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Safety and Security

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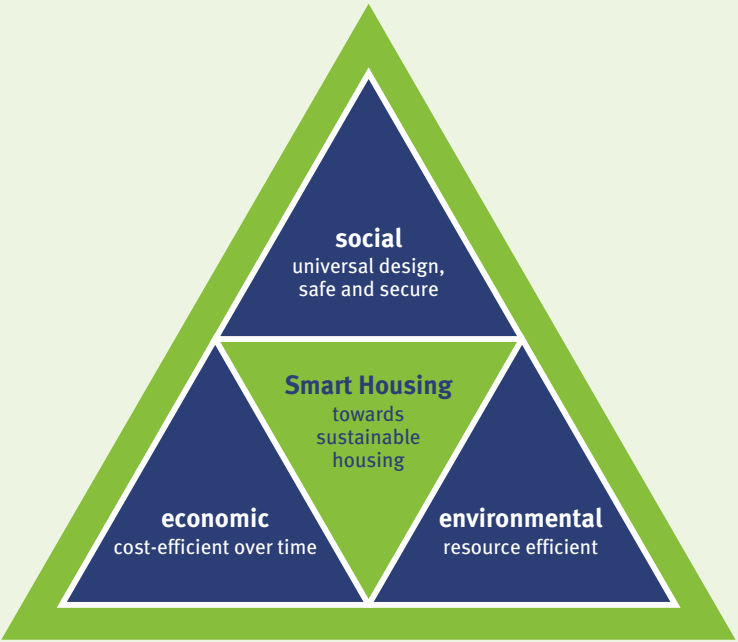
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Safety and security are two of the elements of the Queensland Department of Housing’s Smart Housing initiative.

Smart Housing is good practice in designing, planning and building homes to make them more socially, environmentally and economically sustainable.

In a Smart House, you will be able to move around more easily, feel safer, save money and help the environment. You and your family can live in a Smart House through all stages of your lives.

Smart Housing has been developed in response to the demand for housing that better meets people’s needs, responds to the Queensland climate and saves money.



This booklet explains the benefits of safety and security in the home and how they can be achieved. It is based on a collection of key reference materials and collective experience across the Queensland Government. A list of useful references is included for anyone wishing to access further information on safety and security.		
This booklet is designed to assist	Contents	
▲ Builders and developers	Why a safe and secure home?	2
▲ Designers and architects	Safety	4
▲ Elected officials	Planning for safety	6
▲ Health professionals	Security	8
▲ Home owners and renovators	Designing out crime	9
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▲ Landlords	Frequently asked questions	24
▲ Lecturers and students	More information and useful references	inside back cover
▲ Police officers		
Incorporating the principles of safety and security helps to create homes that are comfortable, flexible and cost-efficient throughout a person’s life. Now that’s smart!		

Produced by the Queensland Department of Housing with the cooperation of:



and the Crime Prevention Strategy – Building Safer Communities.

Why a safe and secure home?

Safety and security are often not taken into account when planning to build or renovate a house. Yet these are important in helping people to enjoy living in their home. By developing an understanding and appreciation of the impact of design, we can create communities that are safer and more secure, and properties that are more desirable.

Safety and security features are an advantage when selling or buying a home. People are comforted by doors and windows that are fitted with security locks or screens. Parents like to know that their children are safe. **Safety** means preventing injuries in and around the home.

Security means using design or fixtures to reduce crime. This booklet explains how to achieve a safe and secure home through careful decisions made during design and construction.

The first section, ‘Safety’, focuses on the importance of choosing designs that can reduce the risk of injuries occurring in the home.

The second section, ‘Security’, highlights the extent and type of criminal activities and crime in and around the home (e.g. house break-in). The principles of Crime Prevention Through Environmental Design show how the design of a home or appropriate fixtures can help keep out intruders.

The final section, ‘Taking a tour of a safe and secure home’, illustrates the steps that you can take to reduce crime and the risk of injury to people in the home.



Designing the home for security purposes will ensure your family’s peace of mind.



above: Swimming pools should be securely fenced and lockable.



right: Living areas should enable a clear view of the street.

Safety

INJURIES IN THE HOME

People experience minor injuries in the home every day. While some of these are very difficult to prevent, the majority of injuries, particularly serious or fatal injuries can easily be prevented.

In Queensland, about 45% of all injuries each year occur in and around the home. Most of these injuries result from falls, poisoning, fires, burns and scalds, or drowning:

Falls
Falls are the leading cause of hospitalisations in all age groups (except 15–29 years) in Queensland. Around half of children’s falls and two-thirds of falls in people aged over 65 years occur in people’s homes.

Poisoning
Around 93% of all poisoning of Queensland children under 15 years occur in the home.

Fire
In Australia, between 1991 and 1996, there were 550 fire fatalities, 57% of which occurred in people’s homes. Of these, 18% occurred in Queensland homes.

Burns and scalds
Burns and scalds also occur mainly in people’s homes with 90% of cases of burns and scalds in children under four years; 70% of burns and scalds for those aged five to 14 years; and 45% for those aged 15 to 24 years occurring in the home.

Drowning
In Australia, drowning is the leading cause of injury-related death in children under five years of age. Around half of all drownings occur in domestic swimming pools.

Injury is the leading cause of premature death in people under 45 years and is a major threat for children, adolescents and older people. This alarming human and financial cost has led to the identification of injury as one of the National Health Priority Areas across Australia.

