

Idaho Technology Authority (ITA)

ENTERPRISE STANDARDS – S3000 NETWORK AND TELECOMMUNICATIONS

Category: S3550 – NETWORK CONNECTIVITY AND TRANSPORT – STRUCTURED CABLE IDENTIFICATION

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I. DEFINITION

Structured cabling is a standards-based approach to cable plant installation (inside wiring) within a facility or group of buildings. Cable identification refers to the unique informational naming of every cable.

II. RATIONALE

Idaho State Agencies utilize a broad diversity of devices that need to be connected via a common physical infrastructure. An industry recognized standards-based installation and management approach results in uniform wiring at different locations, improved management of building space resources and reduced costs for wiring installation, support and management.

III. APPROVED STANDARD(S)

1. ANSI/TIA/EIA 568, Commercial Building Telecommunications Cabling Standard (most current version);
2. ANSI/TIA/EIA 569, Commercial Building Standard for Telecommunication Pathways and Spaces (most current version); and
3. ANSI/TIA/EIA 606, Administration Standard for the Telecommunication Infrastructure of Commercial Buildings (most current version).

IV. APPROVED PRODUCT(S)

Standards-based

V. JUSTIFICATION

The Electronics Industry Association (EIA) and Telecommunications Industry Association (TIA) standards are the primary international standard for structured cabling systems. These standards have also been fully or partially included in the National Electrical Code (NEC), American National Standards Institute (ANSI), the National Electrical Manufacturers Association (NEMA), and Underwriters Laboratories (UL).

VI. TECHNICAL AND IMPLEMENTATION CONSIDERATIONS

Increased network data traffic and application demands continue to drive the need for adequate and reliable wiring in state facilities. Agencies should require electrical, telecommunications or wiring contractors to adhere to these standards for cable plant installation. Agencies should also ensure that premises wiring installations conform to any applicable electrical, fire, or safety code. It is also important to carefully consider the physical, logical, and network security implications of the deployment and maintenance of structured cabling.

This policy does not require recabling existing installations to conform to newer standards, but supports recabling to the latest standards when dictated by safety, operational or business considerations.

Cable naming standards are intended to follow the TIA-EIA 606-A standard. For additional detail, refer to sections 5.1.2 Horizontal Link Identifier, 6.1.1 Building Backbone Cable Identifier and 7.1.2 Campus Backbone Cable Identifier in the TIA-EIA-606-A definitions document.

- 1) State of Idaho Identification format for the Campus and Backbone Cable Identifier:
 - a) CCC-BBB-TS₁F(D)/CC-BBB- TS₂F(D)-NN.dd, Where:
 - i) CCC= 3 Alpha Campus Identifier. Identifiers are listed in item (e) below. Intra-campus cabling does not require the Campus Identifier.
 - ii) BBB= Building Identifier, 3 Alpha. The Building Identifier will be included in all backbone cable records and labeling. Identifiers are listed in item (f) below.
 - iii) TS₁, TS₂= Telecommunications Space Identifier, 2 to 4 Alpha
 - iv) F=Floor, 1-2 Numeric
 - v) D= Direction, Optional (North, South, East, West)
 - vi) NN = Number of the cable between the two spaces, 2 numeric, fixed

- vii) dd = Numeric identifier for each strand (fiber) or pair (copper) in the cable.
- b) Each cable shall be uniquely identified. The Campus, Building or Telecommunications Space (TS) with the lesser alpha-numeric identifier shall be listed first. Both ends of each cable will be identified identically.
- c) Note: Capitol does not follow convention. Per the standard, EFNO should actually have been designated EFGN for Telecommunications Entrance Facility, Garden Level, North side.
- d) Examples:

<p>CAP-EFNO/CAP-EFNO1-01 Capitol Building, Telecommunications Entrance Facility <u>CONNECTS THE</u> Capitol Building, Telecommunications Entrance Facility Cage 1, Cable 01. This is the first identified cable between the two points. The cable is identified with this ID at both ends.</p>
<p>CAP-EFNO1/CAP-EFNO2-01 Capitol Building, Telecommunications Entrance Facility Cage 1 <u>CONNECTS THE</u> Capitol Building, Telecommunications Entrance Facility Cage 2, Cable 01. This is the first identified cable between the two points. The cable is identified with this ID at both ends.</p>
<p>PTC-ELB/JRW-TR5-02 PTC Building, Electrical Room, Basement <u>CONNECTS THE</u> JRW Building, Telecommunications Room, 5th Floor, Cable 02. This is the second identified cable between the two points. The cable is identified with this ID at both ends.</p>

e) Campus Identifiers:

Campus	Identifier	Location
Capitol Mall	CPM	Boise
ISP Campus	ISP	Meridian
ITD Campus	ITD	Boise
Old Pen Campus	PEN	Boise
Orchard Campus	ORC	Boise

f) Building Identifiers:

Address1	Address2	City	Building ID
1299 N ORCHARD ST	STE 110	BOISE	COR
1215 W STATE ST		BOISE	SIF
317 W MAIN ST		BOISE	IAB
3311 W STATE ST		BOISE	ITD
450 W STATE ST		BOISE	PTC
607 N 8TH ST		BOISE	PER
650 W STATE ST		BOISE	LBJ
700 S CLEARWATER LN		BOISE	IIC
700 S STRATFORD DR		MERIDIAN	ISP

Address1	Address2	City	Building ID
700 W STATE ST		BOISE	JRW
800 E PARK BLVD		BOISE	TAX
1455 N ORCHARD		BOISE	PTV
325 W STATE ST		BOISE	LIB
514 W JEFFERSON ST		BOISE	ANN
4040 W GUARD ST	BLDG 600	BOISE	BHS
304 W STATE ST		BOISE	ALX
700 W JEFFERSON ST	CAPITOL BUILDING	BOISE	CAP
500 STATE ST	ITD Fiber Vault at 5th and State	BOISE	SPL
550 W STATE ST		BOISE	GAR
472 W WASHINGTON ST		BOISE	PUC
502 N 4th ST		BOISE	DPW
451 W STATE ST		BOISE	JSC
304 N 8 th ST		BOISE	BOR

g) Space Identifiers:

ID_Code	ID Description	ID_Type
BRG	Bridge	Pathway
BRG	Bridge	Spaces
CER	Common Equipment Room	Spaces
CO	Central Office	Spaces
CTR	Common Telecommunications Room	Spaces
DBL	Direct buried locale	Pathway
DBL	Direct buried locale	Spaces
DM	Demarcation (NI)	Spaces
EF	Entrance Facility. This is where telecommunications links first terminate within the building. All other telecommunications rooms should be designated TR	Spaces
EL	Electrical Room	Spaces
EN	Entrance	Pathway
EN	Entrance	Spaces
ER	Equipment Room. Use when identifying rooms that have a mix of telecommunications, computing and other equipment.	Spaces
HH	Handhole	Spaces
HH	Handhole	Pathway
MH	Maintenance hole	Pathway
MH	Maintenance hole	Spaces
NOC	Network Operations Center	Spaces
PE	Pedestal	Pathway

ID_Code	ID Description	ID_Type
PE	Pedestal	Spaces
RT	Rooftop	Spaces
RT	Rooftop	Pathway
SML	Submerged locale	Pathway
SML	Submerged locale	Spaces
SPS	Service Provider Space	Spaces
SR	Switch Room	Spaces
SRV	Server Room	Spaces
STAR	Logical center of the data network	Spaces
SZ	Serving Zone	Spaces
TN	Tunnel	Pathway
TN	Tunnel	Spaces
TPP	Telephone pole	Spaces
TPP	Telephone pole	Pathway
TR	Telecommunications Room. Use when identifying rooms that have ONLY telecommunications equipment.	Spaces
VL	Vault	Pathway
VL	Vault	Spaces
WS	Workstation location	Spaces
WTRS	Wireless Transmission and Reception Space	Spaces

- 2) State of Idaho Identification format for the Horizontal Link Cable Identifier:
A horizontal link identifier, unique within the building, shall be assigned to each horizontal link and to its elements.

A horizontal link identifier shall have a format of *fs-an*, where,

- a) *fs* = the Telecommunications Space (TS) identifier
- b) *a* = one or two alpha characters uniquely identifying a single patch panel, a group of patch panels with sequentially numbered ports, an IDC connector (punch-down block), or a group of IDC connectors, serving as part of the horizontal cross-connect
- c) *n* = two to four numeric characters designating the port on a patch panel, or the section of an IDC connector on which a four-pair horizontal cable is terminated in the TS.

All horizontal link identifiers in a single infrastructure should have the same format where possible. The recommended format, to accommodate the majority of systems, is *fs-annn*. See annex A for examples.

