

# ISO/IEC SC25 WG3

Who are they & what can they do for 802.3cg?

**Alan Flatman**

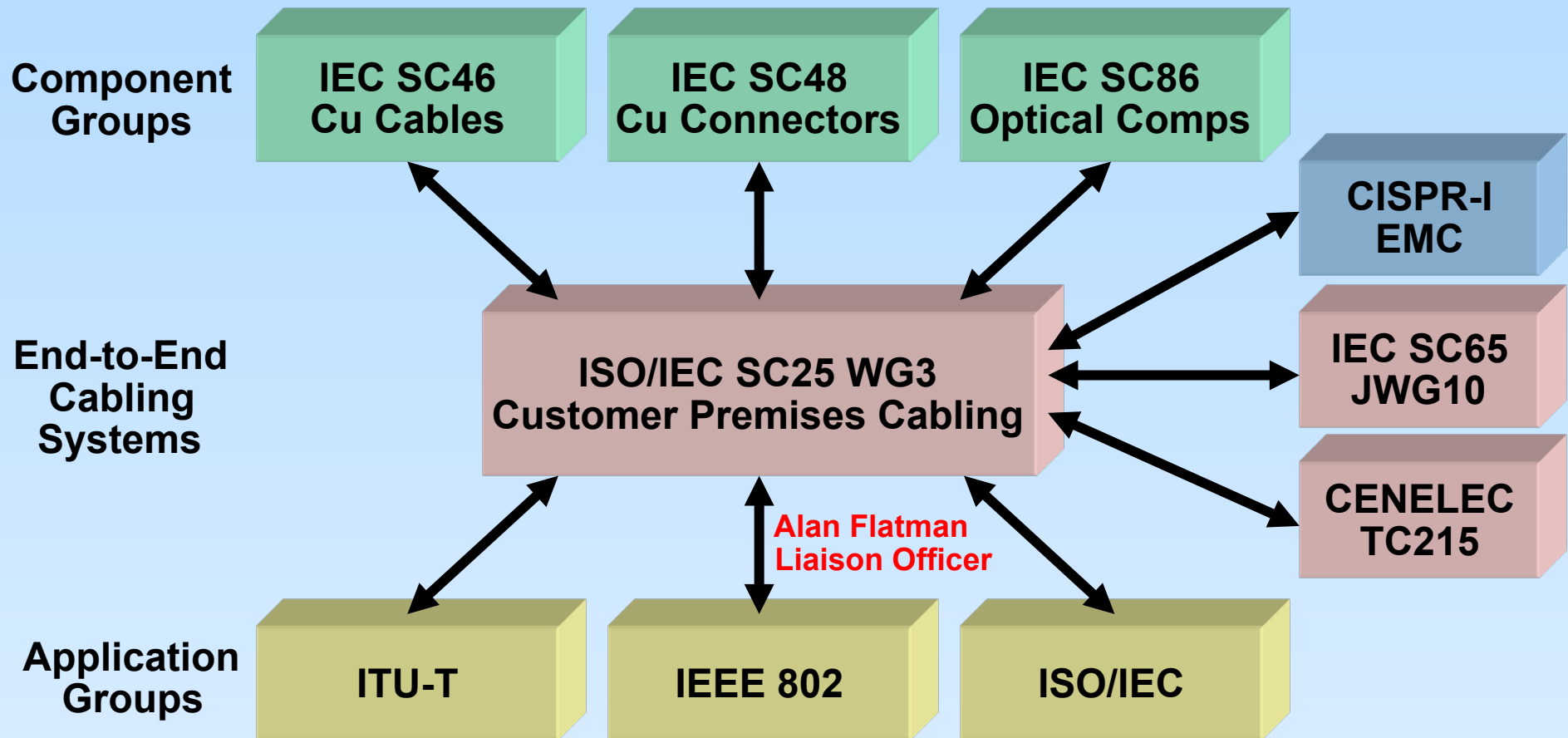
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## Who are ISO/IEC SC25 WG3?