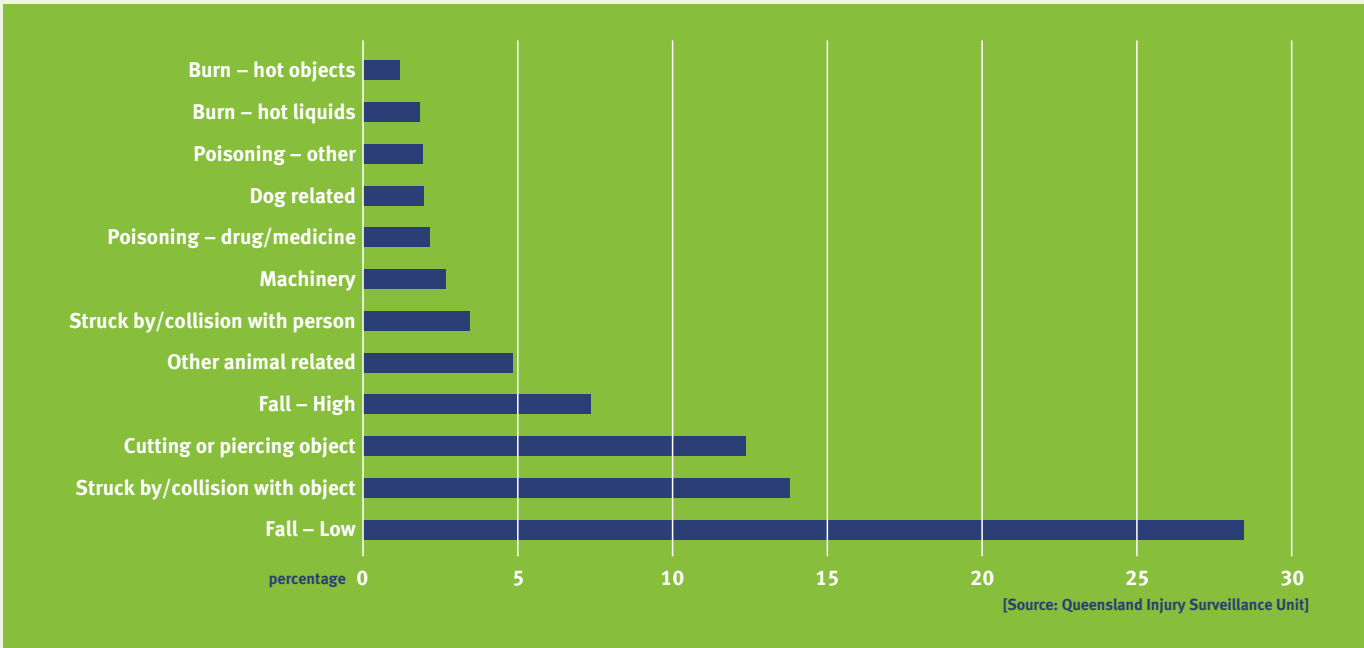
Injuries in the home can result from various activities. Young children’s injuries can occur because of their curiosity, anger, ignorance, inexperience or disobedience. In older children and adults, injuries may be caused through bravado, tiredness, anxiety, haste, confusion or carelessness.

Injuries can also be the result of poor design or lack of maintenance of equipment and features in and around the home.

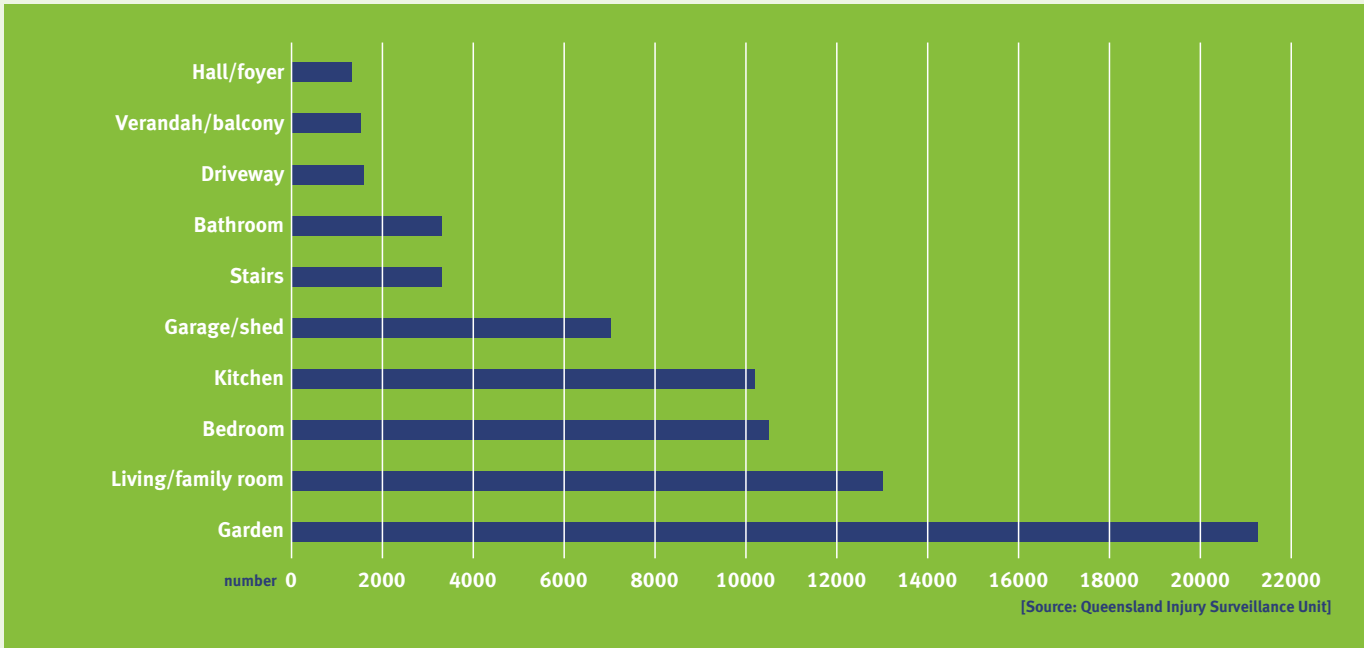
Statistics have been provided by Queensland Health.



57% of fire fatalities each year occur in the home. Photo courtesy of the Queensland Fire and Rescue Service.



Percentage of unintentional injuries to adults in the home by external cause, 1998 to 2002, from Queensland hospital emergency departments.



Number of injuries occurring in the home by location, 1998 to 2002, from Queensland hospital emergency departments.

Planning for safety

Home safety is an important, but often neglected, component of home design, construction and renovation. Many accidents that occur in the home can be prevented by incorporating simple, safe design features into new or existing homes.

Planning ahead for safety can reduce the risk of accidents and injury to people in the home.

When designing a home, it is important to anticipate the risks (particularly to children, older people and people with a disability) leading to falls, burns, scalds, cuts, bumps, poisoning, or accidents involving vehicles or fire.

The appropriate selection and placement of fittings and equipment within the home can prevent people being injured or at least reduce the severity of the injury.

Parents can have more peace of mind when home safety features have been incorporated. A parent can be confident that their child will be less able to access poisons or medications, reach electrical appliances or be scalded by hot liquids.

“A safe dwelling is easy to live in. It has fittings and equipment that are easy to use, with dangerous items beyond the reach of children.”

Safety In and Around the Home 1995 in Home Economics Association of Australia Vol. 22, (4 December, 1990).



