

**COMMUNICATIONS
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DRAFT INDUSTRY GUIDELINE

DR G670:2023

FIBRE-READY MDUs FOR REAL ESTATE
DEVELOPMENT PROJECTS

Draft Industry Guideline DR G670:2023 Fibre-Ready MDUs for Real Estate Development Projects Industry Guideline

This Guideline was issued in draft form for public comment as DR G670:2023

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INTRODUCTORY STATEMENT

The ***Fibre-Ready MDU's for Real Estate Development Projects*** Guideline (G670:2023) is designed to:

- outline the minimum standard for Telecommunications spaces within a Real Estate Multi Tenanted building Development Project to be considered a Fibre-Ready Facility;
- describe recommended processes for the design and installation of Telecommunications facilities for use in the deployment of Optical Fibre Lines in a Real Estate Multi-Tenanted building Development Project; and
- describe the recommended materials used in the design and installation of facilities.

The draft Guideline was released for public comment in 2023 as DR G670:2023 to:

- Provide guidance on multi-unit and multi building developments.
- clarify the definition of popular Conduit sizes; and
- maintain consistency with other industry documents.

James Duck
Chair
In Building Pathways Working Committee

August 2023

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1 GENERAL

1.1 Introduction

- 1.1.1 The development of the Guideline has been facilitated by Communications Alliance through a Working Committee comprised of representatives from the telecommunications industry.
- 1.1.2 The Guideline should be read in the context of other relevant codes, guidelines and industry documents.
- 1.1.3 The Guideline should be read in conjunction with related legislation, including the *Telecommunications Act 1997* (the Act).
- 1.1.4 If there is a conflict between the requirements of the Guideline and any requirements imposed on an entity by statute, the entity will not be in breach of the Guideline by complying with the requirements of the statute.
- 1.1.5 Compliance with this Guideline does not guarantee compliance with any legislation. The Guideline is not a substitute for legal advice.
- 1.1.6 Statements in boxed text are a guide to interpretation only and not binding as Guideline rules.

1.2 Scope

- 1.2.1 The Guideline applies to the following sections of the telecommunications industry under section 110 of the Act:
 - (a) Carriers; and
 - (b) persons who install:
 - (i) Optical Fibre Lines; or
 - (ii) facilities used, or for use, in or in connection with Optical Fibre Lines.
- 1.2.2 This Guideline is pertinent to Developers e.g. as an input to the design and construction of a fibre ready building.
- 1.2.3 The Guideline deals with the following activities:
 - (a) carrying on business as a Carrier;
 - (b) supplying Goods or Service(s) for use in connection with the supply of a Listed Carriage Service; or
 - (c) supplying passive telecommunications infrastructure for use in connection with the supply of a Listed Carriage Service.

- 1.2.4 The Guideline describes recommended processes for the design and installation of a Fibre-Ready Facility, for use in the deployment of Optical Fibre Lines in a Real Estate Development Project.
- 1.2.5 The Guideline does not describe maintenance procedures or arrangements following the completion of the installation of a Fibre-Ready Facility.

NOTE: Refer to Division 4, Part 1 of Schedule 3 to the Act for additional information on the maintenance of a facility by a Carrier.

- 1.2.6 The Guideline includes In premises telecommunications pathways i.e. beyond the Lead-In Conduit.

1.3 Objectives

- 1.3.1 The objectives of the Guideline are to:
 - (a) outline the minimum standard for Telecommunications pathways within and in proximity to, a Real Estate Development Project to be considered a Fibre-Ready Facility;
 - (b) describe recommended processes for the design and installation of facilities for use in the deployment of Optical Fibre Lines in a Real Estate Development Project.

1.4 Guideline review

The Guideline will be reviewed after 5 years, or earlier in the event of significant developments that impact on the Guideline or a chapter within the Guideline.

2 ACRONYMS, DEFINITIONS AND INTERPRETATIONS

2.1 Acronyms

For the purposes of the Guideline:

SDU

means Single Dwelling Unit.

MDU

means Multi Dwelling Unit.

2.2 Definitions

For the purposes of the Guideline:

Access

has the meaning given by section 372L of the Act.

Act

means the *Telecommunications Act 1997 (Cth)*.

Bend

means a preformed curvature in a Conduit.

Building Lot

has the meaning given by section 372Q of the Act.

Building Unit

has the meaning given by section 372S of the Act.

Carrier

has the meaning given by section 7 of the Act.

Conduit

means a tube or Pipe that physically accommodates cables and offers mechanical protection for cabling, allowing them to be drawn in and/or replaced.

NOTE: The terms Pipe and Conduit are used interchangeably in this document. Both are used in industry and for the purposes of this document mean the same thing.

Conduit Access Panel

means a separate portion of a conduit system that provides access through a removable cover to the conduit system at a junction or change of direction to facilitate cable hauling.

Developer

means the party (or their agent) commercially responsible for the Real Estate Development Project.

Fibre-Ready Facility

has the meaning given by section 372W of the Act.

Lead-In Conduit

means Conduit that extends from an end wall of a Pit to the premises.

NOTE: A Lead-In Conduit may connect to an existing Starter Pipe.

Line

has the meaning given by section 7 of the Act.

Listed Carriage Service

has the meaning given by section 16 of the Act.

Network Termination Device

has the meaning given by AS/CA S009.

NOTE: A possible example of a Network Termination Device for an optical network includes the optical network termination unit that is located on a property.

Optical Fibre Line

has the meaning given by section 7 of the Act.

P20

means Conduit that is white and has:

- (a) a wall thickness of between 1.4mm and 1.7mm;
- (b) an internal diameter of not less than 23.3mm; and
- (c) an outside diameter of not more than 26.7mm.

P50

means Conduit that is white and has:

- (a) a wall thickness of between 3.1mm and 3.65mm;
- (b) an internal diameter of not less than 53.0mm; and
- (c) an outside diameter of not more than 60.3mm.

P100

means Conduit that is white and has:

- (a) a wall thickness of between 4.5mm and 5.2mm;
- (b) an internal diameter of not less than 104.9mm; and
- (c) an outside diameter of not more than 113.9mm.

