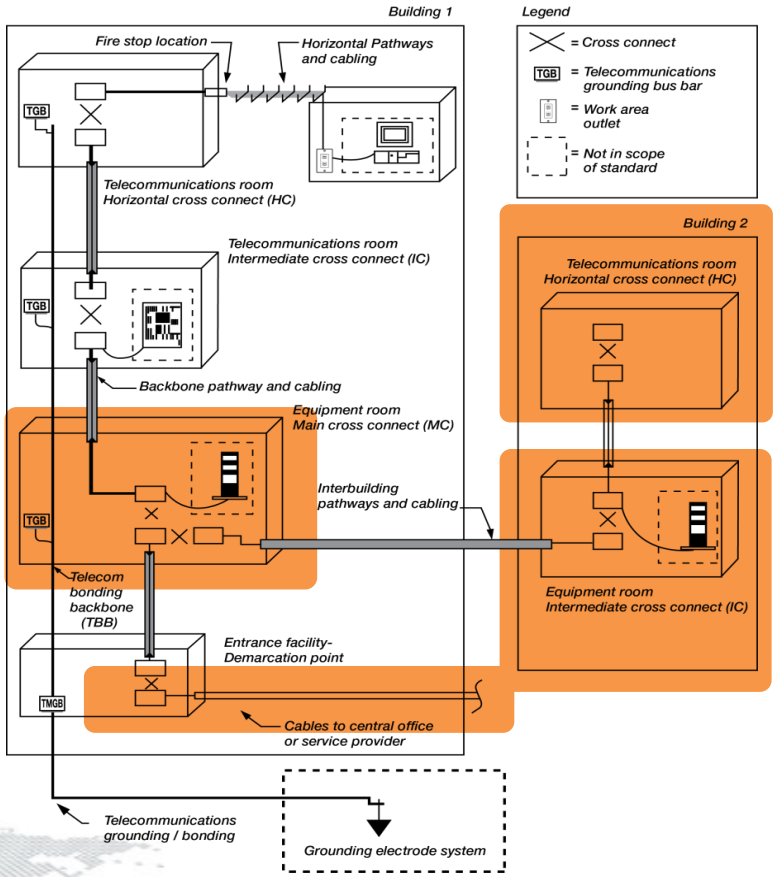

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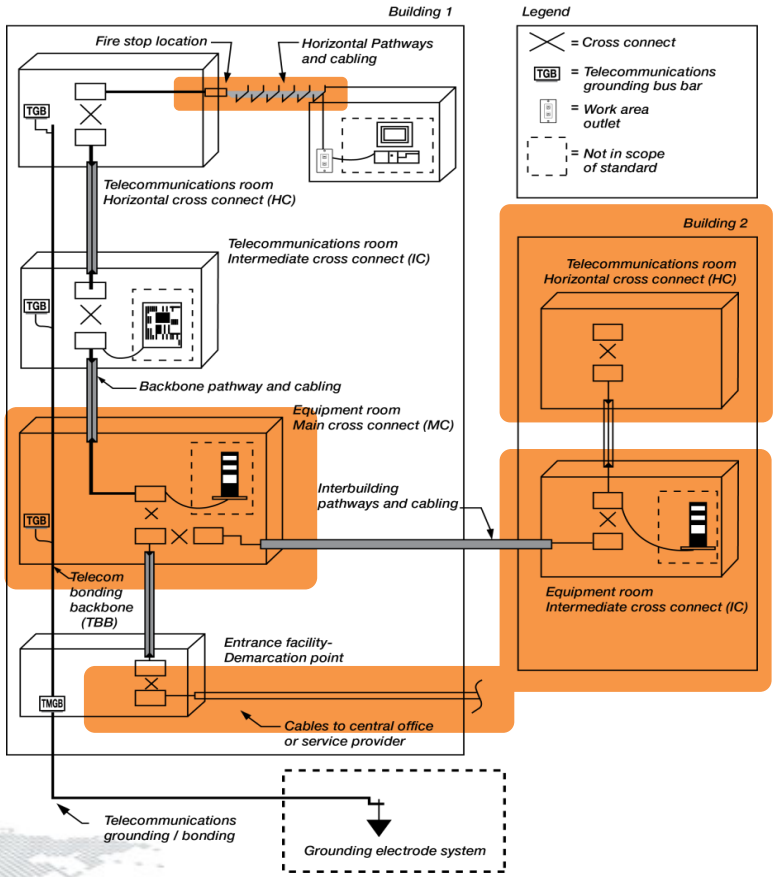