A step-free threshold will limit the possibility of trips or falls that can be common, especially with elderly people. A step-free threshold will also make it easier to manoeuvre a wheelchair or child's pram through the doorway.



left: Child-proof locks will ensure children are unable to access dangerous poisons or medicines.

below: Smart design can help ensure there is a clear path of escape from your home in the case of fire.

Photo courtesy of the Queensland Fire and Rescue Service.



Security

HOUSE BREAK-IN

Homes can be a good target for thieves because they contain items that are easy to sell and difficult to trace.

A large number of reported break-ins take place during the day when people are at work. They do not just occur in lower socio-economic areas – they can happen to anyone, anywhere.

Even if the monetary value of goods stolen is low, house break-in is a devastating crime. Victims can feel that their privacy and personal space has been violated by total strangers.

People who are unfortunate enough to become a victim of a break-in

can suffer from symptoms such as insomnia, depression and feelings of insecurity. People often move from their home, which they have lived in for years, because they no longer feel secure there. Break-ins can be a major trauma, making secure design important for peace of mind.

Money alone cannot replace the items of sentimental value which have been stolen.

“Affluent homes often attract skilled professional burglars, and residents living in poorer areas are vulnerable to the more typical offender who lives in close proximity.”

Prenzler, T. and Townsley, M. (1998). “The Prospects for Burglary Prevention in Australia.” Current Issues in Criminal Justice. 9/3:293-311



Keeping a watchful eye on the neighbourhood.

Designing out crime

Careful thought at the design stage of a home can reduce crimes such as theft, robbery, burglary, vandalism and assaults, thus creating safer neighbourhoods.

“Typically, each year, between 3% and 4% of households will be burgled, and there is roughly an equal number of unsuccessful attempts. The fact that so many attempted burglaries fail suggest that basic security measures can be effective.” Prenzler T and Tonsley M (March 1998)

Security should therefore be considered a priority by those involved in the design, construction, maintenance or refurbishment of housing, especially as the levels of crime and the fear of crime continue to be a major cause for concern.

Crime prevention through environmental design

When designing a home, one of the objectives should be to help create a community where people collectively identify with the area they live in as their neighbourhood. By being able to identify who belongs to their neighbourhood, it is easier for people to be alerted to strangers as well as criminal or anti-social behaviour.

It is also important to ensure that people feel safe within their home, as the fear of crime can often be as debilitating as the actual crime itself.

An effective tool to reduce the opportunity for crime and the fear of crime is the application of design principles that make it more difficult for people to carry out criminal behaviour.



Looking out for your neighbours.

The principles of Crime Prevention Through Environmental Design (CPTED) assist architects, designers and planners to create design solutions that reduce opportunities for crime and increase people’s sense of security. CPTED principles can be applied to individual homes, communities, neighbourhoods, streets and parks to make them safer.

“Regardless of the social characteristics of inhabitants, the physical form of housing was shown to play an important role in reducing crime and in assisting residents in controlling behaviour in their housing environments.”

(Creating Defensible Space, p25).

Principles of Crime Prevention Through Environmental Design

There is an increasing number of texts dealing with Crime Prevention Through Environmental Design (CPTED) (see Useful References). Some common principles are evident from the literature. They include the following.



NATURAL ACCESS CONTROL

Prevent easy access

Criminals are more likely to look for a way into an area where they will not be easily seen. Directing access and increasing natural surveillance can assist in restricting criminal intrusion.

Natural access control can be achieved through the selective placement of pavements, fencing, lighting and landscaping to limit undesirable access and clearly guide the public to and from dwellings.



NATURAL SURVEILLANCE

Encourage eyes on the street

Criminals are less likely to act if they feel that there is a high risk of people witnessing their actions. By creating environments where there is plenty of opportunity for people to observe the space around them, there is an increased likelihood of people seeing and reporting criminal acts.

Natural surveillance can be achieved through the design and placement of physical features in order to focus activities and people in a way that maximises visibility and increases surveillance. This includes building orientation, the placement of windows, entrances and exits, walkways, landscaping and car parking spaces, and placement of rooms with views to the street (e.g. living room rather than bedrooms).



TERRITORIAL REINFORCEMENT

Creating territory and personal space

A design that clearly separates private space from semi-public and public spaces defines areas which are the exclusive domain of a particular household.

A design that clearly establishes private space can create a sense of ownership among residents, and they are more likely to challenge intruders or report them to the police.

Territorial reinforcement can be achieved through the use of elements such as buildings, fences, pavement, lighting, landscaping and signage. This defines public, semi-public and private spaces. It is important to ensure that the elements used to define space do not assist in providing a hiding place for intruders or prevent people from being able to see an intruder breaking in.



IMAGE AND MAINTENANCE

Avoid a negative image and consider long-term maintenance

Designers should consider the future and ongoing maintenance of landscaping, lighting and other features. Maintenance of these should allow for the continued use of a space for its intended purpose.

This means considering how landscaping such as shrubs and trees will affect surveillance as they grow.



TARGET HARDENING

Secure hardware and locks to restrict entrance

The aim of target hardening is to make entry more difficult and time consuming for intruders.

Target hardening can be achieved by improving security standards of doors and windows to deter thieves. Locks and security screens should be installed and the exterior door frames, hinges and locks should be of high quality. Exterior lighting, alarm systems and key control can also add to security.

When considering target hardening, it is important to ensure that emergency services can still enter the home and that residents are able to escape if necessary.

Crime Prevention Through Environmental Design as defined by Crowe (1991)

Crime Prevention Through Environmental Design is based on the premise that the proper design and effective use of the built environment can produce behavioural effects that will reduce the incidence and fear of crime, thereby improving the quality of life for its residents.

For CPTED to be successful, it should be part of a comprehensive approach to crime prevention. It should complement community policing, Neighbourhood Watch and social programs that address some of the root causes of criminal behaviour.



Residents in the community are the most likely to know what is going on in their environment and have a vested interest in ensuring their well-being within their community. Housing design plays an important role in influencing the way that communities interact.

Taking a tour of a safe and secure home

Let's take a tour of a safe and secure home, highlighting a number of important preventative measures which can be taken to minimise injury and provide a safe and secure home environment for all.