NOTE: Refer to Section 8.1 and Figure 17 of G645 for more information on the materials and nominal dimensions, including wall thickness, of P20, P50 and P100 Conduit.

Pipe

has the same meaning as Conduit.

NOTE: The terms Pipe and Conduit are used interchangeably in this document. Both are used in industry and for the purposes of this document mean the same thing.

Pit

means a manhole, pit or any other access hole or chamber in the ground.

Real Estate Development Project

has the meaning given by section 372Q of the Act.

Reticulation Conduit

means Conduit within a Super Lot that joins Pits on branch routes.

Shared Trench Agreement

means an agreement between organisations (e.g. utilities) that install services in a trench in a Real Estate Development Project which includes specification of the:

- (a) depth below ground level of the services;
- (b) alignment of services; and
- (c) separation of the services from one another.

Starter Conduit

means Conduit that extends from an end wall of a Pit, at least 1 metre and no more than 10 metres unless under a retaining wall or embankment into each property beyond the property boundary point served from the Pit.

NOTES:

1. Starter Conduit is also referred to as a service Conduit or drop Conduit.
2. Where a Starter Conduit extends under a retaining wall or embankment then it should be locatable for subsequent work to connect it to a Building Unit.

3. Refer to clause **Error! Reference source not found.** 4.4.1 of G645 for more information on how a Starter Conduit may have a length up to 25m with prior Carrier consent.

Super Lot

means a Building Lot that is:

- (a) intended for future development;
- (b) larger than a Building Lot used for a single dwelling unit (SDU); and
- (c) not used for a SDU.

NOTES:

1. Examples of Super Lot use include for education, commercial, or light industrial development, or for Multi-Dwelling Units (MDUs) such as terraces or apartments.

2. A Super Lot is typically identified as part of a master planning stage of a Real Estate Development Project.

Telecommunications Equipment Room

means a room that is:

- (a) an equipment room; and
- (b) a distribution enclosure.

NOTES:

1. ISO/IEC 24383 is a draft Standard (under development) that may be relevant/of interest. Its working title is: Information technology — Physical network security for the accommodation of customer premises cabling infrastructure and information technology equipment.

Telecommunications Network

has the meaning given by section 7 of the Act.

2.3 Interpretations

In the Guideline, unless the contrary appears:

- (a) headings are for convenience only and do not affect interpretation;
- (b) a reference to a statute, ordinance, code or other law includes regulations and other instruments under it and consolidations, amendments, re-enactments or replacements of any of them;
- (c) words in the singular includes the plural and vice versa;
- (d) words importing persons include a body whether corporate, politic or otherwise;
- (e) where a word or phrase is defined, its other grammatical forms have a corresponding meaning;
- (f) mentioning anything after include, includes or including does not limit what else might be included;
- (g) words and expressions which are not defined have the meanings given to them in the Act; and
- (h) a reference to a person includes a reference to the person's executors, administrators, successors, agents, assignees and novatees.

3 GENERAL RULES

3.1 Introduction

- 3.1.1 The *Telecommunications Legislation Amendment (Fibre Deployment) Act 2011* amended the Act to:
- (a) enable the Minister to specify new developments in which fixed Lines which are installed need to use optical fibre;
 - (b) require passive infrastructure like pit and pipe that is installed to be fibre-ready;
 - (c) impose penalties on Developers that are constitutional corporations that sell property without fibre-ready passive infrastructure;
 - (d) enable Carriers to seek Access to passive infrastructure that is owned by a non-Carrier; and
 - (e) enable the Australian Communications and Media Authority to make standards for customer equipment and cabling for use with superfast networks.
- 3.1.2 This Guideline outlines the minimum requirements for Telecommunications installation within, and in proximity to, Real Estate Development Projects to be considered a Fibre-Ready Facility.
- 3.1.3 The rules of this Guideline are organised into 6 main sections:
- (a) **Section 4 Design**, outlines the permitted configurations and sizes of Pits and Conduit with the respect to the property allotments and roadways they pass.
 - (b) **Section 5 Multi Unit, Multi Building Developments**, outlines the rules for the design of multi-unit, multi-building developments including Super Lots.
 - (c) **Section 6 Telecommunications riser/closet to living unit**, outlines the rules for the placement of the Conduit in the ground; interconnection, bending and entry into Pits; and testing of the Conduit.
 - (d) **Section 7 Residential / Commercial/ Industrial (Including Mixed Use i.e., Combines With Residential Developments)**, outlines the minimum size of Lead-In Conduit(s) and prohibited locations for fibre distribution panels and equipment rooms.
 - (e) **Section 8 Documentation**, outlines the minimum level of documentation deemed acceptable for transfer of Conduit to a Carrier under a 'build and transfer' arrangement.

3.2 Customisation based on Carrier advice

To avoid subsequent disruption to the Real Estate Development Project, the Developer shall engage with a Carrier at the design stage to incorporate Carrier specific requirements.

NOTES:

1. *This assumes that only a Carrier with experience or plans to operate Telecommunications Network(s) that use Optical Fibre Lines would engage with a Developer in relation to a Fibre-Ready Facility.*

2. *Developers should arrange registration with a Carrier six months prior to their estimated project completion to allow sufficient time for provision of advice on Carrier requirements.*

3.3 Shared Trenching

3.3.1 If a Real Estate Development Project will have multiple utility services (e.g. two or more of communications, electricity, gas, sewer and water) installed in one service trench then a Developer shall ensure there is in place a documented Shared Trench Agreement for the utility services to enable cost effective installation of Pit and Pipe infrastructure.

3.3.2 A Shared Trench Agreement should comply with recognised industry practices for safety and separation of services.

NOTES:

1. *One example of practices for the separation of services is the use of barrier strips between service types, although this is not typically used between nests of Conduits of the same service type.*

2. *Refer to AS/CA S009 and AS/NZS 3000 for separation distances between electrical and telecommunications cables.*

3. *Refer to AS /NZS 4645.2, AS /NZS 4645.3 and AS/NZS IEC 60079.10.1 for separation distances from gas services.*

4. *Refer to section 6.5 of C524 for further Carrier responsibilities.*

3.4 Certification

3.4.1 A Developer shall check if it needs to supply to:

- (a) State planning authorities; or
- (b) Local Government Areas (e.g. council or shire)

certification that the design for Fibre-Ready Facilities within the Real Estate Development Project conforms to this guideline.