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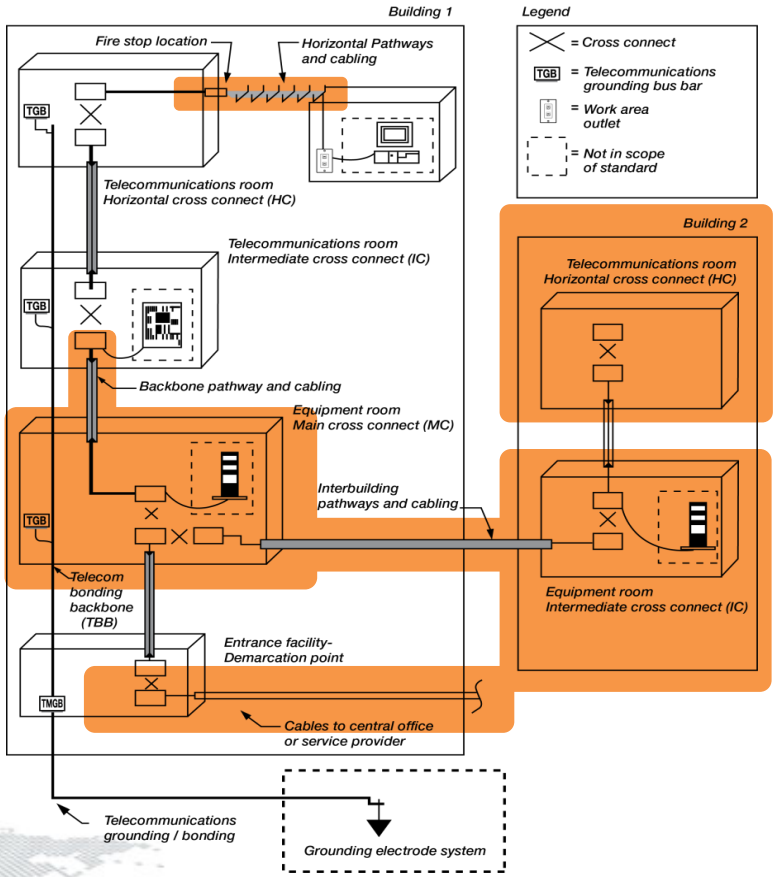

