

HOME WIRING ESSENTIALS



QUICK GUIDE TO SMART WIRING™

2022 EDITION



International Copper
Association Australia
Copper Alliance

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QUICK GUIDE TO SMART WIRING™

The following 5 steps will help you understand what sort of technology you may want in your home and give you an idea of the basic cabling and wiring you need to get it.

You don't need to have all the high-tech options that are possible right now, of course. But putting in the right cabling and outlets when building or renovating means the house is set up for whatever comes along.

Better still, Smart Wiring is National Broadband Network ready and that means your home can easily handle everything the National Broadband Network can offer today and well into the future.

OUR FIVE STEPS ARE:

Step 1

What Services are Possible & What Cabling is Needed

Step 2

Select the Services You Want

Step 3

Mark Out Your House Plans

Step 4

Review Your Plans

Step 5

Issue Documents to Get a Quote

Note: *You, as the home owner, need not be technical - you simply need to know which services you want to have today and in the future and use this guide to get the right cabling in place.*



STEP 1

WHAT SERVICES ARE POSSIBLE & WHAT CABLING IS NEEDED?








SYMBOL	SERVICE REQUIRED	SERVICE PLATFORM	MINIMUM REQUIREMENTS
	Age & Assisted Living	Cabling to provide intercom to the front door, assistance/emergency call buttons to be installed and all cabling outlets are located in easily accessible location.	Intercom connection points and associated cabling must be installed from the front door to the main living areas and main rooms. Assistance call button connection points must be installed in bathrooms and main living areas. Power points and light switches installed at a height easily accessible to people with physical disabilities.
	Appliances	Cabling for all major appliances to support communications to the appliances.	A minimum of one telecommunications outlet and associated cabling must be installed next to the hot water system, air conditioning units, pool pump and the electricity meter.
	Digital Home Health	Cabling for medical devices to be connected to the internet in addition to meeting the requirements for communications and security services detailed above.	Data outlets and associated cabling must be installed to allow for the installation of a Wireless Access Point to be configured at a later stage and a power point, if not already installed under communications.
	Electric Vehicle (EV) Charging	Cabling for charging of an Electric Vehicle (EV)	A minimum of one 32 Amp circuit/outlet with one RJ45 outlet and associated cabling must be installed in the main car-parking area at a location away from pedestrian thoroughfares.
	Energy management	Cabling for the control of the hot water system, air conditioning and pool pump.	A minimum of one outlet and associated cabling must be installed next to the hot water system, air conditioning units, pool pump and the electricity meter. ECS, Economic Cable Sizing is using the next size cable to improve the efficiency of the electrical cabling and reduce the losses allowed by standards.
	Entertainment	Cabling for free to air and pay TV services in every living area.	A minimum one dual coax (F-connector) outlet and associated cabling must be installed per living area for television (Free to Air and Pay TV). In addition if not provided for under communications a dual Cat 6A outlet next to the dual Coax outlet.
	EES Systems Battery	Electrical wiring or a pathway from the main switch board to the EES location which will include an inverter and the battery bank. Communications cabling to allow connection to the control network.	A minimum of two blank circuit breaker poles (assuming single phase) for battery inverter protection devices should be installed in the switch board, typically "Main Switch (Inverter Supply)" for the backed up circuits and "Battery Inverter (Normal Supply)" for the feed from the main switchboard to the EES inverter. Best practice is to have separate switchboards for Normal Supply and Inverter Supply circuits, if in same switchboard then separate load centres are recommended and clear labelling. For communications a minimum of Cat 5 cable from the Home distributor to the inverter location and also one from the home distributor to the battery location(s).
	Information & Communications	Cabling for telephone and internet services in every living area, and a Wireless Access Point.	A minimum of one dual Cat 6A outlet and associated cabling must be installed in each living area to provide access to the internet for high bandwidth devices. A minimum of four dual Cat 6A outlet locations to support Wireless Access Point.
	Intelligent Lighting & Power	Lights and power points are able to be managed.	A minimum of one light fitting and one power point is wired to allow for the connection to a management system in each living area. C-Bus, KNX, Dynalite would be deemed compliant.
	Security & Safety	Cabling for a back to base security system to be installed. It also has smoke detectors installed and functioning and capability to install a CCTV camera in the front door area.	Sufficient movement sensors to detect an intrusion into the home, plus a code pad at the front door. Smoke detectors installed and functioning.
	Solar	DC electrical cabling or a pathway from the location where the solar array is to be installed to the inverter. Telecommunications cabling from the Home Distributor to the location of the array.	DC cabling needs to be soft engineered to allow for the maximum size array that could be installed. A minimum of two blank circuit breaker poles for grid-inverter protection devices (assuming single phase) should be installed in the main switchboard, typically "Main Switch (PV Inverter)" and a (recommended) surge protection device.

