INFORMATION SUMMARY FOR PROPERTY DEVELOPERS

Cabling of multi-storey units ("apartments") for Telstra FTTP

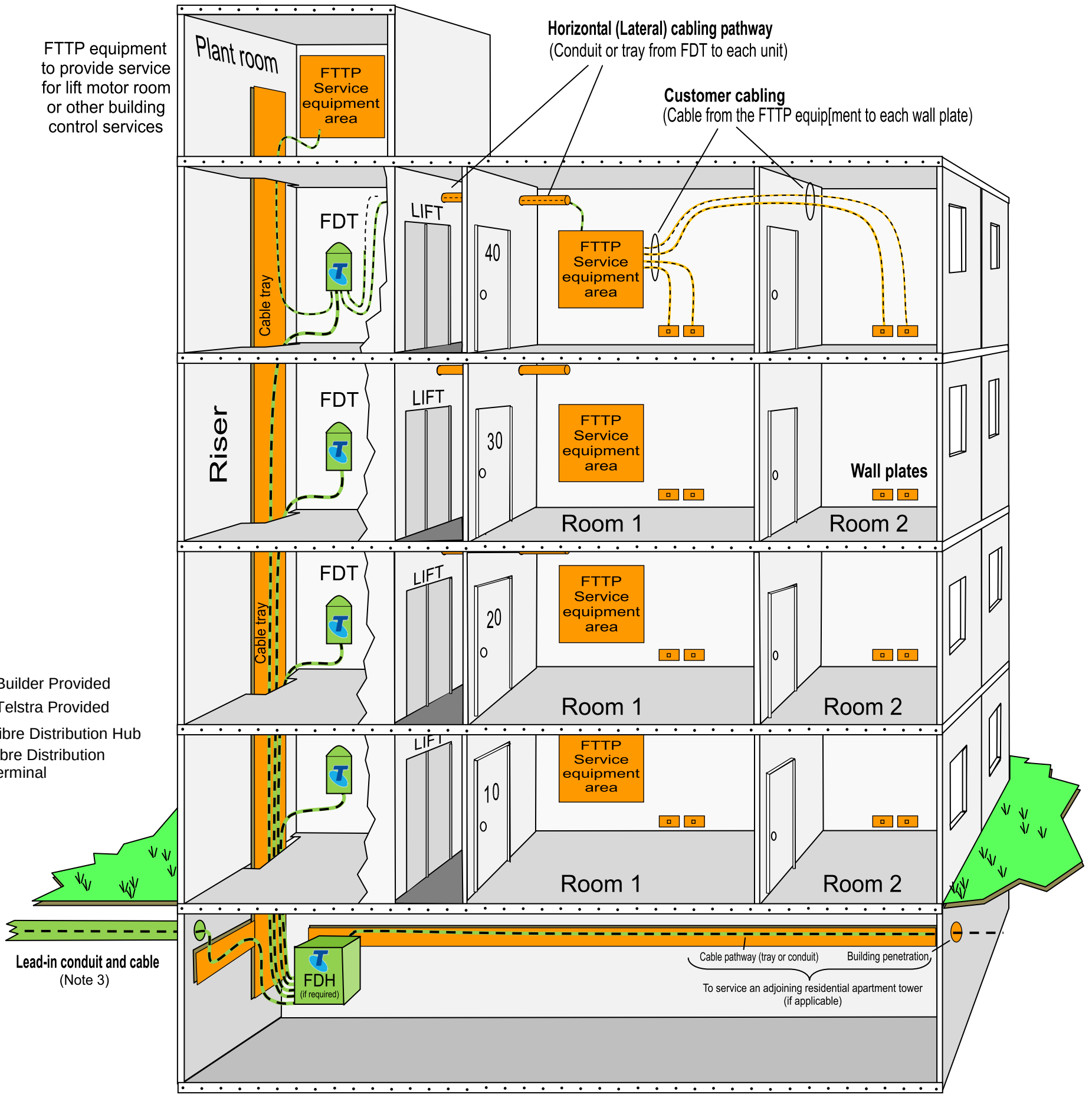
IT'S HOW WE CONNECT

Introduction

Telstra's state-of-the-art Fibre To The Premises (FTTP) network may be used to supply telephone, high-speed internet, digital Free To Air (FTA) TV and digital FOXTEL* pay TV services (in FOXTEL* areas) to customers. These services are supplied to each apartment via a single, optical fibre cable.

This document summarises the elements of a Telstra FTTP installation and the respective developer and Telstra responsibilities for providing those elements.

See overleaf for a description of the key cabling elements. For more detailed information about Telstra FTTP cabling, refer to, *Cabling of New Homes - Information for Builders and Telecommunications Cablers* (Telstra Document No. 013234).



