

# ASK YOUR BUILDER...

# HOW TO GET CONNECTED...

## The network is ready to deliver a full range of services including:

- High speed broadband Internet up to 1Gbps
- Telephone
- Pay TV from Foxtel and FetchTV
- Freeview (Free-to-Air channels)

## Your Estate has been equipped with an advanced Fibre-to-the-Premises (FTTP) Network that will deliver Australia's fastest broadband (up to 1Gbps).

High speed broadband will open a whole new lifestyle for you and your family. Services such as iTunes and YouTube will be significantly enhanced by fast music and video downloading and streaming. Get ready for the next-generation social networking versions of Skype, Facebook, MySpace and Twitter. Enjoy the experience of fast interactive, high definition, on-line Games, video conferencing with friends and family and high definition interactive IPTV.

It's not just about fun and games, the high speed fibre network will also enable on-line education, health and security services. The network will enable you to manage your usage of utilities such as electricity, gas and water to help our environment by reducing your carbon footprint.

It is important to ask your Retail Service Provider (RSP) what services are available in your Estate. Services can vary from RSP to RSP and from Estate to Estate.

Has your lead-in communication conduit been installed from the lot boundary to the enclosure housing the Network Termination Device (NTD) in accordance with OptiComm's Cable Entry Guidelines?

Has your in-home wiring for broadband, telephone and TV been installed in accordance with OptiComm's Home Wiring Guide?

Note: The OptiComm Cable Entry and the Home Wiring Guidelines are available on request from the OptiComm Customer Connection Information Desk by phoning **1300 137 800** or emailing **ccid@opticomm.net.au** or can be downloaded from the OptiComm Web site as follows:

[www.opticomm.net.au](http://www.opticomm.net.au)

**It is very important that this work has been completed by your builder to avoid delays in getting connected.**

**To connect your new home to the fibre optic network that will enable your TV, broadband, telephone and other services, you will need to:**

Check with your builder that they have installed the communications lead-in conduit and home wiring in accordance with OptiComm's specifications. Note: Some builders may have a sign-off sheet that proves that this has been completed.

Contact the OptiComm Customer Connection Information Desk (CCID) by phone on **1300 137 800** or via email at **ccid@opticomm.net.au**.

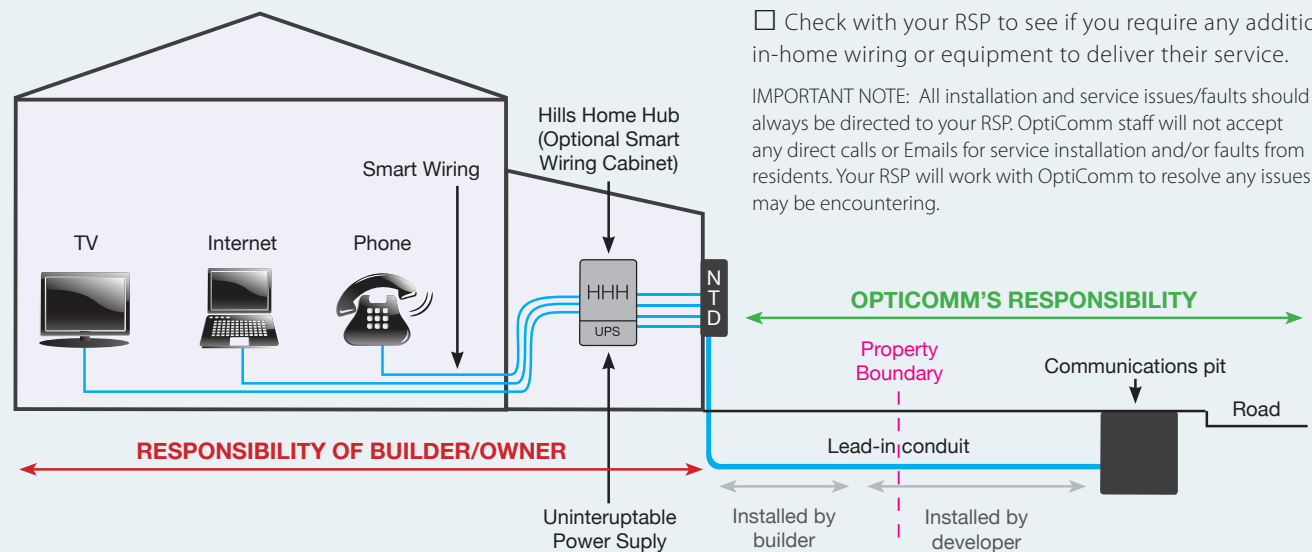
Advise OptiComm CCID of the date that you intend to move into your new home.

Select one or multiple Retail Service Provider(s) (RSP) for your Broadband, Telephone, Pay TV and Security Services.

Complete and submit the RSP's new service application form(s). Note: This may be a paper or an on-line form depending on the RSP.

Check with your RSP to see if you require any additional in-home wiring or equipment to deliver their service.

IMPORTANT NOTE: All installation and service issues/faults should always be directed to your RSP. OptiComm staff will not accept any direct calls or Emails for service installation and/or faults from residents. Your RSP will work with OptiComm to resolve any issues you may be encountering.



# OPTICOMM'S ROLE...

**OptiComm designs, builds and operates advanced, fibre-to-the-premises (FTTP) networks that deliver Australia's fastest broadband via a wide choice of Retail Service Providers.**

Within your estate, OptiComm has installed a "state-of-the-art" optical fibre cable to your lot boundary that will enable multiple Retail Service Providers to deliver an extensive range of high speed broadband, telephone, Freeview Television, Pay TV and security services to your home.

**Once you have requested a connection from the OptiComm Customer Connection Information Desk and completed an application for a service from your Retail Service Provider of choice, OptiComm will:**

- install a Network Termination Device (NTD) device to the outside of your home
- install a fibre optic lead-in cable from the "communications" pit in the street to the Network Termination Device (NTD) installed on the outside of your home

Note: Your builder is responsible for your home wiring and installation of the communications conduit from the home boundary to the NTD enclosure and your RSP is responsible for all service enquiries and incident reporting.



**CONTACT**  
**OptiComm Customer**  
**Connection Information Desk**

**1300 137 800**  
**ccid@opticomm.net.au**



**GETTING**  
**CONNECTED TO**  
**AUSTRALIA'S**  
**FASTEST**  
**BROADBAND**



# Cable Entry Guide for an Internal ONT



Document No: TG-001

Issue Date: 19/04/2012

Version: 2.7

# Document Control Sheet

## Record of Issue

Issue	Date	Description
A	16-Nov-08	First draft document issued for discussion
1.0	14-Jan-08	
2.0	14-Feb-09	Removed references to different types of conduit size.
2.1	20-Mar-09	General updates. Telecommunications Cabling Advice.
2.2	2-Sep-2009	Update of Conduit sizing & Pay TV requirements
2.3	16-Apr-2010	Minor updates and corrections
2.4	4-Mar-2011	Added address table to Checklist
2.5	23-May-2011	Added Earth and NTD location Information, edits to OptiComm Customer Contact Information Desk
2.6	25 Nov 2011	Changed reference to 20mm/Add references re: contractors not hauling Lead In Fibres
2.7	19-Apr-2012	Internal ONT

## Acceptance and Approval

Issue	Name	Position	Signature	Date
A	S. Davies	GM, Operations		16-Nov-08
1.0	S. Davies	GM, Operations		14-Jan-08
2.0	S. Davies	GM, Operations		14-Feb-09
2.1	S. Davies	GM, Operations		20-Mar-09
2.3	S. Davies	GM, Operations		23-Apr-2010
2.4	S. Davies	GM, Operations		04-Mar-2011
2.5	S. Davies	GM, Operations		23-May-2011
2.6	S. Davies	GM, Operations		25-Nov-2011
2.7	S. Davies	GM, Operations		19-Apr-2012

In the event of any enquiries with respect to this document, please contact:

Name	Position	Phone	Email
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## 1.0 PURPOSE

The aim of this document is to outline what is required for homeowners and their builders, or developers to connect to OptiComm telecommunication networks based on Fibre to the Home (FTTH) technology.

