

# Part D: Managing houses for safety and health

A cyclical maintenance program is essential for sustaining the safety and health of houses and yard areas in a community. This program is best staffed by local people who have knowledge about the parts of health hardware that they can maintain and the components that require licensed tradespeople to be brought into the community. The following information sets out:

- Safety and health priorities
- Items that the community staff can check and fix, indicated by circled numbers on the drawings
- Items that require licensed tradespeople to test and fix

Each diagram includes number labels for critical parts of the safety or health hardware, which are described in the text.

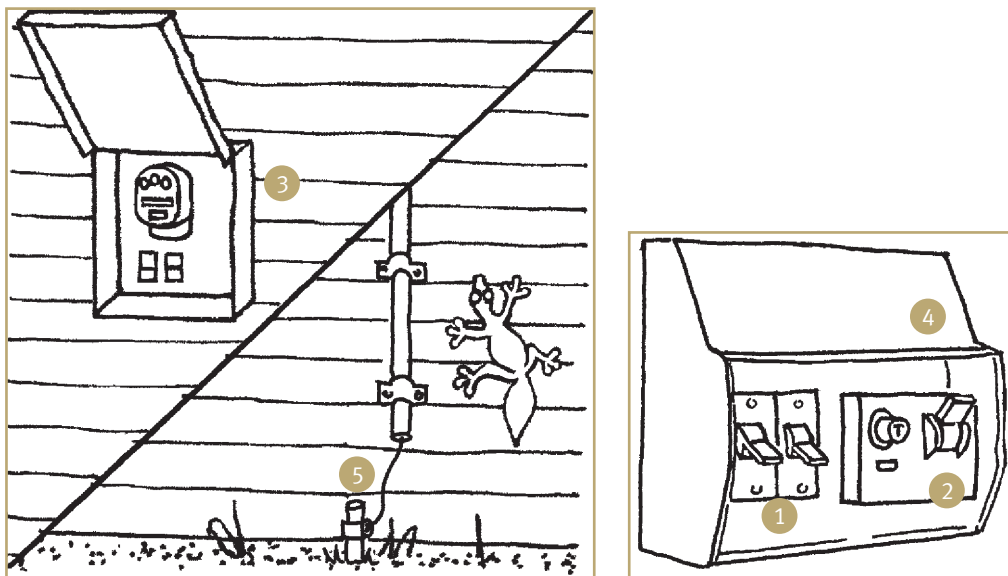


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## D Safety

### Electrical safety



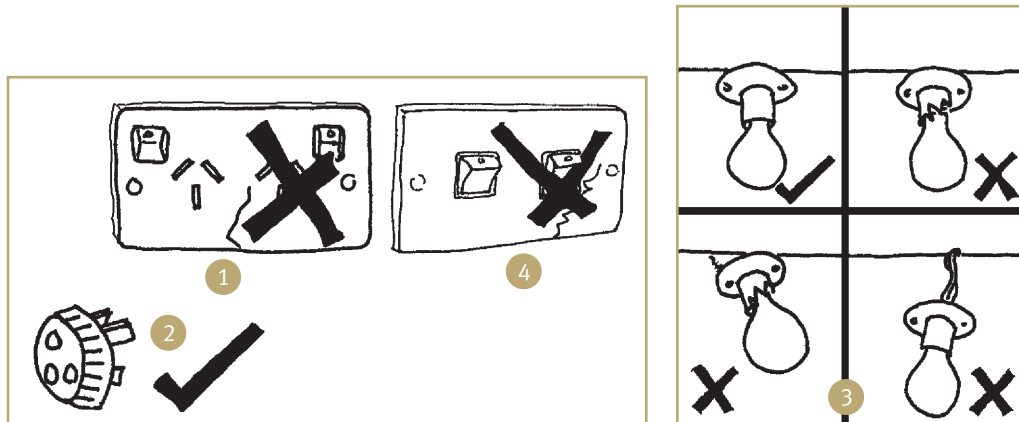
#### Community check and fix

- The circuit breakers (1) and safety switches (2) in the meter box (3) and switchboard (4) are **all** labelled and the test buttons work. Check that when the switches are off, power is not available at the circuits in the house.
- There is an earth stake (5) that is securely located in the ground and the wire is securely attached to the earth stake.
- Check that there are no bare or exposed wires in or around the house.
- Arrange for an electrician to fix any problems.

#### Trade test and fix

- Confirm **all** circuit breakers (1) and safety switches (2) are labelled and working OK.
- Ensure there is a safe, secure and approved electrical connection from the power network to the house.
- Make sure the electrical installation is fully earthed (5) and load tests OK.
- Replace any cabling that is not intact, not properly sized, or exposed to accidental contact.

## Power points, light switches and lights



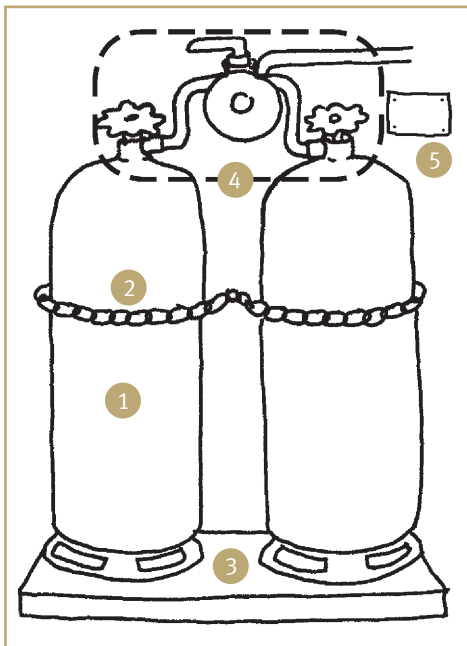
### *Community check and fix*

- Check power points (1) with a power point tester (2) available from electrical or hardware stores.
- Check **all** power points, lights (3), switches (4), fans and other fittings are working properly and are not cracked, loose, broken or painted over.
- Arrange for an electrician to fix any problems.
- Replace light bulbs that are missing or faulty.

### *Trade test and fix*

- Load test the entire electrical installation.
- Confirm **all** fittings are properly wired and are in safe working condition.
- Replace faulty electrical fittings as a priority.

## Gas safety



### *Community check and fix*

- Check that gas bottles (1), if available, are upright and securely fixed by chain (2) to the wall.
- If necessary, provide a concrete pad or pavers (3) for the gas bottles to stand on.
- If there are any gas smells or signs of leaks from pipe connections to bottles or at the regulator (4), arrange for a gas fitter to fix the problem immediately.
- Confirm that a compliance plate of gas safety (5) has been provided for new houses and major renovations before anyone moves in.

### *Trade test and fix*

- Test the gas installation to ensure it complies with relevant codes and there are no leaks.
- Test that **all** gas appliances are connected, installed to manufacturer's instructions and have been secured in place.

## Fire safety



### *Community check and fix*

To prevent fire:

- Replace blown light globes or tubes to avoid the use of candles that can cause fire.
- Check all gas fittings for leaks and get a gas fitter to fix any problems.
- Clean flues of wood heaters and chimneys.
- Check the operation of exhaust fans in bathrooms and kitchens, and clean the filters.
- Check for signs of household pests such as mice and ants that can cause electrical faults, and run a pest management program.

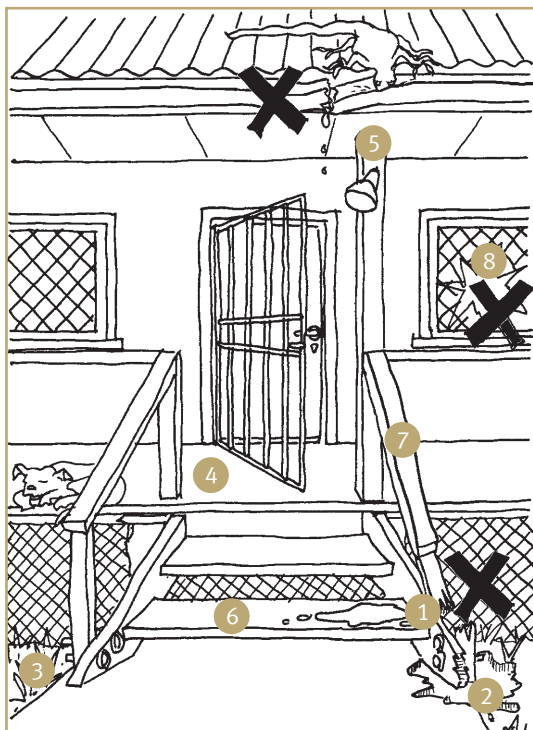
To detect fires and ensure people can escape in the event of fire:

- Use the test button (1) to check smoke alarms, and replace batteries regularly
- Arrange for an electrician to install smoke alarms in all houses.
- Check all doors have locks that can be operated from the inside without a key, so that people cannot be locked in rooms; replace locks if necessary Remove pad bolts or barrel bolts from bedroom doors.
- Check that release catches and locks on security screens are working.

### *Trade test and fix*

- Test that **all** smoke alarms have been installed as required, are connected to the mains power, and are working.
- Load test the electrical installation to identify for faults that could cause fires.

## Structural safety and reducing hazards that cause trauma



### *Community check and fix*

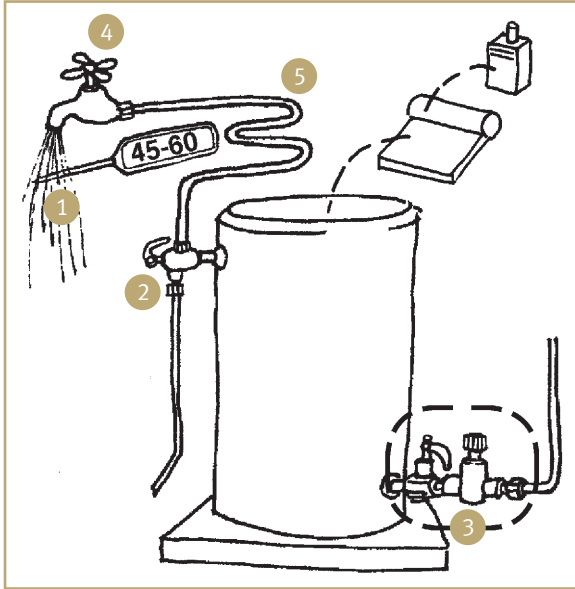
- Check regularly for rust, rot (1), termites and other signs of structural deterioration, and re-apply paints and protective coatings to exposed timber and steel.
- Fix water leaks (2) that may attract termites or cause rot or corrosion.
- Check garden beds (3), timber floors (4) and ramps for termites, and talk to residents about removing garden beds that are against walls.
- Ensure there is a working light (5) at all external doors. to prevent slips and falls.
- Check that steps (6) and handrails (7) are secure, and fix loose or broken steps and handrails.
- Check for and replace any broken glass (8).
- Ensure external steps and porches have a non-slip finish or are sheltered from rain.

