



Guideline for the Installation of Network Cables

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Title: <p style="text-align: center;">Guideline for the Installation of Network Cables</p>	Doc No. ISMS04-0121	Page
	V1.1	1/9

Table of Contents

1.	Purpose	3
2.	Scope.....	3
3.	Responsibilities	3
4.	Definitions.....	3
5.	Content	4
5.1	Requesting the Installation of Network Cables	4
5.2	Guideline for the Installation of Network Cables	4
5.3	Guidelines for quality connections	5
6.	Appendix	6
7.	References	9
8.	Forms	9

Title: <p style="text-align: center;">Guideline for the Installation of Network Cables</p>	Doc No. ISMS04-0121	Page
	V1.1	2/9

Version	Date	Changes Included	Company	Author	V&V	Approved By
1.0	11 December 2020	First published version	CITO	CITO	Delsie Ku	IS Committee
1.1	28 May 2021	Inserted 5.2.8 and the relevant image (Image 5). Changed “more” to “less” in 5.3.5	CITO	CITO	Delsie Ku	IS Committee

Title: <p style="text-align: center;">Guideline for the Installation of Network Cables</p>	Doc No. ISMS04-0121	Page
	V1.1	3/9

1. Purpose

To ensure that the any network infrastructure on the CITO GoB Wide Area Network is suitable for the implementation of security controls and/or measures and are following CITO’s standards.

2. Scope

This guideline is applicable to any Ministry, Department or Office that is part, or will be a part, of the CITO Network.

3. Responsibilities

3.1 **Network Administrators** – are to ensure that the guidelines outlined in this document are complied with.

3.2 **Requestor** – are required to comply with the guidelines outlined in this document.

4. Definitions

4.1 **CITO** – Central Information Technology Office

4.2 **Assessment** - is the process of gathering and discussing information from multiple sources to develop an evaluation or estimation of the nature and of what needs to be done

4.3 **CAT6** - Category 6; is a standardized twisted pair copper cable

4.4 **T568 A-standard** - colour code used for terminating CAT6 cable ends

4.5 **Requestor** – staff recognized by CITO as authorized to submit requests on behalf of a Ministry, Department or Office, usually an Administrative Officer, Finance Officer, Head of Department, Director, or CEO.

Title: <p style="text-align: center;">Guideline for the Installation of Network Cables</p>	Doc No. ISMS04-0121	Page
	V1.1	4/9

5. Content

5.1 Requesting the Installation of Network Cables

- 5.1.1 The respective office, via the requestor, shall send an email to network section ticketing system (network.support@cito.gov.bz) requesting for the running of cables.
- 5.1.2 An assessment will be determined based on CITO’s discretion; CITO personnel (Network Administrator and/or Technician) is to determine the internal data/voice wiring based on the complexity and aesthetics of the building.
 - 5.1.2.1 If CITO personnel determines that the assistance of a third-party (i.e. hired contractor or the office’s IT personnel) is required for the completion of the task due to aesthetics, building complexity, or length of cable, the requestor shall ensure such third-party strictly follows the guidelines below.
- 5.1.3 A walkthrough will be conducted with a CITO personnel, with assistance of HOD, IT personnel, and/or a contractor.

5.2 Guideline for the Installation of Network Cables

- 5.2.1 All new connections should be dual cable (1 pair CAT6 wire - 1 is the main and the other is backup).
- 5.2.2 Connection should be run from CITO network cabinet to the desired location of the black box (network cabinet).
- 5.2.3 All connections are to be properly secured in conduit or trunking along with fittings (see Appendix below for images and table guide)
 - 5.2.3.1 For wall and floor – use the respective wall or floor trunking
 - 5.2.3.2 For ceiling – may require the use of a flexi from ceiling to wall
 - 5.2.3.3 Surface mount – to be used on sheet rock wall structure for data port
 - 5.2.3.4 Pipes are to be secured with U-clamps spout adapters
- 5.2.4 Conduit should be secured to the wall with screws.
 - 5.2.4.1 For sheetrock walls - use sheet rock plugs and dry wall screws.
 - 5.2.4.2 For concrete walls - use blue screws or anchor kits with plugs.
 - 5.2.4.3 For walls made of plywood, beaver board, plycem, etc. - use sheet rock screws.