- International cabling *systems* group
- SC25: Interconnection of IT Equipment
- WG 3: Customer Premises Cabling
- active participation by 20+ nations
- WG3 generally meets twice per year
- Project Teams may be formed to accelerate work

## ISO/IEC SC25 WG3 Process Model

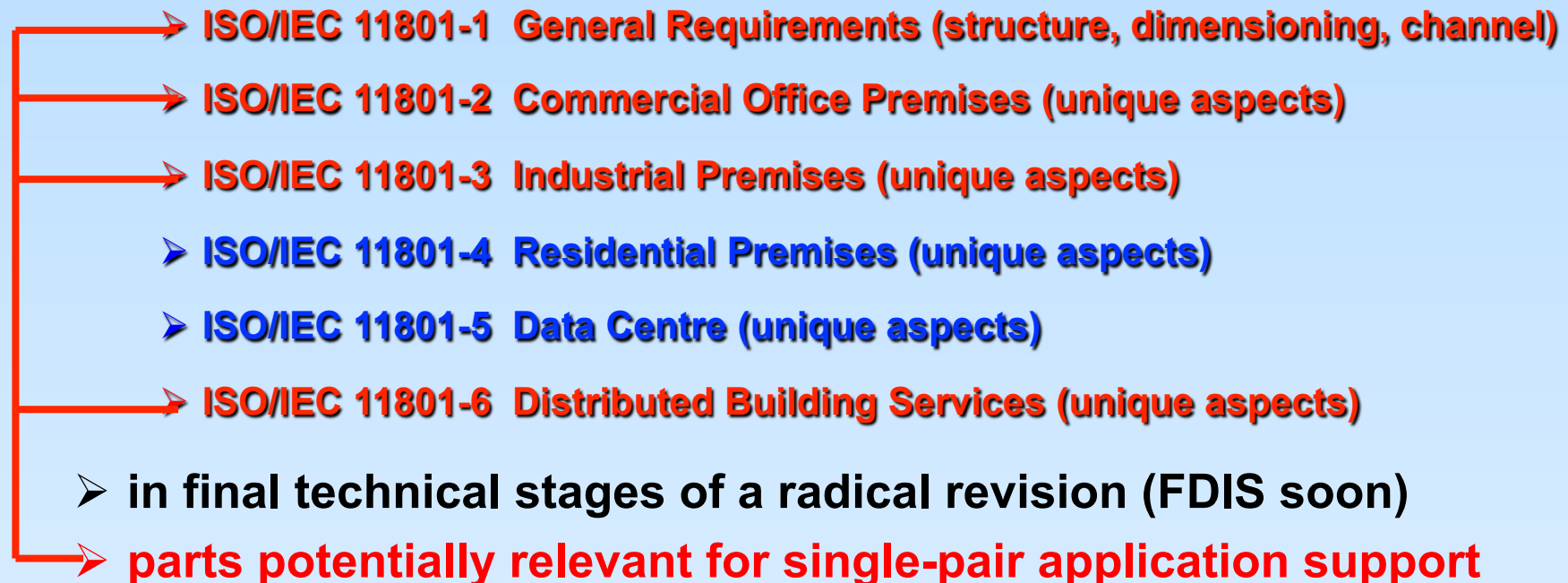


## ISO/IEC SC25 WG3 Recent Deliverables

Reference	Title	Approved
ISO/IEC TR 24750	Supporting 10GBASE-T with Cat 6	2007
ISO/IEC TR 29106	MICE Environmental Classification	2008
ISO/IEC 24702 Am.1	Industrial Cabling	2009
ISO/IEC 15018 Am.1	Home Cabling	2009
ISO/IEC 11801 Ed.2	Customer Premises Cabling:	2010
ISO/IEC 24764	Data Centre Cabling	2010
ISO/IEC TR 29125	Guidelines on Remote Powering	2010
ISO/IEC 14763-2	Cabling Planning & Installation	2011
ISO/IEC TR 11801-9901	Supporting 40GBASE-T with Cat 6 <sub>A</sub> -7 <sub>A</sub>	2014
ISO/IEC 14763-3	Testing of Optical Fibre Cabling	2014