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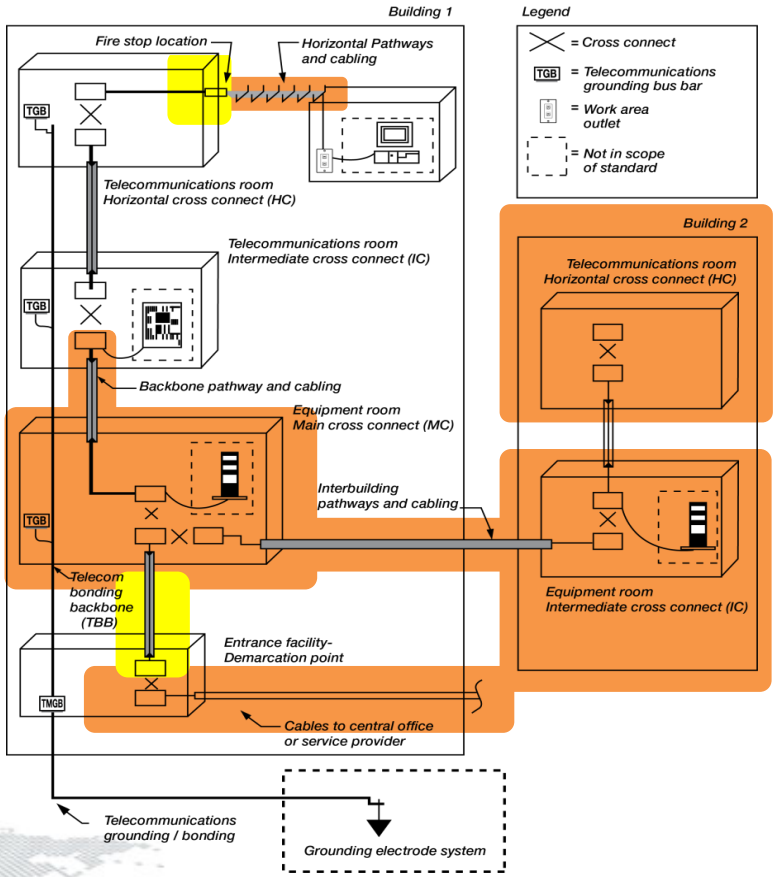

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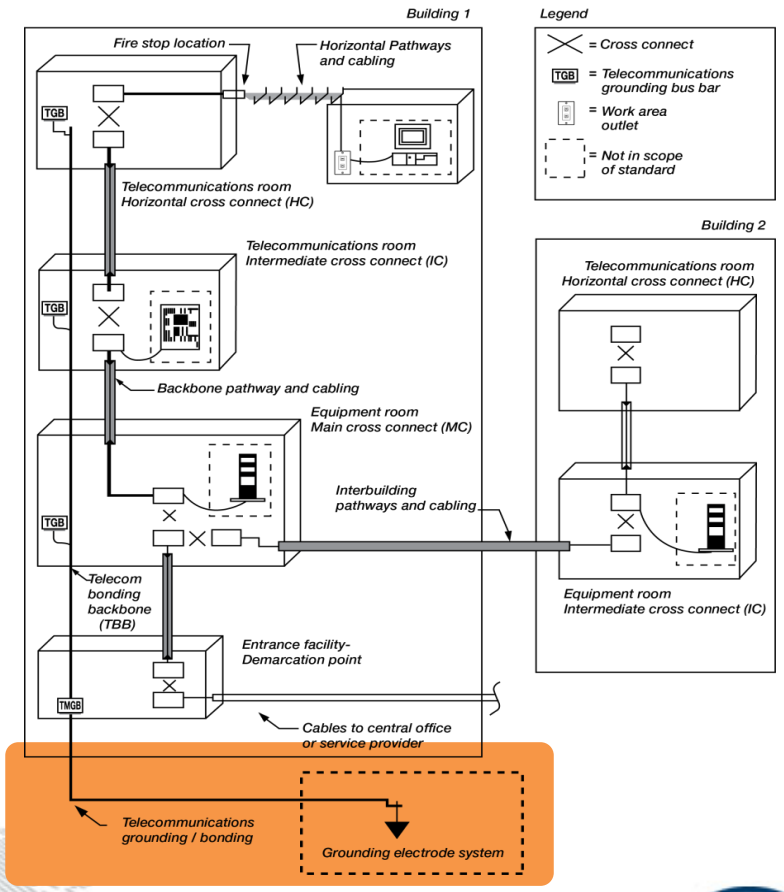