### *Trade test and fix*

- Organise for a qualified pest controller to undertake a regular program of termite inspections and treatments.
- In high wind areas, organise a program to inspect, tighten, replace or install the structural tie-downs between roof, wall and floor and, if the roof is nailed on, replace the nails with screws and cyclone washers.

## D1 Washing people

### Hot water



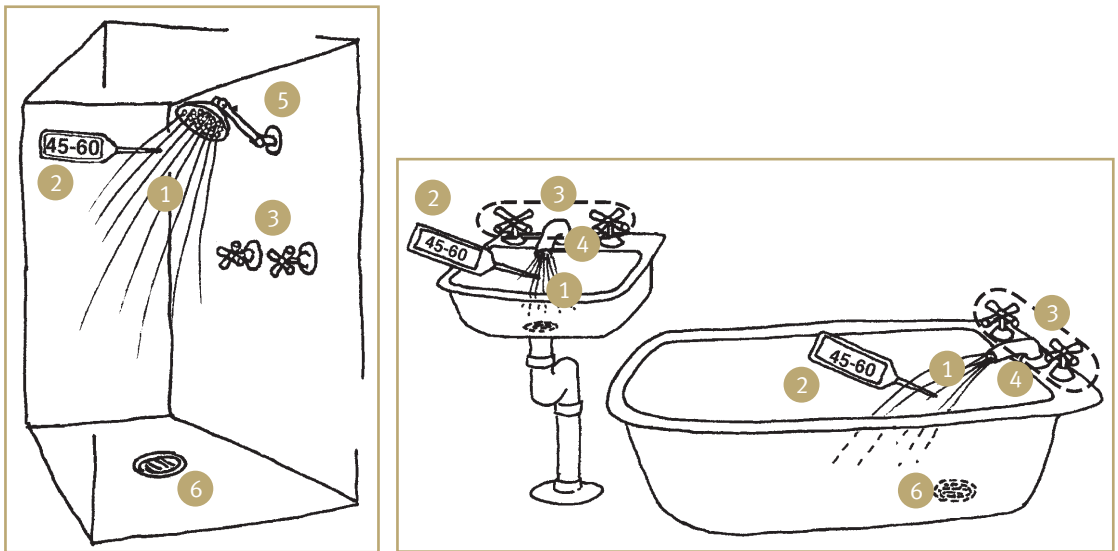
#### *Community check and fix*

- Check that the hot water temperature at taps is greater than 45°C and less than 60°degrees (1); if not, get a plumber to check and adjust the system.
- Check that the hot water pressure relief valve (2) and cold water pressure relief valve, if fitted and hot water system shut off valve (3) are functioning, and get a plumber to replace any faulty valves.
- Replace the washers (4) in hot water taps.
- Check and repair lagging on hot water pipes (5).

#### *Trade test and fix*

- Test the condition of the anode and element and replace if required.
- Test the main storage cylinder for corrosion or build up of mineral salts.
- Test the thermostat is set between 50°C and 60°C.
- Test the condition of collector panels and the heat exchange fluid in solar units (6), and the condition of collector panels and levels of refrigerant gas in heat pump units (not shown).

## Washing people – bath, basin, tub and shower



### Community check and fix

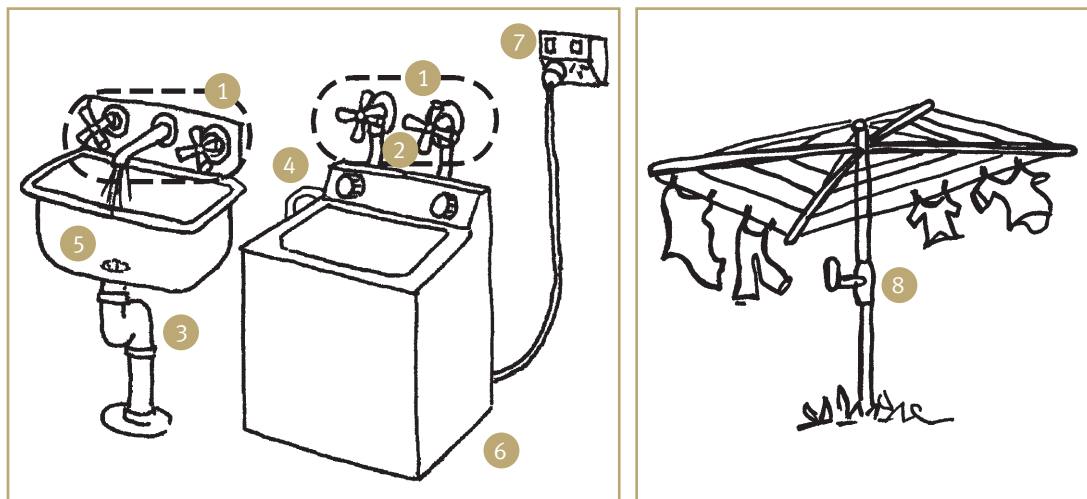
- Check that hot and cold water is available and pressure is okay (1) at the bath, basin, tub and shower and the hot water temperature is between 45°C and 60°C (2).
- Check taps (3), spouts (4) and shower roses (5) for leaks, organise a plumber to fix all leaks and consider replacing all washers regularly.
- Check that the drains (6) are working and are not blocked or leaking; get a plumber to fix blockages or leaks.
- Replace missing plugs at the bath or basin.
- Check for signs of water leaks, decay, rot and rust in the walls, floors and cupboards; get a builder to inspect if there are problems.
- Check that the bath and basin are securely fixed to the wall or floor, and fix if loose.
- Install clothes hooks, towel rails and shelves if there are none available
- Check the door lock works and fix if necessary.
- Replace any missing or blown light bulbs.

### Trade test and fix

- Replace washers in taps, spouts and shower roses, and reseal taps if required.
- Inspect for possible water leaks or failure of waterproofing to prevent structural failure.

## D2 Washing clothes and bedding

### Laundry tub and washing machine services



#### Community check and fix

Check taps (1), spouts (1) and washing machine hoses (2) for leaks and organise a plumber to fix all leaks.

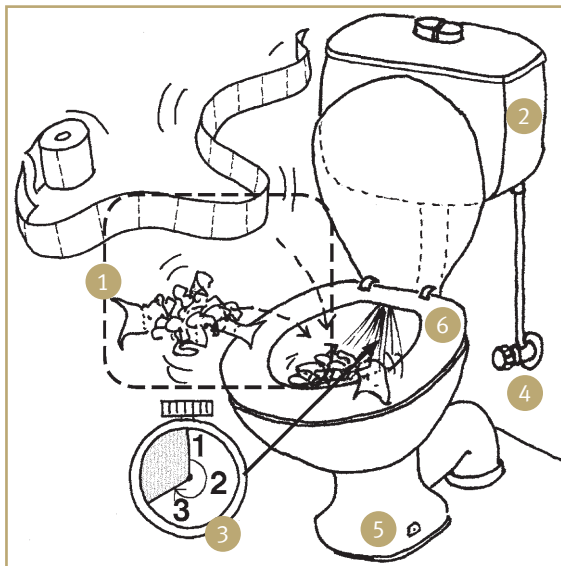
- Consider a program to replace **all** tap washers regularly to prevent leaks.
- Check that the drains (3) are working and not leaking, including a dedicated drain (4) for the washing machine.
- Replace the plug at the laundry tub if it is missing.
- Check for signs of water leaks, decay, rot and rust in the walls, floors and cupboards, and get a builder to inspect if there are problems.
- Check that the tub (5) is securely fixed to the wall or floor, and fix if loose.
- Check that the washing machine (6) is level, and adjust the feet if it is not.
- Check power points (7) with a power point tester.
- If there is no shelf in the laundry, install one.
- Check that there is a clothes drying line (8); replace any missing or broken wires. If there is not drying line, consider installing one.

#### Trade test and fix

- Replace washers in taps, spouts and shower roses and reseal taps where required.
- Test for possible water leaks or failure of waterproofing, to prevent damage.