## 2.0 SCOPE

This document extends to detached or semi-detached buildings that are being built for residential or small business use. It covers requirements of connection from the telecommunications pit to the Home Distribution Unit.

## 3.0 THINGS YOU SHOULD KNOW

### **3.1 Introduction**

Modern technology has brought many changes to the way we live, especially in communications where many new services are being introduced that require high-speed delivery infrastructure. New Digital Telephone, Ultra-High Speed Internet and Digital Television Services (including pay and free to air) offer greatly enhanced performance when compared to older technology. To accommodate these changes, residential developments must move forward with technology and provide infrastructure that will have the capacity not only for today but also for future technological advancements.

In standard residential areas, the incumbent carrier meets the basic communication needs of the community. At OptiComm, our commitment is about being at the forefront of the education and broadband revolution, and as such we provide advanced fibre optic communication infrastructure as a replacement for the traditional copper network.

### **3.2 Services**

Fibre communication networks provide a range of services, including reticulation of analogue and digital free to air television signals, Pay TV, Ultra-HighSpeed Internet, and a Standard Telephone Service. Additional services, such as Community Intranet, security monitoring, gate control, and new entertainment services such as IPTV and Video-on-Demand, are all possibilities with this latest technology.

### 3.3 Connection

A fibre optic enabled community allows for you to connect to the network that runs past your property. A fibre optic lead in cable connects to a connection box on the external wall of your home. This is called a Premises Connection Device (PCD) and it is where the internal Optical Fibre cabling joins the Fibre cabling from the street. An Optical fibre cable is run from the PCD to the Network Termination Device (NTD) inside the house and it is where the optical signal (light) is converted to an electrical signal and retransmitted on twisted pair and coaxial cable to your Home Distribution Unit (HDU). The following illustration shows the various elements of the connection to the Optical Fibre Network and the in home cabling and the responsibilities of both OptiComm and the builder/owner.