Table 1 - Definition of Service and minimum requirements

MINIMUM REQUIREMENTS

The above chart shows the **minimum cabling requirements** for a consumer to ascertain if their home has the technology infrastructure in place and meets the requirements of the Code of Practice for Home Wiring.

Living area refers to dining room, living room, family room, bedroom, kitchen, study, theatre room, rumpus room, spare room, workshop etc. All cabling provided under the specification will meet the minimum requirements as specified in the Code of Practice for Home Wiring and be installed in accordance with this guide.

The Code of Practice for Home Wiring and the Installer's Handbook for Home Wiring comply with all relevant Australian Standards and have been developed by the industry to set a minimum cabling platform that will deliver the potential of the many technologies available today.

STEP 2

SELECTING WHAT SERVICES YOU WANT

SERVICE NAME	TO BE PROVIDED	PERSONAL NOTES:
 Age & Assisted Living	<input type="checkbox"/>	
 Appliances	<input type="checkbox"/>	
 Digital Home Health	<input type="checkbox"/>	
 Electric Vehicle (EV) Charging	<input type="checkbox"/>	
 Energy management	<input checked="" type="checkbox"/>	Pool timer, Hot water system
 Energy management with ECS option	<input type="checkbox"/>	
 Entertainment	<input checked="" type="checkbox"/>	foxtel outlet, hifi
 ESS Systems Battery	<input type="checkbox"/>	
 Information & Communications	<input checked="" type="checkbox"/>	internet, phone line
 Intelligent Lighting & Power	<input type="checkbox"/>	
 Security & Safety	<input checked="" type="checkbox"/>	Garage Security Cam
 Solar	<input type="checkbox"/>	

Start of Quote Request Form:
Selecting which services are required - See page 9
of this booklet for full form and details.

STEP 3

MARK OUT YOUR HOUSE PLANS

All you need to do is mark where you want the **communications, entertainment, appliances and power points and light fittings** and indicate where the main appliances are. Your installer will do the rest for you.

SERVICE REQUIRED	SYMBOL
1. Communications (Where you want your communications outlet)	COM
2. Entertainment (Where you want your entertainment outlets)	ENT
3. Energy Management (Indicate where you have an electric storage hot water system, air conditioning and pool pumps) <ul style="list-style-type: none"> - Hot water system - Air conditioning main units - Pool pumps - Pool heaters - Spa pumps - Spa heaters 	HWS AIR PO SPA
4. Appliances (Mark where you are planning to install your major appliances, these include Dishwasher, Fridge, Freezer, Wine coolers, washing machine, dryer)	AP
4. Power & Lighting (Power points, light fittings and switches typically done by the architect of builder in the reflected ceiling drawing. If not you can make them) <ul style="list-style-type: none"> - Power Points - Light Fittings - Light Switches 	PP LF LS

Table 2 - Symbols to use on the plans

SAMPLE MARKED HOUSE PLAN:

This sample below shows the **communications, entertainment** and **main appliances** locations.

