

MAWSON LAKES

TECHNICAL SPECIFICATIONS
for Home Management Systems and
PRE-WIRING of each dwelling

ENCUMBRANCE
building and Development
Requirements

This document contains updated information, which was not available at the time when the original encumbrance was conceived. It includes updated variations to existing standards as well as more stringent guidelines so that ad-hoc solutions which may have been previously provided to circumvent the spirit of the encumbrance shall no longer be considered as commercially viable.

This document covers the Common Utility Box and the Pre-wire Encumbrance.

Preamble

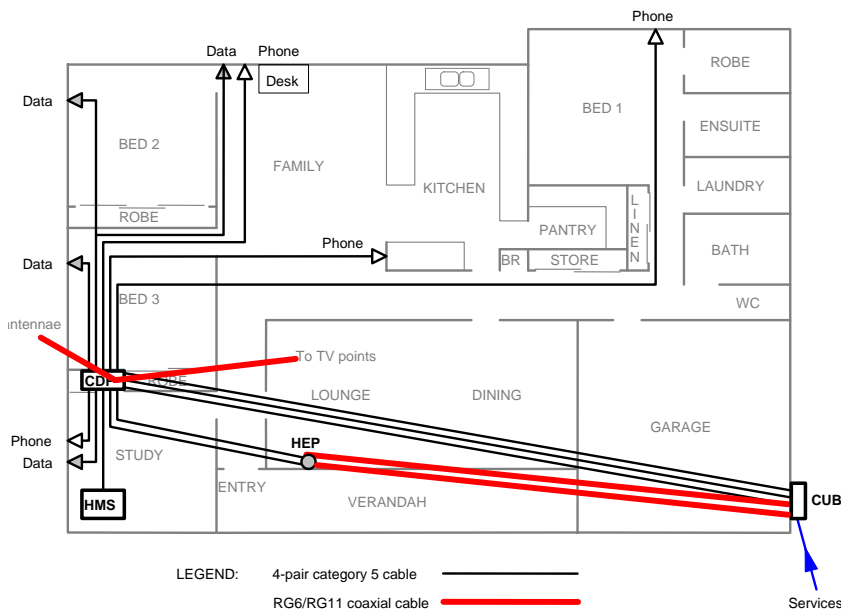
Each building application for a dwelling at Mawson Lakes shall include a provision for:-

- ◇ Common Utility Box (CUB)
- ◇ Cable Distribution Point (CDP)
- ◇ Home Entertainment Point (HEP)
- ◇ Home Management System (HMS)
- ◇ Telephone & data Outlets (TOs)

The basic principle is illustrated in Figure 1.

This document specifies what is the **minimum** required to meet the Encumbrance for **pre-wiring**.

Figure 1 Type of Basic Communications Requirements (typical configuration)



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1. Cabling Systems/Pre-wire

1.1 Minimum specifications of cables to be used

The minimum standard of cable for Telephone and Data Points shall be Category 5E. The minimum standard of cable for Free to Air (FTA) TV Points and Pay TV pre-wire shall be RG6 Quad shield coaxial cable.

1.2 Method of installation of cables

Cables shall be installed in accordance with ACA standards, paying particular attention to segregation.

1.3 Method of termination of cables at wall socket

All Telephone and Data Points shall be terminated into approved wall sockets with colour coding or pre-printed labelling of the mechanism. 'Stick on' labelling of socket outlets shall not be used as the primary method of identification, but may be used as a secondary method (along with the primary method). All TV points shall be terminated into 'F-Type' sockets so as to be suitable for both Analogue and Digital TV broadcast signals. Belling-Lee sockets shall not be used for TV Points.

1.4 Cable Distribution Point (CDP)

The Cable Distribution Point shall be installed into a location where it is easily accessible by the homeowner. It shall be installed in accordance with the relevant standard (TS008). This standard states that the enclosure shall be installed at a height no more than 1800mm above FFL. The Cable Distribution point shall comprise of a recognised Structured Cabling Enclosure Ad-hoc (built up enclosures) which are not designed for this purpose shall not be used. The CDP shall be installed in close proximity to the Home Management System in a secure location.