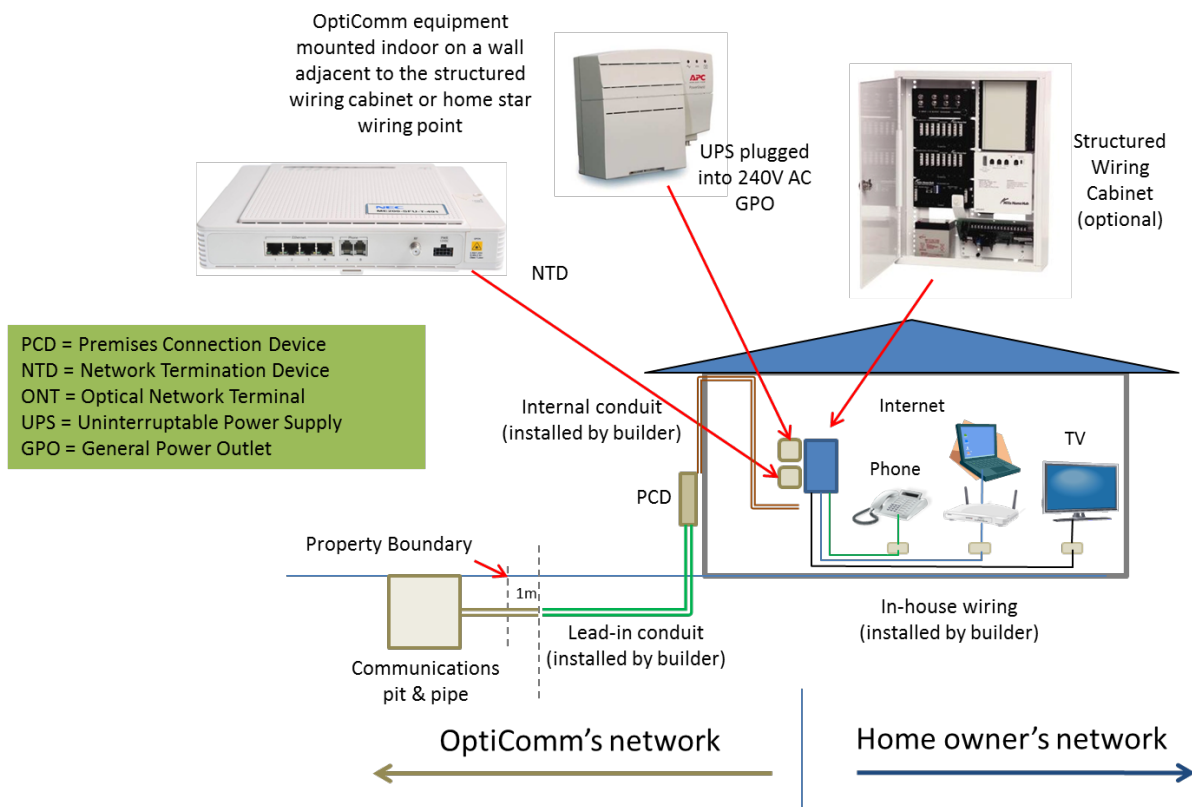


Figure 1 – Example of Responsibilities for Builder / Owner and OptiComm

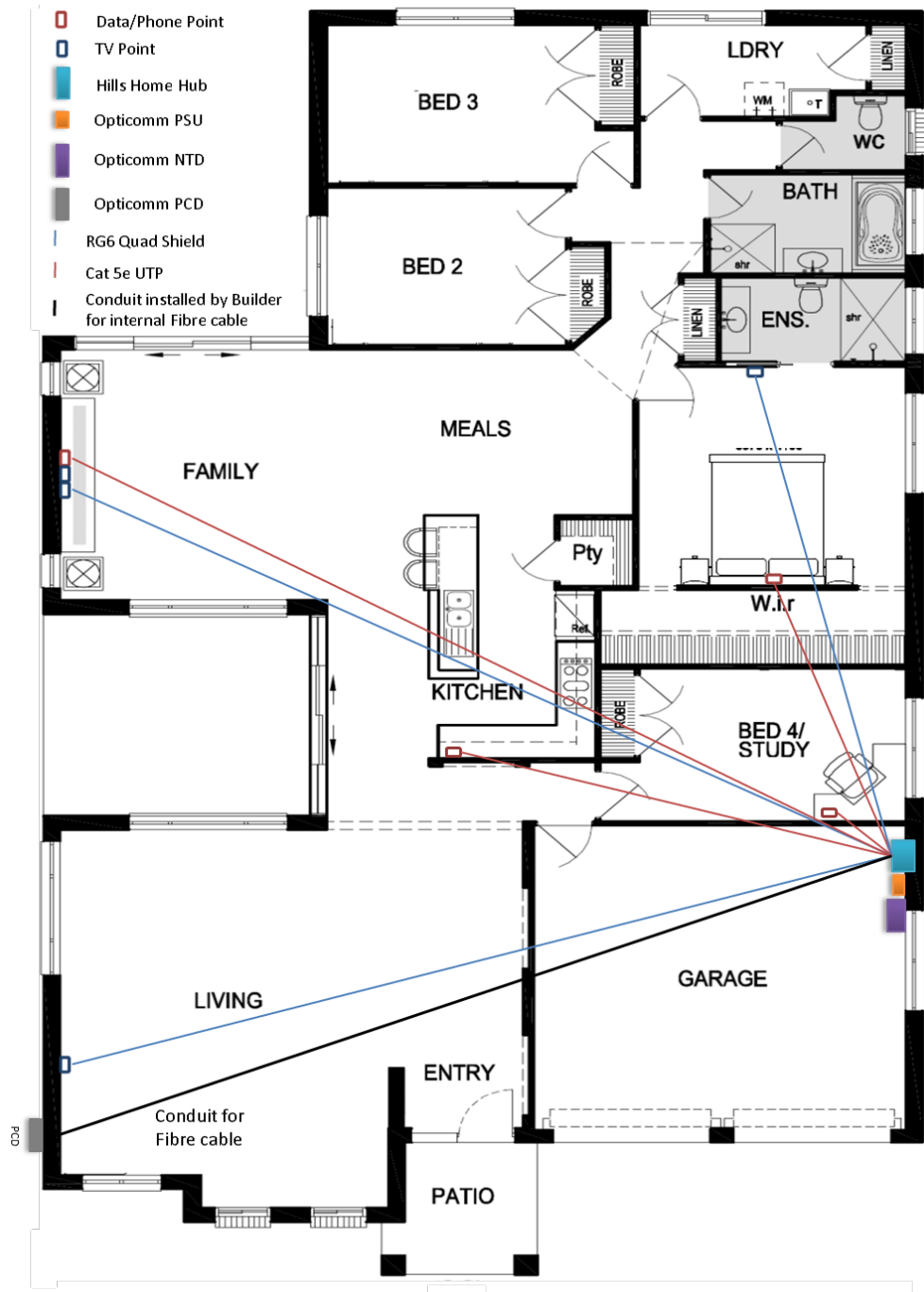


Figure 2 - Example of a typical building cabling system

To be able to connect to the OptiComm Optical Fibre Network, you must wire your home in accordance with this document. This specification outlines the materials to use and recommends smart wiring in your home. Your Builder / Telecommunications Contractor must follow the specifications and not substitute “equivalent” materials at any point in time. If you are about to commence construction, wiring your home correctly during initial construction will save you considerable expense when compared to the cost of rewiring your home once you have moved in.

It is also mandatory during construction of your home that the Builder or Telecommunications Contractor provides the appropriate continuous conduit between your home and the communications infrastructure running down the street. This conduit will be used to pull through a fibre optic cable and connect your home to the rest of the world, enabling you to receive telephone, internet and television services.

### **3.5 Outdoor Antennas**

In your community the Local Structure Plan and Restrictive Covenants may prevent you from installing an outdoor antenna for television reception. If your estate developer has implemented this Covenant then once your home is connected to the fibre network, you will receive perfect quality high definition digital television signals which can be reticulated throughout your home.

### **3.6 Satellite Dishes**

As with outdoor antennas restrictive covenants may restrict the installation of satellite dishes. If your estate developer has implemented this covenant the fibre optic network will reticulate the major Pay-TV channels throughout your estate enabling you to deal directly with your preferred operator and providing superior quality reception.

### **3.7 More Information**

As a homeowner you are responsible for organising installation of your connection and all costs associated with that connection. For more information contact the OptiComm Customer Connection Information Desk below:

**For more information contact the  
OptiComm Customer Connection Information Desk  
on 1300 137 800  
Or via email [ccid@opticomm.net.au](mailto:ccid@opticomm.net.au)**

For multi dwelling lots please contact OptiComm as you will require additional services and pipework installed (at your cost) within the property boundary.



## 4.0 EQUIPMENT DESCRIPTION

### 4.1 Conduit

A “lead-in” conduit is required to run from the telecommunications pit in the street to a Premises Connection Device (PCD) installed on the outside wall of the house. The conduit used must be ACA approved conforming to AS2053.1:2001. The nominal inside diameter must be 25mm, made of PVC, be white in colour, and marked with “Communications” or “Telecommunications” for easy identification.

***It is the home owner’s or builder’s responsibility to ensure this lead in conduit is installed prior to OptiComm attending the site for installation of the PCD.***

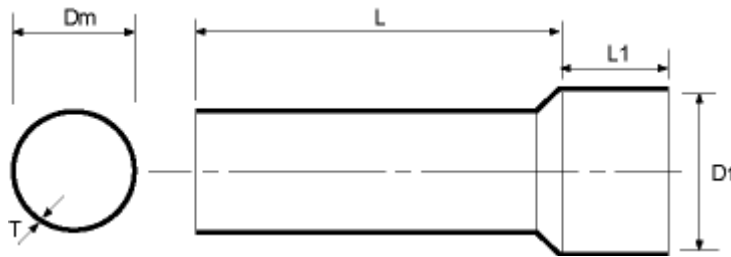


Figure 3 - Rigid conduit(Vinidex, 2008)

Below are details of two vendors who supply conduits which meet the above requirements. However you are free to select any vendor who supplies conduit to the same specification.

Pipe size (mm)	Product Code		Outer Diameter (min)	Wall Thickness (min)	Bore (mm)
	Vinidex	Iplex			
20	11715	CTCO20	26.7	1.8	23.3

Table 1 - Conduits available

Product	Product Code		Size (mm)	Degree	Centreline Radius (mm)	Length (mm)
	Vinidex	Iplex				
Bends	32570	CT73271	20	90	305	572
Slip Couplings	30205	P00720	20			70

Table 2 - Conduit Fittings

Any bends required in the “lead in” must be 90-degree sweep bends (**not elbow bends**) with a minimum radius of 300mm. The conduit must be a single continuous vessel between the pit and the location on the side of the house where the PCD will be installed.

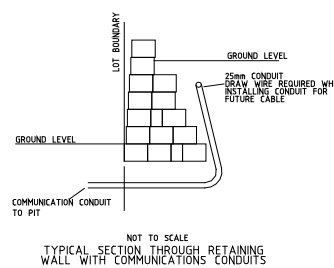
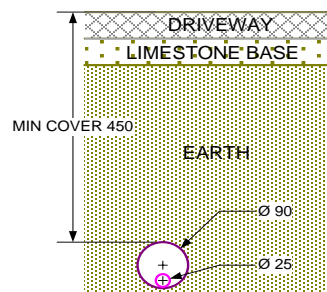
OptiComm normally installs a 20mm starter conduit leading out of the telecommunications pit to the property boundary. The builder should locate this starter conduit and couple it to the conduit they are installing.

During building construction, conduits should be installed for the PCD cabling at the owner's cost. These must be ready for use but not provide a path for water or termites to enter the building.

If the lead in conduit is to be installed under a driveway or retaining wall, it is recommended to be run within a 90mm storm water or irrigation pipe.

This has two functional purposes :

- To protect the communications conduit from damage;
- To allow the future installation of other services (e.g. water reticulation pipes and wires)