ENTERING THE HOME FROM THE STREET

Finding the address

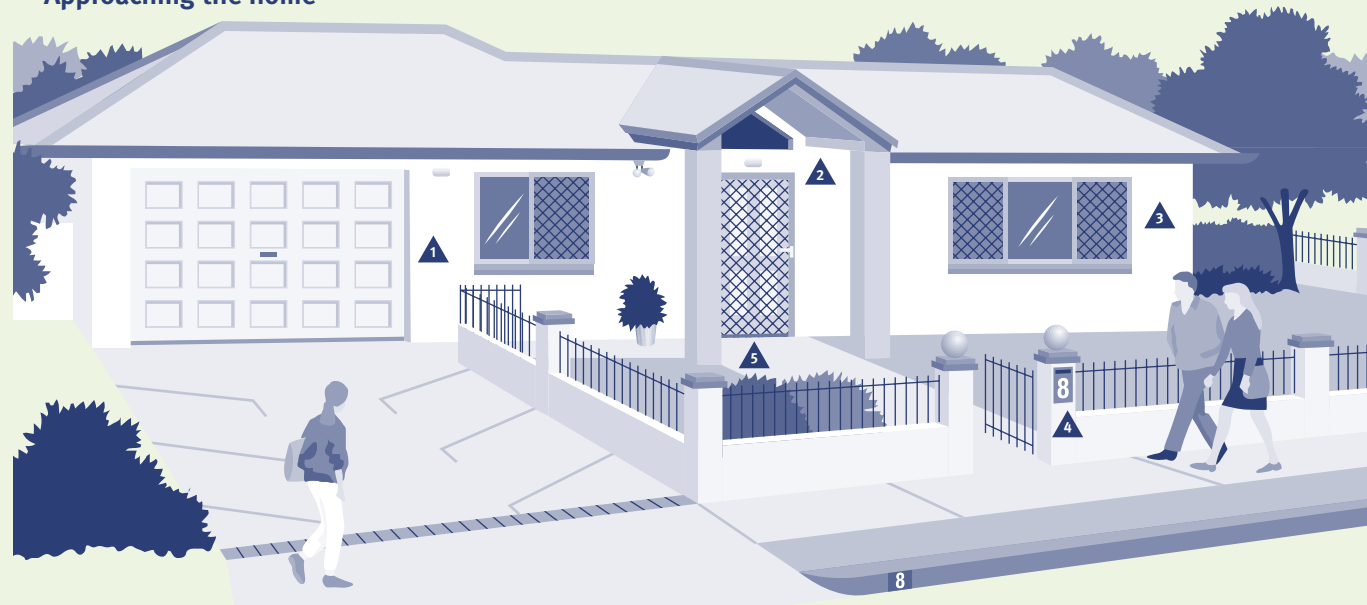
- ▲ The street number is easy to find and you can see it easily from the street by day or night. They contrast against their background, are of sufficient size (upper and lower case), with a simple style. Consider signs made of non-reflective material and consider stamping the house number into the driveway concrete or have it painted onto the kerb. This makes it easier for emergency services to find the home.
- ▲ The front door can be seen from the street.

Approaching the home from the street

- ▲ There is ample lighting with no dark or hidden areas.
- ▲ All pathways are well lit.
- ▲ The paths are wide, paved, level and not slippery. Good drainage reduces the danger of slipping.
- ▲ There are no sudden changes of level which could trip people. If there is a change in level, it is made clearly visible by contrasting colours and protected by non-slip edging.
- ▲ The front yard is organised so intruders cannot break and enter without being seen. The view of the side of the house is also maximised.

- ▲ It is obvious what is public space and what is private space.
- ▲ Property lines and private areas are defined with plants, paving, screens or fences. The front yard creates a transitional area between the street and the home.
- ▲ Visitors are directed to the proper entrance and away from private areas by walkways and landscaping.
- ▲ The garage is locked with quality keyed locks.
- ▲ Undercover parking is provided and can be reached along a continuous and even surface.

Approaching the home



- | | |
|--|-------------------------------------|
| 1 intruders can be seen | 4 large, easy to read street number |
| 2 well lit covered entrance | 5 firm even path |
| 3 view of the street from main living area | |

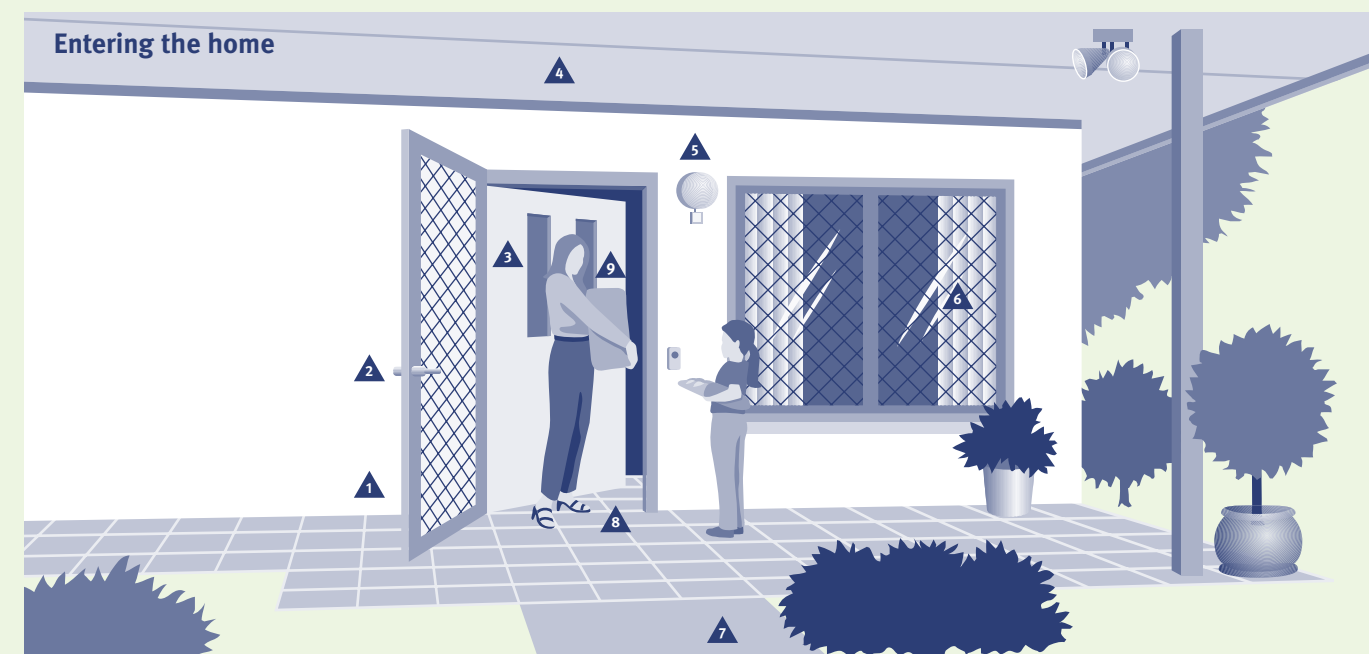
Entering the home

- ▲ The space outside the door is sheltered.
- ▲ A sensor light is positioned to illuminate the entry.
- ▲ There is a maximum of a 10mm variation on all internal and external entry thresholds (ideally it should be a level entry). If there is a change in level, it is made clearly visible by contrasting colours and protected by non-slip edging.
- ▲ There is a peephole or glass panels in the door that are positioned so that occupants can see who is outside. A well-placed window can also be used to see who is approaching the house.