3.4.2 A Developer shall check if it needs to supply to:

- (a) State planning authorities; or
- (b) Local Government Areas (e.g. council or shire)

certification that Fibre-Ready Facilities will be or have been installed within the Real Estate Development Project in a way that conforms to this Guideline.

NOTE: This certification might be provided by a Carrier providing communications services under clause 3.4.3.

3.4.3 Some authorities may require a Carrier to certify it will be providing communications services (of a certain type and standard) to the Real Estate Development Project before final approval is granted.

3.4.4 The nature of the telecommunications services provided to the Real Estate Development Project is for the Developer and approving authority to determine, subject to complying with provisions of Part 20A of the Act with regard to Fibre-Ready Facilities or where fixed Lines must be Optical Fibre Lines.

NOTE: In addition to legislation there are regulatory instruments that may be relevant.

3.5 Registration of Plans

The owner of completed Pit and Pipe assets in a building (e.g. a body corporate taking on the responsibility for cable) in a Real Estate Development Project should register the service entry point with the Before You Dig Australia service.

NOTE: Before You Dig Australia is a national service designed to prevent damage and disruption to Pipe and cable networks. To contact the service visit the website at <https://www.byda.com.au/>.

3.6 Ownership

The ownership of Developer installed Pits, closets, cables and Conduits does not automatically transfer to a body corporate. There needs to be a legally documented and executed agreement facilitating the change of ownership.

4 DESIGN

This section outlines the minimum permitted configurations and sizes of Pits and Conduit with respect to factors such as the property allotments and roadways they pass.

4.1 Before You Start

- 4.1.1 A Developer should check for existing infrastructure assets (e.g. electricity, gas and water mains) prior to the design of Pit and Conduit in a Real Estate Development Project.

NOTE: One way to check for existing infrastructure assets is to contact the Before You Dig Australia service. Another is to contact the local suppliers of utility services.

- 4.1.2 Design processes shall consider both the short and long term requirements of the building, including:
- (a) a need for Telecommunications Equipment Room(s);
 - (b) a need for telecommunications riser(s);
 - (c) how to handle exceptional cases (e.g. difficult access);
and
 - (d) site usage e.g. commercial sites.

NOTE: Refer to Section 7 for more information on site usage.

- 4.1.3 Design processes for Pit and Conduit in a Real Estate Development Project shall include engagement with non-telecommunications utilities e.g. electricity, gas, water.
- 4.1.4 Design processes for Pit and Conduit in a Real Estate Development Project should take into consideration physical properties of the site e.g. soil type.

4.2 Architecture(s)

TABLE 1
Telecommunications Pathways and Spaces

Number of Sole-Occupancy Units in a building	Minimum Number of Building Entry Points	Minimum total wall spatial area of main equipment room (m ²)	Minimum total wall spatial area of main equipment cupboard (m ²) ^{Note 4}	Minimum total wall area of vertical riser cupboard per storey (width x height)	Minimum number of vertical riser shafts	Dedicated pathway by level: - Riser cupboard to apartment / tenancy in P20 conduit	Dedicated combined pathway by level: - Riser cupboard to apartment / tenancy in conduit and cable tray	Shared pathway by level: - Riser cupboard to apartment / tenancy
less than 5	1	2	2	400 x 1800	1	P20 ^{Note 6}	P50 rigid white conduit (truncation) or Cable tray with 100mm min space required and Rigid P20 white conduit ^{Note 7}	Cable tray with 100mm min required space and Rigid P20 white conduit ^{Note 7}
5 to less than 60	1	2	2	400 x 1800	1			
60 to less than 100	1	5		400 x 1800	1			
100 to less than 250	1	6		750 x 2000	1			
250 to less than 500	1	8		750 x 2000	1			
500 to less than 1000	1 ^{Note 1}	11 ^{Note 3}		750 x 2000	2 ^{Note 5}			
1000 or more	1 ^{Note 1}	11 ^{Note 3}		750 x 2000	2 ^{Note 5}			

NOTES:

- 1: *It is preferred a second building entry point be provided to allow for telecommunications diversity.*
2. *P100 has an OD of 113.9mm with a wall thickness of 4.5mm: P50 has an OD of 60.3mm with a wall thickness of 3.65mm: P20 has an OD of 26.7mm with a wall thickness of 1.7mm.*
3. *Based on the occupancy the additional equipment to support in excess of 1000 users would require a min 1500(m2) of space for each group of 200 users.*
4. *A main equipment cupboard is utilised where a main equipment room is not available this is only for developments up to a total of up to 60 occupancy units.*
5. *The height and volume of units within the structure would determine the amount of riser shafts being installed.*
6. *The dedicated pathway is installed from the riser cupboard located in the common area on each level to the apartment / tenancy, in a rigid white nominal P20 conduit with no more than 3 pre-formed Bends.*
7. *Access panels are required where the rigid P20 white conduit from the apartment / tenancy meets the truncation conduit or Cable tray. In the instance of cable tray only from the riser cupboard to apartment / tenancy access panels will be installed every 15m or at any change of direction; this is to assist in cable installation and maintenance.*
8. *Where there is no Conduit Access Panel a Conduit should terminate less than 300mm from where the cable(s) join a cable tray or as defined in 5.2 a) ii), iii) or iv).*
9. *Where vertical Bends occur the cables should be enclosed in Conduits.*

4.3 Minimum Conduit Size

4.3.1 The Conduit installed in a Real Estate Development Project must be large enough to accommodate all anticipated telecommunications services in the current design phase.

4.3.2 Refer to Table 1 for the required size for various Conduit functions within the network architecture(s) where the only use of the Conduit is for:

- (a) installing fibre or cable for; or
- (b) connecting fibre or cable to

a public Telecommunications Network.