## D3 Removing waste water safely

### Flush toilet



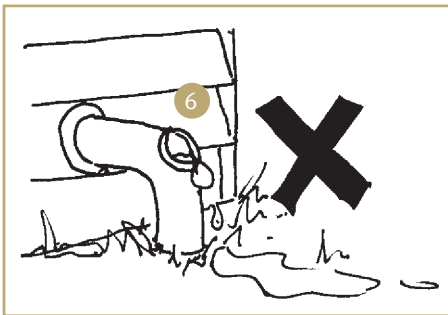
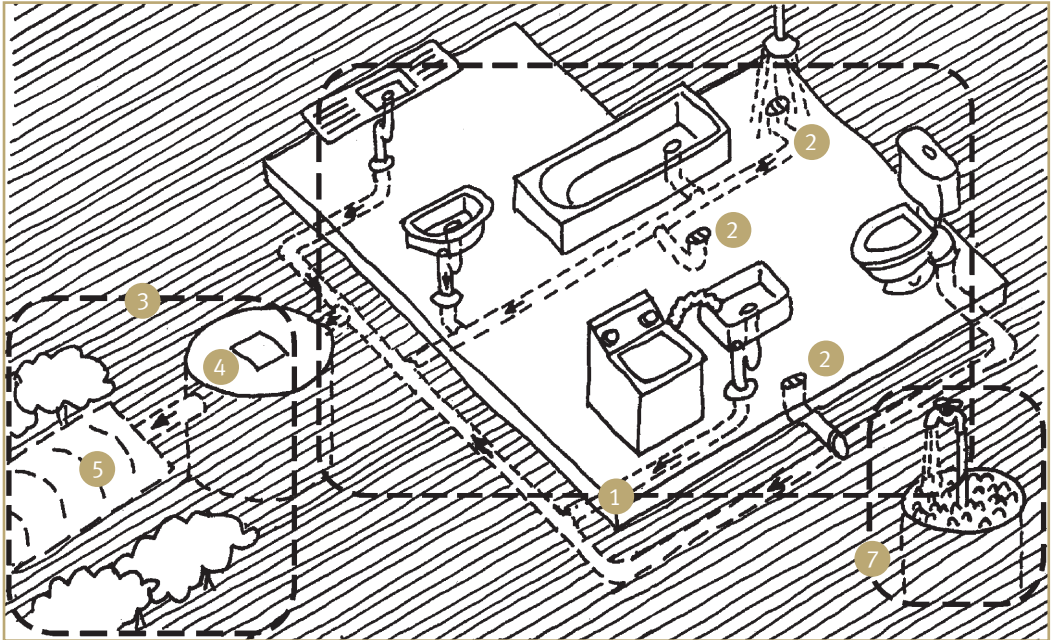
#### *Community check and fix*

- Check the function of the toilet by putting three lengths of toilet paper, each 1.8 metres long, in the bowl (1) and check that they are flushed away in a single flush; if not, get a plumber to fix the toilet.
- Check that the toilet cistern (2) can refill in less than three minutes (3), or get it fixed.
- Check that the tap behind the toilet (stop valve) is not leaking (4), and can be turned fully on and off. Leave the tap fully open and back one turn. If there is a problem, get the plumber to fix it.
- Check that there are no other leaks from the toilet cistern or drains, and that the pan (5) is securely fixed to the floor and is not cracked; get a plumber to fix any problems.
- Check that the toilet seat (6) is not cracked or broken, and is secure. Tighten or replace if necessary
- Install a toilet roll holder if it is missing or broken.
- Check that the door lock works, and fix it if it does not.
- Replace any missing or blown light bulbs.
- If there is a floor drain, check that it is not blocked

#### *Trade test and fix*

- Test the full function of the toilet and floor drains, and fix any leaks or problems.
- Replace cracked or damaged pans and cisterns.

## Drains



### *Community check and fix*

- Run water through **all** house drains to make sure that they are not blocked (1).
- On the outside of the house, look for any signs of overflowing drains, and check for long grass in the garden that might indicate a water leak or failed drain.
- Get a plumber to fix any drainage problems.
- Check the grates (2) are in place on drains, and replace missing or broken grates
- Check that there is a screened cap on the top of **all** vent pipes; replace missing caps
- Check the grate is in place on the overflow relief gully; replace if missing
- If there is a grease trap, empty it out regularly and check it is not overflowing

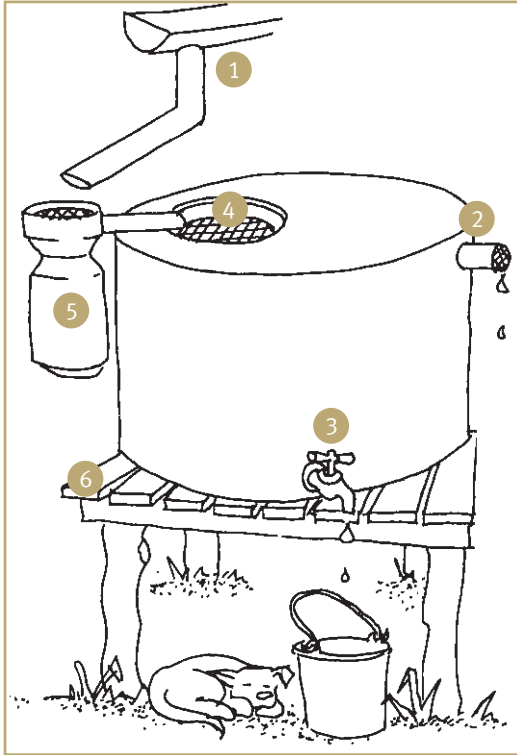
- If there is a septic system (3), organise for it to be pumped out at least once a year; check the lid (4) and inspection openings are in place on the tank, and that traffic cannot drive over the trenches (5).
- Check that caps are fitted on **all** inspection openings (6) and replace any missing caps
- Check that there are drains or splashpads under yard taps (7) and downpipes; if not, arrange to install them where required.
- Undertake regular maintenance on package treatment systems or composting toilet systems, as recommended by the supplier.

#### *Trade test and fix*

- Undertake a full test of the drainage system and fix any blockages or leaks.
- Test to ensure stormwater is not connected to the wastewater disposal system.
- Undertake scheduled trades maintenance on package treatment systems or composting toilet systems, in accordance with manufacturer's instructions.

## D4 Improving nutrition: the ability to store, prepare and cook food

### Rainwater collection and storage



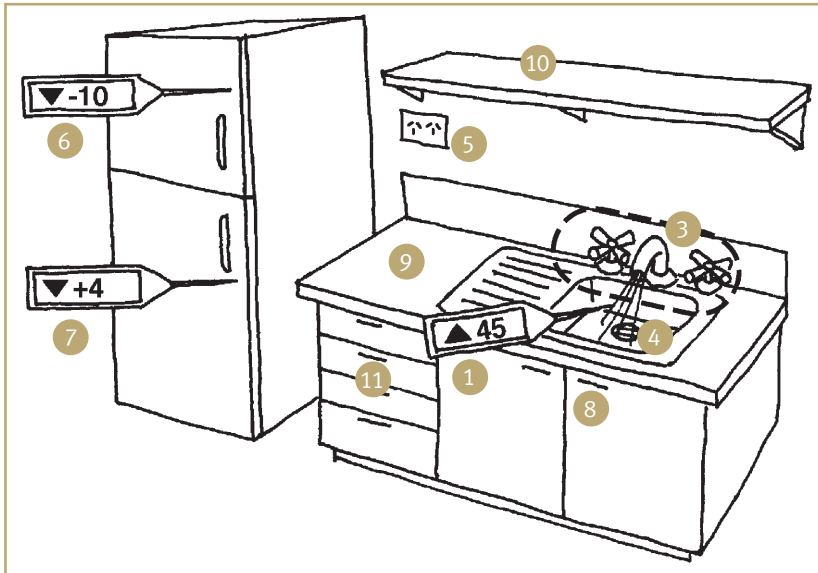
#### *Community check and fix*

- Check and clean the rainwater collection system, including roof gutter and downpipe inlet point (1) and tank overflow (2).
- Secure, repair or replace broken or rusted gutters or downpipes.
- Check the rainwater tank tap (3) is working and change the washer if required.
- Check and repair the screens to inlets (4) and overflows (2) on the rainwater tank.
- Empty out first flush diverters (5) and check they are working.
- Regularly empty and clean inside of tanks to remove build up of algae and sediment and check that the tank stand or pad (6) is sound.
- If a filter is installed, replace the cartridge regularly.
- Check that there are drains or splashpads under taps and downpipes; if there are not, arrange to put some in.

#### *Trade test and fix*

- Regularly test the quality of rainwater from tanks, particularly for contaminants.

## Storing and preparing food



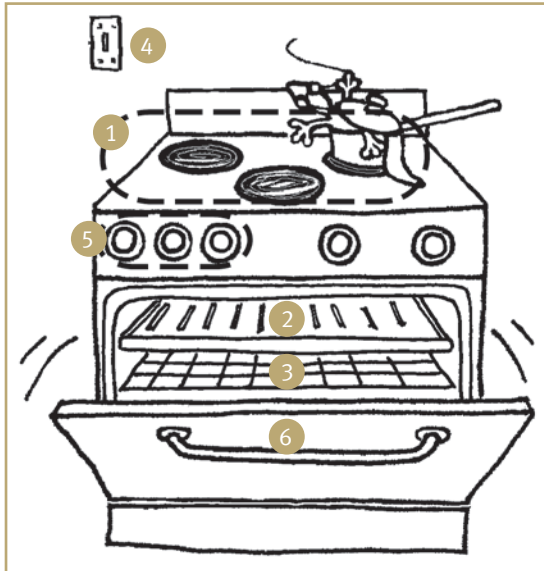
### *Community check and fix*

- Check that there is hot (1) and cold water available at the sink (2), that the taps and spout (3) are not leaking, and also check the drain (4); get a plumber to fix any problems.
- Check whether there are enough power points (5) and check they are working, not cracked and not covered in grease; get an electrician to fix problems and install more power points if required.
- Check that freezer temperature is colder than minus 10°C (6) and fridge is colder than 4°C (7); if not, organise for a fridge mechanic to check the door seals and/or re-gas the fridge.
- If the fridge is hot, discuss with the resident a better location that is not as hot and has good airflow around the fridge and freezer.
- Check and fix cupboard door handles (8), locks, hinges, benches (9), shelves (10), drawers (11) and screened pantry/food storage areas.
- Install additional shelves and benches if there is not enough storage or preparation area.
- Replace the light bulbs if they are missing or blown.
- Organise a regular pest management program.

### *Trade test and fix*

- Service refrigerators to improve performance, including re-gassing and replacing door seals.
- Replace washers at leaking taps and spouts.
- Undertake a regular pest management program, particularly for cockroaches, ants and rodents.