1.4.1 Method of Cable Termination at Cable Distribution Point

All Cat5E cable terminations at the Cable Distribution Point shall be made in such a manner so they can be reconfigured by the homeowner without the requirement for a tool. This shall take the form of patching with either fly-leads or patching cables. Punch-down terminal blocks used to permanently terminate the cables so they may not be reconfigured by the homeowner without the use of a tool will not be accepted. The only exception to this shall be the cable from the Common Utility Box (CUB) to the CDP. This shall be terminated with a punch down connection.

All RG6 Cables used for Free To Air (FTA) television shall be terminated with a crimp 'F-type' connection ready for connection onto a system splitter or Video Distribution Unit. Belling-Lee type terminations at the Cable Distribution Point will not be accepted.

1.5 Quantity of Each Installed Point

The quantity of points to be installed throughout the home is outlined below. This is the minimum requirement.

1.5.1 Technology Points

A minimum of eight (8) technology points shall be provided. They shall consist of any combination of the following with a minimum of one(1) Telephone and two(2) Computer Networking Points. This is over and above the Home Entertainment Point (HEP), which must be installed

- Free to Air (FTA) TV Points
- Computer Networking (Data) Points (minimum 2)
- Telephone Points (minimum 1)

All points shall be 'star-wired' back to the Cable Distribution Point enclosure and suitably terminated.

1.5.2 Home Entertainment Point (HEP)

The Home Entertainment Point (HEP) shall be installed in a location where the main entertainment equipment is to be located. This point shall contain Two(2) RG6 quad shield coaxial cables as a prewire for Pay TV along with one (1) telephone connection and one(1) Data Point. All four connections shall be in accordance with the minimum cabling specification as outlined in point 1.1 and terminations shall be in accordance with method of termination of cable at wall socket as outlined in point 1.3. All

connection sockets shall be on the same wall plate. Additional technology points may be provided on this plate but must be appropriately identified.

1.6 Prewiring vs Actual Working Installed Cables

All installed cables shall be capable of being connected directly to the equipment they are intended for without the requirement of additional equipment with the following exceptions:

- Fly-leads from wall socket to Personal Computer(s)
- Fly-Leads from wall socket to Audio/visual devices (such as TV's, VCR's etc)
- Computer Networking Hubs
- TV Antennas, splitters and Video Distribution Units
- Digital to Analogue adapters for TV Points (F-type to Belling-Lee)

1.7 Licensing of Installers

Installers shall be suitably licensed in accordance with the relevant standards. This includes ACA open registration, security installers licence and an electrical contractor's licence. Home owners shall not be permitted to install their own system or part thereof unless they are suitably licensed.

1.8 Allowances for New Technologies

Provision (space) shall be made within the structured cabling enclosure for new technologies such as ADSL Modems or other broadband modems, Central ADSL line filters and Computer Networking Hubs.

1.9 Allowance for Free to Air Cabling and Infrastructure

Where Free To Air (FTA) television is required under quantity of points, all points shall be cabled using RG6 quad shield coaxial cable to provide suitability for both Analogue and Digital TV broadcast signals. If no FTA Antenna, splitter or Video Distribution Unit is to be supplied or installed, the client shall be made aware of this in the quote or proposal.

1.10 Instruction, Service, Warranty and Maintenance

The Home Management System Provider shall provide the homeowner with instruction on operation of the system. The HMS provider shall explain the warranty conditions and reiterate any requirements for on-going maintenance of the system. The HMS provider shall provide the homeowner with Certificates of Compliance for electrical work, TCA1 telecommunications compliance certificates for any work relating to telephone points. All Telephone TV and Data cables or sockets shall be clearly marked at the CDP. The HMS Provider shall also provide a commissioning checklist, which is to be signed by both the home owner and the technician who is 'handing the system over'. Any uncompleted work shall be duly noted on this checklist and shall not be signed off by the homeowner or technician unless complete and tested.

1.11 Network Termination Device (NTD)

The Network Termination Device (NTD) shall be installed in an approved manner. Please refer to the relevant standard for this information. The HMS provider shall take special notice of steel frame homes with earthing requirements and adhere to the standard.

1.12 Conduits

All conduits and their sleeves shall be installed in accordance with Telstra standard. Please note the Telstra lead-in conduit must be rigid Austel approved conduit at all times. Flexible corrugated conduit breaches the Telstra standard and therefore shall not be used for the Telstra lead-in conduit.