## ISO/IEC 11801 Edition 3: Generic Cabling

- existing design standards re-structured into a single family:

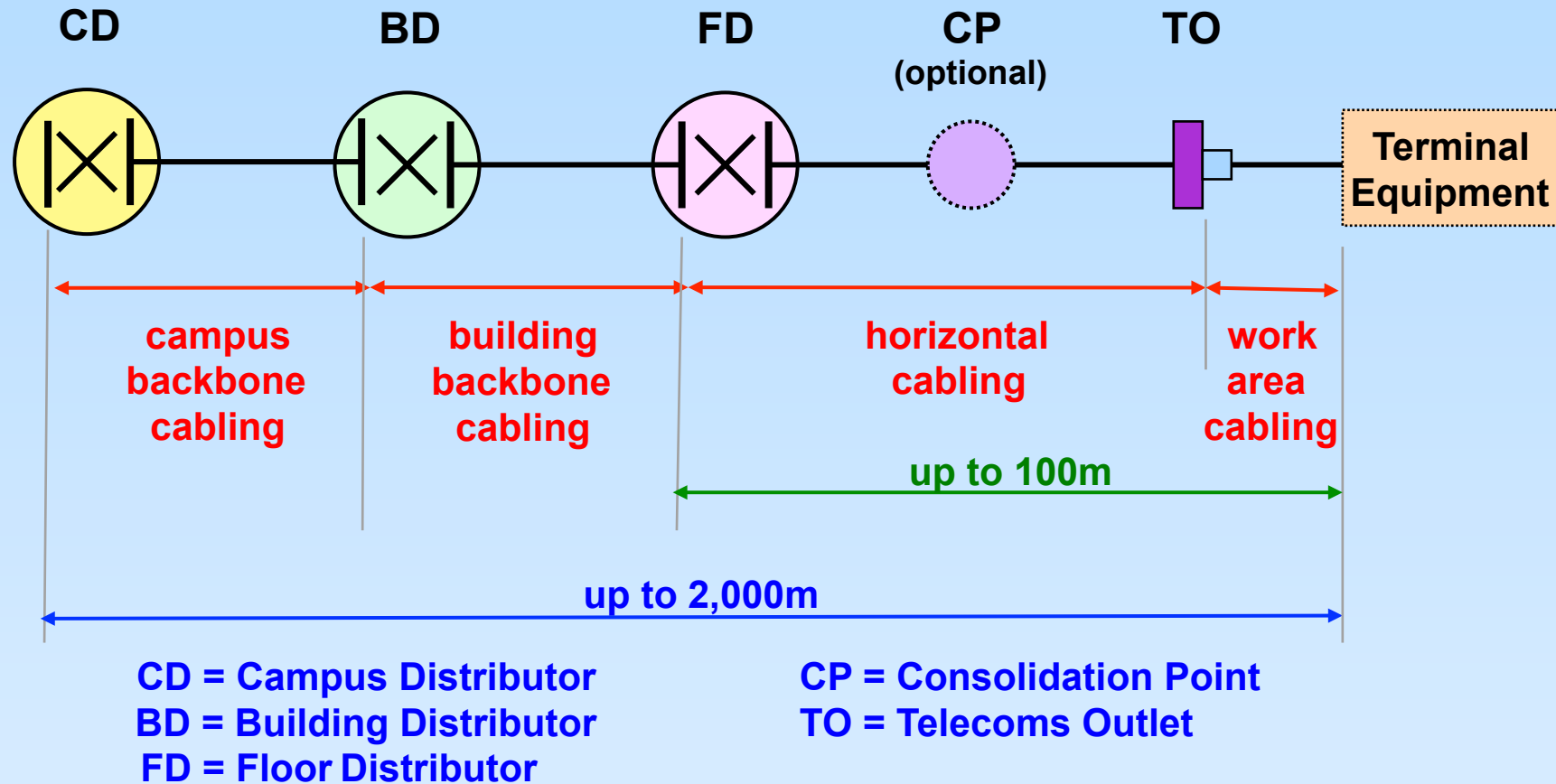