NOTE: Carrier Conduit is used exclusively for public Telecommunications Networks. In a greenfield estate where the Developer retains ownership of the Conduit and the Conduit contains cable for a public Telecommunications Network then separate cable infrastructure is required for private (e.g. an intercom) services.

4.3.3 While P20 is the default minimum size for Conduit to each living unit. In Table 1, a Developer may install more than one or choose a larger size (i.e. P50 Conduits in place of each P20 Conduit), where:

- (a) there is a Carrier nominated for the ownership of the Optical Fibre Lines; and
- (b) the nominated Carrier has agreed in writing to the installation of the two P50 Conduits.

NOTES:

1. The nominated Carrier should be able to demonstrate the chosen combination of internal Conduit diameter and bend radius is capable of permitting Access by another Carrier.

2. If there is another combination of Conduits that can be demonstrated to be equivalent to the minimum P20 Conduit then an interested party can contact Communications Alliance and propose it for inclusion in a revision of this document.

4.3.4 For information on sizing and installation for Lead-In Conduits and Pits, refer to G645.

4.3.5 For information on cable location outside buildings, refer to C524.

NOTE: Refer to section 6.3 of C524 for further information on cable location e.g. that marker tape should be installed if using a common trench.

TABLE 1

Minimum Conduit Access Panel dimensions

	Minimum Internal Dimensions		
	Length (mm)	Width (mm)	Depth (mm)
1	450	450	200

- 4.3.6 If a Carrier requests a specific location to accommodate plant that is larger than specified above, then this must be accommodated by the Developer, provided that:
- (a) the requested size is reasonably justified as fit for purpose; and
 - (b) the exact location and size of the larger Conduit Access Panels are specified prior to commencement of construction of the development.
- 4.3.7 It is strongly recommended that Developers consult with a Carrier about other space requirements.

5 MULTI UNIT, MULTI BUILDING DEVELOPMENTS

This section outlines the rules for the design of multi-unit, multi-building developments from the building lead-in location.

NOTE: The G645 Fibre ready estates documents the requirements / details of providing telecommunications infrastructure to the building(s) including Lead-In Conduit requirements. Some of that detail is representing in this document, where there is cross over the provisions in G645 take precedent.

5.1 Introduction

- 5.1.1 The requirement to provide fibre-ready infrastructure applies to all Real Estate Development Projects (i.e. not limited to subdivisions) including those occurring on a single lot involving the construction of one or more buildings and/or Building Units. (i.e. strata and group title developments, horizontal and vertical Multi-Dwelling Units (MDUs), commercial and industrial).
- 5.1.2 While the basic requirements of the design guidelines (G645 Section 4) apply, due to differing layouts of these developments, special focus is required to ensure appropriate infrastructure is installed in the correct location all the way to the living unit.

5.2 Key Requirements

- 5.2.1 Provision of suitable pathways from building lead-in location to each individual living unit or commercial space.
- 5.2.2 If Conduit is utilised the number of pre-formed 90 degree Bends (or equivalent) in a Conduit shall be not more than two.

5.3 Building Pathway Elements

Refer to Figure 1 for information on basic elements of multi-storey commercial / residential building pathways.