All lead-in conduits shall be provided by the home builder within their standard building contract for Mawson Lakes (see note 3.1).

2. Home Management System

The Home Management System (HMS) is a computerised system, which will enable the control of devices within the home using at least one remote control method. This along with a degree of automated functions for lighting and irrigation control shall also form part of the HMS. Only recognised Home Management Systems shall be installed and must be complete to meet the encumbrance (i.e. optional cards to control the system by remote telephone, internet etc shall be included in the minimum requirements).

2.1 Minimum specification of cables to be used

The minimum specification of each cable used within the design and installation of the Home Management system shall fit within the following guidelines.

2.1.1 Security Sensors

All security sensors shall be connected with approved security cable and shall be stranded comprising of a minimum of 7/020 in accordance with the standard

2.1.2 Reed Switches

All reed switches shall be cabled using approved security cable comprising of a minimum of 7/020 in accordance with the standard.

2.1.3 Irrigation

Irrigation connections shall use industry standard irrigation cable and must be PVC, direct burial cable consisting of no less than five (5) conductors (capable of supporting at least 4 irrigation zones). Security or Cat 5 styles of cable will not be accepted for this purpose. The 240V/24V transformer required to power the irrigation solenoids, must also be supplied and installed.

2.2 Method of Installation

All cabling and installation of equipment shall be performed in a tradesman like manner in accordance with the relevant standards.

2.3 Approved Systems

Systems shall be recognised Home Automation/Home Management Systems. The installed system shall be capable of meeting the entire encumbrance without the need for additional modules, cards, interfaces or any like devices.

2.4 Licensing of installers

Installers shall be suitably licensed in accordance with the relevant standards. This includes ACA open registration, security installers licence and electrical contractor's licence. Home owners shall not be permitted to install their own system or part thereof unless they are suitably licensed.

2.5 Termination of Third Party Equipment and Devices to System

The Home Management System Provider shall be responsible for and ensure the connection of all third party devices to their system. This shall not be left up to other installing contractors to provide this service. The HMS may sub-contract the connection of such equipment but shall ensure the person connecting the equipment is suitably qualified and licensed. If the third party equipment is not installed at the time of handover by the HMS provider, the HMS provided shall agree to return to connect the device within a grace period of no less than 30 days. After this period, the HMS provider shall offer the service for a reasonable rate to connect the equipment. This rate and these conditions shall be provided for the homeowner upon agreeing to use the Provider. Any device not connected shall be duly noted in the system documentation (see note 2.9)

2.6 Connection of Third party devices

All Air Conditioners, Automatic Garage Doors and Irrigation Solenoids shall be capable of being connected to the Home Management system without the requirement for additional cards or interface modules. If any additional equipment is required, the cost shall be made quite clear to the homeowner by the equipment provider during the quoting process by the supplier. The homeowner and HMS provider shall not be asked to bear costs for additional equipment required to upgrade devices to make systems compliant unless this has already been agreed upon in writing. Devices that cannot be controlled in accordance with the encumbrance, shall not be installed at Mawson Lakes.

2.7 Quantity of each point

All General Purpose Outlets (GPO's) required by the system to operate shall be provided by the builder/builder's electrician. The minimum quantity of each piece of equipment used shall be as follows:

Two(2) PIR Movement Detectors

One(1) Reed switch for every entry/exit door (external) into the area where the security keypad is to be located. (I.e. If a front door and a garage entry door are both present, then two reed switches shall be installed unless movement detectors cover the area.)

Two(2) Controlled light points

Two(2) irrigation zones including.

One(1) 240V-24vAC transformer for irrigation zone power supply

One(1) Security Keypad*

One(1) External Siren/Strobe

One(1) Internal Screamer

The system shall be connected to at least one of the following, but cable provision shall be made to both:

One(1) Control of Garage Vehicle Access Door

One(1) Control of Air Conditioner

The keypad must be of an LCD nature, messages shall be retrievable and the system shall be programmable via the interfaces outlined in point 2.8

2.7.1 Controlled Light Points

The two controlled light points shall be programmed in such a way that they operate in one or more of the following ways.