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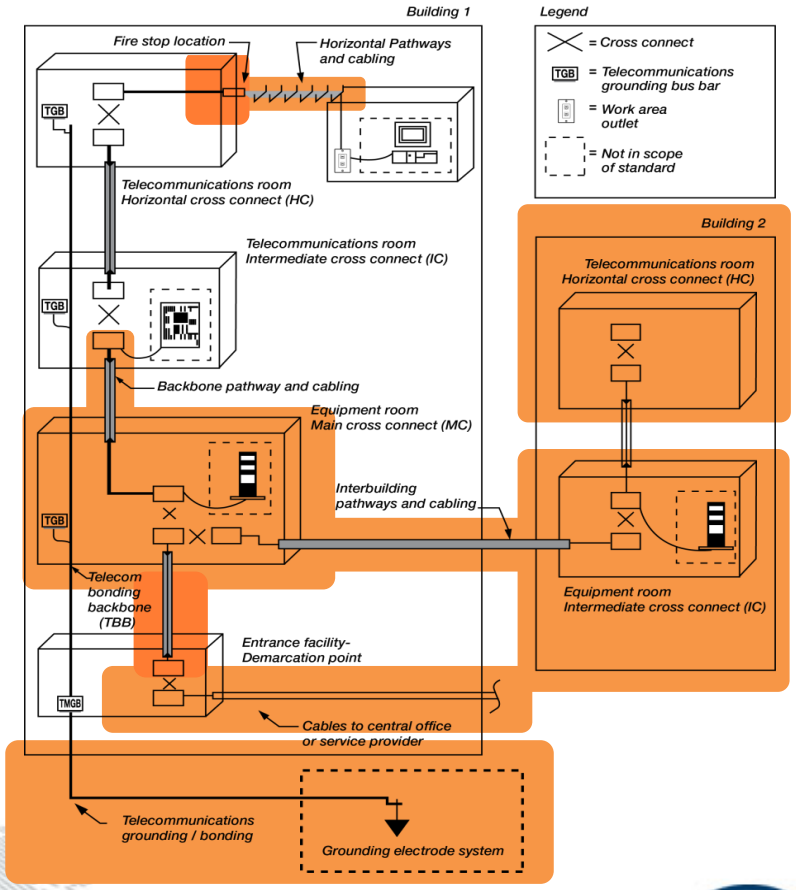
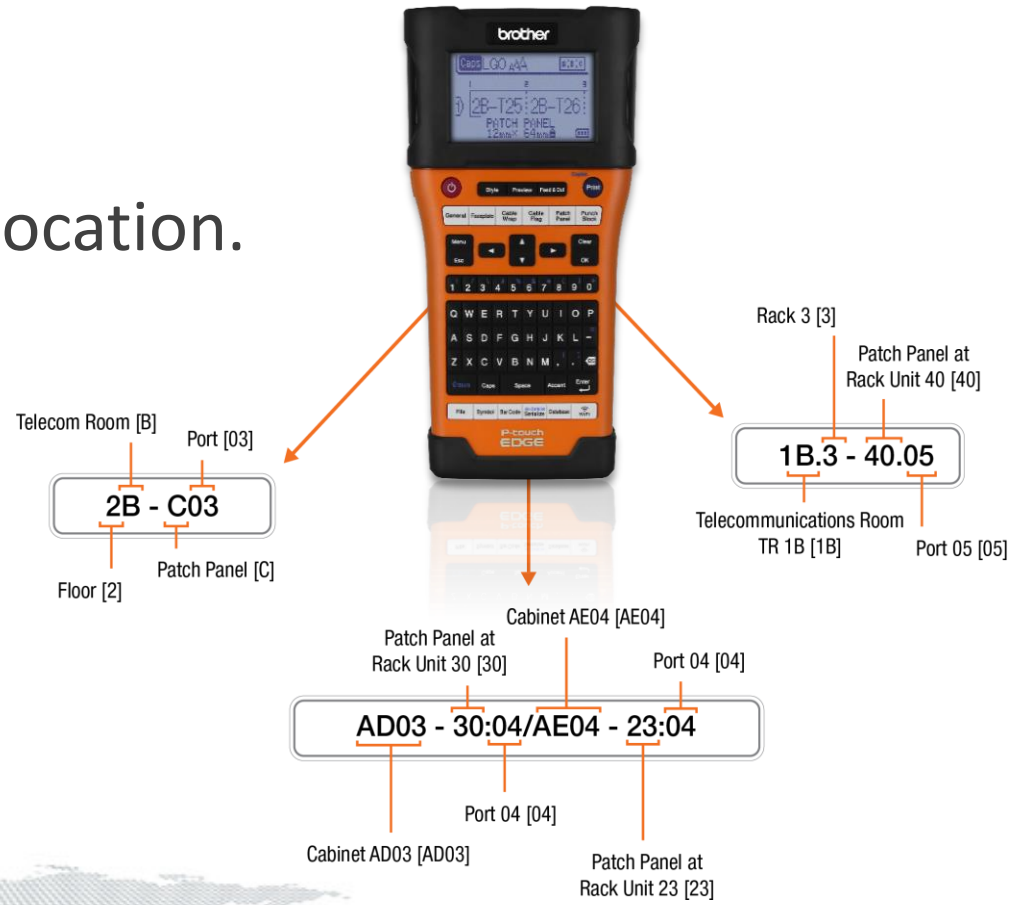