Title: <p style="text-align: center;">Guideline for the Installation of Network Cables</p>	Doc No. ISMS04-0121	Page
	V1.1	5/9

- 5.2.5 If the department is undergoing refurbishment or building new sheetrock/plycem walls, the contractor is to run cable(s) inside walls with the necessary sheetrock boxes.
- 5.2.6 If the office area or location has drop ceiling, no conduit is needed on the ceiling.
- 5.2.7 If the connection requires trenching and spans outdoor, it must be secured in PVC Pipe.
- 5.2.8 The contractor or the office’s IT personnel must ensure that Surface Mount Box or Sheet Rock Outlet Box is installed.
- 5.2.9 All conduits installed should be properly levelled.
- 5.2.10 Connection will be labelled and tested by CITO personnel.
- 5.2.11 All connections ran should not exceed 100 meters in length.
 - 5.2.11.1 If connection exceeds 100 meters, an assessment will be conducted by CITO personnel to recommend either of the following options:
 1. install a point-to-point fibre link
 2. install a network cabinet along with a switch (depends on amount of connections required).
- 5.2.12 Connection should have an excess of 2ft (user side) & 5ft (Network cabinet side) for CITO personnel to properly be able to terminate the connection.
- 5.2.13 Label the cables with their destination at every termination point (to ensure that both the ends of the cable are labelled for identification and traceability).
- 5.2.14 If connection is overhead, they should be installed with the use of proper anchors/poles for necessary height/tension.
- 5.2.15 CITO personnel will terminate the network cable(s) using T568A-standard.
- 5.2.16 CITO personnel will label the new connections according to the same naming scheme used for a PC within a certain location (XXXXXXXX).

5.3 Guidelines for quality connections

- 5.3.1 Cables should not be run parallel with electrical cables (same conduit for electrical).
- 5.3.2 Cables should not be run cable in unsafe locations or near “noisy” devices or fixtures (e.g. fluorescent lighting, motors).

Title: Guideline for the Installation of Network Cables	Doc No. ISMS04-0121	Page
	V1.1	6/9

- 5.3.3 Cables are not to be bundled too tightly or overloaded into the conduits, nor should they be over tightened with cable or plastic ties.
- 5.3.4 Wires should not be left exposed, especially to areas of condensation and/or direct sunlight.
- 5.3.5 Cables should not be bent less than a 90-degrees angle.
- 5.3.6 Maximum pulling tension on cable should not be more than 25lbs.

6. Appendix

Table 1: Cable capacity in conduits

Conduit Size	Maximum Amount of Cables
16 mm x 16 mm	2 cables
16 mm x 25 mm	4 cables
50 mm x 50 mm	16 cables
100 mm x 100 mm	75 cables

Image 1: Commonly used trunking



Title: Guideline for the Installation of Network Cables	Doc No. ISMS04-0121	Page
	V1.1	7/9

Image 2: Fittings

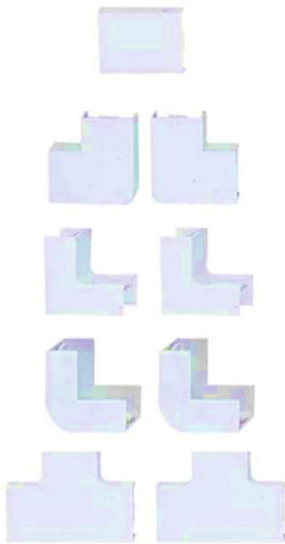
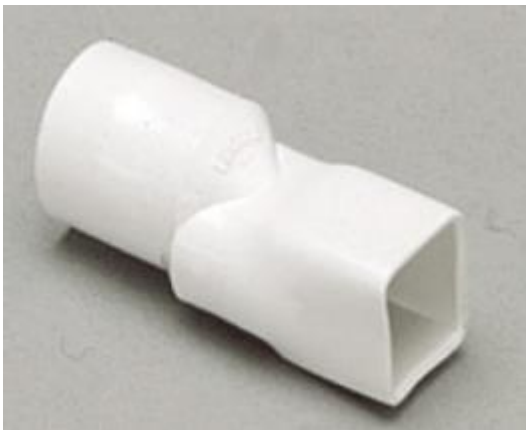


Image 3: Square to round adapter for Flexi

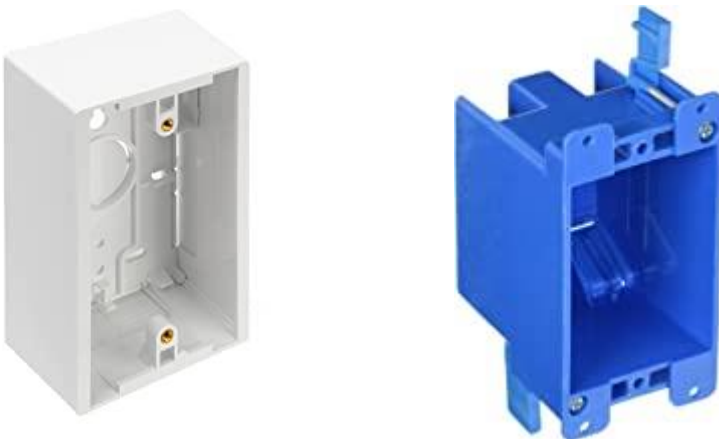


Title: Guideline for the Installation of Network Cables	Doc No. ISMS04-0121	Page
	V1.1	8/9

Image 4: Floor trunking



Image 5: Surface Mount Box & Sheet Rock Outlet Box



Title: Guideline for the Installation of Network Cables	Doc No. ISMS04-0121	Page
	V1.1	9/9

7. References

None

8. Forms

None