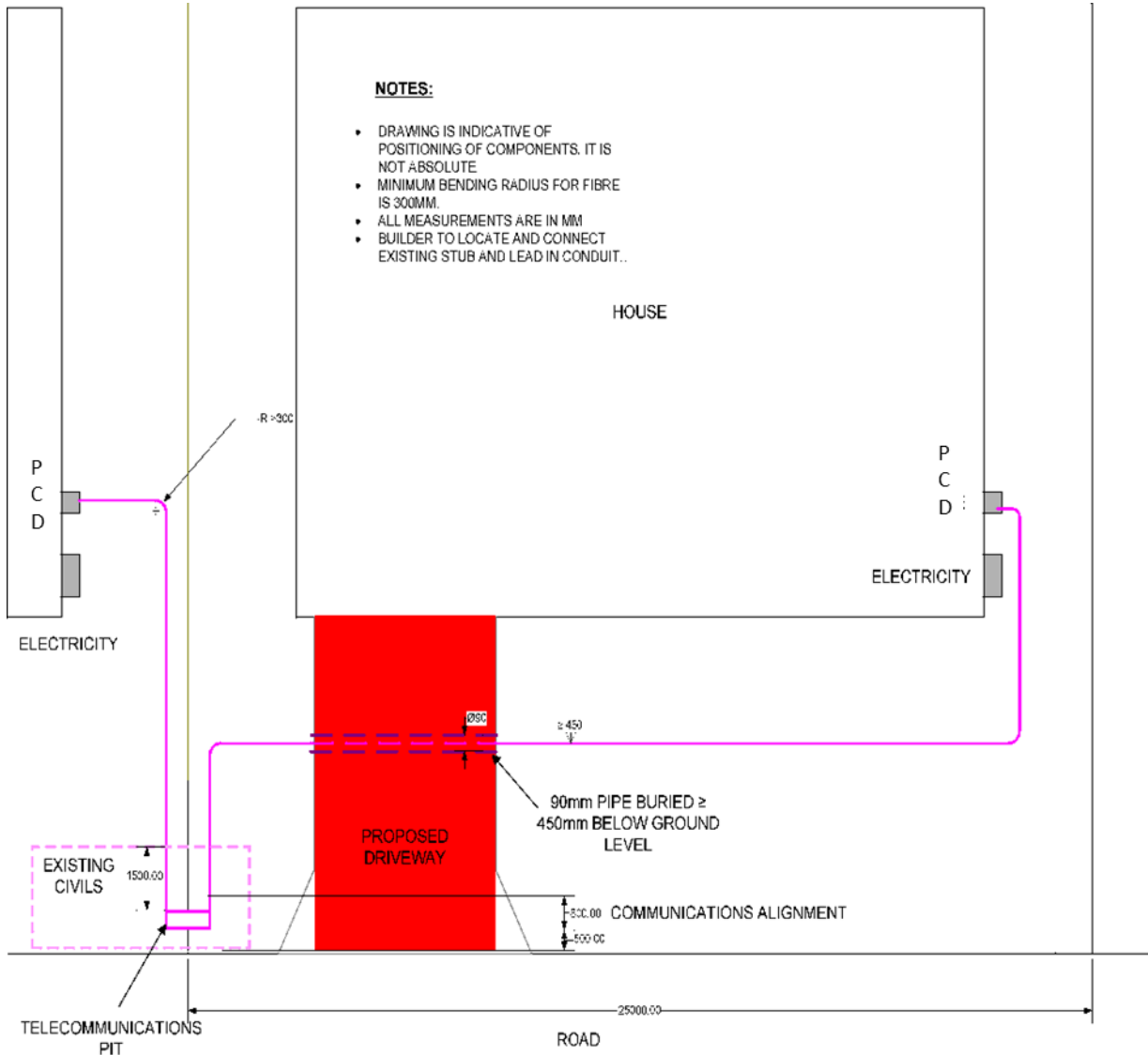
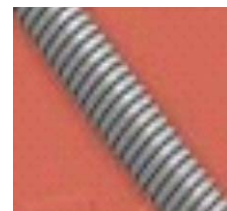


Fig 4 - A Typical lead in arrangement from street to house

Flexible 25mm Inside Diameter conduit may be used where the cable is above ground, such as running up the wall. The minimum bend radius must be observed, as well as having an inside diameter of 25mm. It must be grey or white in colour and non-metallic. It can be purchased from any electrical supplier.



#### 4.2 Premises Connection Device (PCD)

This is the termination box installed by OptiComm on the outside of the building to connect the street distribution fibre to the internal distribution fibre. It is normally located near the electricity enclosure. This box will be supplied by OptiComm at the time of installation.

#### **4.3 Network Termination Device (NTD)**

Network Termination Device is also known as an Optical Network Transceiver (ONT). This marks a network boundary point connecting the homeowner's equipment to the fibre optic network. The NTD is mounted on an internal wall next to a GPO and where the wiring hub or house star TV and communications wiring is located.

#### **4.4 Uninterruptable Power Supply (UPS)**

The homeowner must supply a 10 Amp 240 Volt General Purpose Outlet (GPO) to power a basic plug pack or UPS for the NTD. The UPS is usually positioned near the structured wiring Hub and NTD, and preferably located in the garage.

The PSU must be installed between 1800mm and 300mm above the floor level of the building. 1000mm to 1300mm is ideal. For adequate ventilation and access to the unit allow a space of 340W x 295H x 125D inside the HDU.

#### **4.5 Fibre Optic Cable**

A pre-connectorised fibre cable will be installed by OptiComm from the network pit to the PCD on the outside wall of the customer premises.

A second fibre cable will be installed from the PCD location on the outside of the house, through the internal conduit installed by the owner/builder to the NTD location.

These cables will be supplied and installed by OptiComm at the time of connecting the house to the rest of the network.

#### **Warning:**

**Under no circumstances should the resident, builder or electrical contractor attempt to pull the optical fibre lead-in cable from the OptiComm Network pit through the lead-in conduit. The Optical Fibre lead-in cable is relatively inflexible and if it is damaged by unauthorised parties its replacement cost will be billed to the resident and paid for before the service connection will be completed. Typical cost for replacement of a lead-in cable is in the vicinity of \$440.00 including GST.**

## 5.0 BUILDING ENTRY ARRANGEMENTS

### 5.1 Conduits

The lead-in conduit must **not** go through the concrete slab. Underground, it is to be rigid pipe and must connect properly to the existing 1.5m of starter pipe from the communications pit. A coupler or bell end must be used to connect the pipe together with appropriate solvent cement. Bends with a minimum radius of 305mm must be used. The lead in must be installed in such a way that it has minimal impact on the property. Whenever possible, the path must be underground until it is close to the PCD position. The conduit must not cross over the top of structures like retaining walls.