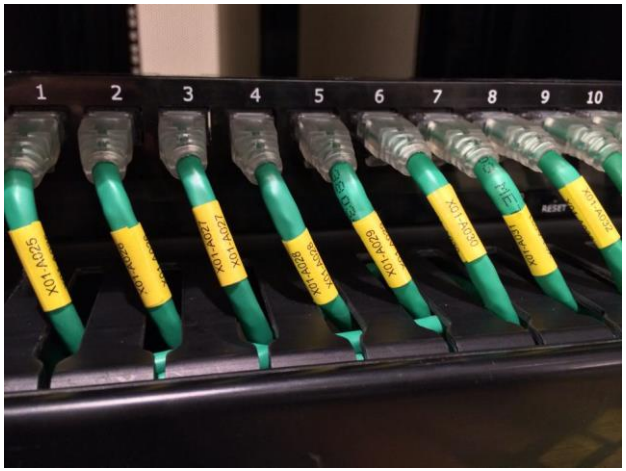
The ANSI/TIA-606-B IDENTIFIER ROADMAP

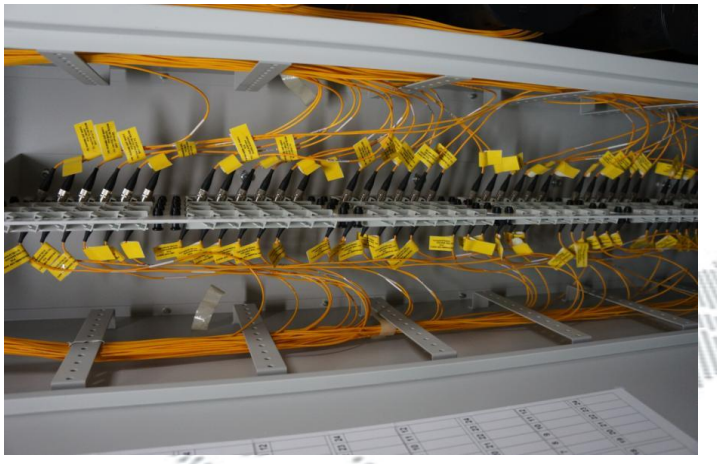
- It is all about
  location – location – location.



NETWORK AND DATA CENTRE LABELLING

CABLE AND PANEL MARKING





NETWORK AND DATA CENTRE LABELLING

CABINET/RACK LABELS

Example of cabinet/rack label :

EU 09/3

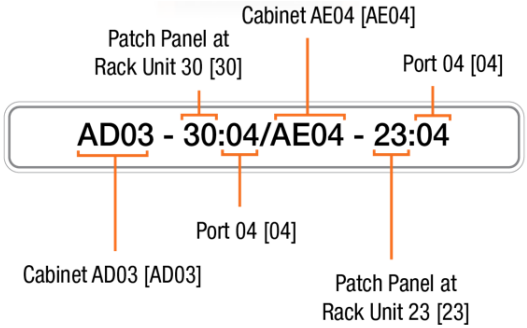
This label defines that the cabinet/rack is located with its right front corner at the intersection of **Row EU** and **Column 09**.