## Cooking food



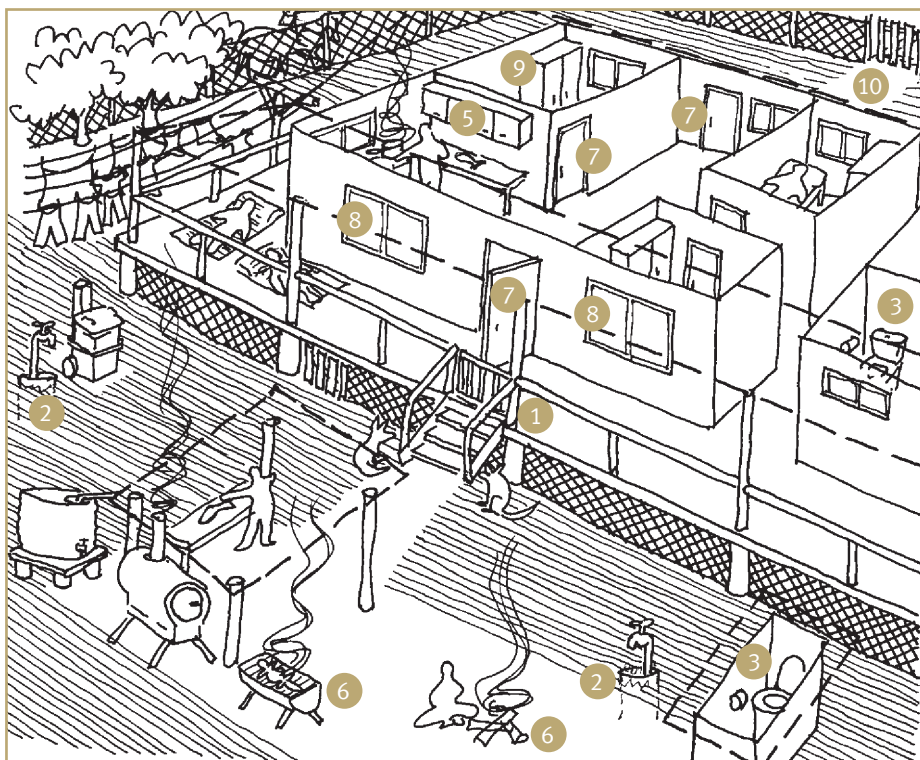
### *Community check and fix*

- Check that all burners or elements are working on the stove (1), grill (2) and oven (3); organise for an electrician or gas fitter to replace faulty elements or burners.
- Check the timer switch if available and isolation switch (4) are working on electric stoves.
- Clean gas burners in hot water with a stiff brush to unclog them.
- Clean the entire stove and oven with heavy duty cleaners.
- Check and replace control knobs (5).
- Check that the oven door (6) opens and fully seals when closed, and that the glass is not cracked.
- Consider organising annual maintenance and cleaning of all stoves in the community to extend the life of the stoves.

### *Trade test and fix*

- Arrange for an electrician or gas fitter to undertake full service of all stoves and replace parts that are not working, including elements, burners, control knobs, oven door and seals, as required

## D5 Reducing the negative impacts of over-crowding



### *Community check and fix*

For houses with large populations, consider a program to check and fix the following health hardware items every few months because they may need more maintenance due to wear and tear.

- safety switches for electrical safety
- smoke alarms for fire safety
- stairs and hand rails (1), floor coverings and other building components for safety
- function of all house taps, yard taps (2), spouts, shower roses, toilet (3) and drains
- function of septic system and grease trap, and look for leaks or pools of water in yard
- function of hot water system, check there is enough hot water at 45°C
- clothes drying facilities (4)
- stove function (5) and outdoor cooking facilities (6), if available
- doors and door handles (7)
- windows and security screens (8)

- replace missing or blown light bulbs
- all cupboards and robes (9)
- fences and gates (10).

*Trade test and fix*

- Undertake regular electrical safety tests, and prioritise urgent maintenance.
- Arrange for regular tests of plumbing and gas installation, and prioritise urgent
- Prioritise works to make sure the building is safe.

## D6 Reducing negative effects of animals, insects and vermin

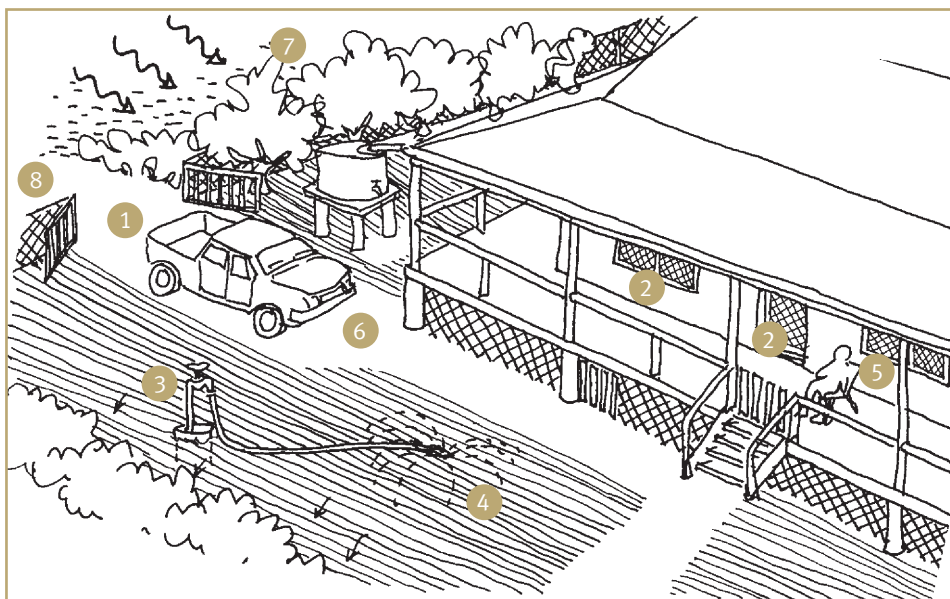


### *Community check and fix*

- Check for and destroy ant and termite mounds and cockroach nests around houses.
- Seal gaps, cracks and junctions, particularly between walls, floors and cupboards (1), and between benches, sinks and cupboards.
- Check and fix high storage shelves in the kitchen and wet areas; if none available, consider installing them.
- Check and fix doors, handles, locks and catches to the pantry and kitchen cupboards.
- Check and fix security screen doors (2).
- Check and fix fences and gates (3).
- Check that there is a secure fixing point for the bin (4); if not, install one.
- Check yard taps (5) are secure and not dripping, and that there are drains beneath the taps to prevent water pooling.
- For houses built high enough above the ground, check the area under the house is fully screened (6) or enclosed.
- Cut back tree branches (7) that touch the house, and remove garden beds that touch the walls or house posts.
- Check and fix insect screens (8) to doors and windows; if none available, consider installing them.
- If there is pooling in the yard, fix the drains or fill the yard to prevent future pooling.
- Clean gutters and the first flush device on water tanks, so they don't hold water.

- Check and replace mesh on rainwater tanks, drainage vent pipes, septic systems, and composting toilets, to prevent breeding of flies and mosquitoes.
- Empty out any containers that are holding water.
- Consider a regular community clean up program to remove objects from the yard that harbour pests such as wood piles, old furniture and old cars.
- Consider organising a dog (9) health program, feral animal control (10) and regular pest management program.

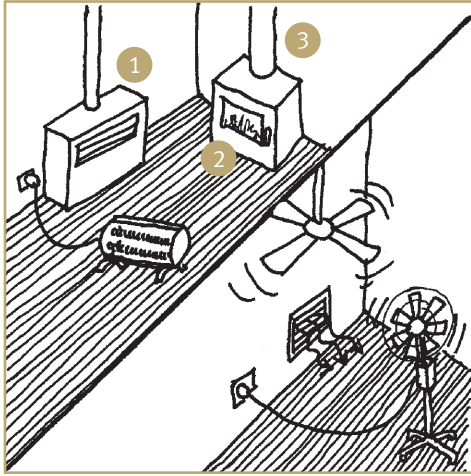
## D7 Reducing the health impacts of dust



### *Community check and fix*

- Check and fix fences and gates (1).
- Check and fix doors and windows (2) to ensure they open and close properly, and clean out the tracks in sliding windows and doors regularly to improve function and extend their life.
- Check the function of yard taps (3) and ensure that there are enough taps to water all parts of the yard (4), check local water restrictions.
- Check and fix insect screens to doors and windows (5); if none available, consider installing them.
- Regularly clean insect screens to remove dust.
- Check and fix weather strips on doors and seals on windows.
- Provide sand, gravel or concrete to cover drive ways and paths (6).
- Consider installing irrigation systems in yards.
- Consider a community landscape project, particularly to provide wind break planting (7) along fence lines to reduce dust.
- Fence the yard (8) and public areas in the community, to prevent cars driving everywhere and creating dust.

## D8 Controlling the temperature of the living environment



### *Community check and fix*

- Check, repair or replace door seals.
- Regularly clean insect screens to improve ventilation through windows.
- Clean and maintain air conditioning units (1).
- Check that the doors on wood heaters (2) seal properly and there are no cracks in the glass door of the heater, if fitted
- Clean flues or chimneys (3) to heaters.
- Repair or replace shade cloths and other screens that shade the house and yard.
- Clean the roof so that the build up of dust and mould does not reduce thermal performance.
- In hot climates, thin out vegetation that is getting too thick to allow breezes through.
- In cold climates, maintain wind break planting, and cut back deciduous trees and vines in autumn.
- Consider community wide program to insulate and vent all roofs, and to install awnings, verandahs or shade trees to northern, eastern and western walls

### *Trade test and fix*

- Service electrical, gas or wood heaters and air-conditioning units regularly.

# Reference



## Appendix 1 – Housing for health methodology

The Housing for Health approach to assessing and fixing Indigenous housing has been developed and refined by the environmental health and design consultants, Healthabitat Pty Ltd, since 1987.

The approach has a safety and health focus and is underpinned by the philosophy of ‘no survey without service’ where, at the time of testing houses, there is also immediate fix work carried out to improve house performance.

Poor environmental and living conditions promote the spread of infectious diseases. Without the ability to wash and remove waste from the living environment, infectious diseases will flourish. Living environments must be equipped with the health hardware to perform Healthy Living Practices. Public health research shows that to achieve health outcomes, most houses in a community must have health hardware functioning most of the time. To achieve this, houses must be designed well, soundly constructed and regularly maintained.

Housing for Health involves a team of people, including local Indigenous community representatives and licensed tradespeople, conducting a 250-point check of health hardware items in each house in a community.