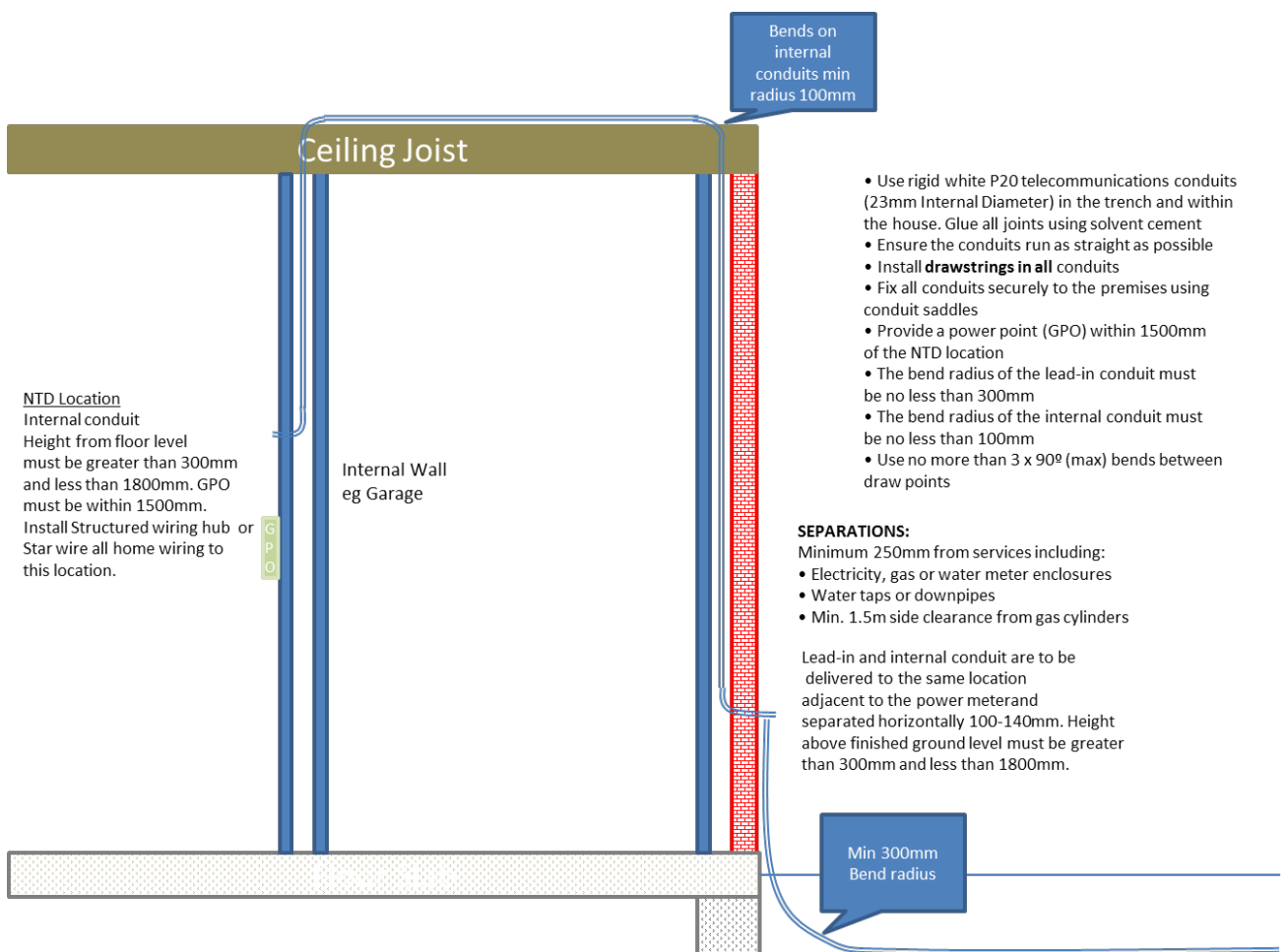


Figure 5 – Lead-in and internal conduit details

### 5.2 Communications Pit

Every effort should be made to keep the communications pit on the boundary easement accessible at all times. This will aid installation and maintenance of the network. Consider landscaping of the property and the level of the ground. Contact OptiComm if you wish to raise the ground level above the pit level.

Any damage to the pit servicing a property will be repaired by OptiComm at the homeowner's expense.

### 5.3 Premises Connection Device (PCD)

After construction of the building is complete and all required conduits have been installed, OptiComm will install the PCD on your home, on an external wall near the meter box.

The PCD must be installed on the outside of the building. This cannot be a separate structure such as a detached building, separate garage or fence.

The PCD will be mounted no lower than 300mm from ground level and no higher than 1800mm to the top of the PCD. The PCD dimensions are 250 mm (H) x 173 mm (W) x 79 mm (D). The cable entry is always from the bottom of the PCD and the connection to the internal conduit is via the rear of the PCD. **It is important that the builder takes into consideration the location of the proposed exit point for internal fibre conduit from the wall and also the location of the lead in conduit at the wall along with other services that may also be located in this vicinity. eg: Hot Water Systems, water taps, gas meters, reticulation timer enclosures and any other externally mounted items.**

#### SEPARATIONS:

Minimum 250mm from services including:

- Electricity, gas or water meter enclosures
- Water taps or downpipes
- Min. 1.5m side clearance from gas cylinders

### 5.4 Network Termination Device (NTD)

The builder should install all the inside telecommunication and television cabling presenting all the cables at an approximate location near the internal fibre conduit and GPO provided for the UPS for connection into the NTD.

#### OptiComm will supply and install at the time of Network connection

- The service drop cable from the communications pit to the PCD location
- The PCD
- The internal fibre optic cable from PCD to the Fibre Wall Outlet (FWO)
- The Fibre Wall Outlet
- The NTD
- The UPS

#### The Builder or Homeowner will

- Supply and install all internal building cabling to Telephone, TV, and Data wall outlets.
- Make connection from the NTD outlets to the building cabling.

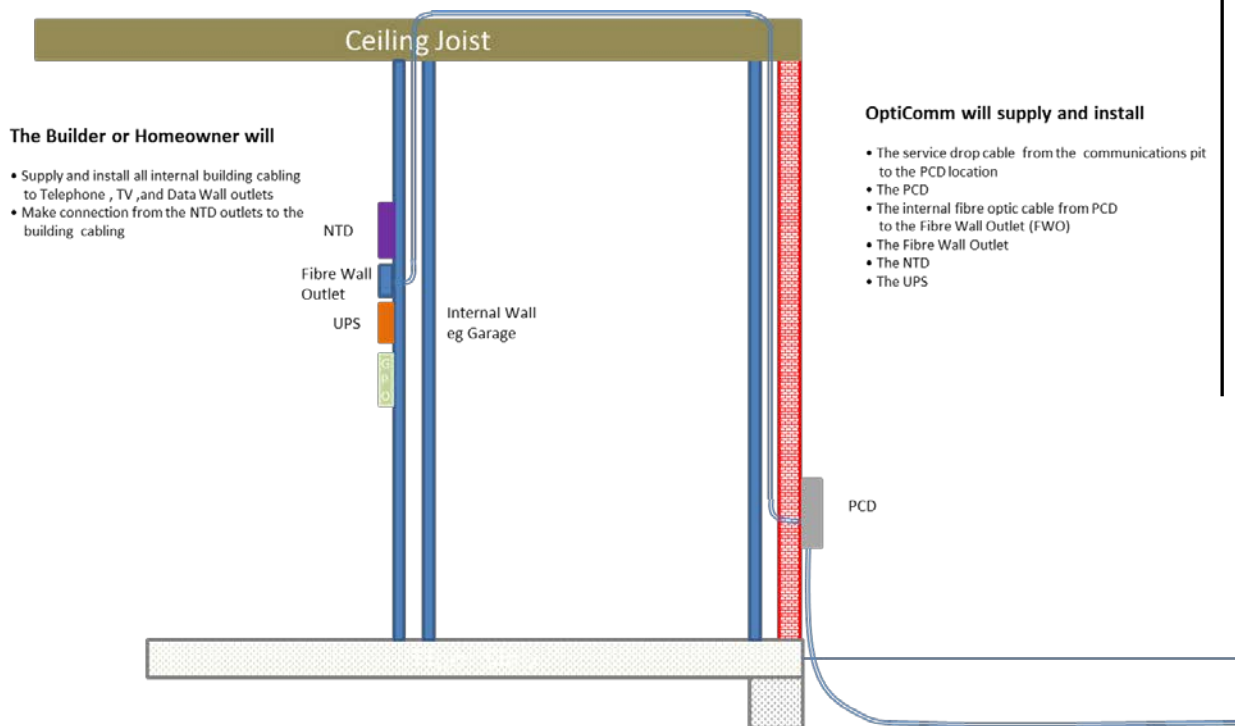


Figure 6 – Network Termination Device connection

### 5.5 Multi Dwelling Lots

Multi dwelling lots may require a different installation. If it is a duplex or triplex it may be as simple as running two lead-ins to the pit and treating them as separate buildings. However if it is a large complex like a commercial precinct, a lifestyle village or an apartment block, there may need to be more civil infrastructure (such as conduit and pits) and design changes made to the network. It is best to contact OptiComm before construction to discuss requirements. Please refer to the OptiComm Website [www.opticomm.net.au](http://www.opticomm.net.au) for contact details or email [sales@opticomm.net.au](mailto:sales@opticomm.net.au) with details of your enquiry including your contact details.

## 6.0 CABLING REQUIREMENTS TO NTD

### **6.1 Introduction**

It is the home owner's / builder's responsibility to ensure all appropriate cabling is provided from the Home Distribution Unit or Wall Outlet locations to the Network Termination Device. While not necessary, these cables can be run inside a flexible or rigid conduit.

### **6.2 General Purpose Outlet**

To power the NTD, OptiComm will install a Power Supply Unit (PSU) inside your home, near the wiring cabinet. It is a requirement to ensure you have a 240 volt GPO installed next to your wiring cabinet or other suitable location so it can power the NTD and the equipment inside your cabinet.

### **6.3 Television**

There needs to be one (1) RG6 Quad cable installed between the HDU and the NTD. From the HDU one RG6 Quad cable needs to be installed to each TV / PAY TV point. Both TV and PAY TV are available at each point however PAY TV providers require a dedicated point for connection to their set top box.