PORT LABELS

The numbering sequence should proceed from left to right and top to bottom for all ports on a patch panel.

PATCH CORD LABELS

This label defines patch cord connection between Cabinet AD04 panel 30-port 04 going to Cabinet AE04 panel 23-port 04.



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TRANSMISSION PATH AND POWER SYSTEMS LABELLING

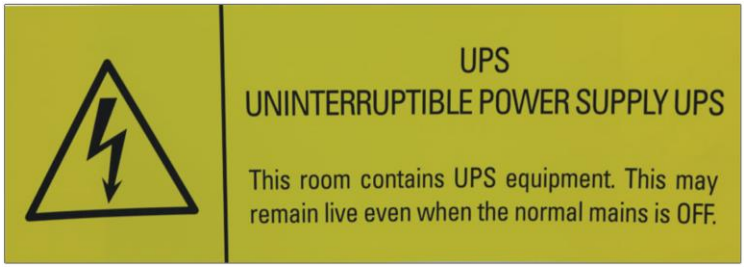
UPS-TO-PDU LABELS

Labels should be attached to each end of the cable specifying the equipment and their respective locations.

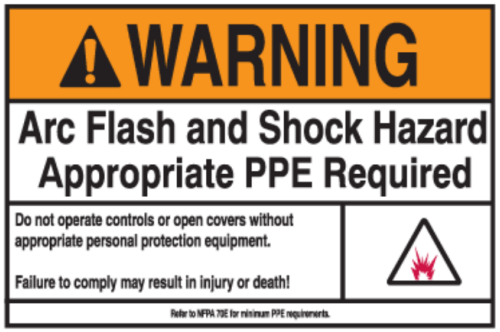
UPS A1 / PDU B1
Location of UPS A1 / EU09
208 vac 100A

PDU B1 / UPS A1
EU09 / Location of UPS A1
208 vac 100A

UPS EQUIPMENT LABELS



ELECTRICAL / ARC FLASH LABELS



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SAFETY AND FACILITY SIGNAGE LABELLING

ELECTRICAL PANEL LABELS

VOLTAGE MARKING LABELS

SAFETY INSTRUCTION LABELS

WARNING AND HAZARD LABELS

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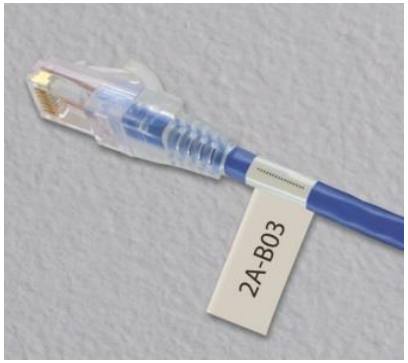
INDUSTRIAL CABLING STANDARDS
UL-CERTIFIED TAPES

Cable installers should look for UL mark on the label tapes that have been tested and certified to become a UL recognized component under the UL-969 standard, Marking and Labelling Systems.

In simple terms, UL recognised labels define the performance properties of specific tapes by part number, and UL certifies these tapes meet these properties and the results are published on the UL Website.



Flexible-ID tapes
For cable identification

Strong Adhesive tapes
For panel identification

THINGS TO REMEMBER…

- **Clear, structured labeling is the mark of a pro**
- **ANSI/TIA-606-B extends the reach of ANSI/TIA-606-A**
  - Covers more facility types
  - Adds more details to ID locations within locations
  - Identifiers follow a logical sequence
- **Use professional-grade labels and labeling tools**
  - Create and print the labels you need more efficiently
  - Label something once, with labels that last