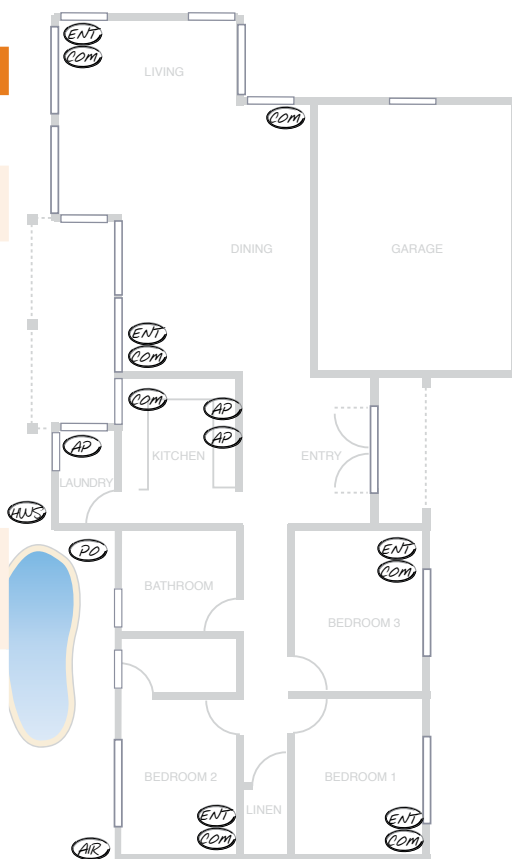


Figure 1 - Sample marked up house plans

If you require **Security & Safety, Digital Home Health, Age & Assisted Living, Appliances, EES Battery, Intelligent Lighting & Power and Electric Vehicle Charging and Solar** your installer will do this in accordance with the Code of Practice for Home Wiring and Installer Handbook for Home Wiring which are available for you to download from www.registeredcable.com.au/smart-wiring