### **6.4 Pay-TV**

PAY TV providers require a dedicated point for connection to their set top box. FOXTEL have specific requirements as to what materials are to be used in the wiring from the ONT up to and including the wall plate. Cable and connectors MUST be FOXTEL approved if you intend to have a FOXTEL connection. A list of approved FOXTEL components and a FOXTEL wiring guide can be downloaded from

<http://www.foxtel.com.au/support/Getting-Started/Connecting-Cabling/default.htm>

### **6.5 Telephone**

There needs to be one (1) Cat5e cable installed between the HDU or telephone point and the NTD to provide telephone services. The one cable can be used for up to 4 telephone lines.

### **6.6 Internet**

There needs to be at least two (2) Cat5e cables installed between the HDU or activity room/office and the NTD to provide data services. One is dedicated to Internet service; a second can be installed for future services eg IPTV.





Thank-you for your interest in connecting to the OptiComm Fibre Connected Community. As a member of this community you will be able to receive all your broadband, telephone and entertainment services<sup>1</sup> over a single fibre optic cable.

**Please complete this checklist and fill out the address of the property, sign and fax to**

**03 90249599 or scan and email to ccid@opticomm.net.au**

I/We, \_\_\_\_\_ am/are the owner(s) of the property located at

\_\_\_\_\_ and hereby authorise OptiComm Co Pty Ltd to proceed with an installation of ONT, enclosure and power supply to the property for the purposes of connecting to the Fibre Optic Network. I/We have confirmed with the builder that the premises has been prepared in accordance with our published specifications and the following conditions have been met:

<input type="checkbox"/>	A continuous <b>undamaged</b> white Telecommunications P20 conduit (ID 23.3mm) has been installed and connected to the Opticomm starter pipe and terminated in a clear area on the side of the building, directly below where the internal conduit (see point 3 below) protrudes from the wall.
<input type="checkbox"/>	The conduit is installed at a minimum depth of 300mm; uses rounded bends ( <b>No 90 Degree bends</b> ); extends at least 300mm but no more than 1600mm above ground level and is saddle clamped to the exterior wall and has a free draw wire installed end to end.
<input type="checkbox"/>	An Internal or flexi conduit has been installed between your nominated installation location for the Network Termination Device (or ONT) and the external conduit mentioned above; is at least 300mm but no more than 1600mm above ground level; and is fitted with a draw wire.
<input type="checkbox"/>	A GPO (Power Outlet) has been installed in the garage near the nominated installation location for the Network Termination Device.
<input type="checkbox"/>	A Licensed Telecommunications cabler has terminated, tested and labelled ALL cables and has provided me/us a completed and signed Telecommunications Cabling Advice notice (TCA1 Form).
<input type="checkbox"/>	I/We have a Structured Cabling System (SmartWired™) installed in our house. Between the Home Distribution Unit and our nominated NTD location there is installed a minimum of one Cat5e cable labelled as <i>data</i> and terminated with an RJ45 connector; one Cat5e cable labelled as <i>telephone</i> and terminated with two RJ12 connectors; and one RG6 Quad Shield cable terminated with a Foxtel approved F-Type connector.
<b>OR</b>	
<input type="checkbox"/>	I/We have no Structured Cabling System but the builder has installed the cables between our chosen rooms and nominated NTD location: Home Office (or other location) - one Cat5e cable labelled as <i>data</i> and terminated with an RJ45 connector; Kitchen (or other location) - one Cat5e cable labelled as <i>telephone</i> and terminated with two RJ12 connectors; Living Room (or other location) one RG6 Quad Shield cable terminated with a Foxtel approved F-Type connector.

I/We agree that should any of the above specifications not be met a Failed Installation Fee of \$95 plus GST will be charged by OptiComm. We will have to undertake to rectify the issue, and then rebook a new appointment once the corrective actions have been completed and the Failed Installation Fee is paid.

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

<sup>1</sup> FTA and Foxtel Pay TV services may not be available in every estate. Please check with your developer or Opticomm to confirm availability of TV Services in your area.

# Telecommunications Cabling Advice (TCA1)



Australian Government  
Australian Communications  
and Media Authority

Copies required for customer, cabler and employer (if applicable)

## Instructions for completion

### Requirements

A registered cabling provider must complete this form after each cabling job (except for certain exemptions). Cablers must retain a copy of this form for at least 12 months and pass a copy to the customer and/or employer.

Print clearly. Illegible, unclear or incomplete application forms may delay processing.

Where proposed works may be compromised by existing cabling, a TCA2 form should be completed.

### Enquiries

For advice on completing this form, please go to ACMA's website at [www.acma.gov.au](http://www.acma.gov.au) (go to For licensees & industry: Service & technical requirements > Telecommunications : Cabling requirements > TCA forms > How to complete TCA forms).

Technical enquiries about cabling should be directed to:

Email: [cablingqueries@acma.gov.au](mailto:cablingqueries@acma.gov.au)

Tel: 1300 850 115

## Registered cabling provider

### Name

SURNAME
GIVEN NAMES

### Address


### Contact details

WORK ( )
MOBILE
Registration number
Name of registrar

## Employer (IF APPLICABLE)

### Name of company

--

### Contact details

WORK ( )
MOBILE

### Address

POSTCODE

## Description of work (INCLUDING ANY SUPERVISION)


## Customer details

### Name

--

### Address

POSTCODE

### Contact details

WORK ( )
FAX ( )

## Certification

I hereby certify that the cabling work described in this advice complies with the Wiring Rules (AS/ACIF S009:2006 or its replacement).

SIGNATURE
DATE

PRINT FULL NAME
-----------------

# Home Wiring Guide for an Internal ONT



Document No: TG-002

Issue Date: 19/04/2012

Version: 2.2

## Document Control Sheet

### Record of Issue

Issue	Date	Description
A	16-Nov-08	First draft document issued for discussion
1.0	14-Jan-08	
2.0	20-Mar-09	Template Change. General Updated
2.1	2-Sep-2009	Update Pay TV requirements
2.2	19-Apr-2012	Internal ONT

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In the event of any enquiries with respect to this document, please contact:

Name	Position	Phone	Email
S. Davies	GM, Operations	-	sdavies@opticomm.net.au

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## **3.0 THINGS YOU SHOULD KNOW ABOUT A FIBRE COMMUNITY**

Modern technology has brought many changes to the way we live, specifically in communications where many new services are being introduced that require high-speed delivery infrastructure. New Digital Telephone, Ultra-High Speed Internet and Television Services (including pay and free to air) offer greatly enhanced performance when compared to older technology. To accommodate these changes, residential developments must move forward with technology and provide infrastructure that will have the capacity for not only today but also for future technological advancements.

In standard residential areas, the incumbent carrier meets the basic communication needs of the community. At OptiComm, our commitment is about being at the forefront of the education and broadband revolution, and as such we provide advanced fibre optic communication infrastructure as a replacement for the traditional copper network.

### ***3.1 Services***

OptiComm's fibre optic based communication network will provide a range of services, including reticulation of the analogue and digital free to air television signals, Pay TV, Ultra-High-Speed Internet, and a Standard Telephone Service. Additional services, such as Community Intranet, security monitoring, gate control, and new entertainment services such as IPTV and Video-on-Demand, are all possibilities with this latest technology. These may be introduced in the future.

### ***3.2 Connection***

A fibre optic enabled community allows for you to connect to the network that runs past your property. A fibre optic lead in cable connects to a connection box on the external wall of your home. This is called a Premises Connection Device (PCD) and it is where the internal Optical Fibre cabling joins the Fibre cabling from the street. An Optical fibre cable is run from the PCD to the Network Termination Device (NTD) inside the house and it is where the optical signal (light) is converted to an electrical signal and retransmitted on twisted pair and coaxial cable to your Home Distribution Unit (HDU).

## **4.0 HOME WIRING GUIDELINES**

A structured cabling system in today's home is important to take full advantage of modern telecommunications systems. All cabling shall use a star wire topology, that is all cabling is wired from the Home Distribution Hub in the garage to the outlet plate or device as an individual feed without joints, tap offs or splitting.

All telecommunications cabling must be installed by a licensed contractor to TS009, AS3000, relevant Australian Standards and ACIF guidelines – otherwise your home may not be compliant. This document details the correct separations and installation requirements.