- ▲ Any glass within arm's reach of the door locks, including glass panels within the door, is laminated safety glass or strengthened with security film. This will prevent an intruder smashing the adjacent window and easily reaching the door handle to open the door.
- ▲ Security screen doors with insect screens, triple locks and triple hinges are fitted so that an occupant can speak to a visitor without opening the door. These doors allow extra ventilation into the home during summer.
- ▲ The external door is of a solid-core construction with deadlocks to prevent unwanted intruders. There is a double-cylinder deadlock which requires key operation from either side of the door. The door frame is strong.

- ▲ The entry is designed so that an unwelcome visitor cannot see into the living areas of the home.
- ▲ Reduced-slip flooring inside the home minimises the risk of people being injured from falling.

Entering the home



- | | | |
|--------------------------------|--------------------------|--------------------------|
| 1 solid door frame | 4 sheltered entrance | 7 slip-resistant surface |
| 2 triple lock | 5 security sensor lights | 8 step-free threshold |
| 3 glass panels to see visitors | 6 security screens | 9 deadlock |

Taking a tour of a safe and secure home continued

Moving through the home



- 1 kitchen does not double as a passageway
- 2 easily accessible bathroom
- 3 adequate circulation space
- 4 bedside light switches

- 5 door catches
- 6 adequate storage
- 7 simple logical layout
- 8 covered outdoor area

- 9 reduced-slip floors
- 10 stepless entrances
- 11 well lit covered entrance

MOVING THROUGH THE HOME

Layout

- ▲ The layout of the furnished home is logical and easy to understand. There are no obstructions such as columns along the travel paths. There are also no head-height hazards such as the underside of a staircase.
- ▲ The telephone is positioned centrally so that it is easily accessible from all areas of the house.

Flooring

- ▲ The floor covering is non-reflective, hard-wearing and has a reduced-slip surface that minimises the risk of falls.
- ▲ The floors are level with a continuous and even surface. Paths of travel are level or ramped.
- ▲ Highly polished floors are avoided because of the risk of slipping. The floors do not look slippery. For some people, a floor that looks slippery can be psychologically just as daunting as one that is slippery.

Hallways and doors

- ▲ A person approaching each door can easily tell if it opens in or out.
- ▲ Doors are positioned to assist easy circulation and are wide enough to allow easy access.
- ▲ All doors have a stepless entrance.
- ▲ The doors have lever door handles instead of knobs. Everyone will find the door easier to open including people with dexterity problems, arthritis or the shopper carrying a bag of groceries.

The handles are at a height that everyone can reach, including children.

- ▲ All external doors have double cylinder deadlocks. This includes doors connecting to the garage in case an intruder breaks into the garage.
- ▲ External doors (hinged and sliding) are supplemented with security screens and insect screens.
- ▲ All door locks are keyed alike.
- ▲ All internal swing doors have catches and are lightweight (hollow core). This will reduce the likelihood and severity of an injury caused by a door slamming shut.

Storage

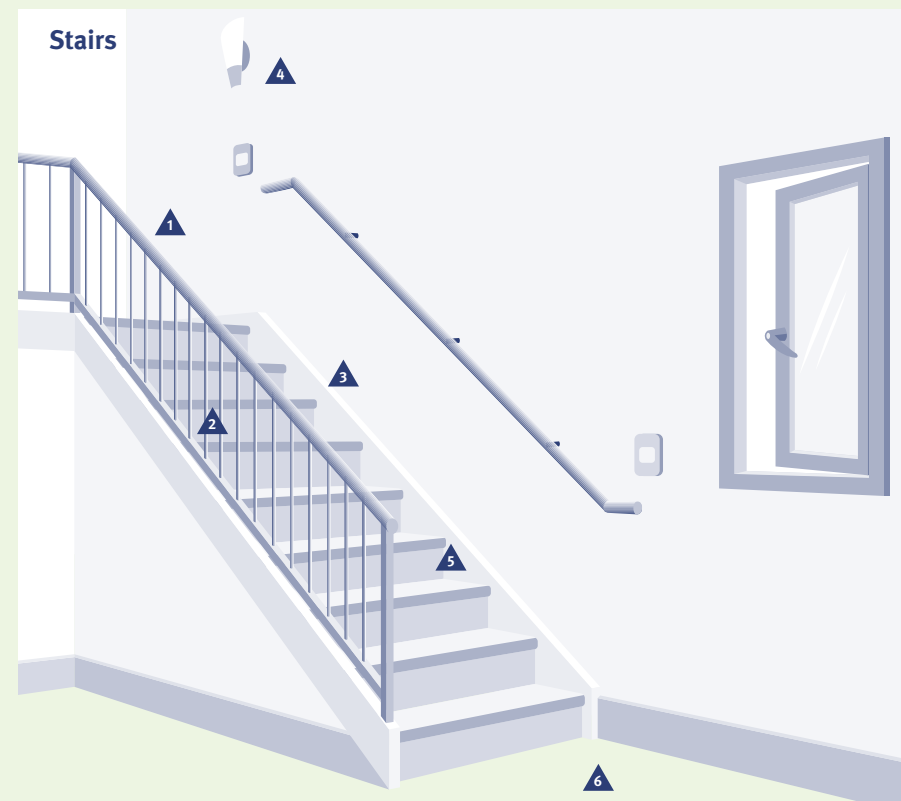
- ▲ Adequate storage is provided inside the house, including beside the back entrance door. This avoids having sports gear or baby equipment left in the passageways of the house.
- ▲ Storage cupboards have adjustable height shelving with sliding doors. No one has to climb on boxes or chairs for access.
- ▲ A light inside the storage cupboards makes storage space easier to use, and therefore safer.
- ▲ Plenty of child-proof storage space has been provided to keep children away from dangerous items such as tools, chemicals and poisons.