## ISO/IEC 11801-6: DBS Cabling Scope

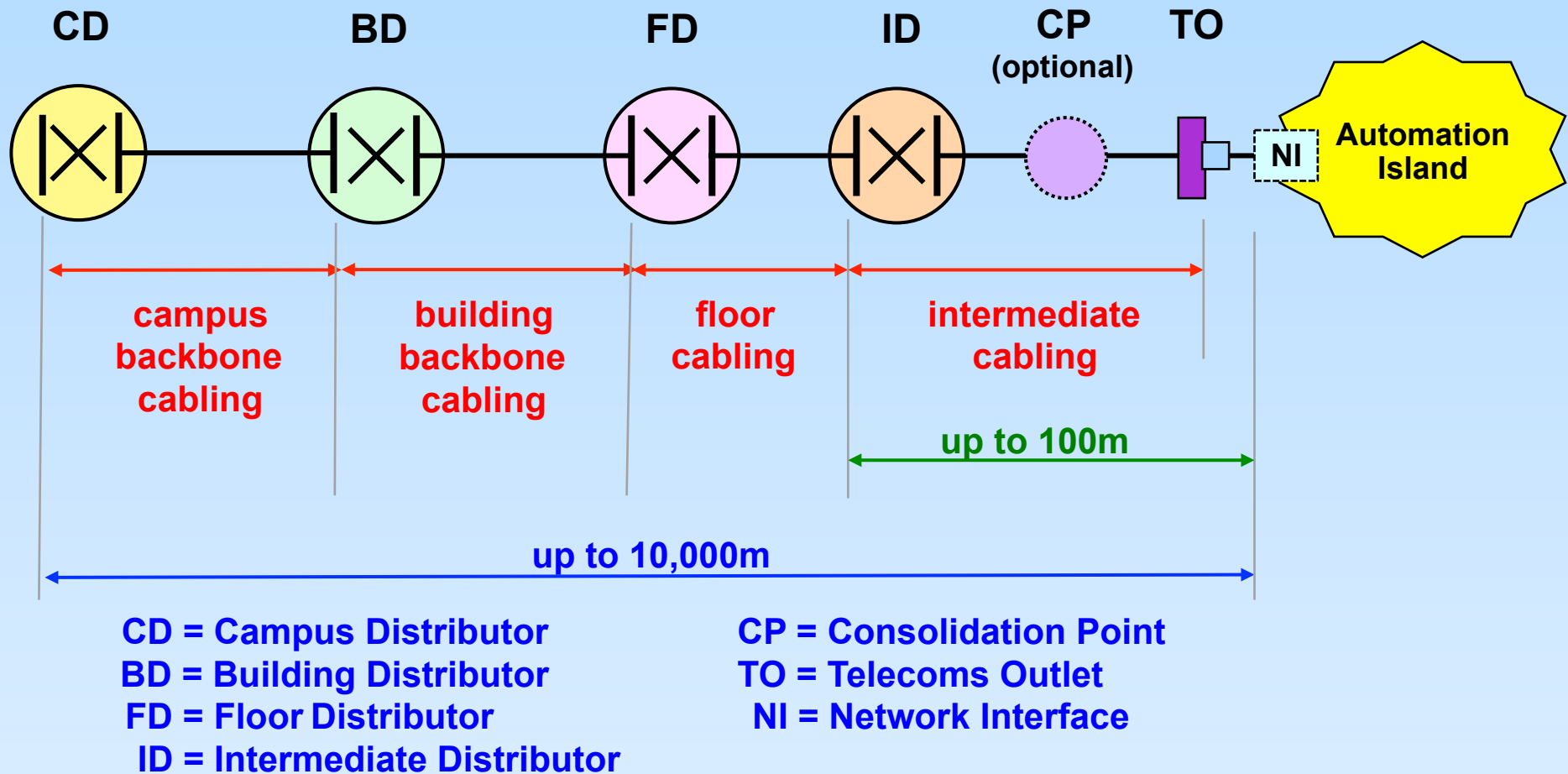
**envisaged as overlay infrastructure  
with Office IT cabling (for example)**