STEP 4

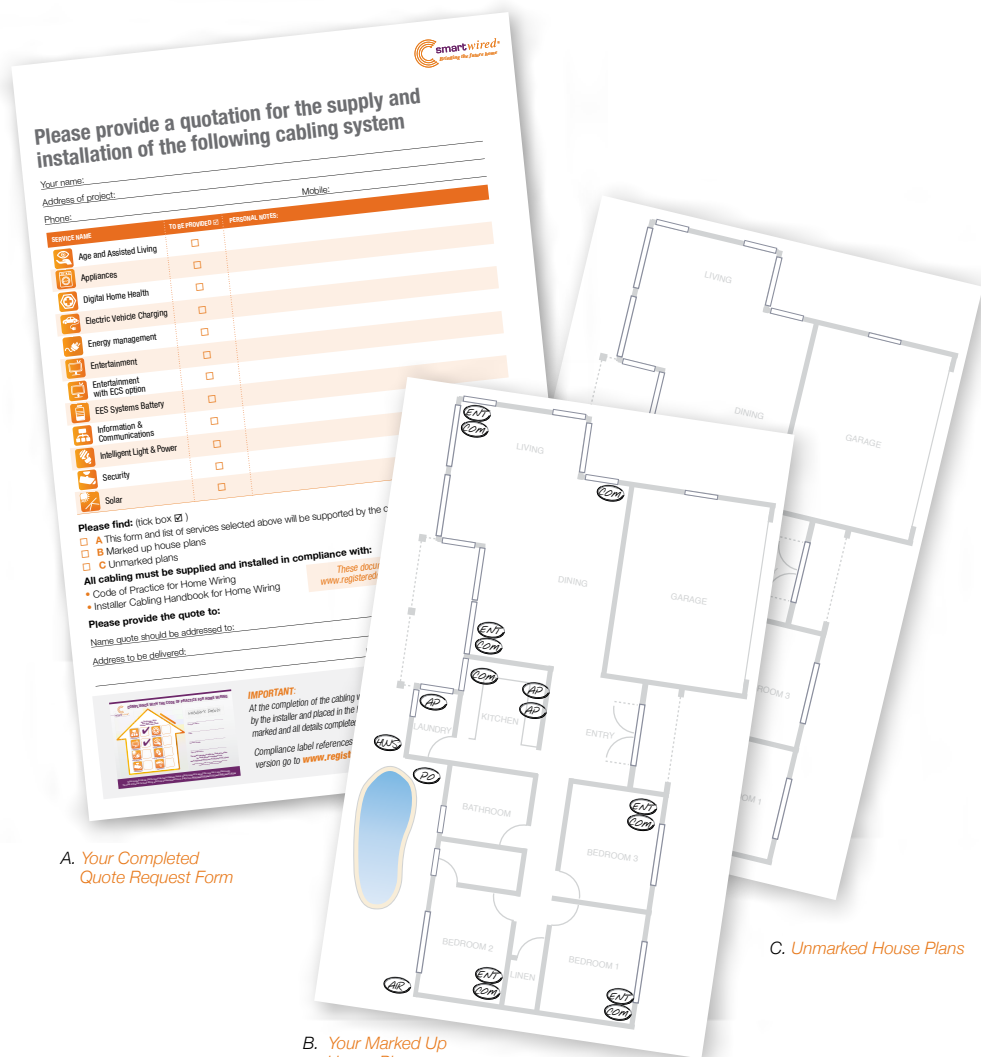
**REVIEW STEP 2 AND 3 AND MAKE
SURE IT ALLOWS FOR YOUR NEEDS**



STEP 5

ISSUE DOCUMENTS TO GET A QUOTE

Preparing the documentation is easy. Simply print out the Quote Request form on the next page, fill out your personal details and your list of required services. Attach your marked up house plans and a set of unmarked house plans and give to your builder to obtain a quote.















PLEASE PROVIDE A QUOTATION FOR THE SUPPLY AND INSTALLATION OF THE FOLLOWING CABLING SYSTEM

Your name: _____

Address of project: _____

Phone: _____ Mobile: _____

SERVICE NAME	TO BE PROVIDED <input checked="" type="checkbox"/>	PERSONAL NOTES:
 Age & Assisted Living	<input type="checkbox"/>	
 Appliances	<input type="checkbox"/>	
 Digital Home Health	<input type="checkbox"/>	
 Electric Vehicle Charging	<input type="checkbox"/>	
 Energy Management	<input type="checkbox"/>	
 Energy Management with ECS Option	<input type="checkbox"/>	
 Entertainment	<input type="checkbox"/>	
 EES System Battery	<input type="checkbox"/>	
 Information & Communications	<input type="checkbox"/>	
 Intelligent Lighting & Power	<input type="checkbox"/>	
 Security & Safety	<input type="checkbox"/>	
 Solar	<input type="checkbox"/>	

Please find: (tick box ☒)

- ☐ **A** This form and list of services selected above which need to be supported by the cabling being specified.
- ☐ **B** Marked up house plans
- ☐ **C** Unmarked plans

All cabling must be supplied and installed in compliance with:

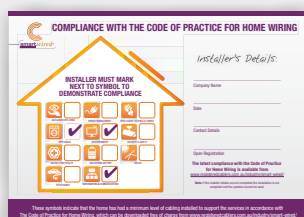
- Code of Practice for Home Wiring
- Installer Cabling Handbook for Home Wiring

*These documents can be downloaded from
www.registeredcables.com.au/smart-wiring*

Please provide the quote to:

Name quote should be addressed to: _____

Address to be delivered: _____ Date when required: ____/____/____

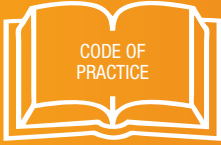


IMPORTANT:

At the completion of the cabling work the compliance label should be completed by the installer and placed in the home distributor with the applicable services marked and all details completed.

Compliance label references the Code of Practice version. For the latest version go to www.registeredcables.com.au/smart-wiring

HOME WIRING ESSENTIALS COMPRISES OF THREE DOCUMENTS



This document sets out the building cabling platform standards to be complied with.



This document is designed for the consumer to easily communicate to the installer what services they want without the need to have detailed knowledge of each technology area.



This document provides details to the installer of the cabling required to meet the consumer expectations and comply with the standards and the Code of Practice for Home Wiring.

Your installer can download the documents from the Australian Registered Cabler's website by following this link: www.registeredcables.com.au/smart-wiring.