Taking a tour of a safe and secure home continued

Stairs

- ▲ Handrails run continuously along the full length of the staircase and around the intermediate landings, continuing beyond the first and last step. This offers support and also allows people with a visual impairment to know where the stairs start and finish.
- ▲ Handrails are non-slippery and are located on both sides of the stairs.
- ▲ Stairs have a reduced-slip surface to minimise the chance of falls.
- ▲ The edge of each stair is clearly contrasted and easy to see.
- ▲ Stairs are evenly spaced with closed risers and even treads. Winders, tapered and curved treads are dangerous as they can lead to falls. Spiral staircases can be dangerous because the width of the steps change, and can cause confusion for users.
- ▲ There are clear approach spaces at the top and bottom of the stairs. A landing half-way up the stairs is useful for older people because it allows them to rest.
- ▲ Doors do not open directly on to the stairs or swing to obstruct the stairs.

- ▲ Gaps between the balustrades below the handrail are small enough to prevent small children getting their heads caught or objects falling through.
- ▲ Handrails are high enough and the balustrade is vertical to deter a child from climbing over.
- ▲ The stairway is well lit by natural and/or artificial light, and does not cast shadows or dazzle the user.
- ▲ Lights are positioned so that people do not descend into shadows.
- ▲ Lights are controlled by a two-way switch located at the top and bottom of the stairs, so that people do not have to negotiate the stairs in the dark.
- ▲ The locations of light fittings and windows on stairs are considered carefully so that changing a bulb or cleaning the window is not a dangerous job.



- | | |
|------------------------|------------------------|
| 1 continuous handrail | 4 stairway is well lit |
| 2 vertical balustrades | 5 closed risers |
| 3 even treads | 6 clear approaches |

Living areas

- ▲ It is possible to watch out for neighbours and view public spaces from the main living areas of the home.
- ▲ Rooms are of a size and shape that when furnished, will provide space for circulation and access to each item of furniture, storage, windows and appliances. This will allow people to move around freely, with reduced risk of tripping and falling.
- ▲ The furniture is positioned to ensure direct walking routes within the rooms, with no awkward, protruding corners.

- ▲ Electrical sockets are in a logical place for appliances such as heaters or fans, so as to avoid trailing cords.
- ▲ A telephone point is provided next to a powerpoint. The telephone should be positioned centrally so that it is not necessary to run from one end of the house to the other to answer the phone.

Bedrooms

- ▲ Light switches and powerpoints have been positioned so as to be within reach of a person in bed.
- ▲ Light switches are easy to find and operate.
- ▲ There is at least one security screen per bedroom so that the room can be ventilated while remaining secure. Quality locks are fitted to all other openings.
- ▲ A telephone is also installed in the main bedroom. If someone living alone falls ill, they do not have to get out of bed to call for help.



- | | | |
|----------------------------|------------------------------|--|
| 1 level threshold | 4 view of the street | 7 large and well designed rooms allow easy circulation |
| 2 patio bolt | 5 security screen | |
| 3 double cylinder deadlock | 6 trailing cords are avoided | |

Taking a tour of a safe and secure home continued

Bathroom and toilet

- ▲ Privacy latches are used on the inside of bathroom doors instead of locks.
- ▲ The light switch is positioned near the door, preventing people from having to walk into a dark area.
- ▲ The floor covering has a reduced-slip surface, minimising the risk of falls.
- ▲ There is an even floor surface throughout, including a hobless shower.
- ▲ The entry at the door is level and smooth to reduce the chance of people tripping against the tile edge.
- ▲ There is a full-length mirror so that a child can use it as well. This helps to prevent children climbing up on furniture or fittings to see in the mirror.
- ▲ A light is positioned so that it adequately illuminates the face of a person looking in the mirror over the basin. This discourages the dangerous practice of plugging in a table lamp at the vanity unit.
- ▲ Glass near the shower or bath is toughened safety glass.
- ▲ The walls are reinforced during initial construction so that grab rails can easily be installed near the bath, shower and toilet at a later date.
- ▲ All fittings (e.g. towel rails) should be capable of supporting a person's body weight (minimum 112 kg).
- ▲ The soap holders do not protrude, so injuries to a person falling against them are avoided.
- ▲ There is adequate space for drying.
- ▲ There is sufficient space for bathing children.
- ▲ Taps are easily accessible. The hot and cold taps are clearly marked with logical arrangement i.e. cold tap on the right-hand side, clearly marked red for hot and blue for cold.
- ▲ Shower taps are situated in a convenient location and away from the water source to reduce the risk of scalding.
- ▲ The water supply is temperature controlled so that the maximum temperature at the outlet is relatively low (50°C). Consider either thermostatic mixers or tempering valves.
- ▲ There is a lockable cupboard for the safe storage of dangerous substances and medicines.
- ▲ If heaters are installed, they are positioned up high with no trailing cords.

Laundry

- ▲ The laundry is well-lit and well-ventilated.
- ▲ The storage space for bleaches and detergents is inaccessible to children.
- ▲ The floor covering is a reduced-slip surface minimising the chance of falls.
- ▲ All powerpoints are positioned away from water sources.



- | | | |
|--|------------------------------|--------------------------------|
| 1 access along full length of bath | 5 lever taps | 8 reduced-slip floor |
| 2 taps easily reached and clearly marked | 6 trailing cords are avoided | 9 level shower entry |
| 3 thermostat control on hot water | 7 lockable cupboard | 10 shower floor drains quickly |
| 4 well positioned light | | |



- | | |
|--------------------|-----------------|
| 1 reinforced walls | 3 privacy latch |
| 2 door opens out | 4 level entry |

Taking a tour of a safe and secure home continued

Kitchen

- ▲ Ensure children's play areas can be easily observed from the kitchen.
- ▲ The kitchen is not a main thoroughway. This reduces the likelihood of collisions, falls, cuts, burns and scalds. For example, a kitchen layout with an entry at each end, can be a potential risk when a hot meal is being prepared and members of the family are constantly passing through.
- ▲ The floor surface is reduced-slip, which reduces the risk of spilling hot liquids. It is also easy to clean and hard-wearing.
- ▲ There are sufficient powerpoints, avoiding the need for long trailing cords.
- ▲ All powerpoints are positioned away from water sources.
- ▲ The taps are easy to use and 'hot' and 'cold' are clearly marked.
- ▲ All worktops/kitchen benches have rounded edges. There are no sharp corners.
- ▲ The worktops are continuous, allowing for a set-down space between each appliance and the sink.
- ▲ The cooking area is not a traffic way, in an awkward corner or too far from the sink. It is not near a door because of the danger of someone colliding with the cook carrying hot food or utensils. It is not too near a window where draughts can blow out a gas flame or blow curtains against a stove.
- ▲ The cook tops are located away from corners, which allow pot handles to be swung away from the front of the bench.
- ▲ The pantry and fridge are located closest to the entry into the kitchen to avoid circulation clashes with people at the stove.