NOTES:

1. This is a typical cabling arrangement only. Individual requirements may vary. Your requirements should be discussed with Telstra at the planning stage.
2. Telstra will provide the optical fibre cabling from the property entry point to the FTTP service equipment area in each living unit ("apartment").
3. The developer must provide suitable trenching (including reinstatement) and the building penetration for installation of the Telstra underground lead-in conduit and cable.
4. The developer must provide facilities for accommodation of the FDH & FDTs and accommodation and support for the Telstra optical fibre cables within the building to the FTTP service equipment area in each apartment.
5. The developer must provide the customer cabling for distribution of the services to the wall plates within each apartment.
6. Vertical cabling (e.g. up the riser), a suitable cable tray must be provided to enable the optical fibre cables to be secured between connection points at intervals of 500 mm or less and such that the bend radius of any change of direction in the optical fibre cable will be no less than 50 mm (100 mm bend diameter). For individual cables to each apartment, the cable may be installed vertically in a conduit, duct or wall cavity for a maximum distance of 2400 mm (e.g. between the cable termination point and the ceiling).
7. Horizontal cabling (e.g. in ceilings or under floors), cable may be laid in tray or trunking as long as safe access to the tray/trunking is provided for the initial installation and any for subsequent augmenting or replacement of the cable. Alternatively or additionally, cable may be installed in conduit as long as:
   - the internal diameter of the conduit is no less than 23 mm for a single cable (or as specified by Telstra for multiple cables);
   - the total length of conduit between cable access points does not exceed 60 metres; and
   - there are no more than three bends having a minimum inner bend radius of 300 mm between access points.

Fibre Distribution Hub (FDH)

The FDH terminates the Telstra optical fibre lead-in cable from the street and contains optical splitters for connection of the optical fibre cables running to the Fibre Distribution Terminals (FDTs) located on the various floors.

The FDH must be located in a common service area, typically in the basement or ground floor. The FDH must be installed above known flood levels in a safe and readily accessible location that is free from dust and moisture and with good lighting. For large high-rise apartment buildings (e.g. more than 100 apartments), an additional FDH may be required half way up the building to feed the upper floors.

The FDH is a passive device and requires no power. However, an unused power point must be provided within two metres of the FDH for powering of tools and test equipment.

The FDH is mounted on the wall about 900 mm from the floor. It weighs approximately 55 kg, so special support members are required in the building framework if it is to be mounted on a plasterboard lined or fibre-cement lined cavity wall. The dimensions of the FDH are 583 H x 493 W x 390 D (in mm). The minimum space required to accommodate the FDH, inclusive of access clearances, is 2000 H x 1000 W x 1500 D (in mm).

The FDH must be positioned such that a minimum bend radius of 150 mm (bend diameter 300 mm) can be maintained in the optical fibre cables entering the FDH.

Fibre Distribution Terminal (FDT)

The FDT terminates the optical fibre cable from the FDH and contains optical fibre connectors for connection of the individual horizontal (or lateral) cables to each apartment.

One FDT is usually required per floor. In some cases, one FDT may be used to service two floors. The FDT must be located in a common service area, typically in the riser closet.

The FDT is a passive device and requires no power. However, an unused power point should be provided within two metres of the FDT to power tools and test equipment.

The FDT is mounted on the wall adjacent to the cable tray within the range of 900 mm to 1800 mm above the floor. The dimensions of the FDT are 270 H x 200 W x 150 D (in mm). The minimum space required to accommodate the FDT, inclusive of access clearances, is 2000 H x 1000 W x 1200 D (in mm).

The FDT must be positioned such that a minimum bend radius of 50 mm (bend diameter 100 mm) can be maintained in the optical fibre cables entering the FDT.

Horizontal (Lateral) cabling pathways

Each apartment is cabled via a single ‘horizontal’ or ‘lateral’ optical fibre cable from the FDT to the FTTP equipment service area inside the apartment. Suitable cable pathways must be provided on each floor to support the lateral cables between the FDT and each apartment. The cable pathways must be accessible after building completion so that cables may be added to or replaced, if necessary, at some future time. Tray, trunking or conduit may be used for these pathways.

Any conduit used for drawing in a lateral cable must have a minimum inside diameter of 23 mm (e.g. Telstra “P20” conduit), must have no more than three 90° bends (minimum inner bend radius 300 mm) between draw points and must be exclusively for Telstra use. The lateral cable is factory-fitted with an optical fibre connector with a protective plastic boot and the connector, boot and draw cord have a total diameter of about 20 mm.