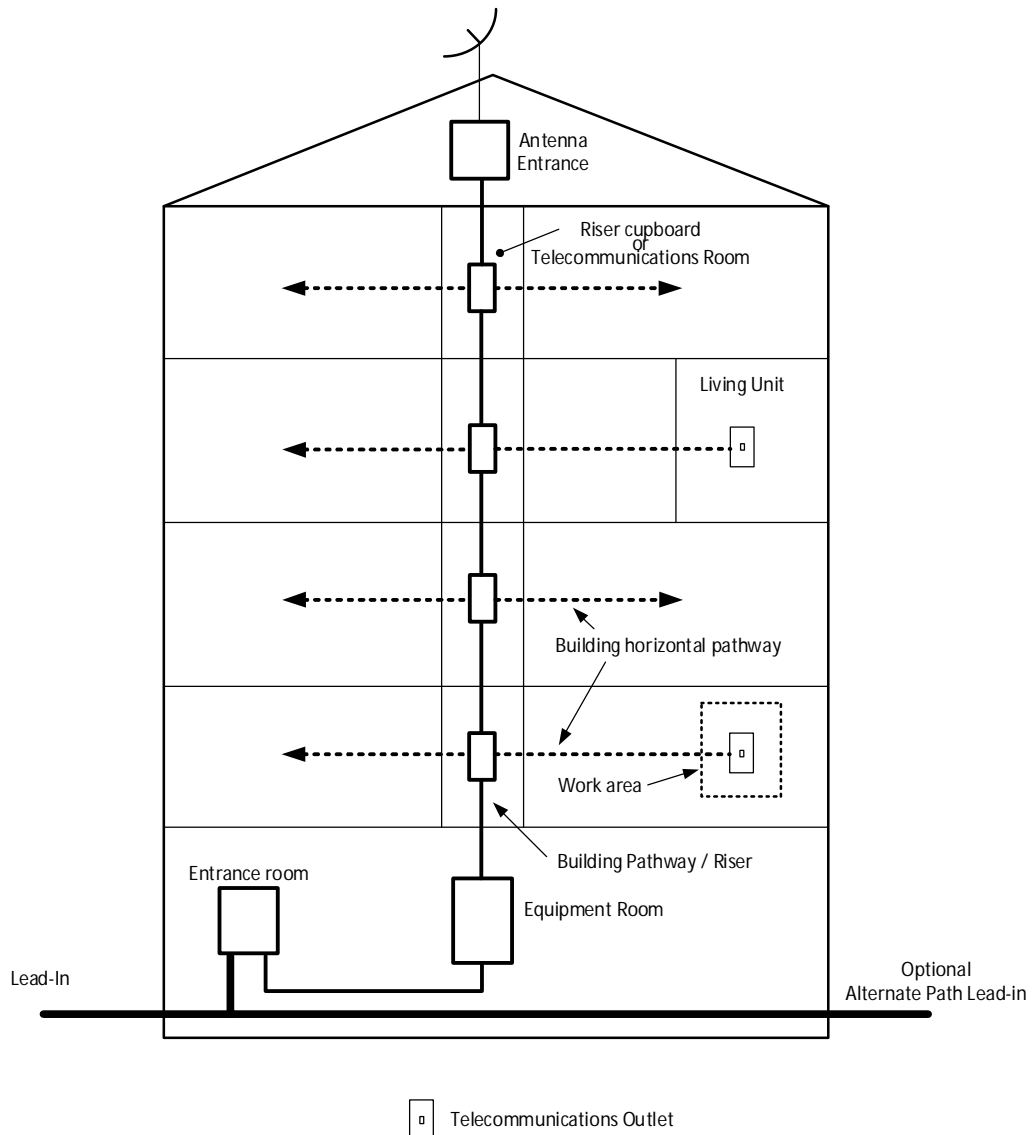


FIGURE 1
**Basic Elements of a Multi-storey
Commercial / Residential building pathways**

5.4 Residential Lead-In (from G645)

- 5.4.1 The minimum size of a Lead-In Conduit(s) to a building containing 2 Building Units shall be either a single P50 or two P20.
- 5.4.2 The minimum size of a Lead-In Conduit to a building containing from 3 to 60 Building Units shall be P50.
- 5.4.3 For a small scale horizontal residential development (i.e. three or less Building Units) the minimum size of a:
 - (a) Lead-In Conduit is P20; and

(b) Reticulation Conduit, if required, is P50.

5.4.4 The minimum size of a Lead-In Conduit to a building containing more than 60 Building Units shall be P100.

NOTE: The use of P100 Conduit, instead of an alternate combination of smaller Conduits (e.g. two P50 Conduits), supports site access by multiple Carriers. This is relevant for the support of choice of service provider, which in turn supports the legislated objects for telecommunications services in section 3 of the Act.

5.5 Residential Pathways

5.5.1 Cables shall be supported with pathways where possible and adhered to cable separations requirements as detailed in AS/CA S009:2020, any alterations to the building infrastructure shall adhere to Building Code of Australia.

5.5.2 Internal rated cables that have been installed externally shall be protected with a covered pathway or conduit for the sections that are external.

5.5.3 Cables can be installed in areas where pathways do not exist, such as wall and ceiling void. They require conduit or accessible tray up to those locations such that cabling is able to be replaced (or new cable run).

5.5.4 Conduits shall when crossing floors and floor fire sealing elements.

5.5.5 Cables can be exposed at distributors for small sections as pathways or conduits shall not be placed directly up to distributors and shall remain outside the individual product clearances from the cable entry face, to allow future access for additional cables to be installed.

5.6 Risers

5.6.1 Risers are used for backbone cabling and for housing passive fibre devices, the main products commonly mounted in a telecommunications riser/closet are Fibre distribution terminals / distributors and are used as required depending on building design.

5.6.2 Space allocation should be provisioned in consultation with a carrier or **nbn**.

5.6.3 Cable trays can run adjacent to passive fibre devices.

5.7 Pathways in Risers

5.7.1 The telecommunications riser/closet is also required to have a minimum 50 mm x 50 mm floor slot or one (1) x white telecommunications conduit cut nominally 25 mm above or below the floor slab, as appropriate (refer to Figures 2 and 3).