1. Access Controls
2. Burglar Alarms
3. Asset Management
4. Audio-Visual
5. Building Automation
6. Building Well-being
7. Energy Management
8. Environmental Control
9. Wireless Access Points
10. Distributed Antenna Systems

## ISO/IEC 11801-2 Office Cabling Model

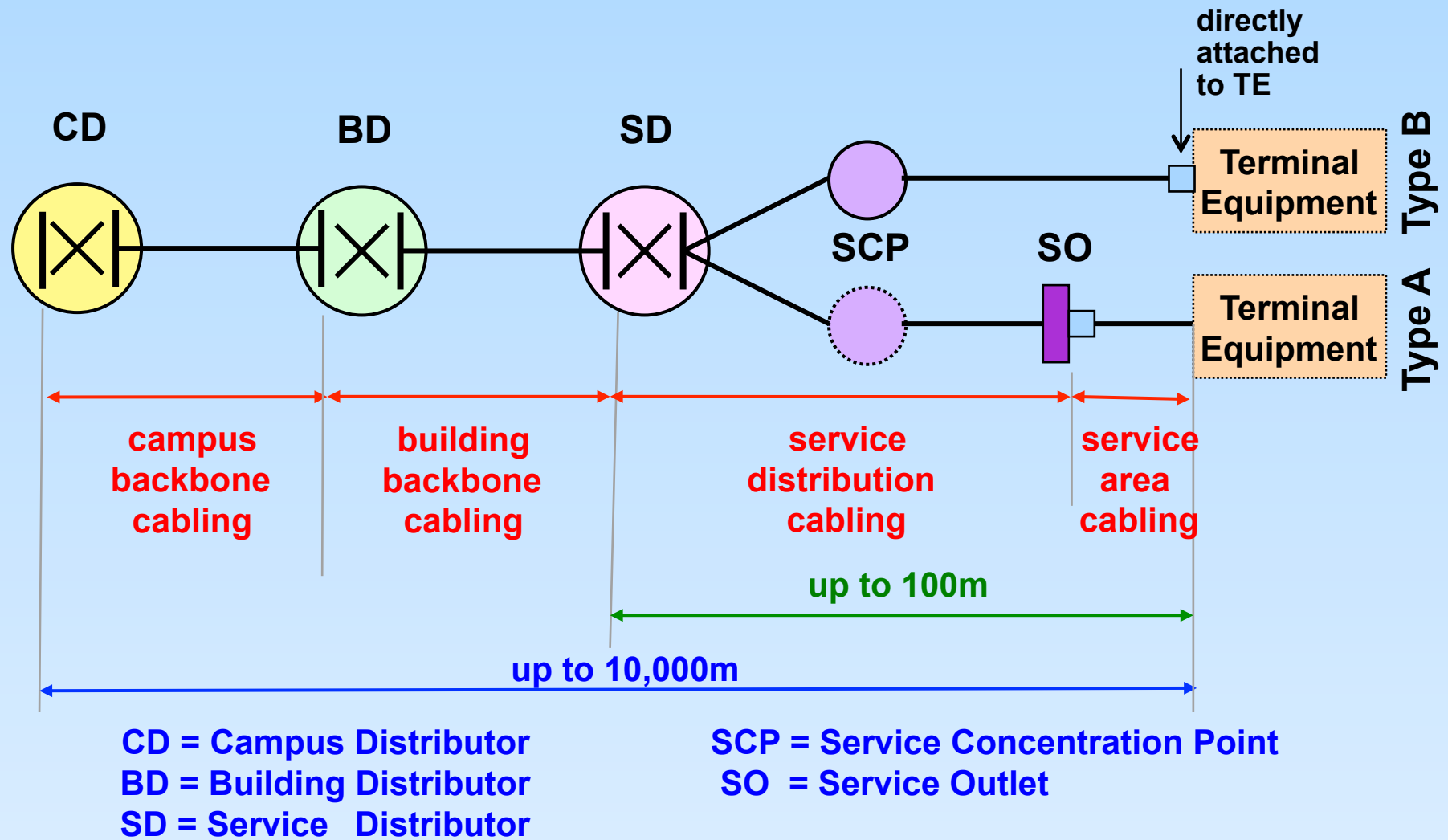


## ISO/IEC 11801-3 Industrial Cabling Model





# ISO/IEC 11801-6 Distributed Building Services Cabling Model



## **ISO/IEC 11801 Edition 3: Balanced Cabling Parameters**

- ❖ **Return Loss**
- ❖ **Insertion Loss**
- ❖ **NEXT**
- ❖ **ACR-N**
- ❖ **ACR-F**
- ❖ **DC Resistance**
- ❖ **DC Current Capacity**
- ❖ **Dielectric Withstand**
- ❖ **Propagation Delay**