- When the home is not occupied, at night, the lights shall operate in a random fashion or in a similar manner to how they may operate should the home owner be at home.
- Upon entry to the home at night with the security armed, the entry reeds or PIR detector shall activate the controlled light point(s) so as to offer the homeowner a lit path for entry.
- Upon activation of the Smoke Alarm(s), both Controlled Lighting Points shall activate.

2.7.2 Control of Garage Door

If the garage door is to be connected the system shall be configured to open/close the automatic vehicle access door by use of either touch-tone telephone, Short Message Service (SMS), email or

internet. At least one of these methods of control shall be provided without the requirement for any additional equipment as outlined in 2.3

2.7.3 Control of Irrigation Zones

A minimum of two irrigation zones shall be able to be controlled by the HMS. All of the equipment required to provide this shall be included up to (but not including) the irrigation solenoids by the HMS provider. Colour coding of the connections to the irrigation solenoids shall be provided in the documentation so the homeowner or landscape gardener may connect to the system. All transformers, power outlets required to drive the system shall be provided by the HMS Provider. The homeowner shall be able to control the device(s) by either touch-tone telephone, Short Message Service (SMS), email or internet (ref 2.8).

2.7.4 Control of Air Conditioning

If the airconditioning system is to be controlled the minimum requirement shall be that the system be capable of switching the Air Conditioning on and off. Control of individual room zones is not a requirement. The Home Management System provider shall be responsible for ensuring the connection is made to the Air Conditioner (see point 2.6). The homeowner shall be able to control the device by either touch-tone telephone, Short Message Service (SMS), email or internet (ref 2.8).

2.8 Types of interfaces

The system shall be capable of displaying information for the system on at least one of the following devices:

- LCD Security Keypad
- Personal Computer(PC)*
- Touchscreen
- Personal Digital Assistant(PDA)*

The system shall not require any additional equipment, modules, cards or interfaces so as to display information on at least one of the above mentioned devices.

*Where these devices are used, no additional equipment shall be required other than the Personal computer or PDA, which shall be provided by the home owner.

2.9 Instruction, Service and Maintenance

The Home Management System Provider shall provide the homeowner with instruction on operation of the system. The HMS provider shall explain the warranty conditions and reiterate any requirements for on-going maintenance of the system. The HMS provider shall provide the homeowner with Certificates of Compliance for electrical work, TCA1 telecommunications compliance certificates for any work relating to telephone points. All telephone TV and Data cables or sockets shall be clearly marked at the CDP. The HMS Provider shall also provide a commissioning checklist, which is to be signed by both the home owner and the technician who is 'handing the system over'. Any incomplete work shall be duly noted on this checklist and shall not be signed off by the homeowner or technician unless completed and tested

3. Builder Requirements

Home Builders at Mawson Lakes have additional requirements under the encumbrance. Their requirements are outlined below.

3.1 Conduits and Sleeving

The home builder is responsible for supplying four (4) lead-in conduits for the following:

- Electrical Power supply
- Telephone (see note 1.12)
- Cable TV Services
- Cabling for water management (can be used for cabling to water meter or irrigation system cabling)

3.2 Common Utility Box (CUB)

The builder is responsible for the supply and installation of the Common Utility Meter Box. Please refer to the technical specification for this item for further information

3.3 Smoke Detectors

Smoke Detectors must be interconnected by the installing electrician at the time of wiring so that all detectors announce the alarm should one detector activate. This is a requirement under the standards and is a responsibility of the builder.

3.4 Provision of Power outlets

The builder shall provide power outlets for the Home management System. A minimum of two(2) are required to power

- The HMS panel
- The irrigation Power Supply

4. Certification

Certification of the various aspects of the equipment supplied and installed by the HMS provider shall be provided to the Homeowner upon handover of the system. Certification shall include the following

4.1 Certificates of compliance

Certificates of compliance shall be provided for all work performed on the telecommunications aspects of the system. A TCA1 form must be completed upon handover. Where the HMS provider has completed any work on the electrical system (i.e. for the connection into controlled light points), an electrical certificate of compliance shall be issued to the homeowner.

4.2 Training and user manuals

The HMS Provider shall provide the homeowner with instruction on how to operate and where necessary, reconfigure the system. Supporting documentation in the form of user manuals shall also be provided to the homeowner.