5.7.2 If there are living units above and below the floor slab, bi-directional access is required.

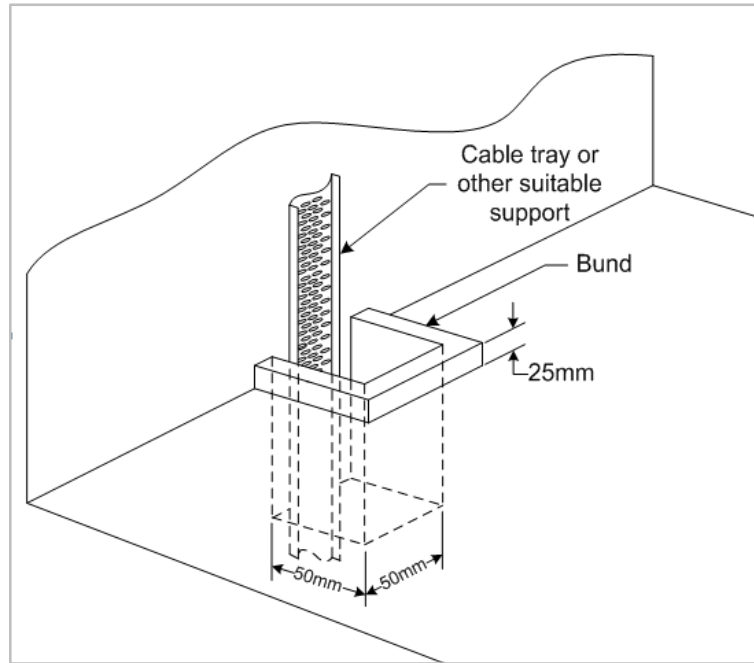


FIGURE 2

Slot example telecommunications riser/closet floor or ceiling entry

OR

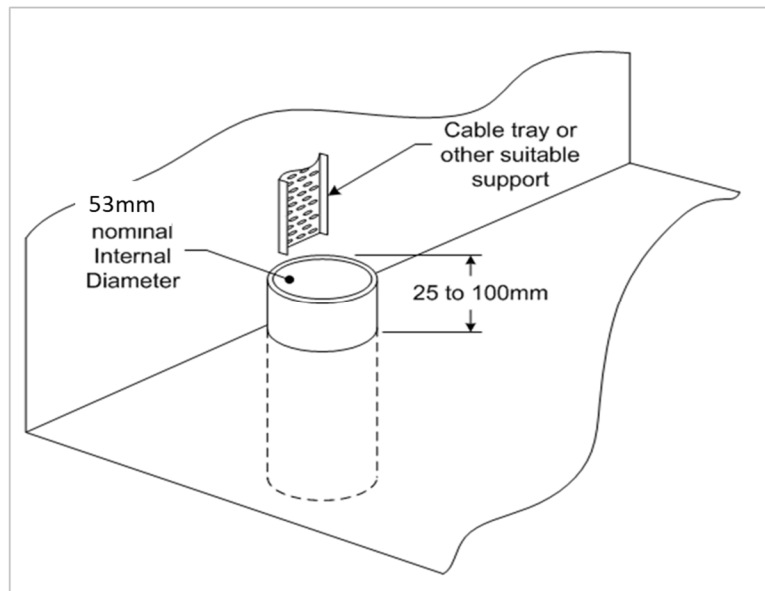


FIGURE 3

Sleeve example telecommunications riser/closet floor or ceiling entry

5.8 Heat Loading from Equipment

- 5.8.1 Where active equipment could be installed in an enclosed space (e.g. Telecommunications Equipment Room, Conduit Access Panel) a building design should allow for the heat loading generated by the active equipment.
- 5.8.2 The heat loading for an enclosed space that could contain active equipment should be assessed by a suitably qualified building engineer e.g. one with expertise in heating, ventilation and cooling.

6 TELECOMMUNICATIONS RISER/CLOSET TO LIVING UNIT

Communications pathways may be provided using the options below. Options should be used in new developments.

6.1 Option 1: Dedicated Conduit

6.1.1 Cabling from the living unit to the telecommunications riser/closet requires a minimum of a nominal P20 rigid white communication conduit, conduits shall be Drawstring d, from the telecommunications riser or closet location to each Network Termination Device location within a premise. (P50 ridged conduits can be utilised) No section of conduit shall be longer than 50 m between pull/draw points and contain the equivalent of no more than three (3) 90° 300 mm radius Bends. Conduits can be surface mounted in common areas or cast 'in slab'.

NOTE: All conduits and Drawstring s shall be labelled to reference the respective apartment/unit numbers.

6.1.2 A single 100 mm radius Bend may be used to replace a 300 mm radius Bend at the final transition from horizontal to vertical, with the agreement of the relevant carrier representative.

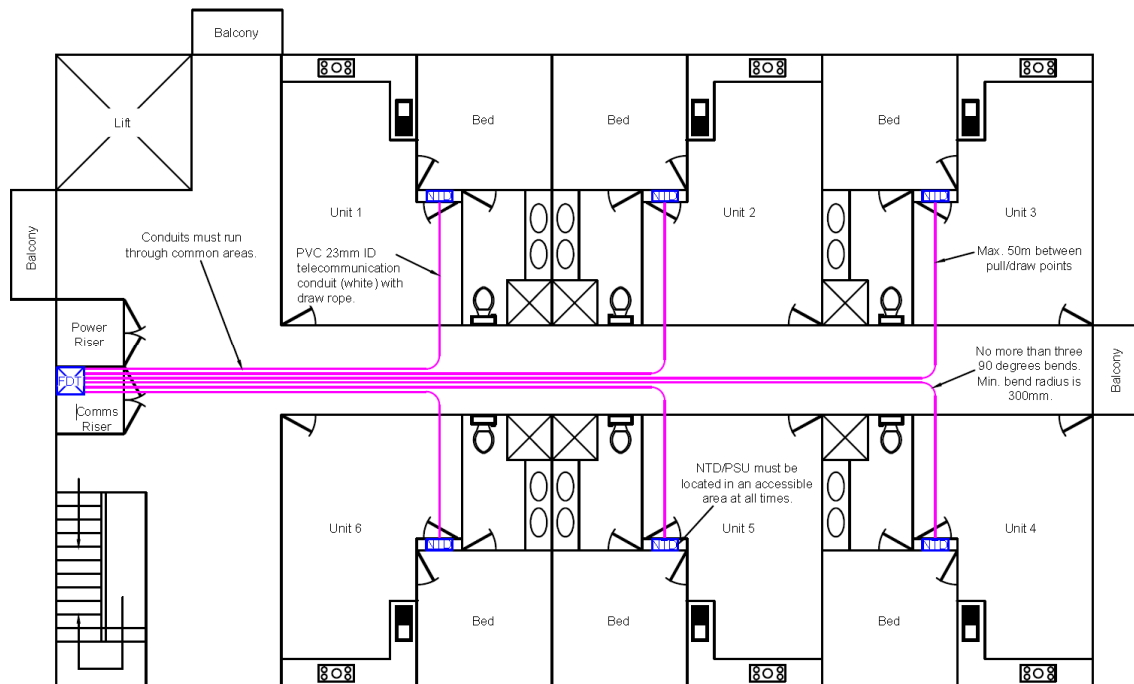


FIGURE 4

Pathway using all nominal P20 conduit to feed typical apartment floor (example layout 1)

6.2 Option 2: Shared conduit

- 6.2.1 Where a combination of shared P50 Conduit(s) and dedicated Conduit(s) is utilised for cabling from the telecommunications riser/closet to the living unit, a Conduit Access Panel shall:
- (a) Be provided at any cable Conduit transition point; and
 - (b) Align with the dimensions in Table 1.
- 6.2.2 A cable tray of minimum dimension 150 mm x 150 mm, or other suitable anchor, shall act as a fixing point for cables at cable transition locations.
- 6.2.3 Access panels to be located adjacent and within arm's reach of transition and hauling points and placed where possible to avoid being placed at heights that required specialist equipment to access such as scissor platforms and boom lifts.
- 6.2.4 The minimum separation between the telecommunications network infrastructure and other utilities cables / Infrastructure shall be 100 mm.
- 6.2.5 The minimum clearance height above a cable tray shall be 300 mm.

NOTES:

1. ISO/IEC 24383 defines 300 mm clearance for safety purposes.
2. AS/CA S009 defines minimum separation requirements between customer cabling and other services in a building.