For a copper horizontal link, the elements include:

- 1) the connecting hardware, e.g., patch panel port or the section of an IDC connector (punch-down block) terminating a four-pair horizontal cable
- 2) a four-pair horizontal cable
- 3) a telecommunications outlet/connector terminating a four-pair horizontal cable in the work area

- 4) if a consolidation point (CP) is present:
 - a) the segment of four-pair horizontal cable extending from the TS to the CP connecting hardware
 - b) the CP connecting hardware or section of an IDC connector terminating a four-pair horizontal cable
 - c) the segment of four-pair horizontal cable extending from the CP connecting hardware to the outlet/connector, if present
 - d) if a MUTOA (Multi-User Telecommunications Outlet Assembly) is present, a telecommunications outlet/connector in the MUTOA

For an optical fiber horizontal link, the elements include:

- 1) a pair of optical fiber terminations on a patch panel in the TS
- 2) a pair of optical fibers in a cable
- 3) a pair of optical fiber terminations in the work area
- 4) a telecommunications outlet/connector terminating a pair of optical fibers in the work area
- 5) if a consolidation point (CP) is present:
 - a) the segment of optical fiber cable extending from the TS to the CP connecting hardware
 - b) the CP connecting hardware or section terminating a pair of optical fibers
 - c) the segment of optical fiber cable extending from the CP connecting hardware to the outlet/connector, if present
 - d) if a MUTOA is present, a telecommunications outlet/connector in the MUTOA

The pair of optical fiber terminations may be two simplex connectors or one duplex connector, and includes adapters, if present.

When consolidation points are used, some elements of the horizontal link may not be installed initially. All elements shall be labeled at the time they are installed.

In class 1 systems only, the *fs* portion of the horizontal link identifier may be omitted from labels. The full horizontal link identifier is the recommended format.

In the TS, each patch panel port or section of IDC connector shall be labeled with the *an* portion of the identifier. This requirement may be met by labeling a patch panel with the *a* portion of the identifier, and each port with the *n* portion. The port numbers marked on a patch panel by its manufacturer may be used as the *n* portion. Similarly, an IDC connector or group of IDC connectors may be labeled with the *a* portion of the identifier, and the section of an IDC connector terminating a four-pair horizontal cable labeled with the *n* portion.

Each end of a horizontal cable shall be labeled within 300 mm (12 in) of the end of the cable jacket with the horizontal link identifier, which shall be visible on the exposed part of the cable jacket. This shall include each cable end in the TS, at the work area, and at a CP, if present.

In the work area, each individual telecommunications outlet/connector shall be labeled with the horizontal link identifier. The labeling shall appear on the connector, faceplate, or MUTOA, in a way that clearly identifies the individual connector associated with the particular identifier.

A horizontal cable containing more than one horizontal link, such as a hybrid cable containing multiple four-pair sub-units or an optical fiber cable with four or more optical fibers, shall be identified with the lowest alpha-numeric horizontal link identifier of the four-pair sub-units or pairs of optical fiber in the cable. See annex A.1 for examples.

3) **Horizontal link records.**

Horizontal link records shall contain the following information:

- a) horizontal link identifier (primary indexing identifier, e.g., 1A-A47)
- b) cable type (e.g., 4-pair, UTP, category 5e, plenum)
- c) location of telecommunications outlet/connector (room, office, or grid location)
- d) outlet connector type (e.g., 8-position modular, T568A, category 5e)
- e) cable length (e.g., 51m/166ft)
- f) cross-connect hardware type (e.g., 48-port modular patch panel, T568A, category 5e)
- g) service record of link (e.g., passed category 5e at installation 1/12/01, re-terminated and re-tested at cross-connect 4/22/01 due to broken wire)

VII. EMERGING TRENDS AND ARCHITECTURAL DIRECTIONS

There are no emerging trends and architectural directions for this standard.

VIII. PROCEDURE REFERENCE

Network Connectivity and Transport – Structured Cabling used on the State of Idaho’s Wide Area Network must comply with the Department of Administration’s “[P3020 – Connectivity and Transport Protocols.](#)”

IX. REVIEW CYCLE

Twelve (12) Months

X. CONTACT INFORMATION

For more information, contact the ITA Staff at (208) 332-1876.

REVISION HISTORY

07/01/13 – Changed “ITRMC” to “ITA”.

10/01/10 – Cable naming standards added

6/16/09 – Added Emerging Trends and Architectural Directions and Procedure
Reference to this standard; changed the layout and deleted Timeline

9/13/06 – Section VIII, Review Cycle, updated to reflect 12-month review rather than 6-
month review. Warranted due to well established industry standard with
language in the state standard that allows automatic accommodation to
updates to the industry standard.

7/20/05 – Revised to remove references to outdated revisions, allowing the State to
automatically remain current with the industry.

Effective Date: April 24, 2002