4.3 Documented Warranty

All documentation of warranties for the system shall be made clear to the client.

4.4 Licensing and use of sub-contractors

The HMS provider is permitted to use sub-contractors for the supply and installation of systems or part thereof. It is the responsibility of the HMS provider to check the validity and currency of licensing of their subcontractors. The final handover and documentation (checklist) remains the responsibility of the HMS provider.

If mains voltage (240V) connections are being made, a current Electrical Contractor's Licence is required. This is relevant when connecting the controlled lighting points to the HMS.



4.5 Relevant Standards

Communications standards are available from the Australian Communications Industry Forum web site www.acif.org.au/publications. The main specific supplement (NTD Document from telstra 012688 Attachment B) is available from Telstra Direct or from Net Security Wholesalers, Commercial Rd Marlestone.

5. Attachments

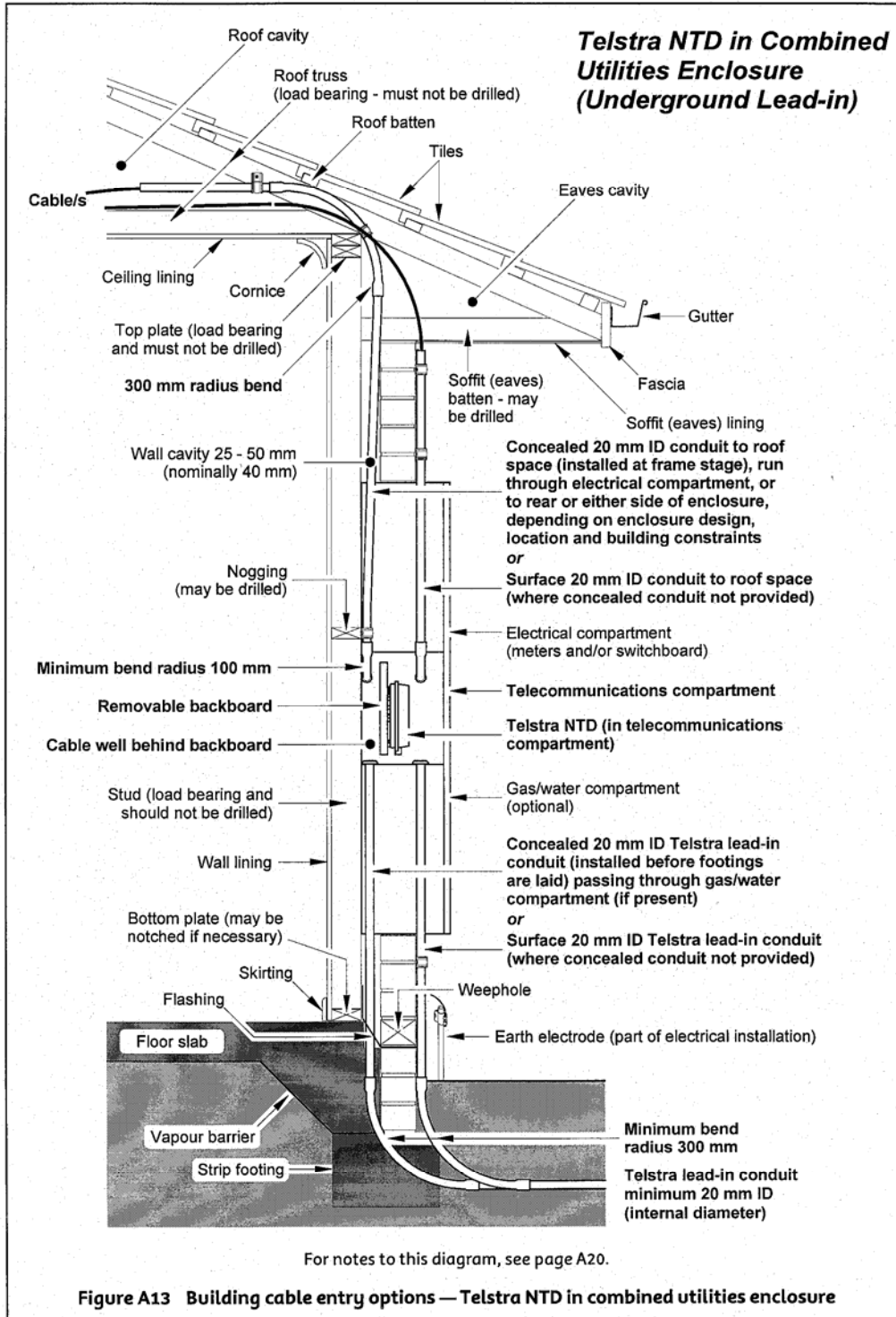
- Attachment 1 Building Entrance Facilities for Telecommunications - to be refined to resemble CUB installation).