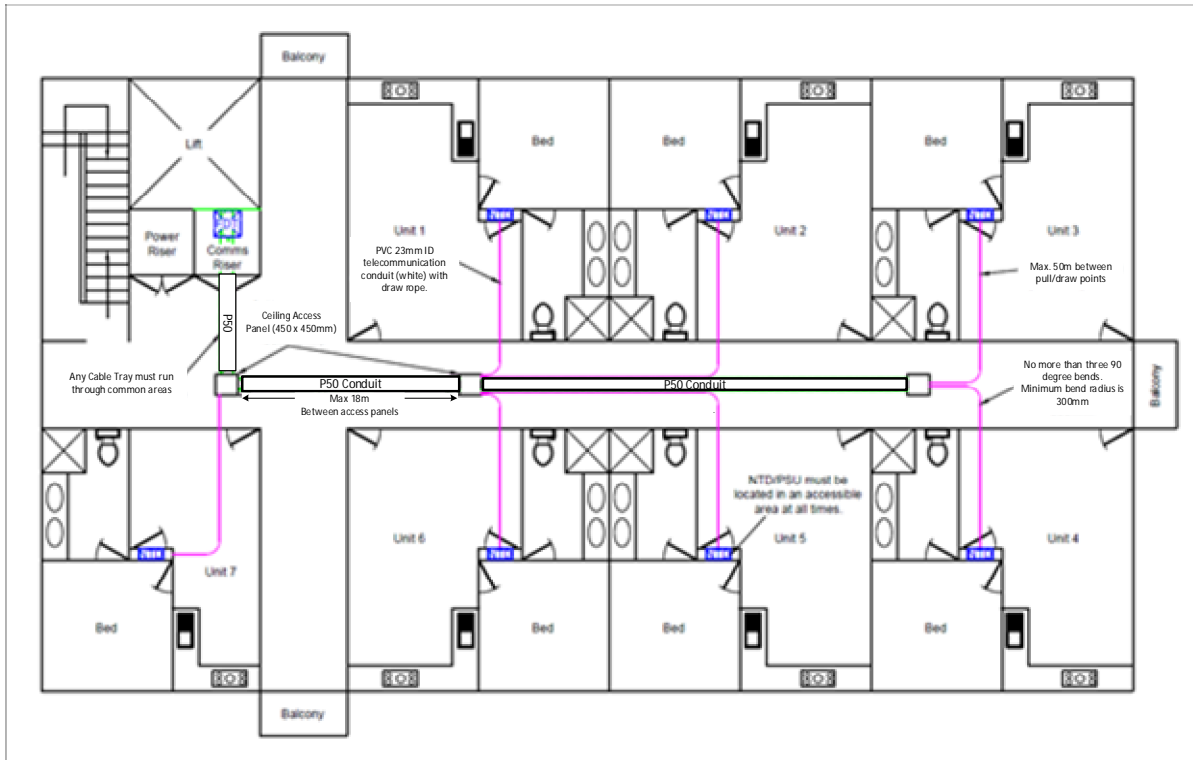


FIGURE 5

Pathway using a combination of P50 and nominal P20 conduit to feed typical apartment floor (example layout 2)

7 RESIDENTIAL / COMMERCIAL/ INDUSTRIAL (INCLUDING MIXED USE I.E. COMBINED WITH RESIDENTIAL DEVELOPMENTS)

7.1 Minimum size of a Lead-In Conduit

The minimum size of a Lead-In Conduit to a commercial or industrial Building Unit shall be P50.

NOTE: This includes mixed use development that combines a commercial or industrial Building Unit with one or more residential Building Units.

7.2 Larger commercial buildings

For larger commercial buildings Developers should:

- (a) engage during the design phase with Carrier(s) likely to install infrastructure in the building;
- (b) consider whether the minimum size of a Lead-In Conduit should be P100 or multiples of P100;
- (c) decide on the number of building entry points for telecommunications infrastructure.

NOTES:

1. Larger commercial buildings can have multiple Carriers installing infrastructure to deliver competing telecommunications services to building occupants.

2. Multiple building entry points for telecommunications infrastructure means diverse paths for services, resulting in options for redundancy and backup that are valued by building occupants.

7.3 Prohibited Fibre Distribution Panel and Equipment Room Locations

Prohibited fibre distribution panel and equipment room locations include:

- (a) Areas of return air supply i.e. areas likely to be contaminated by return air, exhaust air systems and smoke extraction
- (b) In a boiler, plant or machine room
- (c) Areas subject to extreme or rapid temperature changes or, temperature/ humidity likely to cause condensation in equipment rack(s)
- (d) In areas where corrosive or flammable fumes or fluids are used or stored

- (e) In a fire escape stairway
- (f) In a fire control room or restricting access to a fire control centre /panel
- (g) In a cupboard containing a fire hose reel
- (h) Wet areas. This includes locations that are near a tap, bath, shower, basin, tub, fixed water container, spa pool, spa tub, swimming pool, fountain, water feature or water pump
- (i) Within a refrigeration room or diesel generator room
- (j) Within 1.5 m from a heater or air conditioner unit
- (k) Within an EPR (earth potential rise) hazard zone
- (l) Within a defined hazardous area
- (m) In a stairwell
- (n) In a lobby
- (o) In unsecure communal areas
- (p) In hallways or passageways
- (q) Kitchen or Lunch Areas

8 DOCUMENTATION

This section outlines the minimum level of documentation deemed acceptable for transfer of the design information to a building owner, building manager or body corporate. The building owner, building manager or body corporate may require the information to be prepared in specific drawing formats (i.e. CAD) and/or use of particular symbols for each network element.

8.1 As-Built Documentation

8.1.1 Where a Developer is responsible for the construction of Pits and Conduits, and prior to the transfer of ownership of the Pits and Conduits from the Developer to the building owner, building manager or body corporate, the as-built documentation must be prepared by the Developer for hand over to the building owner, building manager or body corporate at the time of transfer.

8.1.2 The as-built documentation must include:

- (a) The location of all allotment and street boundaries;
- (b) The location of all Pits, Conduit Access Panels and Conduits, relative to known fixed assets e.g. allotment boundaries;
- (c) The sizes of all Pits and Conduits;
- (d) The depth of cover for Conduits, measured as actual soil or back fill depth to the top of the Conduit and does not include coverings (for example paving);
- (e) details from any Shared Trench Agreement, including trench cross sections with all services within 2 metres of the installed Pits and/or Conduit; and
- (f) results of any mandrel testing for each Conduit section.