**Warning!** All customer premises cabling work **MUST** be performed by a registered cabler. If a cabler is registered, they will have a card which proves that they can legally perform cabling work.

The cabling work must comply with the Cabling Provider Rules, which detail the minimum requirements for telecommunications cabling installations to ensure that network integrity and the health and safety of end-users, other cablers, and carrier personnel is protected.

The cabling is required to have adequate separation or segregation from electrical cabling to avoid creating a dangerous situation.

Failure to use a registered telecommunications cabler may result in fines of up to \$13,200.

### 4.1 Standards

This document is the technical specification and is to be provided to your Builder/Telecommunications Contractor. If you are unsure of any of the information contained herein, please don't hesitate to contact us to ensure the correct standards are followed – we are more than happy to provide you with the right advice and support so that you get it right the first time.

**For more information contact the  
OptiComm Customer Connection Information Desk  
on 1300 137 800  
Or via email [ccid@opticomm.net.au](mailto:ccid@opticomm.net.au)**

### 4.2 Smart Wiring

“Smart wiring” is a term commonly used to describe home wiring that may include, but is not limited to, one or more of the following:

- structured telephone, data (Internet) and TV cabling (such as described in this document)
- home security — intruder detection, back-to-base monitoring or CCTV (Closed Circuit Television)
- home theatre and/or in-house audio/video distribution
- home automation — “intelligent” lighting, automatic/remote control of electrical appliances, HVAC (Heating, Ventilation and Air Conditioning), lawn/garden irrigation, etc.
- paging/intercom, which may include music distribution or CCTV.

Such systems may be wired separately by different installers or may be included in a total wiring package offered by a SmartWired builder or contractor. However, this document only describes the telephone, data and TV cabling system.

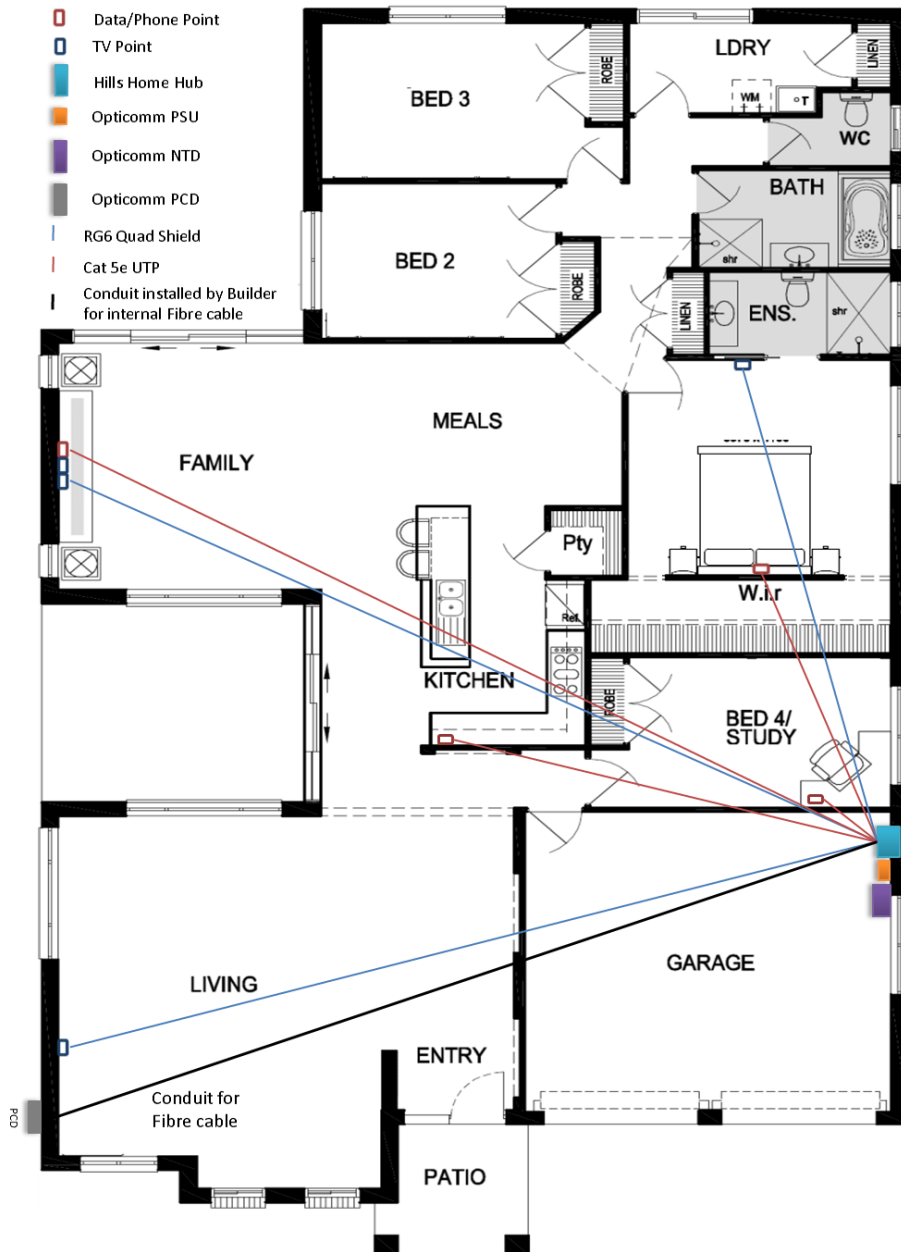


Figure 1 - Sample Home Wiring

### 4.3 Data/telephone outlets

In Smart Wired™ homes there is no difference between a telephone point and a data point, so consider all points as being cable of both telephone and data. A data/telephone outlet is terminated with a RJ45 socket.

For data and telephone points UTP Cat5e cable needs to be used from the HDU. The signal can transmit for up to 100m from the NTD. Cat6 cable can be used which will provide for larger bandwidth needs in the future, however there is additional cost.

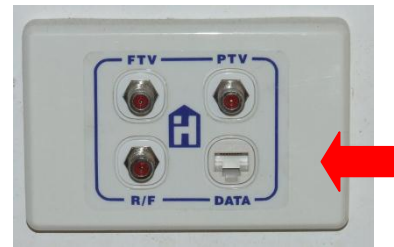


Figure 2 - Data/Telephone Outlet

#### Method of Installation

Two methods of cabling are possible. One method is to locate future data switches/routers in a study or computer room where tie cables need to be run from the HDU to the study with all outlets star wired from the HDU to the final outlets terminating in a RJ45 outlet. The recommended method is to locate the data switch/router in the HDU with star wiring to all outlets terminating in a RJ45 outlet.

At pre-plaster stage, your Builder/Telecommunications Contractor must provide Cat5e cable from each telephone point in the home to meet (star wired) at the HDU. A Telephone socket (RJ45) socket must also be installed in the HDU configured in a 'mode 3' format for the security monitoring device.

### 4.4 RF Outlets (Television)

The RF Outlets supply both the free to air and pay television signal. Their terminations must be F type female.

Pay TV outlets must be a separate wall plate or a wall plate with 2 x F type connectors with one marked PAY TV

Coaxial cable (RG6 Quad Shield) cable star wired (not loop or tap and drop) needs to run from each TV outlet location to the HDU. The maximum length of cable between the HDU and the RF outlet is 23m. This can be extended to 32m if an amplifier or RG11 cable is used between the HDU and the RF outlet.