- Attachment 2 Typical Common Utility Box (CUB) Installation (to be developed by CUB manufacturer)

- Attachment 3 Building Distributors

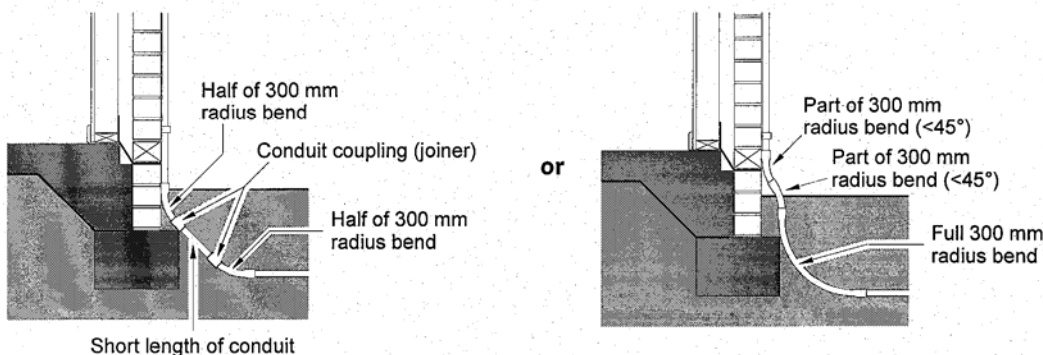
ATTACHMENT 1 Building entrance facilities Building Entrance Facilities for Telecommunications Cables

TELSTRA PROPRIETARY



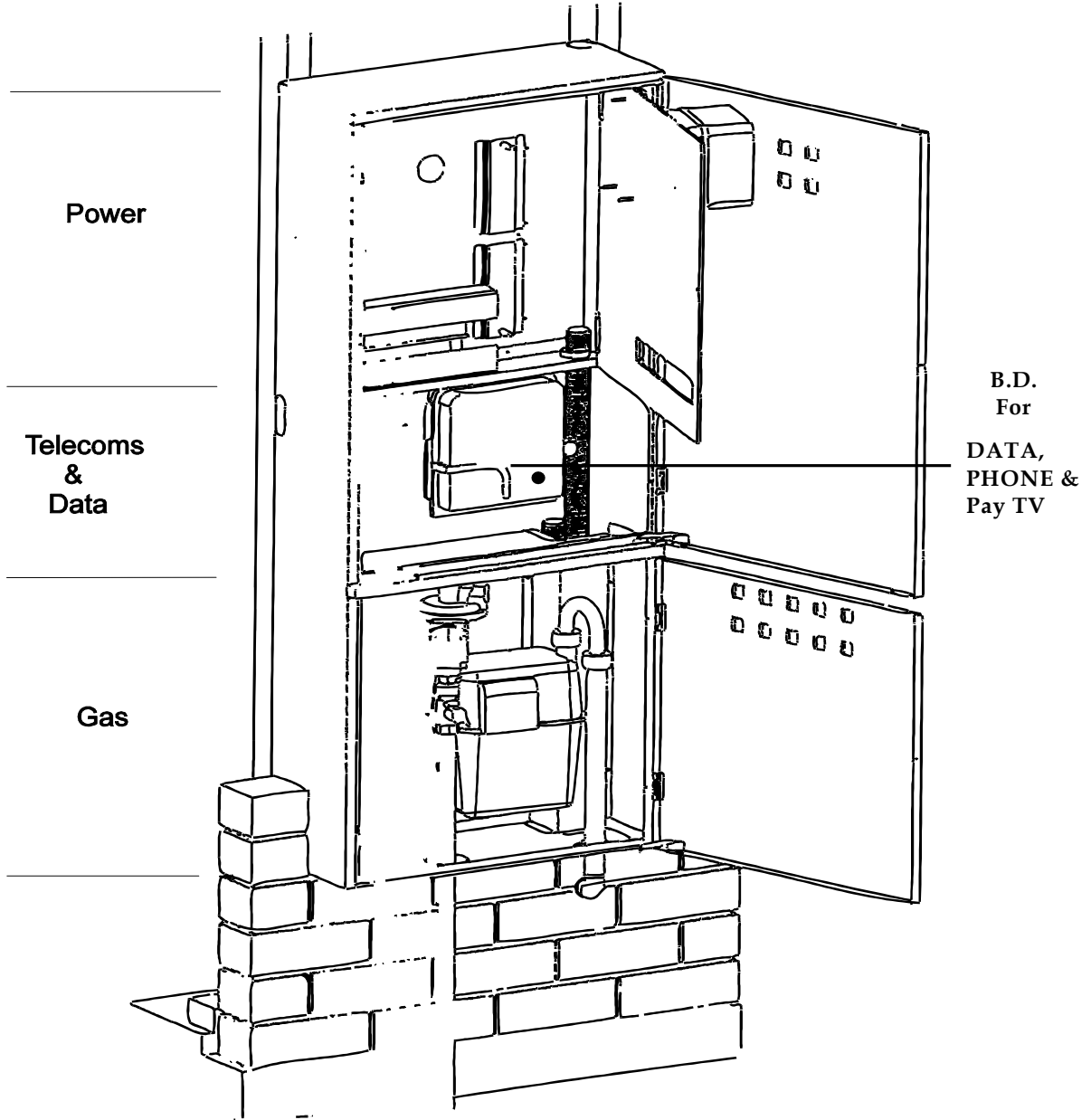
Notes to Figures A13 and A14:

1. The principles depicted in the diagrams on the preceding pages apply equally to brick-veneer and cavity-brick (eg. double-brick) construction. The cavity width is normally between 25 mm and 50 mm with brick veneer, and between 40 mm and 100 mm with full brick construction. Some solid masonry walls may not have a cavity, in which case the surface-cabled option would be used.
2. All conduits and bends are rigid UPVC, white, minimum 20 mm inside diameter (25-32 mm outside diameter).
3. With two-storey homes, run the conduit for the customer cables into the roof space, not the ceiling space for the lower floor.
4. The cooperation of the builder is required for conduit to be concealed. Telstra will install surface conduit where the opportunity to conceal the conduit has been missed. In some cases, this will require the installation of a contoured bend around the footings thus:



5. The diagrams are to scale and show a single-storey, brick-veneer dwelling with roof tiles, 600 mm eaves and slab-on-ground construction using strip footing. Examples of construction variables are:
 - cavity-brick or concrete masonry walls;
 - weatherboard or fibre-cement sheet cladding;
 - timber or metal frame;
 - metal sheet roof;
 - monolithic floor slab;
 - suspended floor;
 - two-storey or high-set (eg. suspended floor with room for parking, laundry, etc. underneath);
 - narrower eaves (eg. 450 mm);
 - no eaves (fascia installed directly on brick);
 - gable end.
6. The termite barrier may be bridged or breached by the underground lead-in conduit. Common termite barriers are:
 - chemical — lead-in conduit breaches the barrier (ie. passes through it);
 - exposed slab edge — lead-in conduit breaches the barrier (concealed conduit) or bridges the barrier (surface conduit);
 - stainless-steel mesh, ant cap or other sheet material — lead-in conduit breaches the barrier (concealed conduit) or bridges the barrier (surface conduit);
 - graded stone — lead-in conduit breaches or bridges the barrier depending where the stone is used (cavity or building perimeter) and whether conduit is concealed or surface-run.

For pre-wired installations, it is the builder's responsibility to maintain the efficacy of the termite barrier until building completion. For post-wired installations, the person who digs and reinstates the trench must arrange for reinstatement of the termite barrier if this is breached by the trench. This would normally be at the customer's expense.