The local teams fix health hardware during the assessment of each house. Within 24 hours, licensed tradespeople carry out the most urgent fix works. Critical health hardware relating to electrical safety, water and waste removal are given the highest priority. Health hardware that cannot be repaired or replaced immediately is fixed by the tradespeople over the next six months. A second survey/fix is conducted when all repairs have been completed to ensure that all the work is satisfactory and to assess the improvement in health hardware function.

Since 1999, Healthabitat has surveyed and fixed over 4,000 houses in Indigenous communities in suburban, rural and remote environments in four states and the Northern Territory. Reports from licensed tradespeople completing the fix works demonstrate that health hardware failure is primarily due to a lack of routine maintenance and poor initial specification and construction. In projects completed over a seven-year period, vandalism, abuse or over-use accounts for nine per cent of all fix work.

In summary, the Housing for Health methodology:

- assesses the function of health hardware in all houses in a community by standard repeatable tests
- ensures the immediate fixing of urgent health hardware faults in houses by local Indigenous teams or licensed tradespeople
- provides accurate data to assist in housing maintenance and management in communities within days of the commencement and at regular intervals throughout the project
- provides to governments and agencies accurate data for policy development, evaluation and program planning
- ensures community involvement in the projects, including paid employment for all participants

- ensures the provision of training in health hardware assessment and basic repairs for local Indigenous people
- raises community awareness about the relationship between functioning houses and good health.

The *National Indigenous Housing Guide* acknowledges the 25,000 residents, 2,000 local Indigenous staff, 500 licensed tradespeople, managers and technical staff who have participated in Housing for Health projects.

## Reference

Department of Families, Community Services and Indigenous Affairs 2006 *Evaluation of FHBH 2, 3 and 4*, SGS Economics and Planning in conjunction with Tallegalla Consultants, Canberra

## Appendix 2 – Issues to consider in the design and construction of houses

### Consultation and socio-cultural factors

People’s housing needs arise from a range of social, cultural, climatic and environmental factors, which vary between communities and may change over time. This guide is a technical resource and makes recommendations about safety, health, climatic and environmental factors. There are often community specific factors that also need to be considered when designing houses that benefit residents.

#### Consultation

To develop appropriate design responses, a housing designer needs to determine the specific requirements of each community and the people who will live in the house. This will involve continuous consultation throughout the design and construction process. Housing consultants who have not previously worked with Indigenous people might consider undertaking cross-cultural training before starting work. It can also be useful to employ a community member, such as the local housing officer, to assist with consultation and, if necessary, translation, during the project.

#### Social factors

There are three main social factors to consider when designing houses for Indigenous people:

- providing adequate open space between houses in crowded communities
- incorporating semi-independent accommodation spaces in houses to meet the needs of large, extended families
- providing a secure housing perimeter in communities that wish to reduce the impact of drug and alcohol abuse on community members.

#### Cultural beliefs

Cultural beliefs and practices can affect how Indigenous people interact within the home and there may be a need to consider ways of increasing privacy for individual residents. When cultural groups practice ‘avoidance relationships’, these can place constraints on family relationships, such as the relationship between mother and a son-in-law. Designers can assist people to observe these avoidance relationships by taking these cultural beliefs into consideration at the design stage. For example:

- if a house design provides a second exit in a room, this will allow one person to leave a room by another door if someone they have an avoidance relationship with enters that room
- the house design would not include a common passage way leading to all the bedrooms and the bathroom because this would make it difficult for people to practice avoidance relationships

In some cultural traditions, young women should not be seen going to the bathroom by their brothers. In situations like this, the design should ensure that all members of the house can access bathroom facilities by providing separate bathroom for male and female, or separate entrances to the wet areas.

There are many cultural beliefs about night spirits that can affect how people use the perimeter of the house. These beliefs may mean that an externally located wet area or outdoor cooking facility will not be used at night; therefore as a minimum, an internal wet area and kitchen should be included in the house design. Alternatively, external lighting and meshed verandah or breezeway connection to the external wet area or outdoor cooking facility could be specified if the residents agreed with this approach.

## References

Fantin, S. 2003 “Yolngu Cultural Imperatives and Housing Design” in Memmott, P. & Chambers, C. (ed) *Take Two. Housing design in Indigenous Australia*. RAI, Canberra

## Universal access

Universal access means designing houses that can be used and accessed by all people in a community. Over time, houses in Indigenous communities may be occupied or visited by people with different needs and different levels of mobility. High incidences of diabetes, renal failure and other chronic illness can also mean that the mobility of permanent residents will change.

Several different terms are used to describe the level of access available in a house.

- **‘Fully accessible’** means a house in which the bathroom, laundry, kitchen, living areas, external areas and at least one bedroom are designed so that they can be accessed and used by a person with a disability (to comply with AS 1428.1 *Design for access and mobility* and AS 4299 *Adaptable housing*).
- **‘Adaptable’** housing means houses that can be modified easily in the future to be fully accessible, for example, room and door sizes comply with AS 1428.1 and AS 4299 but fittings and fixtures may need to be modified in the future (refer to AS 4299 Category C).
- **‘Visitable’** housing means visitors with a disability can enter the house and use the main living area and the toilet.

In all housing projects, consideration should be given to designing houses that incorporate the principles of universal access. Designers should discuss needs and priorities with the community and develop strategies to provide more houses in the community that can be fully accessed by people with disabilities. Designers should also consider designing all new houses so that a person with a disability can at least visit.

If people with disabilities cannot access all or most of the existing housing stock, it may be necessary to build new houses to an adaptable or fully accessible standard to provide more options in the community. Although this can add to the construction cost of new houses, it will save the community the significant cost of adapting houses in the future to meet the needs

of people with disabilities. Housing providers may also have obligations under the *Disability Discrimination Act (1992)* to meet the housing needs of community residents who have disabilities.

Strategies to achieve greater accessibility in houses are discussed throughout this guide. AS 1428.1 Design for access and mobility and AS 4299 Adaptable housing set out the requirements for accessibility and provide detailed drawings. Many state/territory housing organisations and disability support groups also provide useful references. As a minimum, design should consider the need for:

- access from the street to the house by a continuous, slip resistant, accessible path
- no barriers and step free entry to the house
- wider door ways (minimum 870mm wide door leaf) and lever handles to doors
- at least one toilet, size of shower and hand basin, including barrier free access to shower
- grab rails, or provision for future grab rails
- laundries and kitchens designed with 1550mm clear circulation space in front of benches and fixtures, and accessible taps, power points, fixtures, appliances and shelves accessible to a person in a wheelchair (otherwise they need to be easy to alter)
- interiors and hall ways that provide adequate circulation space
- correct height of power points and light switches (between 900mm and 1100mm and set out at least 600mm from corners of rooms)
- full access to car parking areas, clothes drying and bin storage
- provision to modify the house to accommodate access needs of residents.

## Managing the construction process

Sections A and B of the guide include suggestions to improve ‘quality control’ in the construction process. These listed items must be checked during the construction process through rigorous inspections to identify and overcome problems as they occur and guarantee the final quality of the house.

Legal requirements and rules provide one layer of quality control. They are usually administered by state/territory or local governments, and vary between states and territories. It is generally a requirement that drawings and specifications must be checked and approved by a licensed building certifier or local government authority to get a building approval before works start, and that a building certifier inspects works at key stages and at completion. A certificate of completion or occupancy should be issued before residents occupy the house.

In addition to these inspections, it is recommended that the project be inspected at the following stages to ensure that the builder follows all the requirements of the drawings and specifications:

- site/pad preparation and building set out, in-ground drainage prior to backfilling, footings/ foundation, termite barriers and in-slab drainage prior to concrete pour

- wall and roof framing prior to enclosure, first fix of plumbing and electrical services prior to concealment
- waterproofing of wet area walls and floors, and that wet area falls to drains
- joinery/cabinets prior to delivery to site
- roofing and rainwater system after installation, hot water systems, including roof mounted systems
- operation of all parts of the house, including appliances and fittings, prior to final payment to the builder and handing the house over to the housing provider.

Works must also be inspected and checked prior to making any payments to the builders. There is no obligation on the owner to pay for works that have not been done according to the drawings and specifications. When the works are finished, the builder must provide warranties for many of the items included in the works. Many of these warranties that are needed appear under 'Quality control' headings throughout this guide.

# Appendix 3: Using this guide for design and specification of a project

With reference to the Building Code of Australia, Australian Standards and other relevant guidelines

Trade item	Reference in Guide	Australian Standards	Building Code of Australia Volume 2, 2006	Other relevant references
<b>SITE AND GROUNDWORKS</b>				
<b>Demolition</b>	B 9, especially B 9.1	AS 2601 – 2001 <i>Demolition of structures</i>		<i>HB Guide to the use of recycled concrete and masonry materials</i>
<b>Site preparation and earthworks</b>	A 4 B 3.2, 3.3 and 3.4 B 5.2 B 6.1 and 6.4 B 7	AS 1289 – 1997 <i>Methods of testing for engineering purposes</i> AS 3798 – 1996 <i>Guidelines on earthworks for commercial and residential developments</i> AS 1411 – <i>Sampling and Testing Aggregates</i>	Part 2.1 Structural stability and resistance to actions Part 2.2.1 Surface Water Part 3.1.1 Earthworks Part 3.2.2 Preparation Part 3.2.4 Site Classification	
<b>Stormwater drainage</b>	B 3.2, 3.3 and 3.4 B 6.1, 6.4 and 6.6 B 7 C 1 C 6	AS 3500.3 – 2003 <i>Plumbing and drainage – stormwater drainage</i>	Part 2.2.1 Surface Water Part 3.1.2 Drainage	
<b>In-ground drainage</b>	B 3 (all) B 9.3 C 3	AS 3500.5 2000 – <i>National plumbing and drainage – domestic installations</i> – Amdts 1 2002, Amdts 2 2004, Amdts 3 Feb 2006		