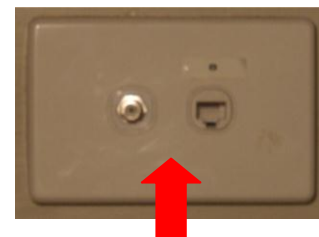


Figure 3 - RF Outlet

FOXTEL have specific requirements as to what materials are to be used in the wiring from the ONT up to and including the wall plate. Cable and connectors MUST be FOXTEL approved if you intend to have a FOXTEL connection. A list of approved FOXTEL components and a FOXTEL wiring guide can be downloaded from

<http://www.foxtel.com.au/support/Getting-Started/Connecting-Cabling/default.htm>

#### Method of Installation

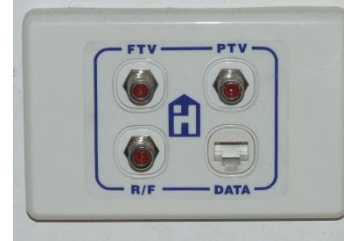
All splitters/amplifiers need to be located within the HDU. The presentation is via one F type connector to be provided by the Builder or Telecommunications Contractor. The



typical RF output level from the network is  $75\text{dB}\mu\text{V} \pm 2\text{dB}$ . A high quality amplifier (capable of handling 60+ channels) may be required if more than 4 outlets are required.

### 4.5 Data with every RF Point

To take advantage of network capable Digital Video Recorders, Intelligent PayTV Set Top Boxes (e.g. FoxTel IQ) and any future Video on Demand or IPTV services, it is recommended to install an RJ45 socket (data/telephone) wherever an RF point is located.



### 4.6 Wireless Access Point

A wireless access point can be installed to provide a wireless local area network to the home. Consider the location of the data/telephone outlet for the access point. Have it in an open area on a high point to optimise data speed and minimize attenuation from walls.

### 4.7 Security

If a monitored security alarm is to be installed in the building, a mode 3 connection is to be installed to give the alarm priority access to the telephone line. The alarm panel should be connected between the NTD and HDU in regards to the first telephone line.

While often used as generic descriptions, “Smart Wiring” and “SmartWire” are trademarks of the Copper Development Centre. The SmartWired web site is [www.smartwiredhouse.com.au](http://www.smartwiredhouse.com.au).

## 5.0 Home Distribution Unit

The HDU is the central hub of the smart wiring network of the home. Typically it is a steel cabinet installed in the garage with a lock that houses all of the passive and active equipment. All services enter and exit this cabinet. This allows for total flexibility to the home owner in the future. It must be of a minimum size of 405mm wide (to fit between studs), 600mm high and 112mm deep. Typically the bottom of the cabinet is mounted 1200mm above finished floor level and is recessed into the wall with bottom and top ventilation into the cavity wall.

It needs to be large enough to can cater for any active device such as alarm panels, television amplifiers, data switches and 240Vac power outlets and have enough room for cable looms, IDC blocks, splitters and couplers.

It is the responsibility of the Builder/Telecommunications Contractor to provide the smart wiring and Home Distribution Unit.

### 5.1 Location of HDU

The HDU is typically installed inside the house in an accessible location. Choose a dry, well-ventilated area at least 1m away from high energy rating electrical equipment to prevent electromagnetic interference. This can include electrical switchboards, supply meters, fluorescent lights, electrical transformers, generators, ducted vacuum motors,

and power tools in operation, air conditioning units, refrigerators or freezers. The bottom of the HDU must be mounted at a height above floor level between 350mm and 1700mm.

### 5.2 Choices of HDU

There are a few different types of HDUs to choose from. A basic HDU is installed by mounting the equipment on a wall and having no enclosure. Be sure to have adequate ventilation for the components and supply a 10 Amp double GPO for the Power supply and NTD.



Alternatively a more professional installation using a Hills Home Hub unit can via you lots of flexibility and also can be optioned up with a security system and audio reticulation.

## 6.0 Planning out your Home Wiring

Use this chart to calculate what TV, internet, data, telephone and other services you need in the rooms of your home.

Rooms	Simply ✓ the appropriate box to calculate the points required				
	Home Hub	TV	Internet	Telephone	GPO
Lounge					
Family Room					
Master Bedroom					
Bed 2					
Bed 3					
Bed 4					
Study					
Kitchen					
Dining					
Garage					



# Congratulations

## On becoming a resident in an OptiComm Fibre Connected Community

The OptiComm network is designed to deliver to your home Australia's most modern telecommunications and entertainment services based on fibre optic technology.

This technology is different to the traditional copper based networks and while it still delivers Internet and Telephone services (among other services), there are a few things that we need to tell you about your OptiComm Fibre to the Home (FTTH) Network Termination Device.

This device, which divides the Opticomm network from your home network, is located on the outside of your home near your meter box. This devices needs a local 240 Volt power supply for it to operate. To ensure a continuous supply of power Opticomm provides a Regulated Power System and an optional back-up battery can be installed to avoid interruption to your telephone service when there is a power failure.

**Unless the battery is installed by the home owner, during a power failure you will not be able to receive or make any telephone calls including calls to the emergency services in particular 000.**

For more information (including how to locate your termination device), please call the OptiComm Fibre Connected Community help desk on 1300 137 800.

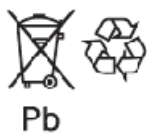
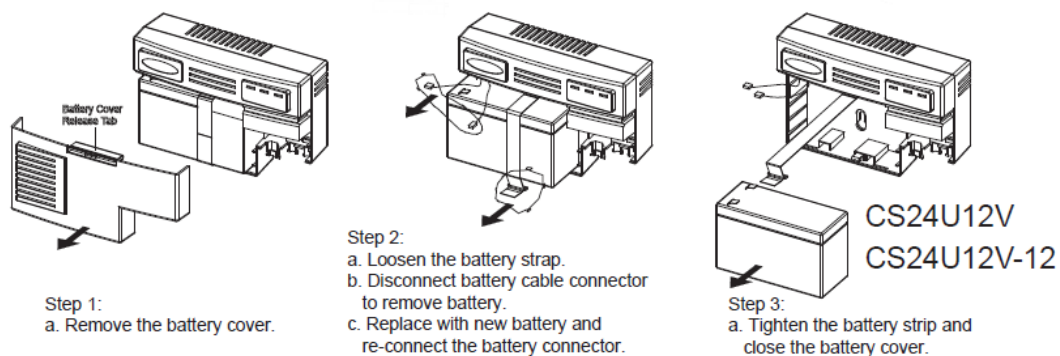
## Battery Installation and Replacement

It is your responsibility to install and maintain the battery in this power system and regularly check the battery indicators. The battery must comply with the following specifications:

12V 7.0-7.2Ah Sealed Lead Acid Battery (6 Cells)  
150mm (W) x 94mm (H) x 64mm (D);

These batteries are commonly available from Dick Smith Electronics, Direct Alarm Supplies, and most specialist battery stores.




When OptiComm supplies the Power System it does not come with battery. You are required to purchase the battery (which typically costs about \$30-\$40) and install it yourself. Use the instructions below for the correct installation.



Do not throw your spent batteries in the bin, think of the environment. It is best to deliver spent batteries to a recycling facility or exchange at the shop where you purchase a new battery.

## Indicator lights

The following table shows the various status indicator lights on the unit. You should refer to the manufacturer's manual for full details of proper operation of the unit.

Indicator	Color	Condition
 AC	Green	UPS is on utility power.
	Yellow	UPS is on battery power.
 OUTPUT	Green	DC output power is provided by the battery or utility power.
 BATTERY	Red	The battery is not connected or the battery needs to be replaced.

## IMPORTANT SAFETY WARNINGS (SAVE THESE INSTRUCTIONS)

This manual contains important instructions regarding the installation and operation of this device. Read this manual thoroughly before attempting to unpack , install or operate this device

**CAUTION!** The battery can energize hazardous live parts inside even when the AC input power is disconnected.

**CAUTION!** To prevent the risk of fire or electric shock, install in a temperature and humidity controlled indoor area, free of conductive contaminants. (Please see specifications for acceptable temperature and humidity range).

**CAUTION!** To reduce the risk of electric shock, do not remove the cover, except to service the battery. No user serviceable parts inside, except for the battery.

**CAUTION!** To avoid electric shock, turn off the unit and unplug it from the AC power source before servicing the battery or installing a computer component.