- 1 does not double as a passageway
- 2 worktops have rounded edges
- 3 hot and cold clearly marked

- 4 sufficient powerpoints
- 5 continuous worktops

- 6 storage within easy reach
- 7 no drawers near the oven or stove

- ▲ The work surface is heat-resistant and easy to clean, resistant to stains and abrasions and easy to repair.
- ▲ Kitchen drawers are located away from the stove and oven. In this way, if children use the drawers as a stepladder, they are less likely to reach the stove.
- ▲ D-shape or bow-shape handles allow people to open and close drawers easily.
- ▲ Storage and shelves are easy for people to reach and are of an adjustable height. This avoids accidents caused by people climbing on stools to reach objects in the cupboards.
- ▲ There is adequate storage space.
- ▲ There is at least one child-proof cupboard for storage of dangerous items.
- ▲ A carousel corner cupboard is useful for storing foodstuffs which are used often, and makes efficient use of an awkward space.
- ▲ Upright stoves have anti-tilt brackets or iron stove locks installed.

DECORATION, LIGHTING & CONTROLS

- ▲ Natural lighting in interiors improves the health and comfort of residents.
- ▲ Good lighting, both natural and artificial, reduces the risk of accidents such as tripping. Lighting aids orientation.
- ▲ Movement sensor lights are used externally, especially at the front door. Also known as passive infra-red (PIR) lights, they turn on automatically when a person approaches, and can deter intruders. This makes it much harder for a burglar to work unseen. It also has other benefits, such as welcoming guests to your home and avoids the problem of people having to fumble for keys on a dark night.
- ▲ The lighting is directed or diffused to avoid glare. Glare or shadows from the sun or artificial lighting can create visual illusions causing potential dangers.
- ▲ Proper lighting is particularly important for work surfaces such as kitchen benches and changes of level at entrances, paths or steps.
- ▲ Light switches are easy to find and operate.
- ▲ Lighting is arranged so that a person can safely light the way ahead. This can involve the use of two-way switches at each end of a passage, at the top and bottom of stairs, between the garage and house and between the bed and bedroom doorway.
- ▲ A light or electrical switch is within easy reach of the likely location of the bed in each bedroom.
- ▲ Smoke alarms are wired into the home and have a battery back-up.
- ▲ A residual current device is fitted to the power circuits to avoid electrocution.
- ▲ Lights are positioned so light bulbs can be changed easily.
- ▲ If the 'mains power' switch(es) are located in an external meter box then the meter box should be padlocked.
- ▲ There are sufficient powerpoints located in proximity to likely furniture arrangements.
- ▲ All powerpoints are positioned away from water sources.

Taking a tour of a safe and secure home continued

Windows

- ▲ A safe window is easy to open, close, lock and clean and is designed so that people, especially children, cannot fall out of it.
- ▲ Windows are positioned to avoid overlooking adjacent windows and private open spaces.
- ▲ To minimise the risk of injury from broken windows/glass doors, all glass below 900mm should be laminated or strengthened with security film.
- ▲ All ground-floor windows, and those that an intruder might reach from a drainpipe, adjacent roof or wheelie bin, are fitted with quality locks.
- ▲ All window locks are keyed alike.
- ▲ Windows or glass doors are secured so that they cannot be lifted from their tracks.
- ▲ Full height windows and glass sliding doors have obvious markings, such as midrails or patterns, to ensure their visibility at child and adult level.
- ▲ Avoid the use of outward opening windows (such as casement or awning windows) near walkways and paths.
- ▲ The windows on stairs are within normal reach for cleaning, reducing the risk of falls and injuries.

- ▲ Security screens and insect screens are fitted to the windows.
- ▲ There are security escape screens on windows to enable an easy escape in the event of a fire.

OUTSIDE LIVING AREA

Balcony and porch

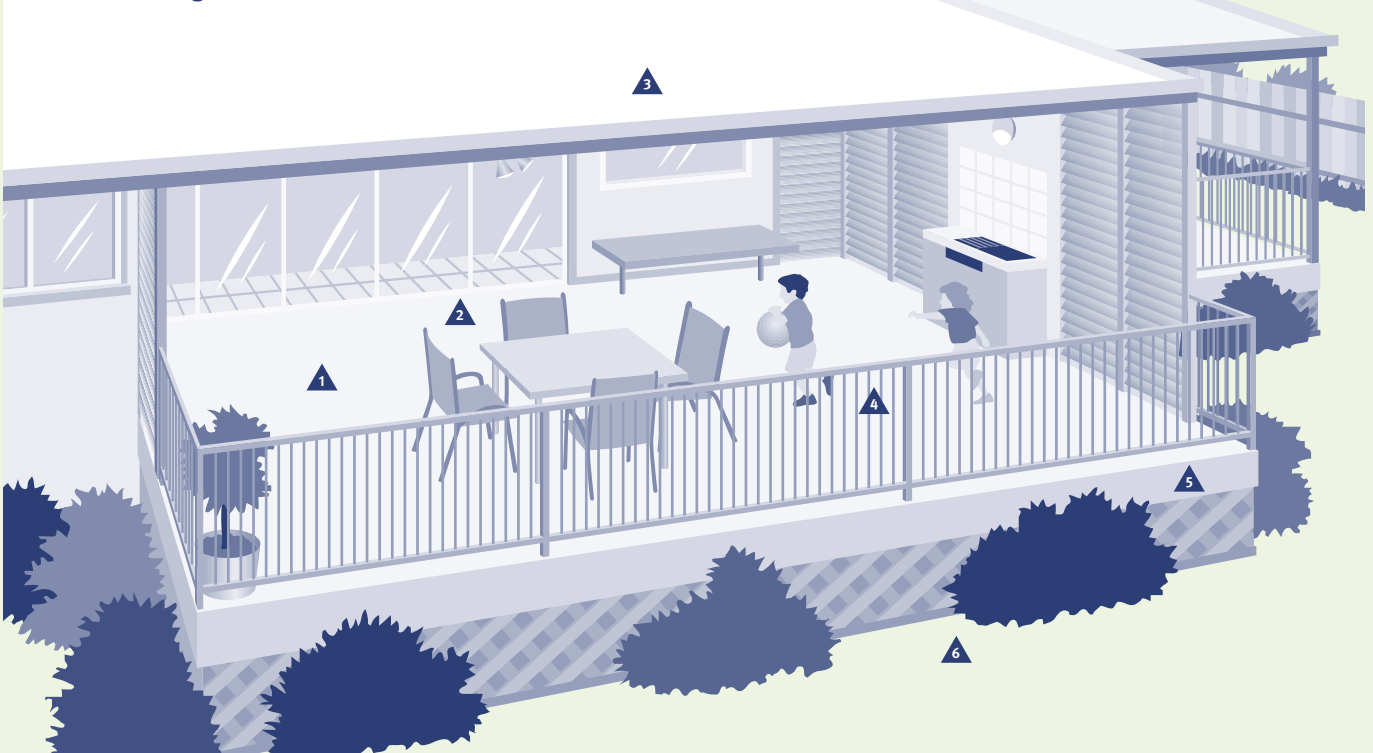
- ▲ The balcony is designed to ensure a combination of view, privacy and a sense of safety.
- ▲ The balcony offers a chance to see what is going on locally, offering natural surveillance of the neighbourhood.
- ▲ There is no step leading out from any living space to the balcony.