Trade item	Reference in Guide	Australian Standards	Building Code of Australia Volume 2, 2006	Other relevant references
Termite control	A 4 B 6.4	AS 3600.1 – 2000 <i>Termite management – new building work</i>	Part 2.1 Structural stability and resistance to actions Part 3.1.3 Termite Risk Management	HB 135 – 1999 <i>Keeping pests out of buildings</i> , Timber Queenstand Technical Data Sheet No.12 <i>Protecting buildings form subterranean termites: Recommended practice</i> (February 2004), Gelder, John <i>Management of subterranean termites for new buildings</i> . PRO 23 May 2005. BDP Environment Design Guide
<b>STRUCTURE AND CARCASS</b>				
Concrete footings and slabs	B 1.1 B 3.2 B 6.2, 6.5 and 6.6 B 7 B 8 B 9.3	AS 2870 – 1996 <i>Residential slabs and footings – construction</i> – Amdts 1 Jan 1997, Amdts 2 June 1999, Amdt 3 Nov 2002, Amdt 4 May 2003 AS 3600 – 2001 <i>Concrete structures</i> – Amdt 1 May 2002, Amdt 2 Dec 2003	Part 2.1 Structural stability and resistance to actions Part 2.2.3 Dampness Part 3.2 Footings and Slabs Part 3.10 Additional construction requirements (high winds and earthquakes) Part 3.12.3.5 Construction of roof, walls and floors	HB 28 – 1997 <i>Design of residential slabs and footings</i> HB 64 – 2002 <i>Guide to concrete construction</i> HB 67 – 1995 <i>Concrete practice on building sites</i> HB 71 <i>Reinforced concrete design handbook</i> CCA T49 – 2003 <i>Guide to residential floors</i>

Trade item	Reference in Guide	Australian Standards	Building Code of Australia Volume 2, 2006	Other relevant references
<b>Masonry construction</b>	A 4 B 6.6 B 8.2 and 8.3	AS 3700 – 2001 <i>Masonry structures</i> Amdt 1 May 2002, Amdt 2 Oct 2004 AS/NZS 2699.1 – 2000 <i>Built-in components for masonry construction – Wall ties</i> AS/NZS 2904 – 1995 <i>Damp-proof courses and flashings</i> – Amdt 1 March 1998	Part 2.1 Structural stability and resistance to actions Part 2.2.3 Dampness Part 3.3 Masonry Part 3.7.1 Fire Separation Part 3.10 Additional construction requirements (high winds and earthquakes) Part 3.12.1.4 External walls Part 3.12.3.5 Construction of roof, walls and floors	CMAA <i>Concrete Masonry Handbook – Walling</i>
<b>Structural steel and steel framing</b>	A 1.2 and 1.3 A 4 B 6.2, 6.3 and 6.6 B 8.2 and 8.3	AS 3623 – 1993 <i>Domestic metal framing</i> AS 4100 – 1998 <i>Steel Structures</i> , AS/NZS 4600 – 2005 <i>Cold-formed steel structures</i> AS 1170 <i>Minimum design loads on structures</i>	Part 2.1 Structural stability and resistance to actions Part 3.4.2 Steel framing Part 3.4.4 Structural Steel Members Part 3.7.1 Fire Separation Part 3.9.1 Stair construction Part 3.10 Additional construction requirements (high winds and earthquakes)	

Trade item	Reference in Guide	Australian Standards	Building Code of Australia Volume 2, 2006	Other relevant references
<b>Structural timber and timber framing</b>	A 4 B 6.2, 6.3 and 6.6 B 8.2, 8.3 B 9.1 and 9.3	AS 1684 – 2006 Residential timber-framed construction Part 2 Non-cyclonic, Part 3 Cyclonic areas, Part 4 Simplified – Non-cyclonic areas AS 1604 – Timber treatments AS 4440 – Truss installation	Part 3-4.3 Timber Framing Part 3-7.1 Fire Separation Part 3-9.1 Stair construction Part 3-10 Additional construction requirements (high winds and earthquakes)	Timber Queensland. Technical Data Sheet No.26 <i>Energy efficient timber framed construction: Recommended practice</i> (February 2004) Timber Queensland. Technical Data Sheet No.25 <i>Outdoor timber performance: Recommended practice</i> (February 2004) Webster, John. Timber building for durability PRO 21 May 2005. <i>BDP Environment Design Guide</i>
<b>Suspended floors</b>	A 4 B 6.2, 6.3, 6.5 and 6.6 B 7 B 8.2, 8.3 B 9.3	AS 1684 – 2006 Residential timber-framed construction Part 2 Non-cyclonic., Part 3 Cyclonic areas., Part 4 Simplified – Non-cyclonic areas AS 1604 – Timber treatments	Part 2.1 Structural stability and resistance to actions Part 3-4.1 Sub-floor ventilation Part 3-7.1 Fire Separation Part 3-12.1.5 Floors Part 3-12.3.5 Construction of roof, walls and floors	
<b>ENCLOSURE</b>				
<b>External Waterproofing</b>	A 4 B 6.6		Part 2.2.2 Weatherproofing Part 3-3.4 Weatherproofing of Masonry Part 3-5.3.6 Flashings to wall openings	

Trade item	Reference in Guide	Australian Standards	Building Code of Australia Volume 2, 2006	Other relevant references
<b>Insulation and sarking</b>	B 8.2, 8.3, 8.4 and 8.5 B 9.1	AS 3742 – Batts and blankets AS/NZS 4200 parts 1 and 2 – 1994 Pliable building membranes and underlays AS 4859 – 2002 Materials for the thermal insulation of buildings – general criteria and technical provisions	Part 2.4.6 Sound Insulation Part 2.6.1 Building (energy efficiency) Part 3.12.1.1 Building fabric thermal insulation Part 3.12.3-5 Construction of roof, walls and floors	Sustainable Energy Authority, Victoria. Thermal insulation in domestic buildings for temperate climates – product and installation guide PRO 8. August 2001. <i>BDP Environment Design Guide</i>
<b>Roofing</b>	B 9.1	AS 2049 – 2002 Roof tiles – Amdt 1 Nov 2005 AS 2050 – 2002 Installation of roof tiles – Amdt 1 Dec 2005 AS 1562.1 – 1992, 1562.2 – 1999, 1562.3 – 1996: Design and installation of sheet roof and wall cladding AS/NZS 4256.1 – 1994, 4256.2 – 1994, 4256.3 – 1994, 4256.5 – 1996: Plastic roof and wall cladding materials AS 3500.3.2 – Roof plumbing	Part 2.1 Structural stability and resistance to actions Part 2.2.2 Weatherproofing Part 2.6.1 Building (energy efficiency) Part 3.5.1 Roof Cladding Part 3.12.1.2 Roofs Part 3.12.2.2 Shading Part 3.12.3-5 Construction of roof, walls and floors	

Trade item	Reference in Guide	Australian Standards	Building Code of Australia Volume 2, 2006	Other relevant references
<b>Claddings, trims and seals</b>	B 6.2, 6.3 and 6.6 B 8.2 and 8.3 B 9.1 and 9.4	AS/NZS 2908.2 – 2000 Cellulose cement products: flat sheets AS/NZS 2269 – 2004 Plywood-structural AS/NZS 2904 – 1995 Damp-proof courses and flashings – Amdt 1 March 1998 ISO 8336 – 1993 E Fibre cement flat sheets Steel and plastic sheet walling design and installation: To AS 1562 Unplasticised polyvinyl chloride (uPVC) sheet: To AS/NZS 4256.2 Glass fibre reinforced polyester (GRP) sheet: To AS/NZS 4256.3 Polycarbonate: To AS/NZS 4256.5	Part 2.2.2 Weatherproofing Part 3.5.3 Wall Cladding Part 3.7.1 Fire Separation Part 3.12.1.4 External walls Part 3.12.3.5 Construction of roof, walls and floors	Timber Queensland. Technical data sheet No.5 Cypress and hardwood cladding: recommended practice (February 2004) Timber Queensland. Technical data sheet No.3 Treated pine cladding: recommended practice (February 2004)
<b>Doors</b>	A 2 A 3-3 B 1.1 B 5.1 B 6.1 B 7 B 9.2 and 9.4	Timber doors: AS 2688, AS 2689 & AS1909 Glazing: AS 1288 Aluminium windows /sliding doors: AS 2047 Security screens: AS 2803 & AS 2804	Part 2.4.3 Facilities Part 3.6.5 Doors Part 3.12.3.3 External Windows and Doors Part 3.12.4 Air movement	

Trade item	Reference in Guide	Australian Standards	Building Code of Australia Volume 2, 2006	Other relevant references
<b>Windows</b>	A 2 A 3.3 B 1.1 B 4.6 B 5.1 B 6.5 B 7 B 8.2 and 8.3 B 9.2 and 9.4	AS 1288 – 2006 Glass in buildings – selection and installation. AS 2047 – Windows in buildings – selection and installation – Amdt 1 Jan 2001., Amdt 2 June 2001	Part 2.1 Structural stability and resistance to actions Part 2.4.4 Light Part 2.4.5 Ventilation Part 3.6 Glazing Part 3.8.4 Light Part 3.8.5 Ventilation Part 3.12.2 External glazing Part 3.12.3.3 External windows and doors Part 3.12.4 Air movement	HB 125 – 1998 <i>The glass and glazing handbook</i> Lyons, Peter. <i>The energy impact of windows in building design</i> PRO 3. February 2001. BDP Environment Design Guide
<b>Security screens</b>	A 3.3 B 9.2	Security window screens: To AS/NZS 4604 & AS/NZS 4605		
<b>Door and window hardware</b>	A 3.3 B 1.1 B 4.2 B 5.1 B 9.2		Part 3.8.3 Facilities	

Trade item	Reference in Guide	Australian Standards	Building Code of Australia Volume 2, 2006	Other relevant references
<b>FINISHING WORK</b>				
<b>Linings, trims and seals</b>	A 1.3 and 1.4 A 3.1 B 1.1 B 2.1 B 4.6 B 5.1 B 6.2, 6.3 and 6.6 B 8.2 and 8.3 B 9.1 and 9.4	<i>Cypress pine: To AS 1810</i> <i>Softwood timber trims: AS 1785</i> <i>Contact adhesives: To AS 2131</i> <i>Fibre cement: To AS 2908.2</i>		
<b>Waterproofing</b>		<i>Wet area installation: To AS 3740</i>	Part 2.4.1 Wet areas Part 3.8.1 Wet areas	
<b>Flooring</b>	B 1.1 B 2.1 B 3.2 B 4.6 B 6.5 B 9.3	<i>Resilient sheet and tiles – Laying and maintenance practices: AS 1884 1985</i> <i>Adhesives for floor and wall application: AS 3553 1988</i> <i>Slip resistance of pedestrian surfaces: AS/NZS 3661</i> <i>Adhesives – for fixing ceramic tiles AS 2358 1990</i> <i>Ceramic tiles AS 3958</i>		
<b>Painting and protective finishes</b>	B 1.1 B 9.1	<i>General: To AS 2311 Sections 3, 6 and 7</i> <i>Protection of steelwork: To AS/NZS 2312 Sections 5, 8 and 10</i>		