CUB

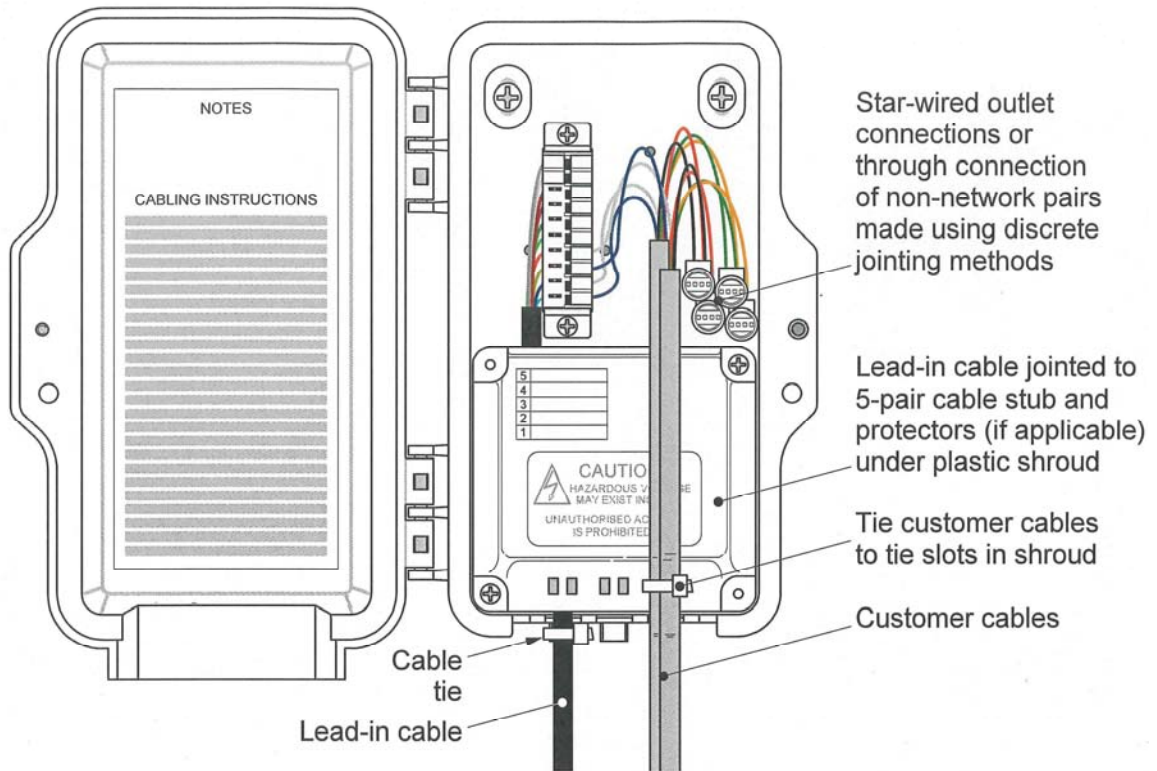
ATTACHMENT 3 Building Distributors

A means of terminating Telco cable, terminating customer installed cable and testing the cable.

Diagram of BD

Installation of Connection Boxes and Building Distributors on Houses

TYPICAL SMALL BD INSTALLATION (LESS THAN 10 LEAD-IN PAIRS)



To be installed as per Telstra Specifications

Validity of Document

This document may be amended from time to time to suit market trends and available technology. If you are unsure that the document in front of you is the latest, please ring the Mawson Lakes Project office and quote the issue number. **The onus is on the owner or builder to ensure they have the latest issue.**

From time to time appendices will be changed to reflect a better explanation of the body of the document or if other proprietary information becomes available. In this case only that appendix will be changed and not the issue number.

This document outlining the CUB and **pre-wire** encumbrance requirements, can be used in conjunction with **any** Home Management System that will meet the Mawson Lakes Encumbrance Requirements.

Proprietary Notice

This document has been prepared in good faith and is to be used as the "how to" document. This proposal includes information that must not be disclosed in whole or in part to indirect parties outside, and must not be duplicated, used, or disclosed, except to subcontractors or persons directly involved with your provision to parties administering your contract.

The Home Management System and The Pre-wiring of dwellings are the homeowner's responsibility. Any issues associated with either the pre-wiring or the HMS will be the installers and or the homeowners responsibility. Delfin Lendlease and LMC accept no liability for faults occurring associated to the HMS or Pre-wiring of dwellings.

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