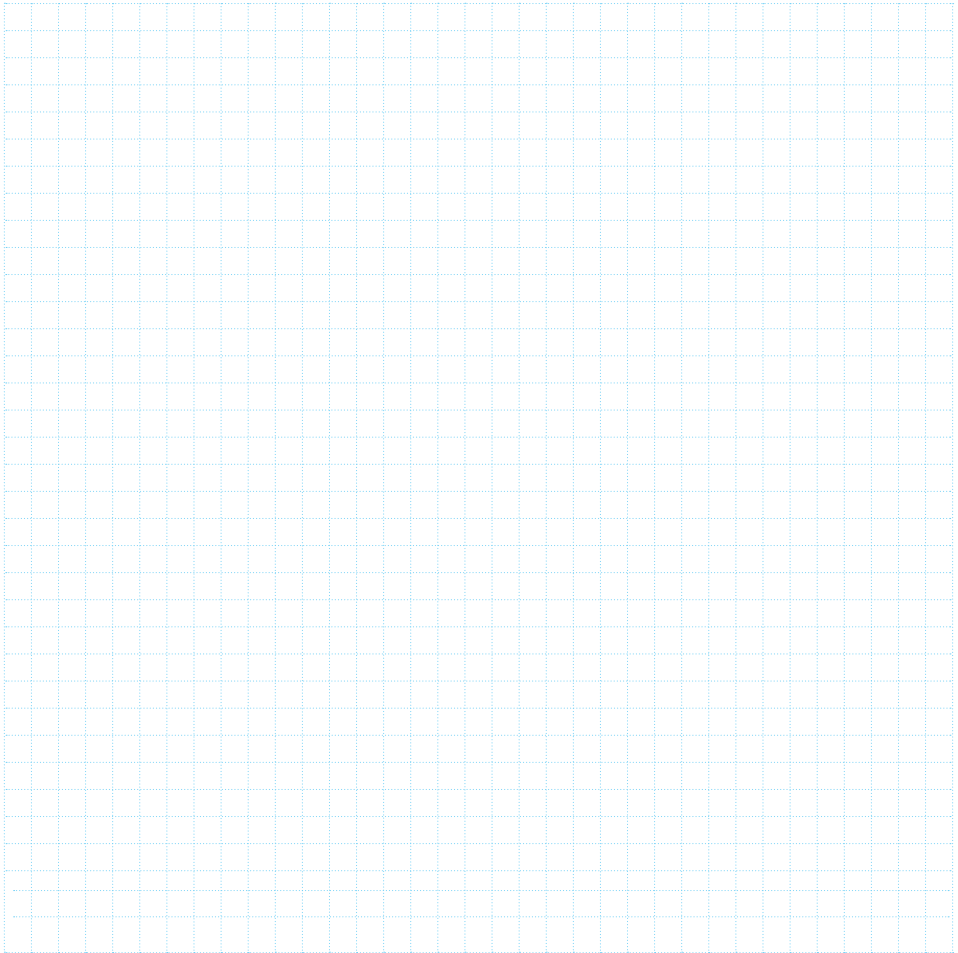
CONTRIBUTORS

The handbook was developed with the support of the following organisations:



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NOTES/ HOUSE PLAN



Appendix ECS

The selection of the size of the cable used in an electrical installation to connect lights, power points and other fixed equipment such as electric hot water systems, Air conditioning and pool pumps is dictated by AS/NZS3000 and AS/NZS3008. The selection of the cable size was based on its current carrying capacity and voltage drop. In the latest revision of AS/NZS3008 which was published in 2017 one additional criteria has been added to the selection of the cable this being "Determination of cable size on the economic optimisation consideration". Whilst the consideration of voltage and current are mandated, the optimisation is optional.

In summary the economic optimisation considers the energy loss on the cable and determines which cable size would reduce these losses so that the cost of those losses are greater than the cost of the large cable, so over the life of the installation energy losses are reduced leading to reduced energy bills and greenhouse gas emission.

There are two ways of adopting this option:

- 1) Increase the size of the cable required under mandated current and voltage considerations to the next size, or
- 2) Undertake the engineering calculations as outlined in the Installer manual of the Home Wiring Essential series

As this is a very large topic area additional information is available in a paper titled "Principles of Economic and Energy Efficient Cable Sizing".

If ECS Option has been selected it requires the installer to either upgrade the selected cable to the next size up or undertake the engineering calculation to upgrade to the optimum cable size for:

- | | |
|--|----------------|
| a) Hot water system, Air conditioning and pool & Spa pumps and heaters | c) Solar |
| b) EES | d) EV charging |

If you are concerned about the cost impact on your project simple ask your contractor to give you a costing on Option 1 – increase cable to the next size above that recommend by ASNSZ 3008.



This document lays out the minimum levels of cabling for your home to meet the Smart Wiring™ standard. It prepares your house for Communications, Entertainment, Energy Management, Security, Digital Home Health, Age & Assisted Living, Intelligent Lighting & Power and Electric Vehicle (EV) Charging.

For further information email us at findacabler@registeredcables.com.au



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