Trade item	Reference in Guide	Australian Standards	Building Code of Australia Volume 2, 2006	Other relevant references
<b>Metal fixtures and hardware</b>	<p>A 4</p> <p>B 1.1</p> <p>B 2.1</p> <p>B 3.1 and 3.6</p> <p>B 4.2 and 4.6</p> <p>B 5.3</p> <p>B 9.1</p>	<p><i>Structural steel welding AS/NZS 1554</i></p> <p><i>Metal finishing – Preparation and pre treatment of surfaces AS 1627</i></p> <p><i>Rules for the use of aluminium structures AS 1664 1979</i></p> <p><i>Hot-dipped galvanised coatings on fabricated ferrous articles AS/NZS 4680 1999</i></p> <p><i>Steel Structures AS 4100 1998</i></p>	<p>Part 2.5.1 Safety from Falling</p> <p>Part 3.9.2 Balustrades</p>	
<b>Cabinets and joinery</b>	<p>B 1.1</p> <p>B 2.1</p> <p>B 4.2 and 4.6</p> <p>B 5.3</p> <p>B 6.1, 6.3 and 6.6</p>	<p><i>Domestic kitchen assemblies – AS/NZS 4386</i></p> <p><i>Adhesives – For bonding decorative thermoset laminates – AS 2131 1987</i></p> <p><i>Adhesives for timber and timber products – AS 2754</i></p> <p><i>Decorative overlays To AS/NZS 1859.3</i></p> <p><i>Decorative thermosetting laminated sheets – AS 2924 1987</i></p> <p><i>Plywood Interior use generally: To AS/NZS 2270</i></p> <p><i>Interior use, exposed to moisture: To AS/NZS 2271</i></p>		
<b>Fencing</b>	<p>B 2.2</p> <p>B 3.3, 3.4 and 3.5</p> <p>B 5.2</p> <p>B 6.1</p> <p>B 7</p> <p>B 8.2 and 8.3</p> <p>B 9.2</p> <p>C 6</p>		<p>Part 2.5.3 Swimming pool access</p>	

Trade item	Reference in Guide	Australian Standards	Building Code of Australia Volume 2, 2006	Other relevant references
<b>Landscaping</b>	B 3.4 and 3.5 B 5.2 B 7 B 8.2 and 8.3 C 6			CMAA MA 52 Segmental concrete reinforced soil retaining walls – Design and Construction guide (2004) CMAA MA 53 Segmental concrete gravity retaining walls – design and construction guide (2005)
<b>ELECTRICAL AND MECHANICAL SERVICES</b>				
<b>Cabling</b>	A 1	<i>Electrical Installations (AS/NZS wiring rules): AS/NZS 3000 2000</i> Conduits and fittings for electrical installations: AS/NZS 2053 1995	Part 3.4.2.6 Installation of services	
<b>Switchboards</b>	A 1 B 1.1			
<b>Lighting</b>	A 1.4 B 1.1 B 5.1 and 5.2 B 6.4 B 9.2 and 9.3	<i>AS 1680.0 – 1998 Interior lighting – Safe movement</i>	Part 3.8.4 Light	Coyne, Steve and Isoardi, Gillian. A basic guide to the daylighting of buildings. DES 63. November 2004. BDP Environment Design Guide Ruck, Nancy. Daylighting of buildings. DES 6. August 2004. BDP Environment Design Guide

Trade item	Reference in Guide	Australian Standards	Building Code of Australia Volume 2, 2006	Other relevant references
<b>Cooling</b>	B 8.2, 8.3, 8.4 and 8.5		Part 2.4.5 Ventilation Part 3.8.5 Ventilation Part 3.4.1 Sub-floor ventilation Part 3.12.4 Air Movement Part 3.12.3.6 Evaporative Coolers Part 3.12.4.3 Ceiling fans and evaporative coolers Part 3.12.5 Services	Aynsley, Richard, Natural ventilation in passive design. TEC 2. May 2001. BDP Environment Design Guide
<b>Heating</b>	B 8.2, 8.3, 8.4 and 8.5	AS 1691 – 1985 Domestic oil-fired appliances – Installation – Amdt 1 Sept 1985 AS/NZS 2918 – 2001 Domestic solid fuel burning appliances – Installation AS/NZS 1200 – 2000 Pressure equipment	Part 2.3.3 Heating Appliances Part 3.7.3 Heating Appliances Part 3.12.3.1 Chimneys and flues Part 3.12.5 Services	
<b>Cooking</b>			Part 2.4.3 Facilities Part 3.12.3.4 Exhaust fans	
<b>Fire detection and alarms</b>	A 3.2	AS 3786 – 1993 Smoke alarms – Amdt 1 April 1994, Amdt 2 Dec 1995, Amdt 3 Nov 2001, Amdt 4 Jan 2004	Part 2.3.2 Fire detection and early warning Part 3.7.2 Smoke Alarms	

Trade item	Reference in Guide	Australian Standards	Building Code of Australia Volume 2, 2006	Other relevant references
<b>HYDRAULIC</b>				
<b>Sanitary fixtures</b>	B 1.1, 1.4 and 1.5 B 2.1 B 3.1 and 3.6 B 4.3	AS 3500	Part 2.4.3 Facilities Part 3.8.1 Wet Areas Part 3.8.3 Facilities	Centre for Appropriate Technology Inc, Bush Tech Brief No.15 Choosing the right toilet Centre for Appropriate Technology Inc, Bush Tech Brief No.18 Pit Toilets
<b>Tapware</b>	B 1.3 and 1.6 B 2.1 B 3.1 B 4.3 B 5.1 and 5.2 B 6.1 B 7		Part 3.8.1.9 Penetrations	
<b>Hot Water heaters</b>	B 1.2 B 2.1 B 9.5	AS 3500.4 – 2003 Plumbing and drainage – heated water services. Amdt 1 2005 Solar hot water heaters AS 2712	Part 2.6.2 Services Part 3.12.5 Services	HB 263 – 2004 Heated Water Systems, Centre for Appropriate Technology Inc. Bush Tech Brief No.1 Hot Water
<b>Rainwater</b>	B 4.1 B 5.2 B 7 B 8.4 C 1.3	AS 2179.1 – 1994 Specification for rainwater goods, accessories and fasteners – metal shape or sheet rainwater goods and metal accessories and fasteners AS 1273 – 1991 Unplasticized PVC (UPVC) downpipe and fittings for rainwater AS 3500.3 stormwater drainage	Part 3.5.2 Gutters and Downpipes	HB 230 – 2006 Rainwater tank design and installation handbook Centre for Appropriate Technology Inc, Bush Tech Brief No.4 Rainwater harvesting

Trade item	Reference in Guide	Australian Standards	Building Code of Australia Volume 2, 2006	Other relevant references
<b>Wastewater</b>	B 3 (all) B 5.2 B 7 C 3	Septic tanks AS 1546 AS 3500 sanitary plumbing and drainage AS 1547 on site wastewater		Qld. Department of Local Government and Planning, On-site sewerage code. November 2003
<b>Gas</b>	A 2 B 4.4 B 8.5 B 9.5 C 2.2		Part 2.4.3 Facilities Part 2.3.3 Heating Appliances Part 3.7.3 Heating Appliances	Centre for Appropriate Technology Inc, Bush Tech Brief no.5 – Gas fittings

## Useful resources and references

### Australian standards

AS 1170, *Minimum design loads on structures*

AS/NZS 1200:2000, *Pressure equipment*

AS 1273:1991, *Unplasticized PVC (UPVC) downpipe and fittings for rainwater*

AS 1288:2006, *Glass in buildings – selection and installation*

AS 1289:1997, *Methods of testing for engineering purposes*

AS 1411, *Sampling and Testing Aggregates*

AS 1428.1:2003, *Design for access and mobility*

AS 1546, *Septic tanks*

AS 1547, *On site wastewater*

AS/NZS 1554, *Structural steel welding*

AS 1562.1:1992, 1562.2:1999, 1562.3:1996, *Design and installation of sheet roof and wall cladding*

AS 1604, *Timber treatments*

AS 1627, *Metal finishing – Preparation and pre treatment of surfaces*

AS 1664:1979, *Rules for the use of aluminium structures*

AS 1680.0:1998, *Interior lighting – Safe movement*

AS 1684:2006, *Residential timber-framed construction, Part 2 Non-cyclonic, Part 3 Cyclonic areas, Part 4 Simplified – Non-cyclonic areas*

AS/NZS 1859.3, *Decorative overlays*

AS/NZS 2270, *Plywood Interior use generally*

AS 2047, Amendment 1-2001, Amendment 2-2001, *Windows in buildings – selection and installation*

AS 2049:2002, Amendment 1-2005, *Roof tiles*

AS 2050:2002, Amendment 1-2005, *Installation of roof tiles*

AS/NZS 2053:1995, *Conduits and fittings for electrical installations*

AS 2131:1987, *Adhesives – For bonding decorative thermoset laminates*

AS/NZS 2208:1996, Amendment 1-1999, *Safety glazing materials in buildings*

AS/NZS 2269:2004, *Plywood – structural*

AS 2601:2001, *Demolition of structures*

AS 2754, *Adhesives for timber and timber products*

AS 2870:1996, Amendment 1–1997, Amendment 2–1999, Amendment 3–2002, Amendment 4–2003, *Residential slabs and footings – Construction*