NOTES:

1. A CAD file would typically contain a legend with Pit types and dimensions.
2. Depth of cover is usually part of a Shared Trench Agreement.
3. Refer to Carrier guidelines and/or requirements for the file formats of as-built documentation. For example, AS/NZS 3085.1 and AS/NZS 14763.2; or NBN Co specification NBN-TE-CTO-284.
4. Hand drawn updates of the as-built documentation should include a signature and date of signature from the:
 - (a) civils contractor; or
 - (b) Pit and Pipe contractor.

8.2 Records

- 8.2.1 All Facilities must be tagged or identified to show the name of the Carrier.
- 8.2.2 The Carrier's representative should supply relevant documentation to allow the building owner, building manager or body corporate to update these records on completion of the works.
- 8.2.3 The Carrier's representative is to ensure all required certifications are provided to the building owner, building manager or body corporate within five business days of completion.

NOTE: The timeframe of five business days is derived from G571 (under revision at the time of public comment).

9 REFERENCES

Publication	Title
Australian Standards	
AS/CA S009:2020	Installation requirements for customer cabling (Wiring rules) http://commsalliance.com.au/Documents/all/Standards/s009
AS/NZS 3000:2018	Electrical installations (known as the Australian/New Zealand Wiring Rules) https://www.standards.org.au/standards-catalogue/sa-snz/electrotechnology/el-001/as-slash-nzs--3000-colon-2018
AS/NZS 3084:2017	Telecommunications installations - Telecommunications pathways and spaces for commercial buildings https://www.standards.org.au/standards-catalogue/sa-snz/communication/ct-001/as-slash-nzs--3084-colon-2017
AS/NZS 3085.1:2022	Telecommunications installations - Administration of communications cabling systems, Part 1: Basic requirements https://www.standards.org.au/standards-catalogue/sa-snz/communication/ct-001/as--3085-dot-1-colon-2022
AS /NZS 4645.2:2018	Gas distribution networks Part 2: Steel pipe systems https://www.standards.org.au/standards-catalogue/sa-snz/electrotechnology/ag-008/as-slash-nzs--4645-dot-2-colon-2018
AS /NZS 4645.3:2018	Gas distribution networks Part 3: Plastics pipe systems https://www.standards.org.au/standards-catalogue/sa-snz/electrotechnology/ag-008/as-slash-nzs--4645-dot-3-colon-2018
AS/NZS 14763.2:2020	Information technology — Implementation and operation of customer premises cabling, Part 2: Planning and installation (ISO/IEC 14763-2 (ED. 2.0) MOD) https://store.standards.org.au/product/as-nzs-14763-2-2020
AS/NZS IEC 60079.10.1:2022	Explosive atmospheres Part 10.1: Classification of areas - Explosive gas atmospheres https://www.standards.org.au/standards-catalogue/sa-snz/electrotechnology/ms-011/as-slash-nzs--iec--60079-dot-10-dot-1-colon-2022

Industry Codes

C524:2013 External Communication Cable Networks
<http://commsalliance.com.au/Documents/all/codes/c524>

Industry Guidelines

G571:2002 Building Access Operations and Installation
<https://www.commsalliance.com.au/Documents/all/guidelines/g571>

G645:2017 Fibre Ready Pit and Pipe Specification for Real Estate Development Projects
<https://www.commsalliance.com.au/Documents/all/guidelines/g645>

NBN TE CTO 284 MDU building Engineering and Design Standard - New Developments
<https://www.nbnco.com.au/content/dam/nbnco/documents/new-developments-mdu-building-design-requirements.pdf>

International Standards

ISO/IEC AWI 24383 Information technology — Physical network security for the accommodation of customer premises cabling infrastructure and information technology equipment
<https://www.iso.org/standard/78546.html>

Legislation

Telecommunications Act 1997
<http://www.comlaw.gov.au/Series/C2004A05145>

APPENDIX

A STARTER CONDUIT TERMINATION METHODS

Refer to Table 2 for links to examples of Starter Conduit termination methods.

TABLE 2
Examples of Starter Conduit termination methods

Company	Document title	URL
nbn™	New Property Developments	https://www.nbnco.com.au/develop-or-plan-with-the-nbn/new-developments.html
	nbn™ residential preparation and installation guide: SDUs and MDUs	https://www.nbnco.com.au/content/dam/nbnco/documents/preparation-and-installation-guide-for-sdus-and-mdus.pdf
	Builders and designers – Design guidelines	https://www.nbnco.com.au/content/dam/nbnco/documents/preparation-and-installation-guide-for-sdus-and-mdus.pdf and https://www.nbnco.com.au/content/dam/nbnco/documents/new-developments-mdu-building-design-requirements.pdf
	Pit and pipe design guidelines	https://www.nbnco.com.au/develop-or-plan-with-the-nbn/new-developments/design-build-install/pit-and-pipe-build-process.html
OptiComm	Preparation and Installation Guides	https://www.opticomm.com.au/support/resources/

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Nbn	Voting	Haydn Dale
Optus	Voting	TBC
Optus	Non-Voting	Chris Willis
Telstra	Voting	Geoff Gerrand
TPGT	Voting	Liz Goyeneche
TPGT	Non-Voting	Annie Leahy
Vocus	Voting	Justin Martin

James Duck of Communications Alliance chaired this Working Committee and provided project management support.

Communications Alliance was formed in 2006 to provide a unified voice for the Australian communications industry and to lead it into the next generation of converging networks, technologies and services.

In pursuing its goals, Communications Alliance offers a forum for the industry to make coherent and constructive contributions to policy development and debate.

Communications Alliance seeks to facilitate open, effective and ethical competition between service providers while ensuring efficient, safe operation of networks, the provision of innovative services and the enhancement of consumer outcomes.

It is committed to the achievement of the policy objective of the *Telecommunications Act 1997* - the greatest practicable use of industry self-regulation without imposing undue financial and administrative burdens on industry.



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