- ❖ **TCL**
- ❖ **ELTCTL**
- ❖ **Coupling Attenuation**
- ❖ **Alien Crosstalk**

## ISO/IEC 11801 Edition 3: Balanced Cabling Categories

**Category 5** cable, connector and cord specified up to 100MHz

**Category 6** cable, connector and cord specified up to 250MHz

**Category 6<sub>A</sub>** cable, connector and cord specified up to 500MHz

**Category 7** cable, connector and cord specified up to 600MHz

**Category 7<sub>A</sub>** cable, connector and cord specified up to 1000MHz

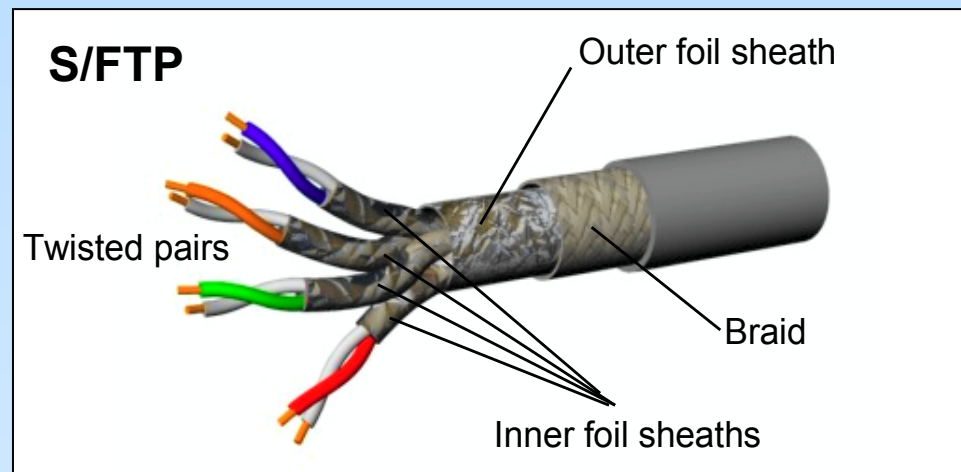
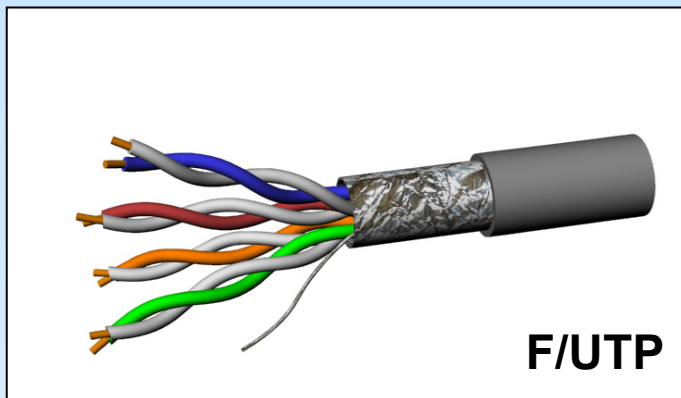
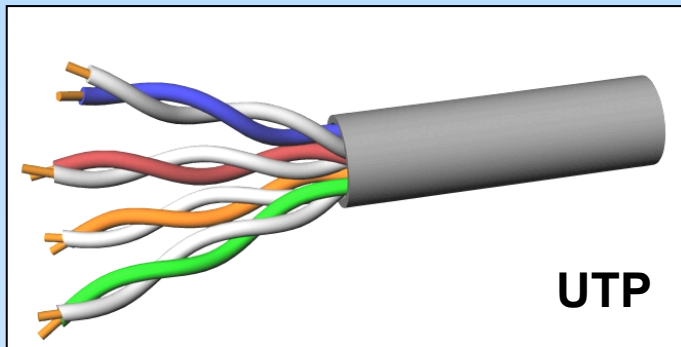
**Category 8.1** cable, connector and cord specified up to 2,000MHz