The total length of conduit between draw points must not exceed 60 metres. Where this distance would be exceeded - or where more than three bends would be required between draw points - intermediate access holes must be provided with the following minimum dimensions:

- Where bodily access is not required, the access hole must be at least 300 mm long in any direction in which cable must be drawn. The minimum width of the access hole along the drawing plane must be 150 mm. The conduit must be no deeper than 150 mm into the access hole opening.
- Where bodily access is required (e.g. to access a conduit in the ceiling space), the access hole must be no less than 600 mm x 600 mm. The installer should not be required to enter the access hole beyond the waist to remove or install any cable.

FTTP Service equipment Area

The FTTP service equipment area is the location where the Optical Network Terminator (ONT), power supply (PSU), Gateway, optical wall plate and data, phone and TV service wall plates are located. At least one (preferably two) double-socket power point is required to provide power for all the equipment.

The ONT converts the optical signals to electrical signals for connection of telephones, Ethernet devices and TV equipment. One ONT is required in each apartment. One ONT is also needed for each telephone or data service required for building control services (e.g. lift telephone, building plant telemetry).

A power supply unit (PSU) is installed near the ONT and may optionally incorporate a customer-supplied battery to maintain operation of the telephone service during a blackout.

The Gateway provides high-speed internet access via Ethernet and Wi-Fi (IEEE 802.11 b/g/n) for several personal computers or other IP devices. The Gateway is normally located near the ONT. However, it may be located in the room where the data service is to be used as long as a suitable power point is provided for its operation.

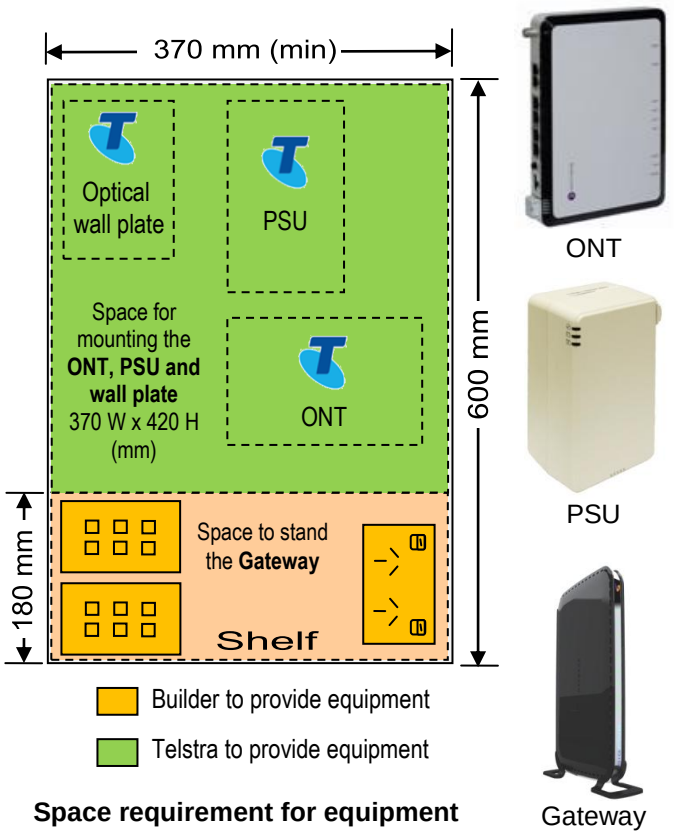
The optical wall plate terminates the lateral optical fibre cable and connects to the ONT by an optical cord.

The minimum space required to house equipment in the FTTP service equipment area is 370 W x 600 H (mm) (415 mm width preferred) and the preferred power point and data/phone wall plate layout for connection to FTTP equipment is shown in the diagram to the right.

Separation of power cables & terminals and communications cables & terminals must comply with the requirements of AS/ACIF S009.

Where the equipment is housed in an enclosure, the enclosure should be made of non-metallic materials to support the Gateway Wi-Fi feature, be adequately vented for local environmental conditions and include a shelf on which to sit shelf-mounted equipment, such as the Gateway. The enclosure needs a depth of at least 150 mm (200 mm is recommend), to stand equipment such as the Gateway.

Devices should be located higher than 350 mm above the floor but no higher than 1800 mm above the floor.



Space requirement for equipment

Customer Cabling

Customer cabling must be installed between the location of the ONT and suitable wall plates in rooms where the telephone, internet and TV services are to be accessed by the occupants. This cabling must terminate on wall plates or a patch panel in the FTTP service equipment area for connection of the services via fly leads from the ONT and Gateway. Data cabling must be star wired from the FTTP service equipment area.

For more information about apartment cabling options, refer to Telstra Document No. 013234 - *Cabling of New Homes for Telstra FTTP - Information for Builders and Telecommunications Cablers.*