AS/NZS 2699.1:2000, *Built-in components for masonry construction – Wall ties*

AS/NZS 2904:1995, Amendment 1–1998, *Damp-proof courses and flashings*

AS/NZS 2908.2:2000, *Cellulose cement products: flat sheets*

AS/NZS 2918:2001, *Domestic solid fuel burning appliances – Installation*

AS 2924:1987, *Decorative thermosetting laminated sheets*

AS/NZS 3000:2000, Amendment 1 – 2001, Amendment 2 – 2002, *Electrical installations*

AS 3500.3:2003, *Plumbing and drainage – stormwater drainage*

AS/NZS 3500.4.2:1997, Amendment 1–2002, *National plumbing and drainage code – Hot water supply systems – Acceptable solutions*, clause 1.6.1

AS 3500.5: 2000, Amendment 1–2002., Amendment 2–2004., Amendment 3–2006, *National plumbing and drainage – domestic installations*

AS 3623:1993, *Domestic metal framing*

AS 3600:2001, Amendment 1–2002., Amendment 2–2003, *Concrete structures*

AS 3660.1:2000, *Termite management – New building work*

AS 3660.2:2000, *Termite management – In and around existing buildings and structures – Guidelines*

AS 3660.3:2000, *Termite management – Assessment criteria for termite management systems*

AS/NZ 3661.2:1994, *Slip resistance of pedestrian surfaces – Guide to the reduction of slip hazards*

AS 3700:2001, Amendment 1–2002., Amendment 2–2004, *Masonry structures*

AS 3740, *Waterproofing of wet areas within residential buildings*

AS 3742, *Batts and blankets*

AS 3786:1993, Amendment 1–1995, Amendment 2–1995, Amendment 3–2001, Amendment 4–2004, *Smoke alarms*

AS 3798:1996, *Guidelines on earthworks for commercial and residential developments*

AS 3958.1:1991, *Ceramic tiles – Guide to the installation of ceramic tiles*

AS 3958.2:1992, *Ceramic tiles – Guide to the selection of a ceramic tiling system*

AS 4100:1998, *Steel Structures*

AS/NZS 4200 parts 1 and 2:1994, *Pliable building membranes and underlays*

AS/NSZ 4256.1:1994, 4256.2:1994, 4256.3:1994, 4256.5:1996, *Plastic roof and wall cladding materials*

AS 4299:1995, *Adaptable housing*

AS 4796:2001, *Water Supply – Metal bodied and plastic bodied ball valves property service connection*

AS/NZS 4386, *Domestic kitchen assemblies*

AS 4440, *Truss installation*

AS/NZS 4600:2005, *Cold-formed steel structures*

AS 4859:2002, *Materials for the thermal insulation of buildings – general criteria and technical provisions*

AS 5601:2004, *Gas installations*

HB125:1998, *The glass and glazing handbook*

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- Australian Government 2004, *Guidance on use of rainwater tanks*, Department of Health and Ageing, Canberra available online: [http://enhealth.nphp.gov.au/council/pubs/pdf/rainwater\\_tanks.pdf](http://enhealth.nphp.gov.au/council/pubs/pdf/rainwater_tanks.pdf)
- Australian Government Department of Employment and Workplace Relations, Office of the Australian Safety and Compensation Council, *Asbestos web page*, <http://www.nohsc.gov.au/OHSLegalObligations/HazSubstancesAndDngGoods/Chrysotile.htm>

Australian Greenhouse Office, *Your Home Design for Lifestyle Institute for Sustainable Futures*, University of Technology, Sydney <<http://www.yourhome.gov.au>>

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## Glossary

<b>Aerosol droplet transmission</b>	Transmission of infectious agents in droplets from respiratory secretions.
<b>‘Active’ heating and cooling systems</b>	‘Active’ means a heating and cooling system that requires additional energy to make the house warmer or cooler; includes gas, fire and electricity systems.
<b>ARIA</b>	Accessibility/Remoteness Index of Australia
<b>‘As-built’ drawings</b>	A set of drawings that include all changes made during the construction process.
<b>(AP) Lands</b>	Anangu Pitjantjatjara Lands
<b>AS</b>	Australian Standard
<b>AS/NZS</b>	Joint Australian and New Zealand Standard
<b>BCA</b>	Building Code of Australia
<b>Booster</b>	Electric element that can be switched on to supplement (boost) the temperature of hot water (usually on solar hot water systems).
<b>Black water</b>	Waste water from the toilet.
<b>Capstan</b>	Level tap handles with a single outlet (spout) that can be used by people with limited mobility
<b>CCA</b>	Copper Chrome Arsenate
<b>CED</b>	Common effluent disposal
<b>Certificate of completion</b>	Documentation indicating a building is safe to inhabit.
<b>Certificate of compliance/certification</b>	Document confirming correct construction and/or installation by a licensed tradesperson, for example electrical or water and drainage works.
<b>Check</b>	Visual inspection to confirm the location of an item or to determine whether there are safety risks—for example, check there are hot and cold water taps specifically for the washing machine.
<b>Conduit</b>	A tube or trough to protect electrical wiring.
<b>Convective cooling</b>	Venting of high level hot air to draw in cooler air from lower levels.
<b>Crowding</b>	When the population of the house regularly exceeds the capacity of functioning health hardware facilities of the house.
<b>Cyclical maintenance</b>	Regular assessment and fixing of houses.

<b>Detailed drawing</b>	Large-scale drawing showing exactly how components of a house are to be made. For example, a drawing may show a bathroom is three metres by four metres and the location of the bath, shower, window and door; a detailed drawing would show how the waterproofing of the floor meets the walls, the exact fall of tiles to the floor waste, and the location and heights of towel rails, hooks and soap holder.
<b>ELCB</b>	Earth leakage circuit breaker
<b>Effluent</b>	Waste water
<b>Flange</b>	A covering piece usually associated with protecting water from entering the junction between a tap and a wall.
<b>Frog flap</b>	A covering flap to a dry waste water drainage pipe to prevent the entry into the house of 'frogs' or other insects or vermin.
<b>GPO</b>	General Power Outlet, more commonly known as a power point.
<b>Grey water</b>	Waste water from the shower, laundry, basins and kitchen.
<b>Health hardware</b>	Originally used by Dr Fred Hollows to describe the physical equipment necessary for healthy, hygienic living. The equipment must have design and installation characteristics that allow it to function and to maintain or improve health status. In a water supply system, health hardware includes both the bore and the basin plug, as well as the shower rose, taps and drain.
<b>HWS</b>	Hot water system
<b>Impetigo</b>	A bacterial skin infection characterized by microscopic, pus filled blisters.
<b>Incandescent</b>	A light bulb that contains a filament which glows white (incandesces) when powered by an electrical current.
<b>International Protection (IP) rating</b>	Scale indicating the capacity of electrical fittings to withstand environmental factors (water, salt, dust); the higher the rating, the better protected the fittings are from environmental harm and the greater the level of safety for residents.
<b>Lagged</b>	Insulated
<b>Load test</b>	An electrical load applied to the electrical system of the house, to ensure all wiring and electrical fittings have been installed correctly and have not been damaged during the building process.
<b>Lux</b>	Unit measuring light intensity
<b>Nib wall</b>	A small wall at right angles to a main wall
<b>NOHSC</b>	National Occupational Health and Safety Commission

<b>No-volt relay</b>	An electrical device that prevents the automatic re-starting of electrical appliances after power failure to reduce combined loads on generating systems, often used with air conditioners
<b>Package treatment system</b>	A self contained system of tanks and pumps, usually for an individual house (but can apply to a small community), for treating both grey and black waste water.
<b>Proprietary system</b>	As used in this guide, usually refers to a pre-existing solution for a building component that can be purchased directly from a supplier and not needing to be designed and constructed by each project. For example a proprietary shelving system may contain the shelves, support brackets and wall fixing system that can be purchased as an item.
<b>mm</b>	millimetres
<b>Potable</b>	Means safe to drink (usually associated with water).
<b>RCD</b>	Residual current device
<b>Resting trench</b>	An additional waste water disposal trench able to accept excess waste water at peak load times, which is designed to be empty at low load times.
<b>Rocker switch</b>	A type of electrical switch.
<b>Sacrificial anode</b>	A replaceable component of a material specifically selected for the prevailing water quality that corrodes before other parts of a hot water system, such as the element or cylinder.
<b>Smoke alarm</b>	A device that detects the presence of smoke and activates an alarm, also known as ‘smoke detector’.
<b>Specification</b>	Written description of work usually accompanying a detailed drawing, particularly information that may not be easily shown on the drawing, for example type of kitchen bench material, fittings and method of waterproofing the kitchen sink.
<b>Structure, structural component</b>	Structure of a building includes the parts needed for the structure to be stable, or to stand up. For example, floor beams and joists are structural components that support the floor, and if some were removed the floor would collapse, sag or move noticeably.
<b>Swale</b>	A low earth mound, usually shaped to a common contour line, to help control water erosion.
<b>Test</b>	Activity that can be performed by housing managers or residents, for example test power points using a power point tester available from electrical and major hardware stores.

<b>Thermal mass</b>	Mass within a building such as brick, concrete, stone or earth that stores both heat and cold.
<b>Thermal performance</b>	How efficiently a building can provide a comfortable living environment for residents, particularly when external conditions are extreme.
<b>Trade test</b>	<p>Requires a licensed tradesperson to conduct more complex or dangerous assessments, for example trade test:</p> <ul style="list-style-type: none"> <li>the building is earthed as required by AS/NZS 3000:2000, Amendment 1–2001, Amendment 2–2002 <i>Electrical installations</i> (known as the Australian/New Zealand Wiring Rules).</li> </ul> <p>The licensed tradesperson must certify in writing that the test has been conducted and that the item passed the test.</p>
<b>Trench doming</b>	Plastic hoop segments that have been designed to create underground effluent disposal soakage trenches.
<b>Tundish</b>	A way to collect usually small quantities of waste water produced from hot water systems.
<b>UPK</b>	Uwankara Palyanyku Kanyintjaku, the report title for a public and environmental health review produced in 1987 for the Anangu Pitjantjatjara Lands. Work in this report established the nine healthy living practices and the connections between the living environment and health.

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