**Category 8.2** cable, connector and cord specified up to 2,000MHz

## ISO/IEC 11801 Edition 3: Balanced Cabling Classes

	Upper Freq	30m + 2 connections	100m + 4 connections	≥100m + >4 connections
Class A	100KHz			backbone cabling 2,000m
Class B	1MHz			250m
Class C	16MHz			170m
Class D	100MHz			105m
Class E	250MHz		horizontal cabling yes	no
Class E <sub>A</sub>	500MHz		yes	no
Class F	600MHz		yes	no
Class F <sub>A</sub>	1,000MHz		yes	no
Class I	2,000MHz	data centres yes	no	no
Class II	2,000MHz	yes	no	no

## ISO/IEC 11801 Cable Construction



**Note: ISO/IEC 11801 does not specify cable construction**

4-pair outlet configuration recommended  
however 2-pair configuration is allowed

## ISO/IEC 11801 Edition 3 Outlets

ISO/IEC 11801 specifies the following connectors:

IEC 60603-7-xx (RJ45) for Cat 5 - 8.1

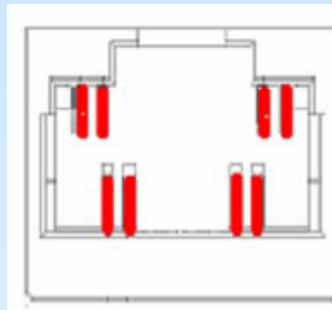
IEC 60603-7-82 (GG45) for Cat 8.2

IEC 61076-3-104 (Tera) allowed *alternative* for Cat 7<sub>A</sub> or Cat 8.2 when backwards compatibility is not required

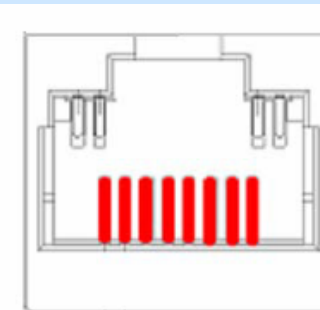
**Tera**



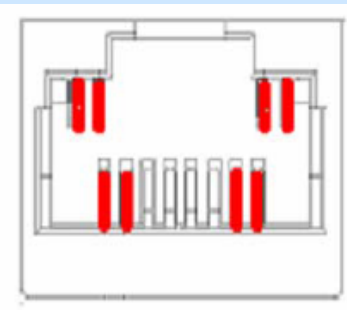
**GG45 to GG45**



**RJ45 to GG45**



**RJ45 to GG45  
with switch**



## ISO/IEC 11801 Edition 3: Environmental Classification

	1	2	3
Mechanical Rating	$M_1$	$M_2$	$M_3$
Ingress Rating	$I_1$	$I_2$	$I_3$
Climatic Rating	$C_1$	$C_2$	$C_3$
Electromagnetic Rating	$E_1$	$E_2$	$E_3$

Examples:  $M_1I_1C_1E_1$ ,  $M_1I_3C_2E_2$ ,  $M_3I_3C_3E_3$

## Cabling to Support 1-pair Applications

- new project agreed in Sep 2016 to define a single-pair channel to 600MHz to support IEEE 802.3bp 40m Type B link segment
  - **ISO/IEC Technical Report to be developed**
- agreed in Sep 2016 to revise ISO/IEC 11801-6 to define support of 1 pair applications, including:
  - building controls
  - access control
  - audio-visual
  - security
  - Internet of Things
  - **amendment to ISO/IEC 11801-6 to be developed**