- ▲ The balcony has a smooth, reduced-slip surface with minimum joins. This can prevent people from tripping or slipping. Occupants are protected from any cold prevailing winds.
- ▲ There is privacy from adjacent or adjoining balconies.
- ▲ Private balconies are wide enough to comfortably accommodate any likely activities.
- ▲ Good surface drainage prevents accumulation of dirt and debris and prevents slip hazards.
- ▲ If the balcony is positioned over an area that people may access, the balustrades are designed so that loose objects (such as pot plants) cannot be placed on top.
- ▲ The balustrade is constructed to prevent small children being able to climb over.
- ▲ Gaps between the balustrade, below the handrail are small enough to prevent children getting their heads caught or objects from falling through.
- ▲ The outdoor living area is shaded from the sun.

Gardens and yards

- ▲ There are no poisonous plants in the garden. Avoid growing plants that cause allergies. Check with the local nursery landscaping supplier for advice.
- ▲ Shady trees are planted in the garden for protection from the sun.
- ▲ Garden beds, loose gravel and landscaping structures are strategically placed to discourage people from going too close to potential hazards, including ponds, water gardens and gully traps.
- ▲ Landscaping that can conceal intruders has been avoided. It is properly maintained and provides maximum viewing to and from the house.
- ▲ Plants which drop leaves, flowers, bark, sap etc. or have overhanging branches are planted away from paths so that they do not create hazards.
- ▲ Thorny plants are placed near openings, such as windows, but away from areas where children may play.
- ▲ Consider the ongoing maintenance of landscaping, lighting and other features in order to reduce future problems.
- ▲ Fencing is difficult to climb and provides a high degree of visibility into the property. It should be at least 60% permeable.
- ▲ Fences, screens and structures do not become ladders providing access to upper levels.
- ▲ The driveways are separated from the children's play areas to reduce the risk of them having an accident involving a vehicle.
- ▲ There is a lockable storage area for garden tools and chemicals. This limits children's access to dangerous garden tools and poisons, as well as reducing the likelihood of tools being used by intruders to break into the home.
- ▲ In yards with a pool, good well-maintained pool fencing is legally required. All garden gates are self-latching and self-closing.
- ▲ Play areas and outdoor entertainment areas are covered with effective sun-shade structures: houses should have at least 12m² of coverage and units should have at least 10m² of coverage. Ideally, both houses and units would have 50% coverage of the outside living area.
- ▲ All paths are wide (1200mm) and surfaces are even, firm and non-slippery. Consider a small raised lip along the edge to minimise the risk of wheels (such as those on prams or bicycles) rolling over the edge.

Outdoor living areas



- 1 smooth reduced-slip surface
- 2 step-free entrance
- 3 covered outdoor play area
- 4 balustrades are difficult to climb
- 5 good surface drainage
- 6 no poisonous plants

Smart Housing frequently asked questions

Does Smart Housing cost more?



Designing and building a home with Smart Housing features may cost no more than building a conventional home. Well-planned designs can incorporate durable, reliable and economic materials.

Smart Housing's cost-efficiencies mean value in housing. This is measured both in the initial construction costs and in the cost-benefit over the life of the home. For example, the installation of security features can reduce house and contents insurance premiums. Specific design features and fittings may reduce the incident of injuries in the home, thereby saving on future medical expenses, hospital bills, lost wages and repair costs. Information on ways that Smart Housing can actually save you money is outlined in the third booklet of the Smart Housing series, entitled 'Cost-efficiency'.

Will people want to buy a Smart House?



Flexible, user-friendly designed houses meet the needs of more people and therefore a larger number of people will want to buy and live in these houses.

A Smart House incorporates design features that offer safety and security, making it more desirable to consumers and a better investment in the long-term. Incorporating practical design features and features that secure your home against intruders and ensure your family remains safe from injury and accidents will give you and future owners peace of mind.

This makes Smart Housing a smart choice for both home owners and investment buyers.

Does Smart Housing look boring, predictable, weird?



Smart Housing is good design. It is about the principles and good ideas that, if considered at the design stage, can be readily included into any home. Often, you won't even know they are there but the home will be easier to move through, cheaper to maintain and easier on our environment. Consider reinforced bathroom walls as an example. Cheap and easy to install during construction, you will only know it is there if you or a family member require grab-rails at some point in the future.

An example of Smart Housing was the Endeavour Prize Home in the Samford Valley near Brisbane which was open to the public during February 2003.

The Prize Home showcased many of the benefits of Smart Housing – increased liveability, comfort and peace of mind; lower expenses and maintenance costs; the option of being able to stay in your home longer; and helping the environment. This house was a good example of how Smart Housing design principles can be incorporated within a dwelling without compromising the visual appeal of the home.

Many builders are already including features such as step-free showers as standard because more and more of their customers realise the benefits of Smart Housing.

More information and useful references

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Web sites

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City of Fort Wayne, Indiana Planning Department
www.cityoffortwayne.org/planning/lummain/cpted.htm

Crime Prevention Through Environmental Design www.cpted.org

Queensland Department of Housing, Smart Housing www.smarthousing.qld.gov.au

International Crime Prevention Through Environmental Design Association www.cpted.net

South Australian Crime Prevention Projects www.cpu.sa.gov.au/sa_cpted.htm